FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Feed the Future Nepal Integrated Pest Management

Year 2, Quarter I (October-December 2020)

Submitted to

United States Agency for International Development (USAID)

USAID FROM THE AMERICAN PEOPLE

VIRGINIA TECH

Table of Contents

Abbreviations and Acronyms

AOR	Agreement Officer's Representative
AVMIPMIL	Asian Vegetable and Mango Integrated Pest Management Innovation Lab
CBA	Cost-Benefit Analysis
CDCS	Country Development Cooperation Strategy
CIMMYT	International Center for Maize and Wheat Improvement
CLA	Collaborate, Learn, and Adapt
CCDABC	Centre for Crop Development and Agro Biodiversity Conservation
COVID	Corona Virus Disease
CPA	Commercial Pocket Approaches
CSISA	Cereal Systems Initiative for South Asia
DOA	Department of Agriculture
DCC	District Coordination Committee
ED	Executive Director
F2F	Farmer to Farmer
FAW	Fall Armyworm
FTF	Feed the Future
FTFNIPM	Feed the Future Nepal Integrated Pest Management
GESI	Gender Equality and Social Inclusion
GON	Government of Nepal
iDE	International Development Enterprises
INGOs	International Non-Governmental Organization
IPM	Integrated Pest Management
IP	Implementing Project
IPM IL	Integrated Pest Management Innovation Lab
IR	Intermediate Result
KISAN	Knowledge-Based Integrated Sustainable Agriculture Development
MEL	Monitoring, Evaluation and Learning
M&E	Monitoring and Evaluation
MELP	Monitoring, Evaluation and Learning Plan
MOALD	Ministry of Agriculture and Livestock Development
NARC	Nepal Agricultural Research Council
NERC	National Entomology Research Center
NGO	Non-Governmental Organization
NMRP	National Maize Research Program
NPV	Nuclear Polyhedrosis Virus
NSAF	National Seed and Fertilizer
ODK	Open Data Kit
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PQPMC	Plant Quarantine and Pesticide Management Center
PSE	Private Sector Engagement
SABAL	Sustainable Action for Resilience and Food Security
TOT	Training for Trainers
USAID	United States Agency for International Development
USGFSS	U.S. Government Global Food Security Strategy

ZOI	Zone of Influence

Executive Summary

This report covers the progress made so far during Year II, Quarter I (October-December 2020). This quarter has been greatly affected by the COVID-19 pandemic and we were not able to implement planned activities in the field. We mostly focused on coordination with government stakeholders, FTF IPs, revision of workplan, DIS system, and others. Even under these conditions, FTFNIPM has been able to complete some of the activities using virtual media during this quarter.

FTF joint steering committee meeting: FTFNIPM participated in the FTF joint steering committee meeting, which was organized by FTF partners on 17th December 2020. The meeting suggested FTFNIPM to follow the Nepali fiscal year while developing a workplan and implementing those activities, and to have meetings with government stakeholders without forming any subcommittees.

Conducted Winter Maize IPM Package Webinar: On November 5, 2020, FTFNIPM organized a webinar on winter maize IPM jointly with PQPMC, Crops Division of DOA, National Maize Research Program, Rampur, and FTF Nepal Seed and Fertilizer (NSAF) project with resource persons from VT.

Demonstration on maize/rice/lentil/vegetables (cucurbits, tomatoes, cole crops) packages: The Center and Field team of FTFNIPM has developed and finalized protocol of lentil, winter maize, and cole crop (Cauliflower) for the demonstration cum trial. The final protocol is being circulated to the FTF field team for field implementation in FTF ZOI. The close coordination and support from FTF partners have supported FTFNIPM to select the demonstration trials in the field.

Collaboration with the FAO's TCP/PQPMC and other stakeholders: During this quarter, FTFNIPM collaborated with the FAO TCP/RAS/3707, implemented through PQPMC. For this, PQPMC called the meeting on November 13, 2020, to discuss the FAW status updates and possible areas of collaboration with different USAID projects working in Nepal. During the event, 6 participants participated from PQPMC, NERC/NARC, FAO, and FTFNIPM.

IPM adoption survey, IPM cost-benefit analysis, and IPM decision tool: During this quarter, the IPM adoption survey questionnaire was finalized and districts, municipalities, and wards were selected for the survey. Work continued on the cost-benefit analysis of IPM technologies, and interviews of IPM experts, farmers, and other stakeholders were completed to provide background information for the design of the IPM decision-making tool.

Major Activities Accomplished

Project Tasks and Activities

Task 1: Review of Workplan by the FTF project Joint Steering committee

Activity 1 – YR1 status updated and YR2 workplan shared in the FTF Project Steering Committee meeting:

The 5th USAID FTF project "Joint National Steering Committee" (JNSC) meeting was held virtually on Thursday, December 17, 2020, which was coordinated and organized by the KISAN-2 project. This was the first participation of FTFNIPM in the JNSC meeting. The meeting was chaired by Agriculture Secretary Dr. Yogendra Karki and was attended by Joint Secretary Dr. Hari KC and Director-General from Agriculture and Livestock Development, senior officials from MOALD, and other government stakeholders, along with Navin Hada from USAID and Feed the Future Implementing partners (IPs) - K-2, NSAF, and FTFNIPM project.

In the meeting, we presented the overview of the FTFNIPM project and also shared the present status of YR1 and Workplan for YR2 of the project. The following two decisions related to the project were made in the meeting:

1. NSAF and FTFNIPM to follow the Nepali fiscal year citing the reference of KISAN II for program planning and progress reporting.
2. Discussed the proposition of FTFNIPM to form a Technical Committee (TC) to link technical aspects of the project with relevant stakeholders and discuss technical issues observed during project implementation. Since there is no mention of TC formation in the cooperative agreement document, it was also suggested to undertake further discussion between the project and MOALD officials on this matter and take appropriate decisions on TC formation following the regular process.

As suggested in the meeting, we will follow the Nepali fiscal year calendar (July to June) for reporting the project status and workplan to the JNSC. Regarding coordination and collaboration with key government stakeholders, we are working very closely and have a strong linkage with Plant Quarantine and Pesticide Management Center (PQPMC), Center for Crop Development and Agriculture Biodiversity Conservation (CCDABC), and the High-level FAW task force committee at the Ministry level. We will continue our coordination with the PQPMC including FAO-TCP project and CCDABC and others for the promotion and scaling the recommended IPM technology and practices in the FTF ZOI districts.

YR2 Workplan response to USAID comments: In this quarter, Navin Hada, Acting AOR for FTFNIPM, provided valuable comments on the FTFNIPM second-year workplan that made the whole team rethink and adjust the activities and implementation. To make necessary

changes, we did organize an internal zoom meeting with the Nepal team to discuss and draft our Nepal team's response to USAID comments and sent it to Dr. Muniappan for review, finalization, and submission to Navin Hada. Response to the queries are in Annex 1.

Objective 1. Make the Business Case for IPM Practices in FTF Focus Value Chains

Task 1: Conduct cost-benefit and impact analysis of IPM to demonstrate the financial and economic performance of IPM practices compared to conventional pest management practices, considering factors that may be unique to women, youth, and marginalized groups.

The proposed farmer survey (400 farmers) to assess IPM adoption to date on the targeted crops that were planted last year is now planned for Year 2 Spring (by end of March). FTFNIPM team, with the support of a master's student at Virginia Tech, finalized the draft questionnaire addressing objectives of the study. The FTFNIPM team collected information on districts and municipalities to assist in farm-household selection for the survey. The team has sampled districts, municipalities, and wards using a scientific sampling process. FTFNIPM team is now ready to select the enumerators for the survey. The enumerators will be selected from the same localities where the survey will be conducted as they are familiar with the location, speak the local language, and have an agricultural background. Due to COVID, the team is planning to conduct orientation of the enumerators on survey questionnaires and tablet data entry through Zoom. Interviews with farmers during pilot testing of the questionnaires and during the survey implementation itself (400 farmers) will be face to face (socially-distanced).

Activity 3 – Economic benefits and costs for IPM adoption will be estimated for aggregate and vulnerable groups. IPM adoption surveys from Activity 2 will be integrated with the IPM budgets from Activity 1 in a cost-benefit analysis of IPM by crop.

Virginia Tech (VT) team is assessing the economic benefits and costs of the IPM-IL verified technologies and their adoption. Farm incomes of IPM adopting households are being compared to incomes of non-adopting households.

VT and iDE are also assessing the economic impacts of IPM-IL technologies utilizing data from existing end-line surveys for projects that employed a Commercial Pocket Approach CPA with IPM. They are comparing adoption of IPM technologies for project and control HHs, and comparing returns for project households with returns from households not using IPM IL technologies.

Task 2: Develop a financial model (decision-making tool) that can be applied by farmers and is tailored to commercial and smallholder farmers, while addressing the unique constraints and circumstances of women, youth, and marginalized groups.

Activity 1 – Design a decision-making tool that can be operated by farmers or agro-vets on a smartphone, when available, or by filling in blanks in a small booklet to help participants decide if it makes financial sense to apply specific IPM practices from developed IPM packages on their crop plot. This decision-making tool will be tested and refined before widespread dissemination. This activity was delayed due to the COVID-19 situation. In August 2020, a team comprised of Mr. Ashta Prajapati (Supply Chain Coordinator), Mr. Rabindra K. Karki (Coordinator-Water Resource and Engineering), and Mr. Arun Limbu (M&E Coordinator), began a Human-Centered Design (HCD) Deep Dive Study to develop a decision-making tool that can be adopted by project-targeted beneficiaries when choosing appropriate IPM tools and techniques.

The HCD process team completed the following activities this quarter:

Stakeholder Mapping: Key stakeholders and other direct stakeholders were identified, as well as local, national, and international community members influencing those stakeholders. Smallholder farmers are the key stakeholders and Community Business Facilitators (CBF)/Plant Doctors and local agro-vets are other direct stakeholders for the decision-making tool.

Desk Research Review: The team completed desk research on the HCD process to better understand what people are currently using as IPM tools to eliminate or minimize risks caused by diseases, pests, and insects, what is working, and what is not working. The research review helped to narrow down how we further process and proceed in expert and user interviews.

Expert Interview: The team has completed some of the expert interviews on various aspects of IPM implementation (i.e. promotional materials, current productivity, existing IPM tools and practices employed, embedded services, and IPM training). Due to the pandemic, the team utilized virtual/telephonic conversations for the expert interviews.

Questionnaire guide for stakeholders: After the expert interviews, the team developed a qualitative questionnaire for obtaining information from the key stakeholders (i.e. smallholder farmers, Government stakeholders, NGO/INGOs, and Agro-vets).

Interviews: The team selected farmers and other stakeholders from Lalitpur and completed in-person interviews. A few farmers from Banke and Surkhet had telephone interviews due to COVID-19. Twenty interviews were conducted using a paper-based questionnaire and a database of responses were constructed. Further synthesis and analysis of the survey will be completed by the first month of the second quarter and a draft prototype of the decision tool will be developed and tested in the second quarter.

Task 4: Disseminate results of analyses through the media to farmers and others.

Activity 1: Work with partners to reach as many farmers, agro-vets, and other networks and organizations to spread information through a variety of media on the benefits of IPM practices and packages for the target crops.

Dissemination of Group Text SMS messages during COVID -19 pandemic:

The COVID-19 pandemic and the GON's response to prevent the spread of the virus has prevented farmers from accessing critical pest management supplies and information. In response, FTFNIPM is mobilizing existing tools to disseminate bulk SMS messages on the current COVID-19 situation. During this quarter, there were 13 different IPM recommended Nepali text messages delivered to 5,292 people from FTF IPs technical staff, CBF Plant doctors, Agro-vets, Cooperatives and some technical professionals from the districts. This kind of information is helpful for farmers, FTF value chain project staff, and other stakeholders. In this quarter, FTFNIPM provided information on lentil, cauliflower, and winter maize IPM.

Objective 2. Institutionalize and Inclusively Scale IPM Packages for FTF Focus Value Chains

Task 1: Support the FAW taskforce.
Activity 1 – The existing FAW Taskforce Committee under the chairmanship of the Secretary of the Ministry of Agriculture and Livestock Development (Chair) will meet once every three months to review progress made and future actions to be taken to manage FAW in Nepal. FTFNIPM will coordinate with and provide support for this Committee.

During this quarter, the existing FAW taskforce committee meeting has not been accomplished as GoN has appointed a new secretary, Dr. Yogendra Kumar Karki. In the current ongoing COVID pandemic, we are unable to have the in-person meeting. We are coordinating with the Chairperson of the Technical Committee,e Dr. Hari Bahadur KC (Joint Secretary and planning chief), to organize the High-level FAW committee meeting in the next Quarter.

Task 2: *FAW egg parasitoids and rearing:* Survey and identify local natural enemies of FAW in Nepal, evaluate their efficacy, and initiate and nurture mass rearing of local FAW egg parasitoids *Trichogramma* sp. and *Telenomus* sp. at the NARC Entomology Laboratory at Kathmandu and National Maize Research Program at Rampur.

Activity 1 – FAW egg parasitoids and rearing: Local natural enemies of FAW identified in Nepal will be evaluated for their efficacy, and mass rearing of FAW egg parasitoids *Trichogramma* sp. and *Telenomus remus* at the NARC Entomology Laboratory at Kathmandu and National Maize Research Program at Rampur continued. Currently, *Trichogramma chilonis* is reared in the NARC laboratories. By May-June 2021, the middle of summer maize season, *Telenomus remus* culture will be established.

During this quarter, FTFNIPM is in regular communication with the National Entomology Research Center (NERC), Khumaltar and National maize research Program (NMRP), Rampur, Chitwan. Currently, both stations have a well-established mass rearing of *Trichogramma chilonis*. The field level efficacy test for the parasitoids has been ongoing at the Rampur NMRP field sites. Similarly, the mass rearing of *Trichogramma chilonis* is reared on the FAW eggs and on the

Corcyra moth eggs are being reared and maintained at both the NERC Khumaltar and NMRP, Rampur lab. Similarly, the scientists from both NMRP and NERC are surveying fields for the presence of new parasitoids.

Activity 2 – Field release and testing: On-farm field trials will be conducted at Kathmandu and Rampur in the summer by releasing a) *Trichogramma* sp. alone, b) *Telenomus* sp. alone, c) *Trichogramma* sp. and *Telenomus* sp. and d) control with three replications. FAW pheromone traps will be set up in the fields when maize is sown. These trials will be conducted in summer 2021 coinciding with the summer maize season.

On farm release and testing for efficacy of *Trichogramma chilonis* has been done for winter maize plots through the NMRP/NARC, Rampur. Further field release and testing has been planned for the spring maize crops and also further verification will be needed at Lab conditions too. In both the Labs, tricho-cards have been developed for field release. A further test on the efficacy of *Trichogramma* on the field release will be done in next quarter. Similarly, NMRP, Rampur is ready to distribute the tricho-cards for private sector actors to establish the mass-rearing of the parasitoids.

Efficacy testing of FAW Lures/Pesticide in infested districts in coordination with Entomology division Khumaltar and NMRP Rampur

National Maize Research Program, Rampur has evaluated FAW lures developed by different companies (PCI Company, Russel IPM, Innovac and Phero bank) to assess their moth-catching efficacy. We have not been satisfied with the lures; so far, they are not working properly in catching the adult FAW moths, as other Lepidopteron moths were attracted along with FAW moths as well. We are looking at the effective lures from other companies like (Pheromone Company, Russell IPM and others). From different lures tested at the field level, PCI lures comparatively catch more FAW moths than the other lures. The Russell IPM lures caught a mix of moths. Very few numbers of FAW adult moths have been captured with other lures installed in the fields. This might be due to the low temperature, which reduces moth populations. Additionally, several strains of FAW are known to occur in Africa and Asia and this may be causing differences in moth catches by pheromones produced by different companies.

Activity 3 – Additional surveys in high- and mid-hills and Terai will be conducted to identify locally recruited natural enemies of FAW in Nepal. Collected natural enemies will be identified and their efficacy assessed. These surveys will be conducted in summer 2021, coinciding with the summer maize season.

Task 3. Identify, organize, and implement FAW parasitoid rearing facilities in the ZOI (Planned to implement in Year 3).

Activity 1 – The parasitoids *Trichogramma chilonis* and *Telenomus remus* not only parasitize eggs of FAW but also attack eggs of rice stem borer, paddy swarming caterpillar (*Spodoptera*

mauritia), maize stem borer (*Chilo partellus*), taro caterpillar (*Spodoptera litura*), tomato fruit worm *(Helicoverpa armigera*), and other caterpillar pests. FTFNIPM will approach cooperative farmers and managers of rice mills, maize seed producing companies, poultry feed producing companies, and administrators of the four provincial governments in the ZOI for the establishment of FAW parasitoid rearing facilities within their premises. Additionally, an FAO representative in Nepal has indicated his willingness to collaborate with FTFNIPM and to set up FAW parasitoid rearing facilities in its laboratories in the provinces. FTFNIPM will assist all of them in setting up the labs and production and release of parasitoids. FTFNIPM seeks opportunities to support existing (or establish new) associations or organizations. Specific attention will be paid to involve women, youth, and individuals from disadvantaged groups in the above activities, ensuring that they are able to benefit from their participation.

Training for scientists and technicians from the provincial labs, universities, cooperatives, and private companies on parasitoid rearing will be conducted in early 2021 (hopefully COVID pandemic will be subsided). By summer 2021, we will have identified collaborating labs and institutions for parasitoid rearing and a couple of parasitoid labs will be operational in the FTF region.

FTFNIPM project has been communicating with the PQPMC and FAO to organize the training on the mass rearing and release of the parasitoids jointly. For this, NERC, Khumaltar lab will assist in facilitating practical hands on training. We agreed to have this training for the provincial level labs people and the participants from universities, cooperatives, and private companies in the next quarter if the current pandemic situation normalizes.

Activity 2 – FTFNIPM will contact private entrepreneurs interested in the production and sale of parasitoids and assist them in setting up the labs, production, and sale. By summer 2021, we will have identified collaborating labs and institutions for parasitoid rearing and a couple of parasitoid labs will be operational in the FTF region.

During this quarter, FTFNIPM has been communicating with the FTF IPs for the selection of the private sector entrepreneurs who are interested in mass production of the parasitoids. We are communicating with the PQPMC for jointly organizing parasitoid training with the technical support from NERC, Khumaltar and NMRP, Rampur Labs. This training will be facilitated by two NARC scientists and one FTFNIPM technical specialist will also participate in this training. The training will be organized in the next Quarter (January-March, 2021) of the YR2 plan.

Task 6: Implement IPM packages and technologies currently available for vegetable, maize, rice, and lentil crops and validate and scale up in collaboration with KISAN II, CSISA, NSAF, and Farmer-to-Farmer programs in the ZOI.

Activity 1 – Adoption of vegetable IPM packages will be scaled up in the ZOI in collaboration with KISAN II.

The published IPM packages and leaflet documents have been shared with the FTF IPS for scaling-up technologies. During this quarter, lentil and winter maize and cauliflower protocols have been shared with the respective district staff of the FTF value chain projects.

Activity 2 – The IPM packages for maize, rice, and lentil will be validated by conducting strategically placed side-by-side demonstrations in the ZOI in collaboration with KISAN II, CSISA, NSAF, and Farmer-to-Farmer programs.

During this quarter the field demonstrations cum validations trials has been established for lentil and winter maize IPM packages with the collaboration of FTF IPs (KISAN II, NSAF, and AVMIPMIL projects. The details on the demonstrations have been given below.

Demonstration on Maize/Rice/Lentil/Vegetables (Cucurbits, Tomatoes, Cole crops) packages

For the demonstration cum trial of lentil, winter maize, and cole crop (cauliflower) in the field, the field team with the support from the center prepared and finalized protocols of these crops. The final protocols are being circulated to the FTF field team for field implementation in FTF ZOI. There is close coordination and consultation with the FTF IPs team for districts, sites, and farmers' selection. For lentil crop, four demo/trial sites in Banke (2 demo/trial sites), Bardiya and Dang districts, and 3 farmers in each site have been selected. Farmers sowed lentil seeds in November. Seeds were treated with *Trichoderma* before sowing.

After the selection of farmers, we shared the protocol of lentil IPM package with the concerned field staff of FTF IPs for the purpose of common understanding, and technical guidance for field implementation. The farmers who are involved in the validation trials are affiliated in the group. Among them, 1-3 farmers (among 15-25 members) have been selected for demonstration program in one site. In discussion within the executive committee of the group during meeting, they have nominated those farmers for the validation trials for lentils. Altogether 12 (6M/6F) participated in the demonstration; among them, 7 belong to Janajati and 5 from other ethnicities.

The sites and the name of farmers for lentil IPM package demo cum trial are listed as following:

Crops	Districts	Collaborating IPs	Nominated farmers for the Demonstrations
Lentil	Banke	NSAF	1. Uma Tharu 2. Devi Acharya 3. Sumitra Gharti Buda
	Banke	AVIPMIL	1. Dil Bahadur Budathoki 2. Laxmi Singh Thakuri

			3. Indra Jit Tharu
	Bardiya	KISAN II	1. Rekha Chaudhary 2. Mohan Mudwari 3. Durga Tharu
	Dang	KISAN II	1. Sita Chaudhary 2. Thunilal Chaudhary 3. Madan Bhusal

IPM Package trial/demonstration on winter maize and cauliflower

We are regularly coordinating with FTF IPs for conducting IPM package demonstration cum trials on winter maize and cauliflower. In consultation with FTF IPs, we have conducted the winter maize demo cum trial in the following 2 districts (Banke and Makwanpur) and we are planning more for the spring season maize demo cum trial. It was discussed within group members on farmer selection in a demo program. There are a total of 18 (7M/11F) participants; among them, 5 are from Janajati ethnicity and 13 are from other ethnicities.

Below is the list of districts and farmers selected for maize and cauliflower IPM package demonstrations.

Crops	Districts	Collaborating IPs	Nominated farmers for the Demonstrations
Winter maize	Makawanpur	KISAN II	1. Laxmi Bartola 2. Saraswoti Kharel 3. Gyanu Puri
	Banke	AVIPMIL	1. Laxya Khadka 2. Jaya Narayan Tharu 3. Ganesh Adhikari
For late-season cauliflower demonstration, the following districts and farmers have been selected. Cauliflower seedlings have been transplanted in the field.			
Cauliflower	Dailekh	KISAN II	1. Kalpana Bhandari 2. Dhana Thapa 3. Ratna Thapa
	Surkhet	KISAN II	1. Sita Shahi 2. Singh Bir Khatri

			3. Panchkali Gharti
	Bardiya	KISAN II	1. Santoshi Tharu 2. Santosh Tharu 3. Hari Prasad Chaudhary
	Banke	AVIPMIL	1. Mr. Tek Raj Tharu 2. Mona Rokaya 3. Sita Chalaune

Crop status

The Maize that was sown in November 2020 is in good condition and the team advised to take up weeding. Cauliflower seedlings were transplanted in the field in December 2020. Based on need, different IPM tools have been installed in the demonstration field plots in all districts.

Objective 3. Create an Enabling Environment for the Safe and Effective Management of Existing and Emerging Threats to Plant Health Strengthened

Task 1: Provide inclusive capacity-building support to public and private institutions and stakeholders who develop IPM markets and engage in pest management.

Activity 1 – FTFNIPM will focus on capacity building by training FTF IPs and government stakeholders at the provincial and local municipality levels. The training will be focused on the FTF major vegetable crops (tomato, cucurbit, and cole crops), maize, rice, and lentil. The events will cover major problems like *Tuta absoluta*, FAW, locust, and others. Farmer field days organized in collaboration with KISAN II and NSAF by the end of last quarter. FTFNIPM will continue promoting IPM recommendations through SMS, Facebook page, and other areas. Regular field visits by the FTFNIPM, representatives from PQPMC, and NARC team during major cropping season will be organized to provide technical backstopping, monitoring of field situation, and program supervision and follow-up. Parasitoid rearing for FAW management will be continued. If the COVID-19 situation continues and does not normalize, the training will be conducted virtually.

Conducted Winter Maize IPM Package Webinar

On November 5, 2020, Thursday, FTFNIPM organized a webinar on winter maize IPM which was jointly organized with PQPMC, Crop Division of DOA, National Maize Research Program Rampur, and FTF Nepal Seed and Fertilizer (NSAF) project with resource persons from VT. 111 participants (M/F: 86/25) from FTF project staff, Government officials and others attended this webinar. There were four resource persons – Dr. Rangaswamy Muniappan, Dr. Anamika Sharma from VA Tech and Dr. Abdu Rahman Beshir, NSAF Nepal, and Dr. Prasanna Boddupalli

from CIMMYT. Ms. Sabnam Shivakoti, Provincial Agriculture secretary from Karnali Pradesh, and Dr. Yubak GC from FAO Bangkok also joined this webinar. Dr. Yubak gave his remarks at the event. Dr. Ram Krishna Shrestha from Crop development/DOA also passed his remarks in the webinar. The event was closed with a vote of thanks by Mr. Sahadev Prasad Humagain, Chief, PQPMC, Harihar Bhawan, Lalitpur.

Activity 2 – FTFNIPM will collaborate with the FAO-funded project of PQPMC in the management of FAW in Nepal.

Collaboration with the FAO's TCP/PQPMC and other Stakeholders

During the quarter, FTFNIPM collaborated with the FAO TCP/RAS/3707 implemented through PQPMC. PQPMC called the meeting on November 13, 2020 to discuss the FAW status updates and possible areas of collaborations with different USAID's projects working in Nepal. During the event, 6 participants participated from PQPMC, NERC/NARC, FAO, and FTFNIPM. The major discussions and decisions made from the meeting have been summarized below:

1. For the distribution of trap/lure of FAW, taking winter maize cultivation into consideration, three sets of traps/lures will be made available in province 2 and one set of trap/lure will be made available to National Entomology Research Center (NERC), FTFNIPM/iDE Nepal, and NSAF/CIMMYT. Also, a decision of implementing compulsory data collection, recording, and transferring was made.
2. Correspondence will be sent to the province, district, research, and development partner organizations to regularly report activities regarding the FAW to NPPO/PQPMC.
3. To strengthen biopesticides production and establish mass production of parasitoids in the provincial Lab, there was a decision to organize the productions and release of *Trichogramma* training (3 days) in joint collaboration with the FTFNIPM/NERC, Khumaltar. For this course schedule and the gross expense/cost, the estimate will be done by Ajay Shree Ratna Bajracharya, Sr. Scientist of NERC/NARC, Khumaltar. After this training, follow-up training for 2-3 days at respective provincial laboratories will be conducted.
4. To estimate yield loss in winter maize, information along with format will be sent to the knowledge center (AKC), Directorate, and development partners in provinces.

Gender Equality and Social Inclusion (GESI)

Activity 1 – Identify Priorities and Concerns of Women, Men, Youth, and Marginalized Groups

During this quarter, GESI Specialist hiring process was completed after interviewing six candidates using virtual methods. During the hiring process, 11 potential candidates were shortlisted, and based on written tests six candidates were selected for the interview process.

The FTFNIPM has formed an interview committee with Country Director, Admin & Finance Director, COP/ Program Director from iDE, Nepal and Daniel Sumner (GESI Expert) from Virginia Tech. After a series of evaluation and reference checks, Ms. Soma Kumari Rana was selected as a GESI specialist. Ms. Rana joined the FTFNIPM on 16 December 2020.

FTFNIPM will continue to adhere to the stated priorities of its GESI Approach as outlined in the Cooperative Agreement. These principles and strategies/approaches already developed by the IPM IL and FTFNIPM implementing partners will guide the implementation of activities.

Task 1: GESI analysis data collection, data analysis, and report writing will be completed by the first quarter of Year 2. The ongoing effects of the COVID-19 pandemic in the United States and Nepal have delayed data collection activities. Initial findings and recommendations have been prepared, but are still being compiled. The GESI findings and recommendations will be shared with GON and FTF IPs through report sharing and by organizing a workshop or virtual event in the 2nd Quarter of Year 2. FTFNIPM GESI team will provide inputs and support to include GESI analysis findings and recommendations in KISAN II's and NSAF's GESI action plans. FTFNIPM will support FTF IPs in implementing these action plans in the field. Similarly, the FTFNIPM GESI team will organize capacity building training on GESI components together with GESI specialists of IPs to field staff by the 2nd Quarter of Year II.

GESI Field Survey: Due to the COVID–19 pandemic and staff gap, field research activities have been postponed. Currently, GESI relevant documents and research activities are being reviewed. GESI field survey is planned for the next quarter (April – June) and the research checklist has been modified. Remaining virtual interviews are expected to be completed by Feb 2021.

Task 2: FTFNIPM's GESI approach is iterative and will be refined and adapted based on the results of the GESI Analysis as well as routine and regular project monitoring and evaluation activities. The results of the GESI Analysis and existing GESI strategies will be documented in FTFNIPM's GESI Action Plan and submitted to USAID/Nepal within 60 days of the AOR's approval of the GESI Analysis.

FTFNIPM will continue to actively consult with project stakeholders and partners during the development of FTFNIPM's GESI Action plan to ensure it aligns with and complements ongoing initiatives. This is supposed to be submitted by next quarter (January-March,2021). FTFNIPM will explore the potential of hosting a GESI Analysis review meeting with project stakeholders prior to submitting the GESI Analysis to USAID/Nepal. The FTFNIPM GESI team will provide input and support to include GESI analysis findings and recommendations in KISAN II's and NSAF's GESI action plans.

Coordination and Collaboration meeting: Organized virtual meeting with GESI Advisor of KISAN II Project (Ms. Sangita Budhathoki) where FTFNIPM GESI specialist updated and received insight on the status of GESI analysis work and GESI-friendly training package. Similarly, there was an introductory meeting with Manju Thapa Tuladhar (GESI Advisor, USAID Nepal) via telephone

conversation to discuss present project progress status on GESI and connect with USAID GESI Working Group as a member. A virtual meeting with NSAF Dr. Hari Kumar Shrestha was organized and updates were given on field demonstration of Maize and Lentil. There was a coordination meeting with Dr. Hom Gartaula, Scientist (Gender and Social Inclusion Research) in CIMMYT for the GESI Action Plan document.

Monitoring and Evaluation

Training on USAID's FTF Development Information System (DIS): USAID FTF has introduced a new data management system called FTF DIS and on October 20, 2020, they organized training on the new system. Daniel Summer/MEL Lead, Muniappan from VT, Lalit Shah, and Arun Limbu from the Nepal team participated in the event. The team participated in two sessions of training where one session focused on all the FTF projects worldwide and another session was by USAID Nepal. The second session by USAID Nepal Ms. Maneka Gurung and Mr. Prakash Gyanwali provided a brief introduction of the system, which was very helpful for the team and provided more clarity regarding the system. The system is now in place and FTFNIPM will be inputting the information in the system when data is collected and as per the indicator dateline.

Attended USAID Virtual sharing meeting: USAID organized a sharing meeting on the results of ZOI Phase Two Baseline and ZOI Phase One End-line conducted through a Population-based survey. The meeting was organized on October 6, 2020, using Google Meet.

Progress and Reports

FTFNIPM has submitted all the USAID required monthly reports for the Year II, Quarter 1. There were 3 monthly reports and 1 annual report submitted to USAID. In Year II Quarter 1, FTFNIPM mostly focused on workplan development, Steering committee meeting preparation, coordination, collaboration, and the GESI specialist hiring process.

Reports	Report Due	Submitted Date
Annual Report	31st October 2020	30th October 2020
Monthly October	15th November 2020	1st November 2020
Monthly November	15th December 2020	1st December 2020
Monthly December	15th January 2020	1st January 2020

Impact of COVID-19 on Program Implementation (PIVOT log table)

Month	What changed?	Reason for the change

December 2020	Work with partners to reach as many farmers, agro-vets, and other networks and organizations as to spread information through a variety of media (SMS, Facebook, radio jingle, radio/TV interviews) on the benefits of IPM practices and packages for the target crops.	The global outbreak of COVID-19 in 2020 has disrupted the major assessment activities so this activity has been postponed to next quarter.

Indicator Reporting

Indicators	Baseline FY 2020	Annual Target	Q1 FY 2021 Jan-Mar	Q2 FY 2021 Apr-Jun	Q3 FY 2021 Jul-Sep	Q4 FY 2021 Oct-Dec	Annual Performance Achieved to the End of Reporting Period (%)	On Target Y/N	Reporting
EG.3.2-24: Number of individuals in the agriculture system who have applied IPM practices with USG assistance	**TBD**	**1000**	**-**	**-**	**-**	**-**	**0%**	**N**	**Semi-Annual**
EG.3.2-25: Number of hectares under IPM as a result of USG assistance	**TBD**	**2000**	**-**	**-**	**-**	**-**	**0%**	**N**	**Semi-Annual**
EG. 3.2: Number of individuals participating in USG food security activities as a result of FTFNIPM	**TBD**	**450**	**30**				**7%**	**N**	**Annual**

Indicators	Baseline FY 2020	Annual Target	Q1 FY 2021 Jan-Mar	Q2 FY 2021 Apr-Jun	Q3 FY 2021 Jul-Sep	Q4 FY 2021 Oct-Dec	Annual Performance Achieved to the End of Reporting Period (%)	On Target Y/N	Reporting
Custom: Number of private sector firms supplying improved IPM products or advisory services as a result of USG assistance	TBD	25	0	-	-	-	0%	N	Annual
Custom: Number of persons trained with USG assistance to advance GESI-responsive IPM approaches and strategies through their roles or private sector institutions	TBD	35	0	-	-	-	0%	N	Quarter

Other activities accomplished during this Quarter

Insect cage delivery: As per FTFNIPM coordination with Binita Rai, USAID Nepal Mission, an authorization letter was issued in the name of Lalit Sah (Senior Technical Specialist) to collect insect cages from the Transportation office. These cages are collected and 16 of them sent to NARC Khumaltar National Entomology Research Center, including 8 cages for National Maize Research Program Rampur, Chitwan. Of the remaining four cages, two will be handed over to HICAST and two to Sudhur-Paschim University at Tikapur.

Technical support to K-2 training for municipality JT/ JTAs: This quarter K-2 organized a capacity building training on Spring-Rice on Monday, October 12, 2020, for Municipality

JT/JTAs on spring rice, and Lalit Shah, senior technical specialist, took one session on Insect Pest Management (IPM) in spring rice.

IPM Parasitoid webinar organized by Grow Asia Singapore: Lalit Shah and Ditya Lammichaney (Program Officer) attended a webinar on parasitoid rearing events organized by Grow Asia Singapore. Dr. Muniappan was also one of the resource persons in this webinar.

Participation in Entomology Society America's (ESA) Virtual Session: Lalit Sah (FTFNIPM/iDE Nepal) and Ajay Bajracharya (NERC/NARC) from the FTFNIPM project Nepal team participated in Entomology Society America (ESA) Virtual annual meeting. Lalit Sah made a presentation on Nepal's experience on FAW management activities in the FAW Symposium. Similarly, Ajay Bajracharya from the NERC/NARC presented on FAW and augmentative biological control activities in Nepal At this event, Dr. R. Muniappan connected Mr. Agenor Mafra-Neto, CEO of ISCA (private company) with Lalit and Ajaya for exploring future collaboration with this company and IPM Innovation Lab in Nepal for testing of their different IPM products (Pheromones, bio-agents, and other semio-chemicals) in Nepal.

Crop Development and Agriculture Biodiversity Conservation (CCDABC) of DOA Coordination: On December 4, 2020 (Friday), FTFNIPM Senior Technical Specialist Lalit Sah coordinated with the Center for Crop Development and Agriculture Biodiversity Conservation (CCDABC) under DOA to collaborate and promote the IPM recommended technology and practice on FTF value chain crops. In this regard, FTFNIPM specialist participated and facilitated one technical session on the Winter Maize IPM package in the virtual training. The training was more targeted to the provincial Government districts' and municipalities' level staff. The training was focused on winter maize IPM Package recommendations. CCDABC is also planning to organize this type of training in collaboration and coordination with FTFNIPM/iDE Nepal.

The potential private sector for FAW egg parasitoids rearing: Field Team from K-2 and FTFNIPM visited Shashi Agrovet, Dhambojhi, Nepalgunj, which is one of the potential private sectors for FAW egg parasitoid rearing. Mr. Prabhakar Gupta, the proprietor of Agrovet received training in FAW, *Trichoderma,* and egg parasitoids production 1.5 years ago in Hyderabad, India from the K-2 project. The team found him as an innovative, proactive, and energetic person who could be one of the potential private sector partners for the egg parasitoid rearing program.

Visited Agriculture Knowledge Center (AKC), Banke: FTFNIPM team visited AKC Bank and met with the Chief of AKC and Plant protection office and discussed the FTFNIPM program and the program of AKC in Banke. According to the AKC, there is COVID special agriculture program in the spring season for Rice, Maize, Mung, and sunflower crops for their area expansion in the Banke district. The subsidy amount is NPR 10,000 per hectare. The team will share this program with groups and cooperatives. The team also came to know that there is an Agro-vet association in Banke district but it has not yet formed the pesticide entrepreneurs association in the district.

USAID PAHAL vehicle: We received the PAHAL project vehicle Mahindra pickup from Mercy Corps to the FTFNIPM project in December 2020. We have sent this vehicle to Nepalgunj field office.

Receipt of Computers and other items from Nepal MEL project: We also received the 6 laptop computers, 2 Dell Docking stations and 4 air conditioners from Nepal MEL Activity/project in this quarter.

Major Achievements

1. FTFNIPM successfully organized a winter maize IPM package Webinar, with more than 100 participants.
2. Promotion and scaling of IPM recommended technologies and practices for FTF value chain crops including lentil, winter maize, and cauliflower crops.
3. Continuation of dissemination of information on Vegetables IPM package, and others through SMS and radio jingle, and information materials disseminated through email (e-copy of the IPM crop packages).
4. Collaborated with the Center for Crop Development and Agrobiodiversity Conservations (CCDABC)/DOA for assisting the winter maize IPM package training to the government staffs.
5. Coordinated with FTF projects (KISAN-II, NSAF, IPMIL, and F2F) for technical assistance and joint collaborations.

Challenges

Activity implementation has slowed down due to global, national, and local outbreak of the COVID-19 pandemic. The resultant prohibition of movement order maintains health security protocol by the government.

Lessons Learned

Bulk SMS messages to the CBFs, Plant doctors, and MPC/CCs members not only provide timely alerts but also provide valuable IPM recommendations for crops.

Success Story

Addressing emerging and existing plant health challenges during COVID-19

The FTFNIPM project continues to drive towards its aim of improving crop protection in Nepal by finding approaches to respond and address emerging and existing plant health challenges. During the COVID-19 pandemic, the project has been identifying safer alternatives following the

national safety guidelines of COVID-19 and has made efforts in endorsing and encouraging the implementation of Integrated Pest Management technology in implementation sites through scientific capacity enhancement.

In the initial months of national lockdown and travel restrictions due to pandemic, the FTFNIPM project collaborated with government body (Plant Quarantine and Pesticide Management Center), IPM Innovation Lab/Virginia Tech and other USAID's FTF IPs (NSAF/CIMMYT and KISAN II) for a series of webinars on IPM packages for various agricultural crops (Rice, Tomato, Lentil) along with trainings on Fall armyworm Management in Maize and Pesticide Safety and Mass Rearing of Parasitoids of Fall armyworm. The objective of these webinars was to provide guidance and technical knowledge to the target audience for prioritizing the IPM strategies for crops in their area of work. To successfully maintain dissemination of technical information amid the COVID-19 pandemic, and to address the rising gap in knowledge, the FTFNIPM project of iDE Nepal swapped out in-person training for virtual ones. These webinars and trainings welcomed national and international experts from across the globe to provide participants the opportunity to learn from and interact with the experts in particular fields. By October 2020, the FTFNIPM project was successful in conducting six important webinars and training from national and international experts with more than 800 participants from different countries across the globe.

As the situation of travel restrictions and the lockdown has now eased, the regional project staffs - with the support from the central team - have been developing and sharing protocols with district-level field staff of K-2 and NSAF project for IPM field demonstration and IPM field implementation of cultivated vegetable, cereal, and pulse crops in the area. The project, along with KISAN II, has participated in several coordination meetings with women cooperatives, agro-vet centers, and agriculture knowledge centers (Banke) to identify potential government and private collaboration partners for coordination and collaboration in promoting IPM technology and practices in the district. The project has been putting efforts in endorsing and encouraging the implementation of Integrated Pest Management technology in implementation sites by following all necessary safety protocols.

Annex 1: Responses to USAID Comments on Year 2 Workplan

Activities/Task	USAID Comments	Responses
Conduct cost-benefit and impact analysis of IPM to demonstrate the financial and economic performance of IPM practices compared to conventional pest management practices, considering factors that may be unique to women, youth, and	When this task is anticipated to complete? Since the project in Y2, this important task needs to be completed in time so that enough time can be made available to test and scale the business case	Activity 1 will be completed by May 2021 and activities 2 and 3 by December 2021.

Activities/Task	USAID Comments	Responses
marginalized groups		
Develop a financial model (decision-making tool) that can be applied by farmers and is tailored to commercial and smallholder farmers, while addressing the unique constraints and circumstances of women, youth, and marginalized groups.	Yet another important task. When is this task is anticipated to complete? Since the project is in Y2, this important task needs to be completed in time so that enough time can be made available to test and scale the financial model.	The tool will be completed and tested in May 2021. Dissemination will take place afterward.
Spread results of analyses through media	Please work with the USAID DOC team while dealing with outreach and in particular to the media.	Noted. We will reach out to the USAID DOC team through AOR for correspondence pertaining to Media.
The existing FAW Task Force Committee under the chairmanship of Secretary of the Ministry of Agriculture and Livestock Development (Chair) will meet once every three months to review progress made and future actions to be taken to manage FAW in Nepal	The institutionalization of the IPM package (key deliverable of FTFNIPM) is different from FAW. Please separate these two rights in the annual planning stage.	Agreed. We will separate FAW activities from IPM packages in the objective. Now we have re-grouped the activities separately for FAW and IPM Packages.
FTFNIPM will approach cooperative farmers and managers of rice mills, maize seed producing companies, poultry feed producing companies, and administrators of the four provincial governments in the ZOI for the establishment of FAW parasitoid rearing facilities within their premises	Do these stakeholders have the facility to rear FAW parasitoids? Do they have capacity? Ideally, maintaining the rearing of parasitoids falls under whose responsibility? For example, why will rice mills invest in such facilities?	FAO/PQPMC has labs in the FTF provinces but they are not well maintained and equipped. Personnel in these labs need training. NERC and NMRP of NARC will be conducting training on the rearing of FAW parasitoids to the personnel of provincial labs in the FTF region, universities, private companies such as Agricare, Crop Pro-Tech, and cooperatives of rice mill producers and maize seed producers as soon as the government COVID restrictions are relaxed. We plan on communicating with rice mills and maize cooperatives about starting rearing facilities in January 2021. We need to meet with them in person to explain the benefits of starting parasitoid rearing labs. Private companies are on board for starting the labs and the delay is in providing training because of the COVID pandemic. Rearing and releasing parasitoids will be the responsibility of institutions that agreed to set up the labs such as provincial governments, FAO, PQPMC, universities, and private companies. The parasitoids *Trichogramma* spp. and *Telenomus remus* not only attack FAW eggs but also eggs of rice stemborer, rice cutworm, maize stem borer, etc. It is the hope that rice mills and their cooperators see this benefit. It requires

Activities/Task	USAID Comments	Responses
		our personal visit to their facilities to explain the benefits of rearing and releasing these parasitoids to protect their crops and to reduce the use of toxic pesticides.
	Please check the FAO rep has been changed.	FAO Representative **Somsak Pipoppinyo** has left Nepal two weeks ago. Interim FAO representation has been assigned to the World Food Program (WFP) representative in Nepal, Ms. Pippa Bradford. She is now WFP Representative and FAO Representative ad interim. We will be contacting her.
GESI analysis data collection, data analysis, and report writing will be completed by the first quarter of Year 2	GESI analysis should have been done in Y1? Why in Y2? Did FTFNIPM consult with a USAID GESI specialist?	We have been in communication with the USAID GESI specialist through the AOR. The COVID pandemic has delayed our activity in the Y1. We have a plan to complete it in the first quarter of 2021.
FTFNIPM's GESI approach is iterative and will be refined and adapted based on the results of the GESI Analysis as well as routine and regular project monitoring and evaluation activities. The results of the GESI Analysis and existing GESI strategies will be documented in FTFNIPM's GESI Action Plan and submitted to USAID/Nepal within 60 days of the AOR's approval of the GESI Analysis.	Regardless of the COVID situation, I am concerned when the result of the GESI analysis will be implemented by the project. Will there be enough time for the FTFNIPM team to make use of the investment that has been planned in the GESI analysis?	GESI study is targeted to be completed in the first quarter of 2021; we will coordinate and collaborate with FTF IPs (K2 and NSAF) to implement the results. There will be 1.5 years for sharing results and implementation and upscale in the field.
Communication	Please collaborate with the USAID DOC team for any kind of outreach and whenever there is the involvement of any type of media.	Noted. We have been communicating with the USAID DOC through the AOR.

==========END OF THE REPORT==========