

Technological Inspirations from India:

Success Stories of

Feed The Future India Triangular Training (FTF ITT) Program



**“The purpose of foreign aid is to end the
need for its existence”**

**- Mark Green
USAID Administrator**

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Editors

Ravi Nandi
P. Vinay Kumar
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Shakera Parveen

Compilation

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May, 2018



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Smt. V. Usha Rani, IAS
Director General, MANAGE


Message

India has made tremendous advancement in food production from a food deficit to food surplus country as a result of technological advancements, scientific research, innovations and developed extension services and now, the country stands number one in the production of many agricultural produces. The country believes in “Vasudhaiva Kutumbakam” (The world is one family) wherein listening and sharing are practised with the intention that no one in the world should suffer from hunger.

With the objective to address global food security challenges “Feed The Future India Triangular Training (FTF ITT) Program” was announced on 25th July, 2016. The National Institute of Agricultural Extension Management (MANAGE), Hyderabad is the lead institute to implement FTF ITT program in collaboration with reputed national and International organizations in India and abroad.

FTF ITT program has made a remarkable impact in selected Asian and African countries through its trained executives. The main objective of this book is to share the impact created at grass root level in different countries by trained executives.

I trust that this book would inspire many more agricultural professionals, farmers and other stakeholders in agriculture. I also take this opportunity to congratulate all the executives from partner countries who have been working tirelessly on achieving food security.


(V. Usha Rani)



Foreword

Dr. P. Chandra Shekara
Director General

National Institute of Agricultural Marketing
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Jaipur, Rajasthan, India

Agriculture and allied sectors in developing countries are undergoing rapid changes and facing unprecedented challenges in changing economies. The challenges of agriculture are increasing and becoming more complex. Consequently, the demand placed on the role of agriculture extension services which have a crucial role to play in promoting agricultural innovation to keep pace with changing context may also increase manifold.

The objective of FTF ITT program is to address human and institutional capacity gaps in agriculture and allied sectors to achieve food and nutritional security in selected African and Asian countries.

Back at Work Plan is an effective tool to transform knowledge, attitude and skills to create awareness and impact in back home countries. The content of the publication has been collected directly from the executives trained under FTF ITT program. This publication aims to disseminate success stories of FTF ITT executives to larger farming community adopting technological advances and innovative solutions to address Food Security Challenges in Asia and Africa.

I believe this book would inspire many more stakeholders in the agricultural sector. I take this opportunity to wish all the executives from partner countries who have been working continuously to see smiles on the faces of millions of farmers.


(P. Chandra Shekara)



Preface


Dr. Saravanan Raj
Director (Agril. Extn.)

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Agriculture and allied sectors in developing countries are getting attention at the global level, as a result of advancement in scientific technologies, innovations, improved high-yielding varieties and advances in extension services.

The prime objective of FTF ITT is to eradicate hunger and poverty by addressing food insecurity and nutritional issues. This publication carries stories on the impact of FTF ITT program at field level through trained executives. The executives not only created impact at field level by transforming knowledge but also strengthened the relationships among the partner countries.

I believe these success stories would motivate farmers, extension workers and other stakeholders to adopt innovations in agriculture and allied sectors and address the challenges. I take this opportunity to thank all the stakeholders for their efforts in successful completion of several programs. I wish all the executives from selected African and Asian countries who have been working endlessly to help the farming community for betterment of livelihood at grass root level.


(Saravanan Raj)

Acknowledgements

Program Management Unit (PMU), MANAGE would like to acknowledge USAID-India, Partner Institutions, Partner Countries, Point of Contacts (POCs) and FTF ITT Executives who provided support, insights and expertise that greatly contributed to the compilation of this publication. MANAGE extends its sincere gratitude to all faculty members and technical staff for sharing their pearls of wisdom with us during the course of FTF ITT implementation and preparation of the publication.

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Introduction

A new Agriculture Partnership between the US and India to achieve Ever Green Revolution to address Global Food Security was announced during the State visit of the US President to India in November 2010. The aim of this partnership is to address the issues of food and nutritional security through Triangular cooperation. This pilot stage focused on three African countries e.g., Kenya, Liberia and Malawi with the potential to expand throughout the African continent in future. Consequently, the National Institute of Agricultural Extension Management (MANAGE), Hyderabad and the National Institute of Agricultural Marketing (NIAM), Jaipur conducted seven training programs covering 219 executives from Kenya, Liberia and Malawi. Participant' surveys were conducted in Kenya, Liberia and Malawi to assess the impact of the training programs. Results were beyond expectations. Due to the success of first seven training programs, there has been a considerable enthusiasm from the prospective executives from Africa and Asia to participate in the training program.

As a result, USAID and Ministry of External Affairs (MEA), Government of India designed a program named 'Feed The Future India Triangular Training (FTF ITT)' which was launched on 25th July, 2016 in New Delhi. During the program period(from 2016 to 2020), 1400 agricultural professionals from 17 partner countries of Africa and Asia will be trained.

There are a total of 44 training programs. Out of these 32 programs are conducted in India with each program having a duration of 15 days (excluding travel period) and 25 participants at selected Indian institutes. The remaining 12 programs are conducted in selected African and Asian countries with each program having a duration of 10 days (excluding travel period) and up to 50 participants. Each course module will focus on themes or sub-sectors in which Indian institutions of repute have demonstrated a comparative advantage to offer such training and ensure that it effectively responds to the target countries' capacity gaps. This approach is designed to respond to the needs of target countries based on the 'demand analysis' carried out at the beginning of this program. The National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India, an autonomous organization under the Ministry of Agriculture and Farmers' Welfare, Government of India has been designated as the Lead Institution for implementation of the program.

1.1 Training Method:

FTF ITT training programs are being organized in collaboration with reputed national and international organizations. The training is both practical and theory based. The sessions are delivered through lectures, group discussions, case studies and field visits. The program design is highly participatory. Each participant is expected to contribute ideas and take part in group activities. The participants will work in small groups to undertake various tasks allotted to them. Experiential learning methodology is effectively

incorporated into the program. Apart from their past experience, the participants would learn through group interactions based on experiences in the field and from interaction with industry experts and the trainers. Back at Work Plan is inbuilt to ensure the transformation of learning into action in their workplace. Pre & Post Tests are conducted to understand the impact of training on the knowledge level of executives.

MANAGE invites time to time nominations from the partner countries through designated Point of Contacts of respective governments. Nominating entities and applicants are required to submit their respective nominations directly to MANAGE through their respective country's Ministry of Agriculture or appropriate government agency or Point of Contact. MANAGE is responsible for reviewing the applications and selecting the final participants.

1.3 The following parameters are given due weightage at the time of nomination/selection of participants

- At least three years of uninterrupted service in the public or private sector in the training theme area. Exceptional nominations require separate justification.
- Executives may be nominated representing diverse working areas viz., Planning, Administration, Teaching, Research, Extension, Agri Industry, NGO, Farmers' Organizations/ Cooperatives, Agripreneurs in Agriculture and Allied fields namely Horticulture, Sericulture, Forestry, Livestock, Fisheries, Natural Resources Management, Nutrition, Agribusiness, Post-Harvest and Value Addition, Marketing, etc.
- The applicant should be working or involved in the Feed The Future [FTF] Program. Exceptions to this criteria must be demonstrated by evidence that the participant will be actively involved with the above programs in near future.
- At least 50 percent of the nominations are reserved for female professionals in selected and waitlisted category.
- Applicant shall possess physical and mental skills and abilities for successfully completing the program.
- Working knowledge of English is essential.

1.4 Partner Countries

African Countries	
1.	Botswana
2.	DR Congo
3.	Ghana
4.	Kenya
5.	Liberia
6.	Malawi
7.	Mozambique
8.	Rwanda
9.	Sudan
10.	Tanzania
11.	Uganda

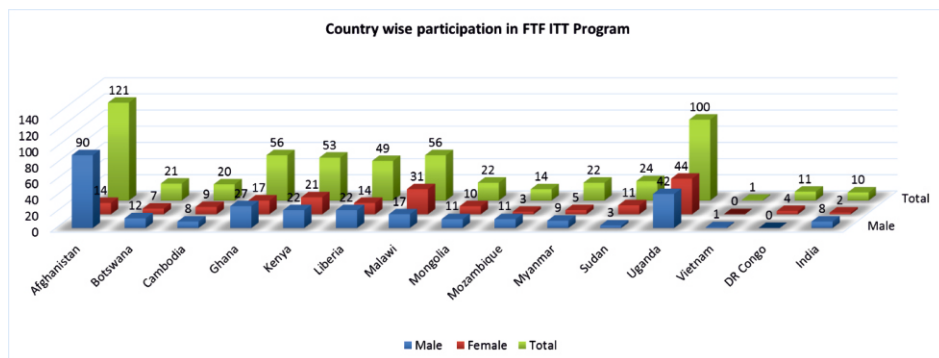
Asian Countries	
1	Afghanistan
2	Cambodia
3	Lao PDR
4	Mongolia
5	Myanmar
6	Vietnam

1.5 Point of Contacts (POCs)

All 17 partner countries of FTF ITT program have nominated one senior official from the Department of Agriculture and Allied Sectors to act as a Point of Contact (POC) to coordinate with MANAGE. The role of POC is very important in this program as he/she is responsible for communication of program announcements with their departments to receive applications from eligible officials. The list of Point of Contacts from 17 partner countries is placed at Annexure-II.

2. Progress of Feed The Future India Triangular Training (FTF ITT) Program as on 30.04.2018

FTF ITT Program was launched on 25th July, 2016. As of 30th April, 2018, 24 training have been completed in association with reputed national and international institutes in India and abroad. Through 24 training, 622 executives from 15 countries have been trained, of which 376 are male and 246 are female executives. The country-wise distribution of executives is shown in the graph.



2.1 Details of Country-wise Participation in Feed The Future India Triangular Training (FTF ITT) Conducted by MANAGE in Collaboration with Partner Institutes

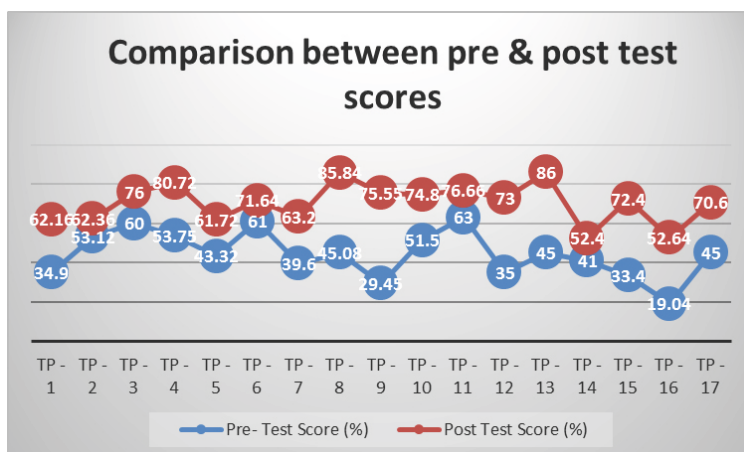
S.No.	Country	2016	2017	2018	Total
1	Afghanistan	78	20	23	121
2	Botswana	03	16	02	21
3	Cambodia	08	04	08	20
4	Ghana	07	28	21	56
5	Kenya	07	24	33	64
6	Liberia	07	18	28	53
7	Malawi	07	26	31	64
8	Mongolia	04	15	03	22
9	Mozambique	06	08	04	18
10	Myanmar	00	07	20	27
11	Sudan	00	10	14	24
12	Uganda	00	78	32	110
13	Vietnam 00	01	00	1	
14	DR Congo	00	00	11	11
15	India	00	10	00	10
	Total	127	265	230	622

Details of 28 FTF ITT programs are given in Annexure III.

2.2 Training Evaluation

2.2.1 Pre & Post Training Tests:

In every FTF ITT program executives are administered with the pre & post training tests with the objective to analyze the change in the knowledge level of the participant. Questionnaires are designed with 25 objective questions in each test by the subject matter experts from the partner institutes on training themes. After a comparative analysis of pre and post training test scores, it is clearly evident that there is a significant change in the



knowledge level of executives after the training program completion. On an average every executive scored 44.30 percent marks in pre-tests and 70.45 percent marks in post-tests with an average change of 26.15 percent in the knowledge level.

2.2.2 Back at Work Plan:

It is mandatory to identify back at work plan by every executive based on his / her learning experience during the program. Executives are asked to prioritize one important activity to be taken up by them when they return to their workplace. Care has to be taken to decide the activity which can be delivered smoothly in their official responsibility without seeking additional funds, manpower and other facilities. The format of Back at work plan is mentioned in Annexure I.

All the executives who have undergone training under Feed The Future India Triangular Training program are implementing their back at work project in their home countries and creating impact at the field level. Program Management Unit (PMU) at MANAGE continuously monitors, supports and gets their project progress reports regularly. Some of the success stories are documented in this book.

Back at Work Project Success Stories from Partner Countries

Waste to Wealth through Valorization of Maize in Uganda



Ms. Rose Lukwago Nassali a small-scale Startup Entrepreneur and also a farmer from Uganda was trained by ICAR-Indian Institute of Horticulture Research (IIHR), Bengaluru, Karnataka, India under FTF ITT Training Program. Earlier, she worked on Animal Feed namely, Poultry, Dairy, Fishery and Piggery using Agriculture (Maize Bran) and Horticulture products.

She was puzzled by the huge amount of maize crop waste generated in Uganda after farmers' process the maize on the field such as husks and cobs and also by the volatile prices of maize in Uganda. The executive came up with a plan to process and add value to the waste of maize through valorization method picked up from the session. She had been through on Valorization of Horticulture waste at ICAR-Indian Institute of Horticulture Research (IIHR).



She brought together all the maize farmers who had come to buy the animal feed from her unit, through a collective action on feed production to utilize the wastage in maize crop grown by the farmers. This activity was aimed at replacing the maize bran feed and meeting the high local demand for animal feed.

The executive has researched on nutritional composition of maize cob and selected it as the main raw material along with other supplementary materials like soybean flour for protein, seashell powder and Iodized salt for sodium and organic growth boosters in animal feed. The latter is branded as “Creek”, packed into a nylon bag of 5 kg and is sold at nearby markets by her enterprise. The executive shares the profit with the farmers for their raw material and also the feed for their livestock mainly piggery units.



Outcome:

- Collectivization of farmers and teaching them good economic practices in agriculture
- Valorization in maize crop (major crop) for agriculture and allied economic gains in Uganda.
- Production of nutritional feed materials
- Branding and proper packaging for good market penetration

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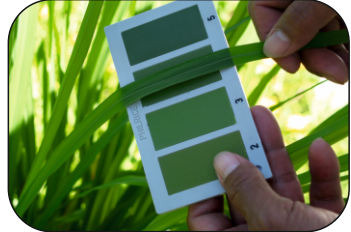
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Indian Soil Testing Technologies in Kenya



Mr. Wafula Mukhone Mathias, Principal Agriculture Officer from Kenya was trained under Feed The Future India Triangular Training (FTF ITT) on “Management of Technology and Extension for Soil Testing based Advisory Services to Farmers” at ICAR-Indian Institute of Soil Science (IISS), Bhopal, Madhya Pradesh, India.

During the training program, he was exposed to various soil management technologies such as soil sampling for assessment of soil chemical parameters and nutrient levels (P, K, Ca, Mg, N, etc.) which provide information on soil physical and biological properties, examination of nutrient deficiencies in crops and soil.



His main objective was to assess the physical parameters of soil health with farmer friendly rapid techniques for soil management and increased productivity and to make policy recommendations to the Ministry of Agriculture in Kenya. The planned activity of assessment of physical parameters of soil was intended to provide information on soil physical and biological properties and to understand their effect on farmers' soil management and productivity.



He carried out many training programs on creating awareness about the same to farmers and extension officials in Kenya. Along with that he collected soil samples from different regions to record the soil parameters for the studies in research labs and introduced many cost-effective soil testing and evaluation technologies from India such as a. Infiltrometer Ring b. Penetrometer c. Wire Quadrant d. Leaf Colour Charts e. GIS Soil Mapping Methods, f. Soil Health Cards g. Fertilizer recommendations Charts

Outcome:

- Improved cereal and pulse crop yields
- Documentation of Kenyan soil health results
- Review on use of fertilizer recommendations to improve soil quality
- Developing GIS soil health map of the areas identified
- Soil health cards for farmers for future references on the management of their soils.
- Policy advocacy to Kenyan Government to adopt Indian Soil Testing Technologies

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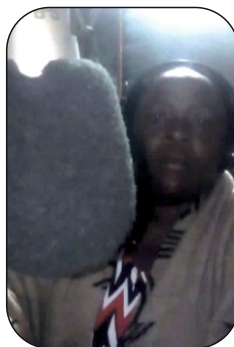
Awareness on Organic Vegetable Farming through Mass Media in Uganda

Mrs. Ayingabire Beatrice, an Agriculture Officer from Kisoro district, Uganda, is a pioneer extension woman with a motivation to change the organic vegetable farming situation in Uganda. Mrs. Beatrice was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Production, Processing and Marketing of Organic Vegetables” at ICAR-Indian Institute of Vegetable Research, Varanasi, Uttar Pradesh, India. She had good exposure to Innovative methods in Organic Vegetable production.

Possessing rich knowledge in organic farming of vegetables from India, she started addressing the nutritional security issues in Uganda.

Her major focus was on sensitizing Ugandan farmers on growing organic vegetables with organic manures and marketing them for good income.

She conducted two training programs, one for Agriculture Extension Officers and another for Kayoyongo village, Nyakinama Sub-county, for farmers on the benefits of organic vegetable farming and hazards of using inorganic fertilizers in vegetable growing and also trained farmers on developing vermiculture and vermi-wash units at the village level for producing cost-efficient organic manure at the farm level.



Later, she used a Participatory Radio Campaign method to spread mass awareness on organic farming cultivation and its societal and economic benefits. During the process of radio lecture, she clarified many queries from Ugandan farmers about organic vegetable cultivation and marketing. This also indicates the efficient reach and use of mass media in African agriculture. She also conducted farm demonstrations in rising organic cabbage seedlings giving practical exposure to Ugandan framers.

Outcome:

- Created awareness about organic farming benefits in the farming community.
- Introduction of organic farming and its environmental benefits to Ugandan Farmers
- Highlighting nutritional benefits of organic products
- Awareness on organic manure production such as vermiculture and vermin-wash
- Use of mass media for agricultural activities and kindling the interest of farmers about innovative activities

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Re-fabrication of Fish Descaling Machine in Malawi

Mr. Mwamad Salim M'balaka is a Fishery Researcher from Malawi. He was trained under Feed The Future India Triangular Training (FTF ITT) International Training Program on 'Recent Trends in Harvest and Post-harvest Technologies in Fisheries' at ICAR-Central Institute of Fisheries Technology (CIFT), Cochin, Kerala, India.

Mr. Salim adopted a technology which he learned at ICAR-CIFT that addresses the need for small-scale fish processors. Small-scale fish processors and fishmongers are facing challenges in processing small fishes. Post-harvest activities of fish farming are mainly carried out by women. To reduce their drudgery he refabricated a women friendly de-scaling machine which also meets the local needs of the farmers. This refabricated De-Scaling machine was demonstrated to women's groups and fishmongers and the equipment is attracting many farmers.



Outcome:

- As a result of his efforts there is an increased efficiency in de-scaling of fish (4kg fish descaled in 9 minutes)
- Reduced workload/time on de-scaling of fish by women and improved profit margins to both processors and business women.

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Broadcasting of Indian Modern Storage Technologies in Botswana

Botswana is a landlocked country with a total arable land of 0.7 percent. This indicates that there is a thriving agriculture system to feed its country people with the support of livestock sector accounting for 80 percent of total agriculture GDP in the country. Post-harvest losses account for a major loss in every country and in every crop in the world. This leads to one of the biggest problems to take care-food security and storage.

Ms. Moatswi Chakubinga from Botswana was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Modern Storage Technologies in Agriculture” at ICAR-Central Institute of Post-Harvest Engineering & Technology (CIPHET), Ludhiana, Punjab, India where she had good exposure on post-harvest technologies in dry and fresh agriculture produce.

After returning to Botswana, she started creating awareness on cold chain storage and general post-harvest handling. She visited four entities dealing with both fresh and dry farm produce and conducted inspections and shared information on good storage practices. The entities visited were Food Relief Services Warehouse, a private warehousing agency Bokomo Milling Company, Primary Schools and Clinic (Health facility), where the food materials are shared for feed purposes and Botswana Horticultural Market for collecting some samples and conducting a grain lab analysis for different parameters such as moisture content, admixtures, foreign matters, broken and insect pests.



The major impactful work was a presentation in Botswana Television (National Television) about safe food handling and proper management of post-harvest produce. The TV presentation was based on: How to store farm produce properly; Importance of proper storage; Factors affecting the shelf life of farm produce and ways of preserving fruits and vegetables.

Outcome:

- Mass awareness of safe food handling and proper management of post-harvest produce in Botswana through mass media participation
- Improved storage facilities and activities at all levels of food storages
- Sensitization on food safety to public and private agribusiness stakeholders in the country
- Indian technological interventions for food safety and security.

Ms. Moatswi Chakubinga

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Mini-set Technique for Improved Cassava Cultivation in Kenya



Cassava is an annual crop and it is an important source of carbohydrates to over 800 million people in the World. Cassava provides over 500 calories daily to over 70 million people. It is the third most important source of carbohydrates in Africa and the second most important food crop after maize in the western and coastal regions of Kenya.



Ms. Mwafungo Gladys Murira & Mr. Tica Nelson Ngugi, Agricultural Officers from Kenya participated in the training program on 'Production and Post-harvest Technologies for Tuber Crops' at ICAR- Central Tuber Crop Research Institute (CTCRI), Thiruvananthapuram, Kerala, India.

During the post-training period, both the executives started promoting rapid multiplication of healthy cassava planting materials through the use of mini-set technology. The two-day



training program for farmer leaders was organized to improve cassava varieties and use of cassava production equipment with emphasis on cassava harvesters. As a result of the training the participants demonstrated the cassava varieties at KALRO (Kenya Agriculture and Livestock Research Organization). The participants were very keen to know the two types of harvesters as shown in the pictures. The training created a lot of interest among the farmers and a few of them adopted the technology resulting in cassava gross margins- both tuber and dried chips production have increased.

Ms. Mwafungo Gladys Murira & Mr. Tica Nelson Ngugi

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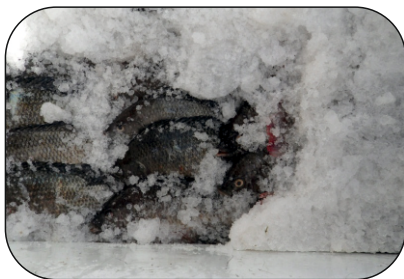
Fish Preservation Techniques with Ice in Uganda

Mr. David Nsamba Nsole, Principal District Fisheries Officer from Uganda, participated in the FTF ITT program on “Recent Trends in Harvest and Post-Harvest Technologies in Fisheries” conducted at ICAR-Central Institute of Fisheries Technology (CIFT), Trissur, Kerala.

During the training program, he learned about effective usage of ice in fish preservation, value addition and innovative techniques in preserving and processing of fish products.



In Uganda, post-harvest losses in fisheries are up to 30 per cent due to poor usage of ice in fish handling. After going back to his country, Mr. David organized a meeting with officers and fish farmers wherein he sensitized them about various technologies which he had learned during the training in India. A total of 147 fish handlers were reached, of which 63 were females and 84 were males. With this intervention, the post-harvest losses reduced to 15 per cent from 30 per cent.



Video link: https://drive.google.com/open?id=1Zk6uYt_hwFxu8Qol3TyRG_MzxT5JjEZC

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Wine from Hibiscus of Uganda



Kudumbashree is a poverty eradication and women empowerment program implemented by the State Poverty Eradication Mission (SPEM) of Government of Kerala, India. This model of collective action for women economic empowerment in rural area is an inspiration for Mr. Tonnie Luyimbazi from Uganda, trained under FTFITT program on “Agripreneurship Development among Farm Women” at Kudumbashree, Kerala.

He has been inspired to establish a micro-enterprise which is led and owned by women groups. He organized three women groups (30 members) and trained them in fruit wine processing from hibiscus flower.

The objective of the micro-enterprise is met through adequate availability of hibiscus flower from farmers and the local demand for wine. As a result, women were able to process and market good quality wine. There is an improvement in the quality of wine produced through the collective production and marketing approach as against the individual approach.

Outcome:

- Members have acquired better skills of production through the support of Makerere University, Department of Food Science and Technology (MUK-FST)
- Improved branding and packaging
- Market price for the wine increased from UGX. 4,000 -5,000 (about US\$ 1.1-1.4) per 750ml bottle and currently they are getting UGX. 8,000 – 10,000 (US\$ 2.2 -2.7) making a difference of UGX 3000 – 5,000 (US\$ 0.8-1.3) per 750 ml bottle
- On an average each member is presently earning US\$80 per month from this activity.



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Value Addition to Chili Pepper in Liberia



In most of the Sub-Saharan African countries, smallholder farmers have fewer opportunities to learn about new technologies and improved agricultural methods. Value addition to agricultural produce is a sure way of increasing the incomes of smallholder farmers. To achieve this, basic knowledge, attitude and skills must be disseminated through strong and viable extension services.

Ms. Weedor Akoi Cegbe from Liberia was trained under FTF ITT program on “Post-Harvest Technologies in Horticulture Crops” at the Indian Institute of Horticulture Research (IIHR), Bangalore, Karnataka, India. She was impressed by the value addition technologies and innovations available in India which help to enhance the smallholder farmers' income and to reduce the post-harvest losses in Liberia.

Ms. Weedor after returning to Liberia, observed gaps in post-harvest losses and poor market linkages in chili pepper value chain. Keeping this in mind and considering the high demand of chilli pepper, she focused on value addition of chilli pepper.

She created awareness about value addition in chilli pepper and potential enhancement of farm income through value addition and market linkage.

- Thirty-five women and fifteen youths have participated in the meeting
- Motivated farmers established a nursery to produce chili pepper seedlings
- A production site of three acres was identified and prepared for raising chili pepper seedlings
- Negotiations are underway with large-scale chili farmers to purchase directly from farmers on pre-agreed prices.

Future Work Plan:

- Planning for utilization of solar drier, grading and packing machinery
- Field demonstrations for farmers

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Linking Small Dairy Farmers to Market in Kenya



Dr. Mary Kerubo Morara, Principal Agriculture Officer from Kenya was trained under FTF ITT program on “Agripreneurship Development among Farm Women” at Kudumbashree, Kerala. She was impressed by the Kudumbashree model of women collectivization for livelihood improvement through group activities.

Based on the success of producer company model of Kudumbashree collectivization, she identified two major livelihood avenues for collectivization viz., dairy and poultry. Twenty youth formed into a group and benefited from the group training and were able to procure a milk cooler.

The group formed a five-member committee to steer the group. After the capacity building program, based on the Kudumbashree model, the group was linked to an established processor in the neighboring County (Kiambu) and the group continued delivering 450 liters of milk per month fetching Ksh 67,500 through buying from the farmers and selling to the processor and consumers.



Their target is to reach 15000 liters per month, which guarantees each member a monthly income of at least Ksh 12,000, an amount higher than the statutory minimum wage. The potential of the market niche in the locality is conservatively estimated at 300,000 liters per year, potentially each one of them earning at least Ksh 20, 000 per month.

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Empowerment of Women through Collective Action in Uganda



Mr. Tugume Desteo, Development Programs Coordinator from Uganda, was trained under Feed The Future India Triangular Training Program on "Entrepreneurship Development among Rural Women" at St. Augustine Training Institute, Nsambya, Kampala, Uganda.

Mr. Tugume was impressed by the Kudumbashree model of collective action for better livelihood of women in rural area. He formed eight women groups of 15 to 20 members each adding up to a total of 130 members. They have been trained on leadership, business and conflict management skills and motivational aspects.

These women have been encouraged to start their income-generating activities such as making of handcrafts (baskets, mats, table clothes, knitting sweaters) and farming activities including rearing of poultry, goats, pigs and cows. They have also started savings and credit activities. In a period of two months, members have saved up to 3,000,000 Ugandan shillings. The members have started to borrow this money with a maximum of 200,000 shillings at the start with a repayment period of three months at 10 percent interest per month.



Women have started weaving baskets, mats, small bags, knitting sweaters and table clothes which they have started selling to earn income. Considering the interest of the local community and success of group activities in generating additional income to the families, he has the plan to train the youth in making and selling improved energy-saving cooking stoves which will help them acquire skills and earn incomes and train members of women groups in making charcoal briquettes



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Value-Added Tuber Recipes for Malawians



Ms. Waluza Ireen, Agriculture Officer from Malawi, was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Production and Post-Harvest Technology for Tuber Crops” at Central Tuber Crop Research Institute (CTCRI), Kerala, India.

Ms. Ireen identified that cassava and yam were the crops grown by many farmers in Ntcheu district of Malawi. Although the crop was cultivated for years, the scientific method of cassava and yam cultivation and commodity value addition was lacking, leading to low yields and less profits for the Malawian farmers. Understanding the gaps, she decided to sensitize the farmers about tuber recipes after going back to her country.

She worked for more than six months on this Ms. Ireen conducted training to farm men and women in Malawi

on value addition and preparation of nutritional tuber recipes. Apart from this, she also organized food

exhibition on tuber crops to increase awareness on production and value addition aspects of cassava and other tuber crops.



This brought a fresh knowledge among the people of Malawi towards their day-to-day practices on health and economic activities. She also carried out many scientific demonstrations at the field level for the benefit of farmers which she picked up from the training at CTCRI, India.



Outcome:

- Sensitization of farmers on production and benefits of cassava and yam and their new varieties
- Demonstration on mini-sets usage for cassava and yam cultivation in Malawi
- Conducted an exhibition to spread awareness on nutritional importance and value addition of tuber crops

Ms. Waluza Ireen

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Lure Preparation and Trapping for Fruit Fly Management in Uganda



Ms. Gertrude Badaru is a District Agricultural Officer from Uganda. She was a trainee in 22nd FTF ITT International Training Program on 'Plant Biosecurity and Food Safety' held at the National Institute of Plant Health Management (NIPHM), Hyderabad, Telangana, India.

During the training, she focused on fruit fly lure preparation and trapping. After returning to her home country, she has conducted sensitization meetings with the district officials and training on demonstration of fruit fly lure preparation in Arua District, Ayivu County, Kampala, Uganda.

Through these activities, she reached to 22 crop extension staff of sub-counties. She also gave Radio Talk Shows on low-cost fruit fly bottle trap in three local radio stations and reached to 1,500 farmers. She received feedback on her shows from farmers through phone calls and direct contacts.



Demonstration on how to store the prepared lure with cotton rope using foil and also how to tie the cotton rope in the bottle which would be ready for hanging on the mango tree.

Radio Talk Shows in the local FM- ARUA ONE- which cover the whole west Nile region, are aimed at educating the farmers who produce mangoes, citrus and vegetables which can be affected by fruit flies. Radio Talk Show in the local VOICE OF LIFE, which also has a very big coverage, is loved by most farmers.

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Awareness on Organic Vegetable Farming to Afghanistan Farmers

Afghanistan is a country with diverse agro-climatic conditions. The growth of its agriculture economies is through the advancement of farmers and services of extension officials. It is a well-known fact that Afghanistan is doing well with regard to export of agricultural produces.



Mr. Afghan Muhammad Hanif is an extension worker and has been trained under Feed The Future India Triangular Training (FTF ITT) Program conducted at ICAR-Indian Institute of Vegetable Research (IIVR), Varanasi, Uttar Pradesh, India.

With the aim of generating public awareness on production, processing and marketing of organic vegetables for better income, he conducted three sensitization meetings and technical demonstrations to farmers and officers of Afghanistan. A total of 115 farmers and officers were benefitted by his work on imparting knowledge on organic vegetable farming and its methods.



He took hands-on experience sessions to all the stakeholders on grafting, swing, controlled-environment farming, preparation of organic manure and irrigation aspects of organic farming in tomato, cucumber, eggplant, potato and other crops.



Outcome:

- Awareness creating and skill development on organic farming, its health benefits and marketing
- Introduction of modern vegetable production techniques
- Introduction about certification of organic farm products

Mr. Afghan Muhammad Hanif

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Agripreneurship for Farm Women in Uganda



Mr. Samuel Tubwangye, an Agronomist hailing from Uganda, is a man of workspirit. He was trained under Feed The Future India Triangular Training (FTF ITT) Program at Kudumbashree, an NGO working under Government of Kerala, India, on “Agripreneurship Development among Farm Women”.

Mr. Samuel's prime objective was “promotion of agricultural knowledge and skills development through school gardens and greenhouses”. He was successful in setting up of two model urban farmer groups and opening an agriculture training center for urban (Kampala) farmers. He then identified three willing schools from three sub counties to integrate school garden programs into their curriculum and also formed agriculture group leaders who will carry out intended activities as per the action plan.

With an unending spirit towards work, he has undertaken the following activities.

- Proposal on the model of poverty reduction through agriculture
- Training to urban and rural women on various production techniques of horticulture crops
- Organized an exhibition for farm women
- Facilitated linking farm women to markets
- Conducted on-farm training
- Demonstration of 200 broiler poultry units under the capital city authority along with kitchen gardens and sack gardens
- Women farmers were also given a chance to visit and share their experiences with fellow women in distant districts of the country (Eastern and Central regions of the country)
- With the help of an NGO (Hunger Fighters Uganda), urban farmers were trained on food security and post-harvest handling of farm produce under the theme “The Edible Cities Conference”



Challenges

- Inadequate financial capacity to facilitate the training
- Limited women collective groups that are ready to act as change agents in respective societies
- Focus on profit maximization as opposed to social impact

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Mini-Sets Technique for Tuber Crops in Malawi



Ms. Twailbu Amina, Agriculture Extension Officer from Malawi, was a trainee under Feed The Future India Triangular Training (FTF ITT) Program on “Production and Post-Harvest Technology for Tuber Crops” at ICAR - Central Tuber Crop Research Institute (CTCRI), Kerala, India. She worked on “Processing, Preservation and Utilization of Cassava and Sweet Potato”.

She has created awareness on cassava production and utilization of “Mini-sets” technique which she learned from the training at CTCRI, India. She also conducted field demonstration to 180 farmers representing different parts of the country. Farmers gained knowledge to make standard planting bed for both cassava and sweet potato nurseries.



Outcome:

- Promotion of organic farming in cassava cultivation
- Developed cultivation practices in cassava and sweet potato
- Introduction of Indian advanced technologies in tuber crop production
- Value addition of cassava and other tuber crops.

Ms. Twailbu Amina

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Dairy Advisory Services in Mongolia

Dairy is the major activity within the livestock sector and the role of corporate dairy business is known to be well developed in Mongolia. Also, the state of dairy development at farm level with good practices and technological interventions is said to be in a developing stage.

Ms. Tuvshintuya Gombo Ganbaatar, Officer for Breeding Registration and Information from National Center of Livestock Gene Bank of Mongolia, was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Modern Dairy Technology and Management” at ICAR-National Dairy Research Institute (NDRI), Karnal, Haryana, India.

Back home in Mongolia Ms. Ganbaatar was successful in initiating the dairy development activities. Her aim was to breeding registration of Milching cows for better government administration and direct benefits to farmers.

She conducted training programs on knowledge and improving the skills of farmers and extension officers in breeding registration and animal health management. Twenty officials from central region were trained and directed and they were provided with required equipment to provide dairy extension advisory services.



Outcome:

- Awareness generation on dairy management practices among the rural community members
- Capacity building of government officers
- Training on improved animal healthcare practices

Ms. Tuvshintuya Gombo Ganbaatar

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Rain Water Harvesting in Sudan



Ms. Rwan Mohamed Elhassan Osman is an Agricultural Officer from Sudan. She was trained under Feed The Future India Triangular Training (FTF ITT) International Training Program on “Strategies for Enhancement of Farmers Income in Dryland Agriculture” at ICAR- Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad, Telangana, India.

Post training, she realized the importance of water and then proceeded with sensitization on rainwater harvesting. She trained 50 extension functionaries and 10 farmers on rainwater management and water harvesting in Khartoum, Sudan. She also sensitized the rainwater management and water harvesting officials and colleagues.



Outcome:

As a result of her activities, many farmers adopted rainwater harvesting technologies.

Future Plans:

- She is planning to conduct many more sensitization programs to reach more farmers.
- Her target is to conduct a training program once in 15 days.

Ms. Rwan Mohamed Elhassan Osman

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Millet Mantra in Ghana



Mr. Huudu Bampuori Abu is a Regional Crop Officer from Ghana. He was trained under Feed the Future India Triangular Training (FTF ITT) Program on “Value Addition and Market Linkage Mechanisms in Millets” at ICAR-Indian Institute of Millet Research (IIMR), Hyderabad, Telangana, India.

Back home, he successfully sensitized 21 people, including 11 directors, nine regional staff and the regional director of agriculture. The sensitization took place during a regular technical management meeting of agriculturalists in the region. He made a brief presentation emphasizing on value addition to sorghum and millets through various research, training and implementation programs at the center of excellence.

The concept of incubation center was much highlighted and they all appreciated it as a good and laudable approach in reducing poverty and hunger and he also conducted field visits and demonstration for creation of awareness and adoption of recent technologies in millets.

Linkages and Partnership

The Department of Agriculture in the region supports any intervention that will bring in betterment in yield. Hence, the initiative being put in by 'Agri Access Ghana Limited' is technically backed and supported by the department. In the light of the above, an exposure field visit was then organized for the district and regional staff of agriculture after the sensitization meeting.



Future Plans:

- Carry out public sensitization through radio discussion
- Send a request letter to IIMR for sorghum and millet varieties
- Sensitization of farmers and selection of sites for demonstrations

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Linking Groundnut Farmers to Market through Public-Private Partnership in Malawi



Ms. Zgawa Beatrice Temwani Luhanga from Mzuzu, Malawithought of helping the local farmers, growing groundnut and other crops, to realize more profits at negotiated rates and good market linkages for their products.

She was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Public-Private Partnership (PPP) in Agricultural Extension Management for Extension Practitioners of Asian and African Countries” at the National Institute of Agricultural Extension Management (MANAGE), Hyderabad, Telangana, India. She has been through the 15-day rigorous training program at MANAGE on various subjects of PPP and farmers' cooperative models along with her another 21 foreign national participants.

Ms. Beatrice worked on strengthening smallholder farmers in Malawi through new extension approaches. She was successful in her extension activity as she could link up the Engucwini Cooperative Groundnut Farmers Group to Exagris African Agribusiness Company in procuring groundnut at negotiated rates in Malawi. The Engucwini Extension Planning Area Players in the groundnut value chain include farmers (in this case Engucwini Cooperative), public extension workers and the Exagris Africa Company.



With market linkages, farmers are now able to sell their produce immediately to the procuring company and are able to understand the market price and negotiate for good prices with the company through the Engucwini Cooperative. The buyback practice of Indian cooperative systems has yielded good results to farmers in Malawi.

Outcome:

- Promoting demand-driven extension service provision among smallholder farmers with demonstrations
- Creation of backward and forward integration of groundnut value chain in Malawi
- Linking private agribusiness players and groundnut farmers in Malawi through public and private extension.

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Biological Management of Crop Diseases in Myanmar



Ms. Cho Cho San is a Junior Research Assistant from Myanmar. She was trained under FTF ITT International Training Program on “Plant Health Management Technologies and Approaches” at the National Institute of Plant Health Management (NIPHM) Hyderabad, Telangana, India.

She identified major gaps in high grain yield that result in the susceptibility of several diseases caused by soil-borne fungi. To mitigate this problem she has taken up the initiative by using *Trichoderma* as biological control agent against important crop diseases.

Using selective Martin media she isolated *Trichoderma* spp. from collected soil samples. A pure culture of *Trichoderma* was isolated and tested for its antagonistic ability against soil-borne pathogens. Using rice rusk grain and sorghum seed substrate she scaled up the *Trichoderma* spp. Production. She has trained 100 agricultural extension staff and also 150 farmers from the central dry land area of Myanmar on mass production of *Trichoderma* and conducted demonstrations.



Outcome:

- Majority of farmers followed *Trichoderma* as a biological control agent against soil-borne diseases
- The same procedure was replicated in other areas and reached many farmers.

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Value Addition of Millets in Phalombe, Malawi



Ms. Lucy Mchenga is a Food and Nutrition Officer from Malawi. She was trained under Feed the Future India Triangular Training (FTF ITT) Program on “Value Addition and Market Linkage Mechanisms in Millets” at ICAR-Indian Institute of Millet Research (IIMR), Hyderabad, Telangana, India.

She was involved in several activities such as briefing sessions with district staff on value addition of millets (District and 2 EPAs) and conducting sensitization meetings with food processing groups and cooperatives dealing with cereals.

Activity 1: The briefing included a presentation on what was covered in India on value addition of millets and the back at work plan

Activity 2: Sensitization meetings with food processing groups and Nanguluwe cooperative dealing with cereals. The Nanguluwe Cooperative Group currently supplies various food items such as maize, sorghum, sweet potato, vegetables, legume and meat to two schools. This meeting was attended by four men 18 women.



Activity 3: She conducted a supervisory visit to sorghum demonstration plots in Mpinda and Tamani EPA. The demonstrations were conducted in order to create awareness among farmers on the importance of growing drought-tolerant crops in addressing food insecurity and encouraging the farmers to reproducing of those crops.

Outcome:

- The District Agriculture Development Officer encouraged Ms. Mchenga to sensitize all NGOs implementing food security programs in the district
- Nanguluwe cooperative members were excited with the idea of adding value to sorghum and are eager to learn further.

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Direct Marketing Initiatives in Malawi



Mr. Mkochi Malaki, a Principal Agriculture Officer from Karanga, Malawi, was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Public-Private Partnership in Agricultural Extension Management for Extension Practitioners of Asian and African Countries” at the National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India.

While going through the training program under FTF ITT at MANAGE, he visited many cooperatives working for the development of farmers which include the Mulkanoor Cooperative Society in Karimnagar district of Telangana State.

During the training program, Mr. Malaki realized gaps in agricultural marketing in his country. He focused on formation of cooperative societies for promotion of groundnuts and soya bean production and marketing and started working with farmers by linking legume growing farmers' groups with existing legume cooperative (Mwamkumbwa legume cooperative) in Malawi.

He successfully identified 12 potential agro dealers who would buy the farmers' produce at farm level by networking them with groundnut and other legume crop growers. This act of creating a sustainable value chain for Malawian farmers is highly appreciated at every level.



Kaonga's grass thatched house, before seed multiplication



Fruits of seed multiplication



Sample of harvested G/nuts from this season

Case study of one household that was involved in Groundnuts seed multiplication from previous season

Outcome:

- Market linkages and cooperative society establishment
- Dealer to farmer linkages (Direct Marketing)
- Established value chain for seed production in Malawi.

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Kudumbashree Uganda Women's Ssenge Group

Ms. Rosemary Naggujja Mugerwa is the Chief Executive Officer of an NGO. She has attended FTF ITT International Training Program on “Entrepreneurship Development among Rural Women” at St. Augustine Institute, Nsambya, Kampala, Uganda.

After attending the training program, she realized that women's group can solve the problems like unemployment and market linkage. She formed a women's group called “Kudumbashree Ugande Ssenge Women's Group” (KUWSG) which has 24 members in Ssenge village of Wakiso district (Nabweru division, Nansana municipality).

She sensitized the women groups on briquette making and environmental education awareness, carbonizing biomass waste and stick briquette production. After this sensitization program the group decided that briquettes project is a great and amazing one. They are generating income by growing vegetables so that they can save money to purchasing the equipment required for the briquettes project.



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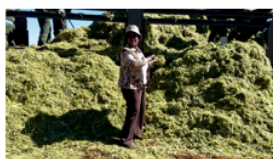
Silage Lady of Botswana



Ms. Pelaelo-Grand Tiyapo is a Chief Agricultural Scientific Officer from Botswana. She was trained under FTF ITT international training program on “Modern Dairy Technology and Management” at ICAR- National Dairy Research Institute (NDRI), Karnal, Haryana, India.

She has made a remarkable improvement in silage making and grouping of farmers in dairy development and fodder growing in Botswana with the knowledge she gained at NDRI, Karnal, Haryana, India.

She visited fields in order to assess the roughage and biomass stover availability and also assisting farmers in sourcing feed such as sorghum and maize stovers for commercial farmers



Ms Grand explaining silage making to farmers



Chopped maize being off loaded for silage making

and was able to complete silage preparation in a farm. She conducted sensitization training programs to the dairy officers and the veterinary staff emphasizing the importance of TB testing for dairy animals.

She visited dairy farms in order to impart knowledge about feed preparation and preservation. She has also planned more meetings with dairy clusters in order to share her Indian knowledge and, skills and also to assist the farmers in milk marketing.

Ms. Pelaelo has successfully created awareness on silage technology, its maintenance and



production in Botswana. She effectively communicated the importance of pest and disease management of livestock and fodder storage.

Ms. Pelaelo-Grand Tiyapo

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Divine Organic Foods from Uganda

Ms. Noela started the back to work action plan at Tebung village from December 2017 to February 2018. During this time she contacted the women from the agro-processing unit of divine organic foods.

Members of the community attending the inception meeting. They formed a ten-member group which started saving a weekly amount of 1000 Ugandan shillings and opened a bank account.



The group wants to address the issue of malnutrition faced by the locals by developing a balanced nutritional food mix. The proposal was presented at the local government office and was accepted and appreciated.

The project activity involves growing orange flesh potato and selling the produce to divine organic foods who would then process it to fortified foods. The local government body has extended consultation as well as political support to ensure the success of the project.



Ms. Noela then worked in another village and scaled up the same technology. From these projects, Noela aims to create a total of three self-help groups saving a minimum of 1000 shillings per week. She expects to link the groups to the formal banking system and thereby open a line of credit for expanding their business.

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Dairy Development in Kenya from Indian Experience

Mr. Orenge Juvinalis Stevan Kenaly, Principal Livestock Production Officer from Kenya, was trained on 'Modern Dairy Technology and Management' at ICAR-National Dairy Research Institute (NDRI), Karnal, Haryana, India.



He visited various dairy cooperatives led by smallholder dairy farmers. The success of Smallholder Dairy Cooperatives in India got the attention of Mr. Kenaly to think about taking the idea to Kenya. The productivity of milch animals is very low due to poor feed, fodder, health and poor management practices in Kenya.

To address the issue, he started sensitizing the smallholder dairy farmers. He has set up a 6000 liter/day milk capacity processing plant. This plant receives raw material directly from farmers at an agreed price per liter. At the same time, he provides extension services to farmers on nutrition, feed and fodder, managemental practices and marketing aspects of milk and milk products. As a result, smallholder dairy farmers have benefitted with increased profit per liter of milk.



Mr. Orenge Juvinalis Stevan Kenaly

Principal Livestock Production Officer

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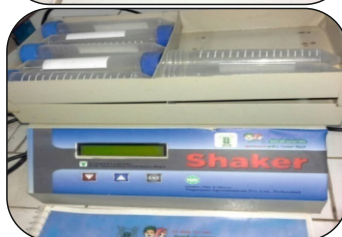
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Farm Advisory Services of Soil Management Practices for Ghana Farmers

Mr. Honu Geoffrey Kwaku, Director of Agriculture, Ministry of Food and Agriculture, Eastern Ghana is a Senior Officer trained under Feed The Future India Triangular Training (FTF ITT) program on “Management of Technology and Extension for Soil Testing based Advisory Services to Farmers” at ICAR-Indian Institute of Soil Science (IISS), Bhopal, Madhya Pradesh, India. During the training program, he got exposed to various soil management technologies.

Mr. Geoffrey planned to work on soil testing and application of soil amendments advisory services. He was successful in presentation of the gained Indian knowledge with his colleagues and extension functionaries giving priority to soil management and soil amendments techniques in Asubua, Birim Central, Eastern Ghana.



- Several demonstrations were carried out in maize fields by site selection, fertilizer recommendations and introducing a new short-term maize variety "Abontem".
- There is a plan to provide mini laboratories in all the districts with simple soil testing equipment in order to address soil health issues in the districts
- Adopting the use of fertilizer blends or soil amendments based on soil test results instead of the current blanket fertilizer recommendations.

Outcome:

- Indicative differences found in treatment plots
- Least yield in control plots
- Cost-efficient and safe fertilizer recommendations

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Preservation Techniques for Ugandan Fish Mongers

Mr. Kitamirike Joseph B., Fisheries Officer from Uganda was trained under FTF ITT Program on “Recent Trends in Harvest and Post-Harvest Technologies in Fisheries” at ICAR - Central Institute of Fisheries Technology (CIFT), Trissur, Kerala, India.



Generally, in Uganda fish marketing is practised without preservation. This leads to quality loss, reduced shelf-life and more post-harvest losses. To address the issue, he started creating awareness among fishmongers on the use of ice in fish preservation.



He has sensitized and conducted a training program for 18 fresh fishmongers and extension officers on post-harvest handling and quality management based on his rich technical knowledge learned at CIFT, Cochin. As a result of the training, fishmongers have started adopting the ice preservation technique leading to enhanced income.

Mr. Kitamirike Joseph B.

Fisheries Officer

ARUA District Local Government, Dept. of Production and Marketing

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Strategic Plan for Kandahar Pomegranate Farmers to Promote Pomegranate Farmers Association



Prof. Sayeed M. Kabir from Afghanistan's Agriculture University was trained under FTF ITT Program on “Public-Private Partnership in Agricultural Extension Management” at the National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India.

Pomegranate crop production is an important contributor to the Afghanistan's agricultural economy. Pomegranate is a major fruit crop in many provinces of Afghanistan such as Kandahar, Helmand, Wardak, Ghazni, Paktia, Farah, Kapisa and Balkh. It is a source of livelihood for thousands of people.

With the objective to promote pomegranate farmers association, focusing on pomegranate processing, employment creation, training and price administration of pomegranates produced in Kandahar, he organized a sensitization and capacity building meeting with higher officials of Ministry of Agriculture, Irrigation and Livestock (MAIL). The meeting was intended to develop the strategies on how to improve the livelihood of pomegranate farmers and best ways to increase their living standard through Public-Private Partnership (PPP) in Afghanistan.



Prof. Sayeed M. Kabir (Maïen)

Head of Department

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Self-Help Groups in Malawi



Ms. Uledi Eliza is an Agricultural Extension Officer from Malawi. She works for women development in her country. Ms. Eliza was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Agripreneurship Development among Farm Women” at Kudumbashree, Thiruvananthapuram, Kerala, India.

She learned the collectivization practices in Kudumbashree and how to mobilize and motivate women to do a profitable business. After going back to her country she worked for more than six months on “Collectivization & Promotion of Women Self-Help Groups”..

Later, based on the field work and liaisoning with different stakeholders Ms. Eliza was able to communicate and motivate women upon the idea of collectivization for the livelihood activity of catering and food processing. Based on her training in India Ms. Eliza identified the gaps in the present enterprises and built a standard operating procedure for making successful units.

Accordingly, 'Lusubiro' group was formed with 20 women and the group started setting up catering units. The catering unit deals with making and selling of snacks and juices in local markets and places such as churches and hospitals. She introduced the microfinance method to the group and made the groups to cultivate the spirit of weekly saving along with lending within the group. As a result, the group has been saving more than US\$ 1 in a week and lending the savings to the group members at an interest of 20 per cent.

Outcome:

- Employment creation
- Marketing opportunities with better price
- Profit maximization with the adoption of good financial models

Ms. Uledi Eliza

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Modern Grain Storage Technologies in Sudan



Ms. Omer Weldon Mohammad Osman is an Agricultural Engineering Officer from Sudan. She was trained under FTF ITT Program on 'Modern Storage Technologies in Agriculture' organized by ICAR- Central Institute of Post-Harvest Engineering and Technology (CIPHET), Ludhiana, Punjab, India.

After the training program, based on the experiences and knowledge, she constructed and upgraded 'underground storage pits' for grains, dry fruits and vegetables with the aid of a government-led project. She is also training other Sudanese on modern storage technologies which she learned at CIPHET, Ludhiana.



In future, she is planning to conduct capacity building programs on construction skills of storage facilities after analyzing her three years of experience in sorghum storage. As a result of her efforts, low cost-modern storage facilities are introduced in Sudan. Reduced level of grain loss, reduction in wastage of stored grains and policy impact at Government level are the changes she brought in.

Mrs. Omer Weldon Mohammad Osman

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Agricultural Engineering and Services, Administration

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Maize Sheller –The Iron Tooth's in Malawi



Mr. Chiomba Mathews Mike is an Agriculture Extension Development Officer from Malawi. He was trained on “Farm Mechanization for Small Farmers” at ICAR- Central Institute of Agriculture Engineering (CIAE) Bhopal, Madhya Pradesh, India.

After returning to Malawi, he felt the need for small-scale farm mechanization in the country. He started experimenting the ideas which he had learned during the training program and finally from the training experience in India. He has introduced maize sheller and many other implements, making the availability of farm mechanization in Malawi. As a result of his work, there is a reduction in time consumption in post-harvest processing and increase in the quality of maize grain.

He also aims at training other professionals on technologies learned in India and form a farmers' association. Farmers in Malawi got impressed by his innovation and are demanding more maize sheller machines.



Mr. Chiomba Mathews Mike

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Popularizing Organic Vegetable and Integrated Farming Systems for Afghanistan Farmers



Mr. Khalilullah Zaryal, Regional Marketing and Business Development Officer works for the National Horticultural and Livestock (NHLP) Project in Afghanistan. He was trained under Feed The Future India Triangular Training (FTF ITT) Program on “Production, Processing and Marketing of Organic Vegetables” at ICAR - Indian Institute of Vegetable Research (IIVR), Varanasi, Uttar Pradesh, India.

Mr. Khalilullah hails from Dand district, Kandahar province, Afghanistan where farmers grow mono crops on large acres due to irrigation problems. During the program in India, he learned about production practices of organic vegetables and other activities like certification, processing and marketing.

Post-training, he started sensitizing and organising capacity building programs to officers and beneficiary farmers under National Horticultural and Livestock (NHLP) Project in Afghanistan.



He has also built a 12*6 square meter greenhouse along with drip irrigation system connected to a 100 liters water storage facility in his own small piece of farm land. For integrated farming demonstration purposes in the greenhouse, he has grown many vegetable crops such as five rows of hybrid variety of cucumber, two rows of hybrid variety of brinjal, one row of hybrid variety of tomato, one row of hybrid variety of green peppers, one row of hybrid variety of okra and fruit crops such as figs, grapes, pomegranates, plum, oranges, apples and pears. Besides, he has constructed small units for poultry, dairy and duckery which all contribute to compost production.

In organic farming, usage of bio-inputs plays an important role and for the same cause, he is recommending many safe bio-inputs for Afghanistan farmers for better results in pest and disease management and crop development. As a result, Mr. Khalilullah has reached more than 200 people comprising farmers and officers.

Outcomes:

- Introduction of integrated farming to farmers for better income through farm activities
- Awareness on organic farming and marketing of vegetables and fruits
- Environmental and cost benefits through usage of bio-inputs

Mr. Zaryal Khalilullah

Regional Marketing and Business Development Officer,
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Implementing Kudumbashree Model through Organic Farming (Kitchen Gardening) in Uganda



Ms. Yagala Julian was trained under FTF ITT Program on “Entrepreneurship Development among Rural Women” at St. Augustine Training Institute, Nsambya, Kampala, Uganda. Based on her learning of Kudumbashree model, she initiated St. Rita Kudumbashree unit with seven young girls from the higher school.

These girls hail from poor and vulnerable backgrounds and have the same basic needs-financing their education and school related expenses. Julian took permission for forming the group from the girls' guardians and also briefed them on the Kudumbashree model.

The group decided on making and selling quick snacks to their fellow schoolmates with each member having to sell a pre-determined number. A trainer was arranged free-of- cost to train the girls in snack making. Since the girls were unable to raise money due to their background, Julian approached the well-wishers and raised 70000 Ugandan shillings as seed capital.



The group has improved its skills in production and bookkeeping and the number has increased from seven to ten members. Their main product which has the highest demand is “Mandazi”. After sales of each week, the girls meet every Sunday and put all the money in a pool. Their savings have increased; at the start they were saving 2000 Ugandan shillings per week per individual but now they can save up to 4000 Ugandan shillings per week per individual. The demand for their products at school is very high. Majority of them sell their stock in one or two days. The demand is higher than the production.

Ms. Yagala Julian

Coordinator

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Sensitization of Fish Preservation Techniques for Ghanaian Farmers



Ms. Janet Anchrinah, Mr. Anthony Appia, Ms. Fuseina Issah and Ms. Ruby Neils-Palm Officers from Fisheries Department, Ghana were trained under Feed the Future International Triangular Training (FTF ITT) Program on “Recent Trends in Harvest and Post-harvest Technologies in Fisheries” at ICAR-Central Institute of Fisheries Technology (CIFT), Cochin, Kerala, India.

After returning to their home country, with rich knowledge of fisheries, the Ghanaian executives initiated sensitization program and fish preservation techniques to reduce the post-harvest losses and to increase shelf-life of the fisheries products. The group has visited the largest producer of tilapia (Tropo Farms Limited) to discuss their plan to use offals for an experimental fish silage production.

The topics centered on good and bad hygienic fish handling practices, keeping fish catch in insulated containers on board, improper practices at fish landing sites, hygienic practices in fish storage, onboard fishing vessels, icing of fish, use of potable water for fishing practices and health implication of consuming unhygienic fish, etc.



Later they had discussions with farmers about culturing catfish in ponds and about the possibility of using the fish silage in their fish production process. They conducted a training program on Hygienic Fish Handling Onboard Fishing Vessels at the site, attended by 35 participants comprising fishermen, aquaculture operators, women fish processors, traders and opinion leaders.

**Ms. Janet Anchrinah, Mr. Anthony Appia, Ms. Fuseina Issah and
Ms. Ruby Neils-Palm**

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Popularizing Ecological Engineering and IPM Practices in Afghanistan



Mr. Nawakht Noor Agha is an Integrated Pest Management (IPM) specialist from Afghanistan. He was trained under FTF ITT International Training Program on “Plant Health Management Technologies and Approaches” at the National Institute of Plant Health Management (NIPHM) Hyderabad, Telangana, India.

After returning from India, he started working on promotion of ecological engineering-based IPM in tomato fields in Kabul, Afghanistan through workshops.

The key objective of the workshop was to build the capacity of local farmers on ecological engineering-based IPM and enhance their awareness about conservation biological control techniques through presentations, banners, demonstrations, field visits, group discussions and question- answer sessions



The workshop was attended by farmers, staff of the plant protection and quarantine department, staff of the extension department and other stakeholders.

He delivered a presentation on IPM practices, covering a wide array of easily applicable and environmentally safe pest control measures. It was followed by an open discussion about the major pests and crop diseases. Particular attention was given to make and provide all the training materials in local languages- Pashto/Dari.

Outcome:

- Keen interest of the farmers was observed on plant protection services
- Farmers appreciated the importance of ecological engineering based IPM tactics
- Farmers were provided with information regarding tomato pests in local languages (Dari/Pashto) and they received the hand out as well.

Mr. Nawakht Noor Agha

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A Policy Initiative for Public-Private Partnership in Liberia



Mr. Teekpeh Oliver Boye from Liberia was trained under FTF ITT Program on “Public-Private Partnership in Agricultural Extension Management” at the National Institute of Agricultural Extension Management (MANAGE), Hyderabad. He is serving as a member of the secretariat staff of the Liberia Forum for Agricultural Advisory Services (LIFAAS).

Based on his experience during the training program in India, he successfully developed the policy framework on Public-Private Partnership in Agricultural Extension Management by formulating and forwarding it to the Ministry of Agriculture (MoA) through LIFAAS.

Mr. Teekpeh further promoted the group-led advisory services in Liberia. In addition, he advised the Ministry about mobilization and capacity building of Liberian Agriculture Extension Professionals for agro advisory services.

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Mr. Teekpeh Oliver Boye

Plant Pathologist

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Empowerment of Farm Women through Collective Action in Uganda



Ms. Nabacha Mary Jacqueline was trained under FTF ITT Program on “Entrepreneurship Development among Rural Women” at St. Augustine Training Institute, Nsambya, Kampala, Uganda.

Ms. Mary introduced the Kudumbashree model to noble stars – a group consisting of ladies from Mary Hill high school area from Uganda. Thirteen members attended the group discussion and started initiating the activities. The group has practised regular saving and monthly meetings based on the basic model of Kudumbashree.

The group has decided to start a business of liquid soap making. This business helps the rural women to increase savings. This practice of soap making is continued with initiating another group of women after the lapse of three months. By this way, she is able to mobilize and guide farm women to be independent and empowered through collective action.



Preparation of Liquid Soap

Ms. Nabachwa Mary Jacqueline

Senior Officer

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Forage for Productive Dairy Farming in Uganda

Dr. Asiimwe Karimu Grace is a Veterinary Officer from Uganda trained under Feed The Future India Triangular Training Program on 'Modern Dairy Technology and Management' at ICAR-National Dairy Research Institute (NDRI), Karnal, Haryana, India. Post-training, he decided to train the farmers on pasture growing and management techniques which he learned during the training program at NDRI.



With the help of a project, Agricultural Technology and Agribusiness Advisory Service (ATAAS), the six farmers were provided with pasture seed (Chloris Gayana, lablab) and maize for silage. Then they were aided in ploughing and weeding of the gardens.

A demonstration was conducted on silage and haymaking in all the six demonstration farms. A total of 420 dairy farmers benefited from this demonstration and 24 extension workers benefited from this exposure. More farmers pledged to adopt the technology from planting season of March 2018.

As a result, a demonstration garden has been established at the district headquarters to demonstrate different varieties of napier (a fodder crop with different sugar levels, different biomass, drought resistance and different growth rates) to farmers. Farmers appreciated the different varieties so that they can buy seeds and plant them.



Mr. Asiimwe Karimu Grace

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Annexure I - Back at Work Plan

You have received valuable inputs from experts at the training institute and during field visits on various aspects of training theme. Please prioritize one important activity to be taken up by you when you go back to your workplace. Care has to be taken to decide the activity which can be delivered smoothly in your official responsibility without seeking additional funds, manpower and other facilities.

Prepare the Back at Work Plan for one most important activity in the following format.

I. Name of the Activity:

1. Problem in your service area:
2. Indian experiences / solutions/ innovations:
3. Place:
4. Target group:
5. Duration:
6. Expected end results:
7. Any other information:

Name:

Signature

Annexure-II: List of Point of Contacts (POCs) of FTF ITT International Training in Partner Countries

S.No.	Country	Point of Contact (POC)
1.	Afghanistan	<p>Dr. Najib Malik Mob: 0093 700172696, Alternate Mobile: 0093-799 26 96 83 Email: najib.malik@mail.gov.af and najibmalik_1@hotmail.com,</p> <p>Mr. Mirwais Khogiani Tel: 0093-799269683 Email: mir.khogiani@gmail.com</p>
2.	Botswana	<p>Dr. Nelson Motlapele Tselaesele Telephone No: +267 71498036, +267 3650 100; Email: nelson.tselaesele@gmail.com</p>
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4.	DR Congo	<p>Mrs. Ifemo Basele Marie-Caroline Deputy Director in Ministers office Tel: + 243 (0) 822 158000 Email: basele1@live.com</p>
5.	Ghana	<p>Mr. Jeremy Agyemang Telephone No: +233 267582868 Email: kwespo@hotmail.com</p>
6.	Kenya	<p>Mrs. Ruth Mwangi Telephone No: +254 722 337107 Email: mwangir2012@gmail.com,</p>
7.	Liberia	<p>Ms. Debora Williams Telephone No: +231- 886553197 Email: dbrawilliams@gmail.com,</p> <p>Mr. Raphael Collins Tel: +231 886 525 874 Email: zephanielc@gmail.com,</p>

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9.	Mongolia	Ms. Ms. Batkhishig Zaya Tel: 976-51-261908 (o) Mob: 976-99880846 Email: zayasant@yahoo.com
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14.	Vietnam	Mrs. Nguyen Phuong Thanh Tel: +84-4-38437450 email: thanhnp.htqt@mard.gov.vn
15.	Lao PDR	Ministry of Agriculture, Lao PDR
16.	Sudan	Ms. Asmaa Abdou Ministry of Agriculture, Sudan Phone No: +249 912255397 Email: asmaaabdu2007@yahoo.com, fatimarahma111@hotmail.com,
17.	Tanzania	Ministry of Agriculture, Tanzania

Annexure III: Details of 28 FTF ITT Programs



Program 1:“e-Extension: e-Extension: ICT Applications in Agricultural Extension Management”, 10-19 October, 2016 at MAIL, Kabul, Afghanistan. 71 executives attended the Program.



Program 2: “Public Private Partnership in Agricultural Extension Management”, 17-31 October, 2016 at National Institute of Agricultural Extension Management (MANAGE), Hyderabad. 29 executives from 8 countries attended the program.



Program 3: “Emerging Trends in Marketing of Fruits and Vegetables”, 16-30 November, 2016 at National Institute of Agricultural Marketing (NIAM), Jaipur, Rajasthan, India. 27 executives from 9 countries attended the program.



Program 4: “Agripreneurship Development among Farm Women”, 01-15 March, 2017 at Kudumbashree, Thiruvananthapuram, Kerala, India. 25 executives from 8 countries attended the program.



Program 5: “Production and Post-harvest Technology for Tuber Crops”, 04-18 April, 2017 at ICAR-Central Tuber Crops Research Institute (CTCRI), Thiruvananthapuram, Kerala, India. 23 executives from 8 countries attended the program.



Program 6: “Farm Mechanization for Small Farmers”, 11-25 April, 2017 at ICAR-Central Institute of Agricultural Engineering (CIAE), Bhopal, Madhya Pradesh, India. 23 executives from 9 countries attended the program.



Program 7: “Modern Dairy Technology and Management”, 15 -29 April, 2017 at ICAR- National Dairy Research Institute (NDRI), Karnal, Haryana. 24 executives from 9 countries attended the program.



Program 8:“International Partnership Convention for Point of Contacts (POCs) of Africa and Asian Countries,” 28 June to 01July, 2017 at National Institute of Agricultural Extension Management (MANAGE), Hyderabad, Telangana, India.



Program 9: 'Modern Storage Technologies in Agriculture', 11 – 25 June, 2018 at ICAR - Central Institute of Post-Harvest Engineering & Technology (CIPHET), Ludhiana, Punjab. 20 executives from 11 countries attended the program.



Program 10: “Plant Health Management Technologies and Approaches”, 4 - 18 September, 2017 at National Institute of Plant Health Management (NIPHM), Hyderabad, Telangana, India. 24 executives from 8 countries attended the program.



Program 11: “Recent Trends in Harvest and Post-harvest Technologies in Fisheries”, 12-26 September, 2017 at ICAR-Central Institute of Fisheries Technology (CIFT), Cochin, Kerala. Total 22 executives from 8 countries attended the program.



Program 12: “Post-harvest Technology in Horticulture Crops”, 6 - 20 November, 2017 at ICAR-Indian Institute of Horticultural Research (IIHR), Bengaluru, Karnataka. 26 executives from 12 countries attended the program.



Program 13: “Entrepreneurship Development among Rural Women”, 13 - 22nd November, 2017 at St. Augustine Training Institute, Nsambya, Kampala, Uganda. 56 executives from Uganda attended the program.



Program 14: “Linking Farmers to Market: Opportunities and Challenges”, 09 – 23 January, 2018 at CCS National Institute of Agricultural Marketing (NIAM), Jaipur, Rajasthan, India. 20 executives from 7 countries attended the program.



Program 15: 'Strategies For Enhancement of Farmers Income in Dryland Agriculture', 16 – 30th January, 2018 At ICAR - Central Research Institute of Dryland Agriculture (CRIDA), Hyderabad, Telangana, India. 22 executives from 10 countries attended the program.



Program 16: 'Value Addition and Market Linkage Mechanisms in Millets', 23 January – 06 February, 2018 at ICAR - Indian Institute of Millets Research (IIMR), Hyderabad, Telangana, India.



Program 17: 'Management of Technology and Extension for Soil Testing based Advisory Services to Farmers', 30 January - 13 February, 2018 at ICAR - Indian Institute of Soil Sciences (IISS), Bhopal, Madhya Pradesh, India. 21 executives from 7 countries attended the program.



Program 18: 'Production, Processing and Marketing of Organic Vegetables', 06 – 20 February, 2018 at ICAR - Indian Institute of Vegetable Research (IIVR), Varanasi, Uttar Pradesh, India. 21 executives from 11 countries attended the program.



Program 19: 'Agricultural Credit for Sustainable Livelihoods', 06 – 20 February, 2018 at Bankers' Institute of Rural Development (BIRD), Lucknow, Uttar Pradesh, India. 20 executives from 9 countries attended the program.



Program 20: 'Income Generating Enterprises in Plantation Sector', 13 - 27 February, 2018 at ICAR-Central Plantation Crops Research Institute (CPCRI), Kasaragod, Kerala, India. 21 executives from 7 countries attended the program.



Program 21: "Critical Production and Processing Technologies in Rice", 2th February – 06 March, 2018 at ICAR-Indian Institute of Rice Research (IIRR), Hyderabad, Telangana, India. 20 executives from 7 countries attended the program.



Program 22: 'Plant Biosecurity and Food Safety', 03 – 17 March, 2018 at National Institute of Plant Health Management (NIPHM), Hyderabad, Telangana, India. 23 executives from 10 countries attended the program.



Program 23: "Management of Dairy Cooperatives", 10-24 April, 2018 at ICAR- National Dairy Research Institute (NDRI), Karnal, Haryana. 22 executives from 9 countries attended the program.



Program 24: "Entrepreneurship Development in Food Processing", 17 April - 01 May, 2018 at Indian Institute of Food Processing Technology (IIFPT), Thanjavur, Tamil Nadu. 20 executives from 6 countries attended the program.



Program 25: Modern Poultry Management during 01 – 15 May, 2018 at ICAR - Directorate of Poultry Research (DPR), Hyderabad, Telangana. 29 executives from 8 countries attending the program.



Program 26: 'Entrepreneurship Development among Rural Women' scheduled during 09-23 May, 2018 at Kudumbashree, Thiruvananthapuram, Kerala.



Program 27: 'Value Addition in Spices' scheduled during 15 -29 May, 2018 at ICAR-Indian Institute of Spices Research (IISR), Calicut, Kerala, India.



Program 28: 'Modern Storage Technologies in Agriculture' scheduled during 11 – 25 June, 2018 at ICAR - Central Institute of Post-Harvest Engineering & Technology (CIPHET), Ludhiana, Punjab.

Annexure IV: Partner Institutes










Annexure V: Partner Countries



Annexure VI: Feed The Future India Triangular Training (FTF ITT) Program Social Media Platforms



	To watch FTF Movie: Visit: https://youtu.be/SHXstSPbbds
	To visit FTF ITT Webpage: http://www.manage.gov.in/ftf-itt/ftf-itt.asp
	To visit FTF ITT YouTube Channel: https://www.youtube.com/channel/UC1F6uDe5z-medh2KiW26FQQ
	To follow FTF ITT Facebook Page: https://www.facebook.com/ftfittmanage.india (PMU, MANAGE India)
	To follow FTF ITT Twitter Handle: https://twitter.com/FTFITT_MANAGE (@FTFITT_MANAGE)
	To download monthly e-bulletins: http://www.manage.gov.in/ftf-itt/ebulletin/ebulletin.asp
	30 active WhatsApp groups

Annexure VII: Team

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Program Management Unit (PMU)
National Institute of Agricultural Extension Management (MANAGE)
 (An autonomous organization of Ministry of Agriculture and farmer's welfare,
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 Facebook page: <https://www.facebook.com/ftfittmanage.india>



Program Management Unit (PMU)
National Institute of Agricultural Extension Management (MANAGE)

(An autonomous organization of Ministry of Agriculture and farmer's welfare,
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Facebook page: <https://www.facebook.com/ftfittmanage.india>