भाकृअनुप
ICAR

वार्षिक प्रतिवेदन
ANNUAL REPORT

2017-18

भा.कृ.अनु.प.–कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान (अटारी) अंचल-७
उमियम, मेघालय–७९३१०३

ICAR-Agricultural Technology Application Research Institute, Zone-VII
Umiam, Meghalaya - 793 103

वार्षिक प्रतिवेदन
Annual Report
2017-18

भा कृ अनु प-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, अंचल-७
ICAR-Agricultural Technology Application Research Institute, Zone-VII
उमियम, मेघालय-793103
Umiam, Meghalaya-793103

(An ISO 9001:2015 certified organization)

Citation

ICAR-Agricultural Technology Application Research Institute, Zone-VII, Umiam, Meghalaya, India

Published by

ICAR- Agricultural Technology Application Research Institute, Zone – VII, Umiam, Meghalaya –793103

Phone : 0364-2570081
Fax : 0364-2570396, 2570483
Email : icarzcu3@gmail.com
Website : http://www.icarzcu3.gov.in

Compiled and Edited by

A.K. Singha
Bidyut C. Deka
Divya Parisa
Rimiki Suchiang
Ophilia
Anik Lyngdoh
Worshim Mahongnao
Daegal A Massar

Printed at
Rumi-Jumi Enterprise
6th Mile, Guwahati
Ph. No. : 9864075734

PREFACE

Greetings from ICAR- ATARI, Umiam (Zone-VII)!

The ICAR- Agricultural Technology Application Research Institute (ATARI), Zone-VII, Umiam with its headquarters at Umiam, Meghalaya is primarily responsible for systematic coordination, monitoring and reviewing of mandated activities such as technology assessment, demonstrations, planting material production, training programmes and other extension activities of 43 KVKs in five North Eastern States of India, viz. Manipur, Meghalaya, Mizoram, Nagaland and Tripura. In addition, the institute is also engaged in formulation and implementation of need based research projects as part of strengthening agricultural extension research and knowledge management. During the year 2017-18, the institute completed one institute research project entitled "Information need of farmers of NE Region for adoption of Agricultural Technologies" besides implementing five externally funded projects. Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-VII published 9 (nine) research articles in prestigious national and international research journals during 2017-18. The institute also brought out few other publications, namely Birding the Rainbow-a glimpses of success stories, Genesis-Dynamics of Farm Innovations, Strategy Document on Doubling Farmers Income in Meghalaya and Climate Resilient Agricultural Interventions in North East India.

The institute also serves as feedback mechanism to research and extension systems while maintaining a very close liaison with ICAR headquarters and has made significant progress in research, capacity building and other extension activities during 2017-18. Through this publication, an attempt has been made to highlight the significant achievements of the institute and the KVKs under its jurisdiction during 2017-18.

I express my sincere thanks and gratitude to Dr. T. Mohapatra, Secretary, DARE & DG, ICAR, Govt. of India, Dr. A.K. Singh, DDG (AE), Dr. V.P. Chahal, ADG (AE), Dr. Randhir Singh Poswal, ADG (AE) and all the colleagues of Agricultural Extension Division in the Council HQ for their constant encouragement, guidance and support in executing the mandates of the institute. I also thankfully acknowledge the commendable efforts and contributions made by Dr. A.K. Singha (Pr. Scientist) and his entire team including contractual staff of the institute in bringing out this publication within a stipulated time period.

Place: Umiam, Meghalaya
Date: July, 2018

(Bidyut C. Deka)
Director

CONTENTS

EXECUTIVE SUMMARY

The ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII having 43 KVKs under its jurisdiction spread over five North Eastern states of Manipur, Meghalaya, Nagaland, Mizoram and Tripura has been making all out efforts in fulfilling the needs and aspiration of different stakeholders including farmers in the region. The support received from Directorate of Extension Education of Central Agricultural University, Imphal as well as 11 host organizations enabled the institute to cater the needs of different stakeholders including KVKs in providing technological as well as methodological backstopping, information support, skill up-gradation, entrepreneurship development etc. in crops and other livestock enterprises.

During 2017-18, the ICAR-Agricultural Technology Application Research Institute, Zone-VII, Umiam had completed institute research project on "Information need of farmers of NE Region for adoption of Agricultural Technologies" and its reports had already been submitted in the form of RPF-3. The institute also through its selected KVKs, research institute and agricultural university has been implementing five externally funded projects namely; ***National Innovations on Climate Resilient Agriculture (NICRA)*** for technology demonstration on farmers' fields through 14 selected KVKs, ***Attracting and Retaining Youth in Agriculture (ARYA)*** through 3 selected KVKs, ***Farmer FIRST Project (FFP)*** through ICAR Research Complex for NEH Region, Umiam, Meghalaya and Central Agricultural University, Imphal and ***Cluster Demonstration on Oilseeds and Pulses under NMOOP/NFSM*** through 23 KVKs and ***Skill Development Training Programme*** under Ministry of Skill Development and Entrepreneurship, Govt. of India through 21 KVKs.

Scientists of ICAR-Agricultural Technology Application Research Institute, Zone-VII during 2017-18 published 9 (nine) research articles in prestigious national and international research journals and 2 (two) more research papers have been accepted for publication. The institute was also successful in publication of Birding the Rainbow-a glimpses of success stories ***(Resource Book),*** Genesis-Dynamics of Farm Innovations ***(*Resource Document*),*** Impact of Technologies on Oilseeds Production in North Eastern Region and Impact of Technologies on Pulses Production in North Eastern Region ***(*Technical Bulletin*),*** Strategy Document on Doubling Farmers Income in Meghalaya by 2022 **(Strategy Document),** Action Plan of KVKs, 2018-19 **(Strategy Document),** Initiatives and Interventions under CFLD on Pulses in North East India **(Technical Bulletin**), Climate Resilient Agricultural Interventions in North East India **(Technical Bulletin**), Champereia manillana an underexploited and underutilized vegetable crop of nutritional importance ***(*Abstract in Conference Proceedings*),*** Sustainability of small holder agriculture in developing countries under changing climate scenario" **(Abstract in Conference Proceedings),** Marine legumes- A boon to combat hidden hunger and protein malnutrition **(Abstract in Conference Proceedings**), Attracting and Retaining Youth in Agriculture (ARYA): A special Focus on North Eastern States of India **(Abstract in Conference Proceedings).** During the year 2017-18, the ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII was recognised with the Best Poster Presentation Award on "Potential, Prospects and Strategies for Doubling Farmers Income: Multi-stakeholder Convergence" in 8th National Seminar organized by Society for community mobilization for sustainable development, New Delhi, at College of Veterinary Science, Assam Agricultural University, Khanapara, 09-11 Nov, 2017.

During the period, the institute, through 14 NICRA KVKs under its jurisdiction, was successful in promotion of climate resilient agricultural technologies in North East Hill region such as In-situ moisture conservation with plastic mulch in Bitter gourd crop, under zero tillage (Pea-Vikas), No

till Toria (var.TS-67) under Paddy based cropping system, Mulching of Field pea in Rice fallow under Rice based cropping system, Growing of tomato using paddy straw as mulch, Application of Pusa Hydrogel in cultivation of winter vegetables, Furrow irrigation method in Maize and Vermicomposting. "Rock fill Dam" using sausage wire and stones on community participatory approach was demonstrated covering catchment area of 180 hectares using PVC pipe (60mm) for life saving irrigation in Cole crops during rabi (Cabbage). Staggered Paddy variety Gitesh was transplanted up to 50 days without affecting the yield to popularize in the NICRA village under Zero tillage cultivation. Medium duration rice varieties RCM-9 and RCM-13 were also demonstrated in 2017-18 in order to utilize the residue moisture and increase the cropping intensity with rabi crops such as Toria and Linseed. Toria as a second crop after the harvest of paddy was popularized to utilize the residual moisture available in the soil and to increase the cropping intensity. Toria (Var.TS-36, TS-38 Oilseeds and TS-67) were cultivated in large scale with an area of 50 ha covering 60 farmers.

Demonstration on Apiculture/beekeeping with Toria as a pollinating agent was taken up in NICRA villages for enhancing the production and productivity of oilseed crop specially Toria/Mustard and Linseed apart from honey production. Average yield of Toria and honey yield was assessed. Yield of Toria was 8.6qt/ha whereas, honey yield of 675g/box per month could be harvested. And per cent increase in average yield of Toria was 16.2%. Capacity Building programmes on Soil health management, Life saving irrigation, Cropping system, Protective cultivation, IPM, Soil moisture conservation, Livestock management and Value addition were conducted covering a total of 1692 farmers. Under the project, Extension Activities like Method demonstrations, Agro advisory services, Awareness, Exposure visits, Group discussion, Diagnostic .visit, Kishan gosthi, Farmers scientist interaction & Group meeting with VLMC of the village etc were also organised by the NICRA KVKs under the technical supervision of the institute benefitting a total of 1501 of farmers.

With close technical support and guidance by ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII, the KVKs of the zone conducted different On-Farm Testing (OFTs) through field level assessment of 326 technologies with 1484 nos. of trials benefitting a total of 2785 farmers and refined 38 technologies with 174 nos. of trials under different thematic areas of crop enterprises during the period. Besides, the KVKs also made assessment of 75 technologies with 435 numbers of trials and refined **3** technologies with 17 nos. of trials in different thematic areas of livestock enterprises in the zone. The systematic coordination and monitoring mechanism of the ICAR-ATARI, Zone-VII helped the KVKs to successfully conduct as many as **7217** frontline demonstrations in **1659.13** ha area to demonstrate the production potential of newly released technologies in the farmers' fields at different locations in a given farming system. These included frontline demonstrations in oilseeds (1385), pulses (980), other crops (2949), livestock enterprises (812), and other enterprises (1091).

The institute during 2017-18 organized 12 (Twelve) different HRD programmes for KVK staff, farmers, rural youth and other agri-preneurs of the region in partnership with different allied institutions/ and organizations on different disciplines and thematic areas. During the year 2017-18, a total of 3372 training programmes were conducted by the KVKs in different areas of agriculture and allied activities benefitting a total of 75965 farmers and farm women, rural youth, in-service extension personnel, civic bodies, NGOs, entrepreneurs etc. on different thematic areas such as crop production, horticulture, soil health and fertility management, livestock production and management, home science and women empowerment, agricultural engineering, plant protection, fisheries, capacity building and group dynamics, agro-forestry etc. This included 2045 courses and 51646 participants of farmers, 565 courses and 11791 participants of rural youth and 188 courses and **3921** participants of extension personnel. In addition, 371 courses of sponsored training programmes were also conducted by the KVKs under the zone for 5288 participants as well as 203 nos. of vocational training courses benefitting a total of 3319 participants on different areas of income generating activities/ enterprises. With regard to effort to women empowerment, as many as 36821 women representing 48.47 percent of the total beneficiaries (75965) were imparted skill oriented trainings in different areas of crop and livestock enterprises/

farming by the KVKs under the zone. KVKs in the region also organised a total of 30707 number of extension activities under close supervision and guidance of this institute for the benefit of 209953 farmers, farm women, agri-preneurs, extension personnel and rural youth including school children in the region to create awareness about improved agricultural technologies and their role in agricultural development.

During the period, KVKs under Zone-VII produced high quality seeds, planting materials and bio-products which included 1037.09 tonnes of quality seeds of cereals, pulses, oil seeds, vegetables etc, 10.87 lakh of planting materials of fruits, vegetables, forest species, plantation, ornamental crops etc., 272.34q of bio-products and 20.42 lakh of livestock and fingerlings. As mandated activity, the institute also successfully organised annual action plan workshop for the year 2018-19 to formulate and finalise the KVKs activities and Annual Zonal Workshop of KVKs (2017-18) to review the progress and achievements of KVKs.

As part of regular activity, the institute made sincere efforts in strengthening of the Directorate of Extension Education (DEE) and Agricultural Technology Information Centres (ATIC) under the zone through regular monitoring mechanism. During the year, Central Agricultural University, Imphal made a total of 32 visits by its Director of Extension Education (DEE) and other scientists in KVKs under its jurisdiction. The Directorate also organised 5 nos. of review meetings to oversee the activities of KVKs and organised 9 HRD Programmes for knowledge empowerment and technology backstopping to the KVKs with total 258 KVK participants/ staff. As many as 22 publications including extension bulletins (2), technical bulletins (1), training manuals (2) and farm magazine (4) were brought out by the Directorate during the period.

During the period under report, the KVKs analyzed a total of 10087 samples comprising of soil samples (9763), water samples (302) and plant samples (22) to ascertain strength and weaknesses of the soil, water and plants and suggested fertilizers recommendations. In the process, a total of 612 villages had been covered and as many as 15395 farmers were benefitted. During the period, as many as 13288 numbers of Soil Health Cards (SHCs) were distributed to 15146 farmers.

The ICAR-ATARI, Zone-VII has been implementing an innovative initiative “Mera Gaon Mera Gaurav (MGMG)” with the help of KVKs under the zone to promote the direct interface of scientists with the farmers to hasten the lab to land process. The main objective of this scheme is to provide farmers with required information, knowledge and advisories on regular basis by adopting villages. During the period, a total of 36 KVKs involved in the programme by adopting 607 no. of villages. The notable activities under the programme included 611 nos. of field demonstrations on various agriculture and allied technologies as well as 557 nos. of training programmes for farmers and farm women.

कार्यकारी सारांश

भा कृ अनु प - कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान (अटारी) अंचल 7, अपने अधिकारक्षेत्र के 43 कृवीके जो पाँच राज्यों यानी; मणिपुर, मेघालय, मिजोरम, नागालैंड और त्रिपुरा में फैले हुए हैं, द्वारा क्षेत्र के हितधारको एवं किसानों की आकांक्षाओ को पुरा करने में प्रयासरत है। केंद्रीय कृषि विश्वविद्यालय, इम्फाल के कृषि विस्तार निदेशालय और 11 अन्य मेजबान संगठन की सहायता से संस्थान, हितधारको की फसल एवं दूसरी पशुधन उद्यम जैसी विभित्र जरूरतो जैसे प्रौद्योगिकी एवं कार्यप्रणाली मदद, जानकारी सहायता, कौशल उत्रयन, उद्यमिता विकास इत्यादि द्धारा क्षेत्र को सक्षम कर रहा है।

2017-18 के दौरान, भा कृ अनु प-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, (अटारी) अंचल 7 उमियम ने ''कृषि प्रौद्योगिकियों को अपनाने के लिए पूर्वोत्तर क्षेत्र के किसानों की सूचना की आवश्यकता'' पर संस्थान शोध परियोजना पूरी की थी और इसकी रिपोर्ट आरपीएफ-3 के रूप में पहले ही जमा हो चुकी है । संस्थान अपने चयनित कृवीके, अनुसंधान संस्थान और कृषि विश्वविद्यालय के माध्यम से भी पांच बाहरी रूप से वित्त पोषित परियोजनाओं को कार्यान्वित कर रहा है; 14 चयनित कृवीके के माध्यम से किसानों के खेतों पर प्रौद्योगिकी प्रदर्शन के लिए कृषि में जलवायु पुनर्विक्रेता पर राष्ट्रीय नवाचार (एनआईसीआरए), 3 चयनित कृवीके के माध्यम से कृषि में युवाओं को आकर्षित करना और बनाए रखना (आरवाईए), भा कृ अनु प की उत्तर पूर्वी पर्वतीय अनुसंधान परिसर, उमियम एवं केंद्रीय कृषि विश्वविद्यालय, इम्फाल के माध्यम से किसान प्रथम परियोजनाओं (एफएफपी) और 23 कृवीके के माध्यम से एनएमओयूपी / एनएफएसएम के तहत तिलहन और दलहन पर सामूहिक प्रदर्शन और कौशल विकास और उद्यमिता मंत्रालय, भारत सरकार के तहत 21 कृवीके के माध्यम से कौशल विकास प्रशिक्षण कार्यक्रम ।

2017-18 के दौरान भा कृ अनु प-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, (अटारी) अंचल 7, उमियम के वैज्ञानिकों ने प्रतिष्ठित राष्ट्रीय और अंतरराष्ट्रीय शोध पत्रिकाओं में 9 (नौ) शोध लेख प्रकाशित किए और 2 (दो) शोध पत्र प्रकाशन के लिए स्वीकार किए गए। यह संस्थान बर्डिंग द रेनबो- सफलता की कहानियों (संसाधन पुस्तक), उत्पत्ति-गतिशीलता के फार्म नवाचार (संसाधन दस्तावेज), उत्तर पूर्वी क्षेत्र में तिलहन उत्पादन पर प्रौद्योगिकी का प्रभाव, उत्तर पूर्वी क्षेत्र में दलहन उत्पादन पर प्रौद्योगिकी का प्रभाव (तकनीकी बुलेटिन), 2022 तक मेघालय में किसानों की दोगुनी आय पर रणनीति दस्तावेज (रणनीति दस्तावेज) और कृवीके की कार्य योजना, 2018-19 (रणनीति दस्तावेज), उत्तर पूर्व भारत में दलहन पर सीएफएलडी के तहत पहलों और हस्तक्षेप (तकनीकी बुलेटिन), उत्तर पूर्वी भारत में जलवायु तन्यक कृषि हस्तक्षेप (तकनीकी बुलेटिन), चेम्पेरिया मणिलाना एक पोषक महत्व की कम क्षरित और कम उपयोग वाली सब्जी (सम्मेलन कार्यवाही में सार), जलवायु परिदृश्य के बदलने के तहत विकासशील देशों में छोटे धारक कृषि की स्थिरता (सम्मेलन कार्यवाही में सार), समुद्री फलियां-छिपी भूख और प्रोटीन कुपोषण का मुकाबला करने के लिए एक वरदान (सम्मेलन कार्यवाही में सार), कृषि में युवाओं को आकर्षित करना और बनाए रखना (एआरवाईए), भारत के उत्तर पूर्वी राज्यों पर एक विशेष परिदृश्य (सम्मेलन कार्यवाही में सार) के प्रकाशन में भी सफल रहा। वर्ष 2017-18 के दौरान, भा कृ अनु प-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, (अटारी) अंचल 7 उमियम को पशु चिकित्सा विज्ञान महाविद्यालय, असम कृषि विश्वविद्यालय, खानापारा, में 09-11 नवंबर, 2018 को सोसाइटी फॉर कम्युनिटी मोबिलाइजेशन फॉर सस्टेनेबल डेवलपमेंट, नई दिल्ली द्वारा आयोजित 8वें राष्ट्रीय संगोष्ठी ''किसानों की दोगुनी आय के लिए क्षमताए संभावनाएं और रणनीतियांरू बहु-हितधारक अभिसरण'' पर सर्वश्रेष्ठ पोस्टर प्रस्तुति पुरस्कार मिला।

इस अवधि के दौरान, संस्थान, अपने अधिकार क्षेत्र के तहत 14 एनआईसीआर, कृवीके के माध्यम से, उत्तरी पूर्व पर्वतीय क्षेत्र में जलवायु तन्यक कृषि प्रौद्योगिकियों को बढ़ावा देने में सफल रहा, जैसे कि करेला में प्लास्टिक की मल्च के साथ इन-सिटू नमी संरक्षण, शून्य जुताई के तहत (मटर- विकास), धान आधारित फसल प्रणाली के तहत बिना जुताई के तोरिया (किस्म टी एस-67), चावल आधारित फसल प्रणाली के तहत चावल-परती में फील्ड मटर की मल्चिंग, धान की भूसे को मल्च के रूप में उपयोग कर टमाटर का उत्पादन, सर्दियों की सब्जियों की खेती में पुसा हाइड्रोजेल का उपयोग, मक्का और वर्मीकंपोस्टिंग में कुंड सिंचाई विधि। सॉसेज तार और सामुदायिक भागीदारी दृष्टिकोण पर पत्थरों का उपयोग करके रोक फिल डैम का प्रदर्शन, रबी (पत्ता गोभी) के दौरान कोल फसलों में पीवीसी पाइप 60 मिमी का उपयोग करके जीवन

बचत सिंचाई करके 180 हेक्टेयर के जलग्रह क्षेत्र को अच्छादित किया गया । शुन्य जुताई की खेती के तहत एनआईसीआर गांव में लोकप्रिय होने के लिए उपज को प्रभावित किए बिना धान की किस्म गितेश को 50 दिनों तक ट्रांसप्लांट किया गया था। मध्यम अवधि चावल किस्मों आरसीएम-9 और आरसीएम -13 को अवशेष नमी का उपयोग करने और तोरिया और अलसी जैसे रबी फसलों के साथ फसल की तीव्रता में वृद्धि के लिए 2017-18 में भी प्रदर्शित किया गया । धान की फसल के बाद तोरिया को मिट्टी में उपलब्ध अवशिष्ट नमी का उपयोग करने और फसल की तीव्रता में वृद्धि के लिए लोकप्रिय किया गया था। तोरिया (किस्म टीएस -36, टीएस-38 और टीएस-67) की बड़े पैमाने पर खेती की गई जिसमें 50 हेक्टेयर क्षेत्र के 60 किसान शामिल थे।

एनआईसीआर गांवों में शहद के उत्पादन के अलावा, एक परागण एजेंट के रूप में तोरिया के साथ मधुमक्खी पालन पर प्रदर्शन किया गया ताकि तिलहन फसलों विशेषकर तोरिया/सरसों और अलसी के उत्पादन और उत्पादकता में वृद्धि की जा सके। तोरिया और शहद उपज की औसत उपज का आकलन किया गया। तोरिया की पैदावार 8.6 क्विंटल प्रति हेक्टेयर थी, जबकि प्रति माह 675 ग्राम / बॉक्स शहद भी प्राप्त किया जा सकता था और तोरिया की औसत उपज में 16.2 प्रतिशत वृद्धि भी दर्ज कि गई। मृदा स्वास्थ्य प्रबंधन, जीवन बचत सिंचाई, फसल प्रणाली, सुरक्षात्मक खेती, आईपीएम, मृदा नमी संरक्षण, पशुधन प्रबंधन और मूल्यवर्धन पर क्षमता निर्माण कार्यक्रम में कुल 1692 किसानों को सम्मलित किया गया। परियोजना के तहत कुल 1501 किसानों को लाभान्वित करने के लिए संस्थान की निगरानी में एनआईसीआर कृवीके द्वारा तकनीकी प्रदर्शन के तहत विधि प्रदर्शन, कृषि सलाहकार सेवाएं, जागरूकता, अनावरण भ्रमण, समूह चर्चा, नैदानिक यात्रा, किसान गोष्टी, किसान वैज्ञानिक संवाद और गांव की वीएलएमसी के साथ समूह बैठक जैसे विस्तार गतिविधियां भी आयोजित की गईं।

भा कृ अनु प-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, (अटारी) अंचल 7 उमियम द्वारा निकट तकनीकी समर्थन और मार्गदर्शन के तहत, इस क्षेत्र के कृवीके ने क्षेत्र स्तर मूल्यांकन द्वारा 326 प्रौद्योगिकियों का 1484 परिक्षण के साथ विभिन्न ऑन-फार्म टेस्टिंग (ओएफटी) का आयोजन किया जिससे कुल 2785 किसानों को लाभान्वित किया गया और इस अवधि के दौरान फसल उद्यमों के विभिन्न विषयगत क्षेत्रों के तहत 174 परिक्षण के साथ 38 प्रौद्योगिकियों का संशोधन भी किया गया । इसके अलावा, कृवीके द्वारा अंचल में पशुधन उद्यमों के विभिन्न विषयगत क्षेत्रों में 75 तकनीकों का मूल्यांकन 435 परीक्षण के साथ और 3 प्रौद्योगिकियों का 17 परिक्षण के साथ संशोधित भी किया गया। भा कृ अनु प-अटारी अंचल 7 उमियम के सही सामंजस्य तथा निगरानी के साथ ही साथ किसानों के सहयोग से कृषि तकनीकों का उपयोग करते हुए कृषि विज्ञान केन्द्रो ने किसानों के 1659.13 हेक्टेयर भूमि पर 7217 प्रथम पंक्ति प्रदर्शन किया। इसमें तिलहन(1385), दलहन (980) अन्य फसले (2949), पशुधन उद्यम (812), और अन्य उद्यमों (1091) पर प्रथम पंक्ति प्रदर्शन आयोजित किए गए।

वर्ष 2017-18 के दौरान संस्थान ने विभिन्न सहयोगी संस्थानों के साथ साझेदारी में 12 (बारह) अलग-अलग मानव संसाधन कार्यक्रम कृवीके के कर्मचारियों, किसानों, ग्रामीण युवाओं और अन्य कृषि व्यवसायी के लिए विभिन्न विषयों पर आयोजन किया। वर्ष 2017-18 में कृषि विज्ञान केन्द्रो ने प्रायोजित कार्यकर्मो सहित कुल 3372 प्रशिक्षण पाठयकर्मो का आयोजन विभिन्न विषयक क्षेत्रों जैसे फसल उत्पादन, बागवानी, मृदा संरक्षण, प्रजनन प्रबंधन, पशुधन उत्पादन और प्रबंधन क्षमता एंव समूह निर्माण तथा गतिशीलता पर आयोजित किया गया जिससे कुल 75965 किसान, ग्रामीण युवक और प्रसार कार्यकर्ता लाभान्वित हुए। इसमें 2045 विषयो और 51646 कृषक, 565 विषय एवं 11791 ग्रामीण युवा तथा 188 विषय और 3921 प्रसार कार्यकर्ता सम्मिलित थे। इसके अलावा 371 विषयो में सहयोग पर आधारित प्रशिक्षणो द्वारा 5288 प्रशिक्षाणार्थी तथा 203 व्यावसायिक प्रशिक्षण विषयो में 3319 ग्रामीण युवा लाभान्वित हुए। महिला सशक्तिकरण के प्रयास के संबंध में, कृषि विज्ञान केन्द्रों द्धारा किए गए प्रशिक्षणो में कुल 36821 महिला कृषको ने भाग लिया जोकि कुल लाभार्थी (75965) का 48.47 प्रतिशत रहा। संस्थान के पर्यवेक्षण एवं देखरेख में कृषि विकास में कृषि प्रौद्योगिकियों और उनकी भूमिका के प्रति जागरूकता के लिए 30707 कार्यकर्म आयोजित किए गए जिससे 209953 किसान, महिला कृषक, विस्तार कर्मी, ग्रामीण युवक इत्यादि लाभान्वित हुए।

विगत वर्ष के दौरान कृषि विज्ञान केन्द्रों द्वारा 1037.09 टन खाद्यानो, दलहनों, तिलहनों तथा सब्जिओ के बीज का उत्पादन, 10.87 लाख की संख्या में फल-सब्जियांए मसाले, आयुर्वेदिक फसले और जंगली प्रजातियों की पौध तैयार, 272.34 क्विंटल जैविक उत्पाद और 20.42 लाख पशुधन तथा मछली बीजों का उत्पादन किया गया। अनिवार्य गतिविधि के रूप में संस्थान ने कृवीके की प्रगति और उपलब्धियों की समीक्षा करने के लिए के वार्षिक क्षेत्रीय कार्यशाला (2017-18)और वर्ष 2018-19

के वार्षिक कार्य योजना तैयार करने लिए सफ्लतापूर्वक कार्यकर्म आयोजित किया।

नियमित गतिविधि के रूप में यथाक्रम निगरानी तंत्र के माध्यम से संस्थान ने क्षेत्र के विस्तार शिक्षा निदेशालयों (डीईई) और कृषि प्रौद्योगिकी सूचना केंद्र (एटीआईसी) को सुदृढ़ बनाने में गंभीर प्रयास किए। विगत वर्ष के दौरान केन्द्रीय कृषि विश्वविद्यालय, इम्फाल के निदेशालय ने अपने अधिकार क्षेत्र के तहत विभिन्न कृवीके के 32 दौरे विस्तार शिक्षा के निदेशकों एवं दूसरे वैज्ञानिकों द्वारा किए गए । निदेशालय ने कृवीके की गतिविधियों की निगरानी के लिए 05 समीक्षा बैठकों का आयोजन किया और ज्ञान सशक्तिकरण और प्रौद्योगिकी बैकस्टॉपिंग के लिए 09 मानव संसाधन कार्यक्रम का लाभ 258 कृवीके प्रतिभागी, कर्मचारी को मिला। केन्द्रीय कृषि विश्वविद्यालय, इम्फाल के कृषि विस्तार निदेशालय ने अपने अधिकार क्षेत्र के किसानो एवं दुसरे हितधारको के लिए 22 प्रकाशन भी किए जिसमें प्रसार बुलेटिन (2), तकनीकी बुलेटिन (1), प्रशिक्षण पुस्तिका (2) और खेती पत्रिका (4) इत्यादि शामिल है।

प्रतिवेदन अवधि के दौरान, कृवीके ने मिट्टी के नमूनों (9763) पानी के नमूनों (302) और पौधे के नमूने (22) मिट्टी, पानी और पौधों की ताकत और कमजोरियों का पता लगाने के लिए कुल 10087 नमूनों का विश्लेषण किया और उर्वरक सिफारिशों का सुझाव दिया। इस प्रक्रिया में कुल 612 गांवों को शामिल किया गया और 15395 किसानों को लाभान्वित किया गया। इस अवधि के दौरान 15146 किसानों को 13288 मृदा स्वास्थ्य कार्ड (एसएचसी) वितरित किए गए।

भा.कृ.अनु.प.-अटारी, अंचल 7 ने कृविके के सहयोग सें ''मेरा गाँव मेरा गौरव'' एक नवाचार कार्यक्रम का सूत्रपात किया जिसमें कृषक वैज्ञानिक संवाद तथा प्रयोगशाला से खेत तक के कार्यक्रम को बढ़ावा दिया गया। इसका मुख्य उद्देश्य किसानो को विभिन्न योजनाओं की नियमित जानकारी तथा ज्ञान पहुँचाना हैं। इस कार्यक्रम में 36 कृविके ने 607 गावों अपनाया है। कार्यक्रम के तहत उल्लेखनीय गतिविधियों में विभिन्न कृषि और सहयोगी प्रौद्योगिकियों में 611 खेत प्रदर्शन, साथ-साथ किसानों और कृषि महिलाओं के लिए 557 प्रशिक्षण कार्यक्रम शामिल थे।

1.0. INTRODUCTION

1.1. Genesis of ICAR-Agricultural Technology Application Research Institute (ATARI)

The Indian Council of Agricultural Research created 8 (Eight) Zonal Coordinating Units with a staff strength of 6 (Six) in each unit for implementation of Lab-to-land programme covering 50,000 farm families over the entire country during 1979. Accordingly, one of the Zonal Coordinating Units was established at Umiam, Shillong with the joining of Dr. D. J. Roy on September 14, 1979 as Zonal Coordinator at ICAR Research Complex for NEH Region, Umiam. Subsequently, the ICAR decided that the KVK Project would be monitored by these units and increased the staff strength to 8 (Eight). During the VIIIth Plan (1992-1997), when the total number of KVKs was 261, the ICAR revised the staff strength of Zonal Coordinating Unit to 15 (Fifteen). During the XIth Plan, on an average, each Zonal Coordinating Unit had to handle an annual budget of about Rs. 55crores. For proper management of large number of KVKs, the Zonal Coordinating Units were upgraded to the status of Project Directorate, called Zonal Project Directorate (ZPD) with total sanctioned staff strength of 17 w.e.f. **March 19, 2009**. The ZPD was subsequently elevated to the level of research institute called Agricultural Technology Application Research Institute (ATARI) in **August 11, 2015** keeping in view of its revised mandates.

1.2. ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII

The ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII with its headquarters at Umiam, Meghalaya is primarily responsible for monitoring and reviewing the technology assessment, refinement, demonstration, training programmes and other extension activities conducted by KVKs in North East Hills Region, which comprises of five states of Manipur, Meghalaya, Mizoram, Nagaland and Tripura. Besides, the institute is also engaged in providing guidance to the KVKs to accomplish its technical activities, ensuring flow and access of technologies to the KVKs, enabling the Directorate of Extension Education of CAU, Imphal in the zone to oversee the activities of KVKs. The ICAR-ATARI, Zone-VII also takes up need based Human Resource Development (HRD) programmes for KVK staff with adequate financial support, liaison with different stakeholders and other line departments in the region. In view of overriding responsibilities of the institute besides effective monitoring, coordinating and reviewing the activities of increased number of KVKs, the ICAR-ATARI, Zone-VII has been further bifurcated into two zones namely; ICAR-ATARI, Zone-VI, Guwahati and ICAR-ATARI, Zone-VII, Umiam with the administrative approval of the ICAR, New Delhi. During 2017-18, the three new KVKs (East Garo Hills and South Garo Hills in Meghalaya and Sepahijala in Tripura) under the administrative control of Central Agricultural University, Imphal have been sanctioned under ICAR-ATARI, Zone-VII, Umiam.

1.3. Mandates of the Institute (ATARI)

- Coordination and monitoring of technology application and frontline extension education programmes, and
- Strengthening agricultural extension research and knowledge management.

1.4. Major achievements at a glance

During 2017-18, the ICAR-Agricultural Technology Application Research Institute, Zone-VII, Umiam had completed institute research project on ***"Information need of farmers of NE Region for adoption of Agricultural Technologies"*** and its reports had already been submitted in the form of RPF-3. The institute also through its selected KVKs, research institute and agricultural university has been implementing **Five** externally funded projects namely; ***National Innovation on Climate Resilient Agriculture (NICRA)*** for technology demonstration on farmers' fields through 14 selected KVKs, ***Attracting and Retaining Youth in Agriculture (ARYA)*** through 3 selected KVKs, ***Farmer FIRST Project (FFP)*** through ICAR Research Complex for NEH Region, Umiam, Meghalaya

and Central Agricultural University, Imphal and ***Cluster Demonstration on Oilseeds and Pulses under NMOOP/NFSM*** through 23 KVKs and ***Skill Development Training Programme*** under Ministry of Skill Development and Entrepreneurship, Govt. of India through 21 KVKs. Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-VII during 2017-18 published **9 (nine)** research articles in prestigious national and international research journals and **2** (two) more research papers have been accepted for publication.

The institute was also successful in publication of Birding the Rainbow-a glimpses of success stories **(Resource Book*),*** Genesis-Dynamics of Farm Innovations ***(*Resource Document*),*** Impact of Technologies on Oilseeds Production in North Eastern Region and Impact of Technologies on Pulses Production in North Eastern Region ***(*Technical Bulletin*),*** Strategy Document on Doubling Farmers Income in Meghalaya by 2022 **(Strategy Document)** *and* Action Plan of KVKs, 2018-19 **(Strategy Document),** Initiatives and Interventions under CFLD on Pulses in North East India **(Technical Bulletin**), Climate Resilient Agricultural Interventions in North East India **(Technical Bulletin**), Champereia manillana an underexploited and underutilized vegetable crop of nutritional importance ***(*Abstract in Conference Proceedings*),*** Sustainability of small holder agriculture in developing countries under changing climate scenario" **(Abstract in Conference Proceedings*),*** Marine legumes- A boon to combat hidden hunger and protein malnutrition **(Abstract in Conference Proceedings**), Attracting and Retaining Youth in Agriculture (ARYA): A special Focus on North Eastern States of India **(Abstract in Conference Proceedings*).*** During the year 2017-18, the ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII was recognised with the **Best Poster Presentation Award** on "Potential, Prospects and Strategies for Doubling Farmers Income: Multi-stakeholder Convergence" in 8th National Seminar organized by Society for community mobilization for sustainable development, New Delhi, at College of Veterinary Science, Assam Agricultural University, Khanapara, 09-11 Nov, 2017.

During the period, the institute, through 14 NICRA KVKs under its jurisdiction, was successful in promotion of climate resilient agricultural technologies in North East Hill region such as In-situ moisture conservation with plastic mulch in Bitter gourd crop, under zero tillage (Pea-Vikas), No till Toria (var.TS-67) under Paddy based cropping system, Mulching of Field pea in Rice fallow under Rice based cropping system, Growing of tomato using paddy straw as mulch, Application of Pusa Hydrogel in cultivation of winter vegetables, Furrow irrigation method in Maize and Vermicomposting. "Rock fill Dam" using sausage wire and stones on community participatory approach was demonstrated covering catchment area of 180 hectares using PVC pipe (60mm) for life saving irrigation in Cole crops during rabi (Cabbage). Staggered Paddy variety Gitesh was transplanted up to 50 days without affecting the yield to popularize in the NICRA village under Zero tillage cultivation**.** Medium duration rice varieties RCM-9 and RCM-13 were also demonstrated in 2017-18 in order to utilize the residue moisture and increase the cropping intensity with rabi crops such as Toria and Linseed. Toria as a second crop after the harvest of paddy was popularized to utilize the residual moisture available in the soil and to increase the cropping intensity. Toria (Var.TS-36, TS-38 and TS-67) were cultivated in large scale with an area of 50 ha covering 60 farmers. Demonstration on Apiculture/beekeeping with Toria as a pollinating agent was taken up in NICRA villages for enhancing the production and productivity of oilseed crop specially Toria/Mustard and Linseed apart from honey production. Average yield of Toria and honey yield was assessed. Yield of Toria was 8.6q/ha whereas, honey yield of 675g/box per month could be harvested. And per cent increase in average yield of Toria was 16.2%. Capacity Building programmes on Soil health management, Life saving irrigation, Cropping system, Protective cultivation, IPM, Soil moisture conservation, Livestock management and Value addition were conducted covering a total of 1692 farmers. Under the project, Extension Activities like Method demonstrations, Agro advisory services, Awareness, Exposure visits, Group discussion, Diagnostic visit, Kishan gosthi, Farmers scientist interaction & Group meeting with VLMC of the village etc were also organised by the NICRA KVKs under the technical supervision of the institute benefitting a total of 1501 of farmers.

Under close technical support and guidance by ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII, the KVKs of the region conducted different On-Farm Testing (OFTs) through field level assessment of 326 technologies with 1484 nos. of trials benefitting a total of 2785 farmers and refined 38 technologies with 174 nos. of trials under different thematic areas of crop enterprises during the period. Besides, the KVKs also made assessment of 75 technologies with 435 numbers of trials and refined 3 technologies with 17 nos. of trials in different thematic areas of livestock enterprises in the zone. The systematic coordination and monitoring mechanism of the ICAR-ATARI, Zone-VII helped the KVKs to successfully conduct as many as **7217** frontline demonstrations in **1659.13** ha area to demonstrate the production potential of newly released technologies in the farmers' fields at different locations in a given farming system. These included frontline demonstrations in oilseeds (1385), pulses (980), other crops (2949), livestock enterprises (812), and other enterprises (1091).

The institute during 2017-18 organized 12 (Twelve) different HRD programmes for KVK staff, farmers, rural youth and other agri-preneurs of the region in partnership with different allied institutions/ and organizations on different disciplines and thematic areas. During the year 2017-18, a total of 3372 training programmes were conducted by the KVKs in different areas of agriculture and allied activities benefitting a total of 75965 farmers and farm women, rural youth, in-service extension personnel, civic bodies, NGOs, entrepreneurs etc. on different thematic areas such as crop production, horticulture, soil health and fertility management, livestock production and management, home science and women empowerment, agricultural engineering, plant protection, fisheries, capacity building and group dynamics, agro-forestry etc. This included 2045 courses and 51646 participants of farmers, 565 courses and 11791 participants of rural youth and 188 courses and 3921 participants of extension personnel. In addition, 371 courses of sponsored training programmes were also conducted by the KVKs under the zone for 5288 participants as well as 203 nos. of vocational training courses benefitting a total of 3319 participants on different areas of income generating activities/ enterprises. With regard to efforts towards women empowerment, as many as 36821 women representing 48.47 percent of the total beneficiaries (75965) were imparted skill oriented trainings in different areas of crop and livestock enterprises/ farming by the KVKs under the zone. KVKs in the region also organised a total of 30707 number of extension activities under close supervision and guidance of this institute for the benefit of 209953 farmers, farm women, agri-preneurs, extension personnel and rural youth including school children in the region to create awareness about improved agricultural technologies and their role in agricultural development.

During the period, KVKs under Zone-VII produced high quality seeds, planting materials and bio-products which included 1037.09 tonnes of quality seeds of cereals, pulses, oil seeds, vegetables etc, 10.87 lakh of planting materials of fruits, vegetables, forest species, plantation, ornamental crops etc., 272.34 q of bio-products and 20.42 lakh of livestock and fingerlings. As mandated activity, the institute also successfully organised annual action plan workshop for the year 2018-19 to formulate and finalise the KVKs activities and Annual Zonal Workshop of KVKs (2017-18) to review the progress and achievements of KVKs.

As part of regular activity, the institute made sincere efforts in strengthening of the Directorate of Extension Education (DEE) and Agricultural Technology Information Centres (ATIC) under the zone through regular monitoring mechanism. During the year, Central Agricultural University, Imphal made a total of 32 visits by its Director of Extension Education (DEE) and other scientists in KVKs under its jurisdiction. The Directorate also organised **5** nos. of review meetings to oversee the activities of KVKs and organised 9 HRD Programmes for knowledge empowerment and technology backstopping to the KVKs with total 258 KVK participants/ staff. As many as 22 publications including extension bulletins (**2**), technical bulletins (1), training manuals (2) and farm magazine (4) were brought out by the Directorate during the period.

During the period under report, the KVKs analyzed a total of 10087 samples comprising of soil samples (9763), water samples (302) and plant samples (22) to ascertain strength and weaknesses

of the soil, water and plants and suggested fertilizers recommendations. In the process, a total of 612 villages had been covered and as many as 15395 farmers were benefitted. During the period, as many as 13288 numbers of Soil Health Cards (SHCs) were distributed to 15146 farmers.

The ICAR-ATARI, Zone-VII has been implementing an innovative initiative "Mera Gaon Mera Gaurav (MGMG)" with the help of KVKs under the zone to promote the direct interface of scientists with the farmers to hasten the lab to land process. The main objective of this scheme is to provide farmers with required information, knowledge and advisories on regular basis by adopting villages. During the period, a total of 36 KVKs involved in the programme by adopting 607 no. of villages. The notable activities under the programme included 611 nos. of field demonstrations on various agriculture and allied technologies as well as 557 nos. of training programmes for farmers and farm women.

1.5. Profile of the Institute

1.5.1. Organisational Structure of ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII

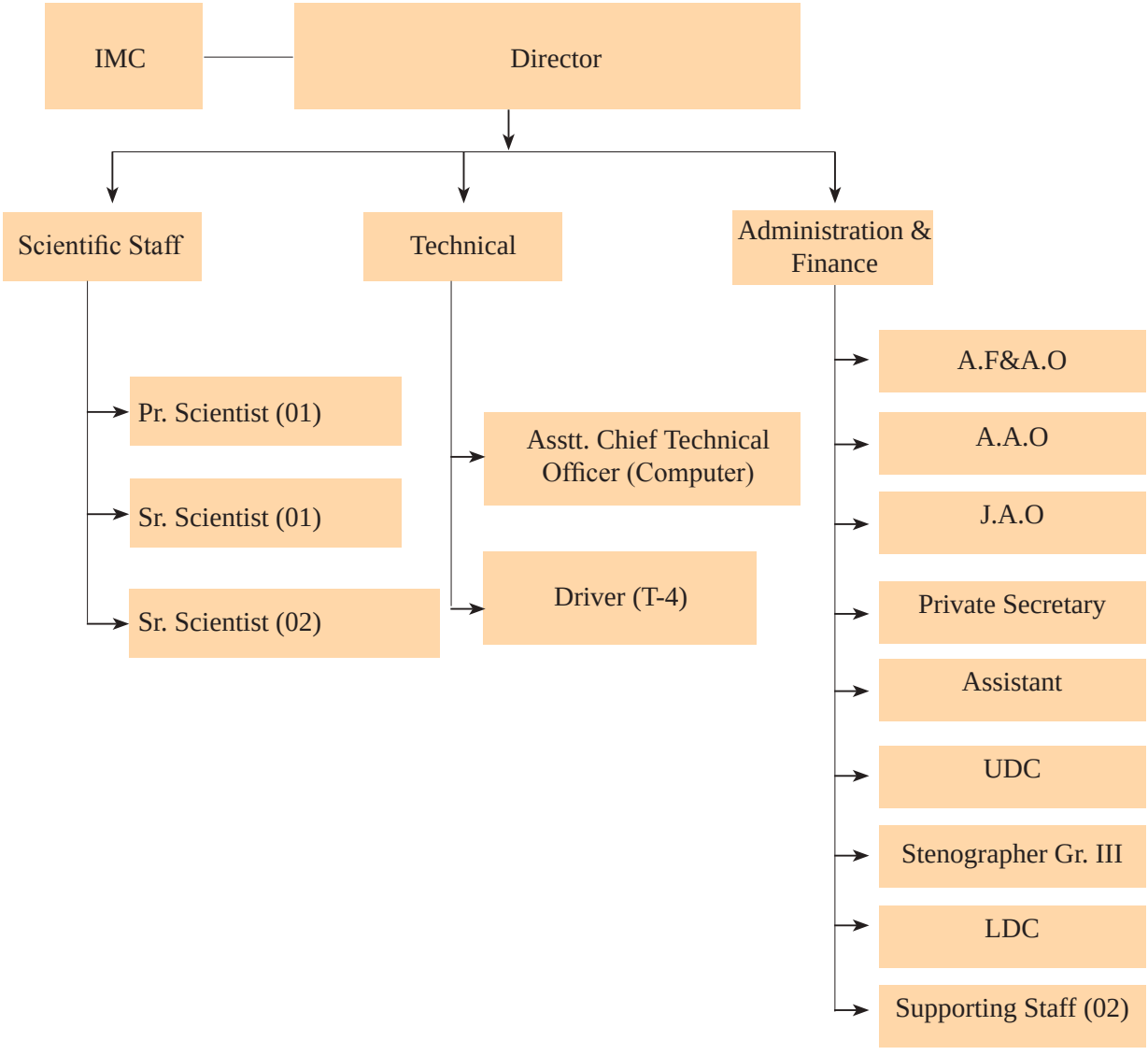
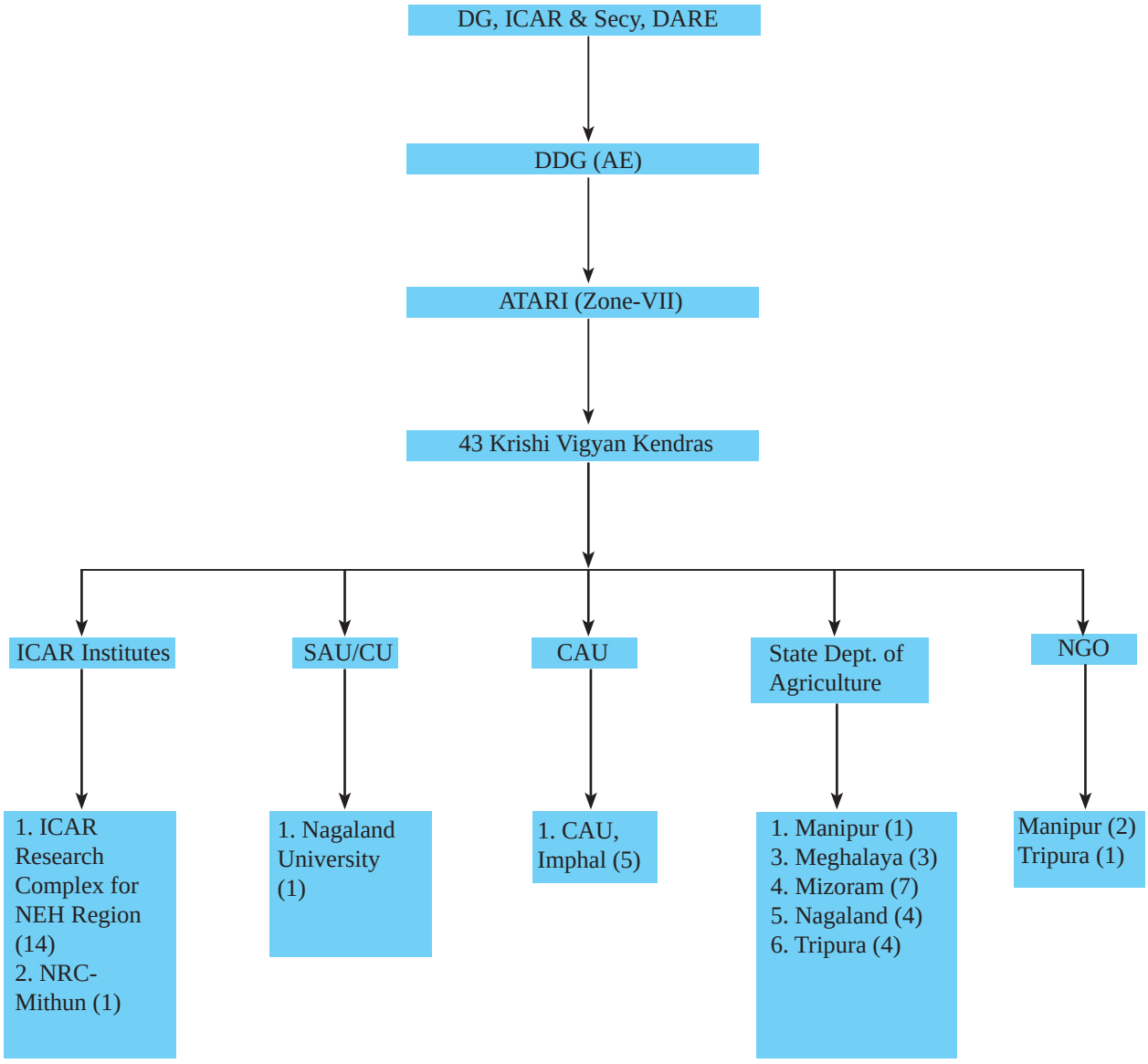


Fig 1 : Organizational Structure of ICAR-ATARI, Umiam

1.5.2. Organisational Structure of KVKs under ICAR-ATARI, Zone-VII



Note: Figure in parentheses indiacte number of KVKs

Fig 2: Organizational structure of KVKs under Zone-VII

1.5.3. Operational area

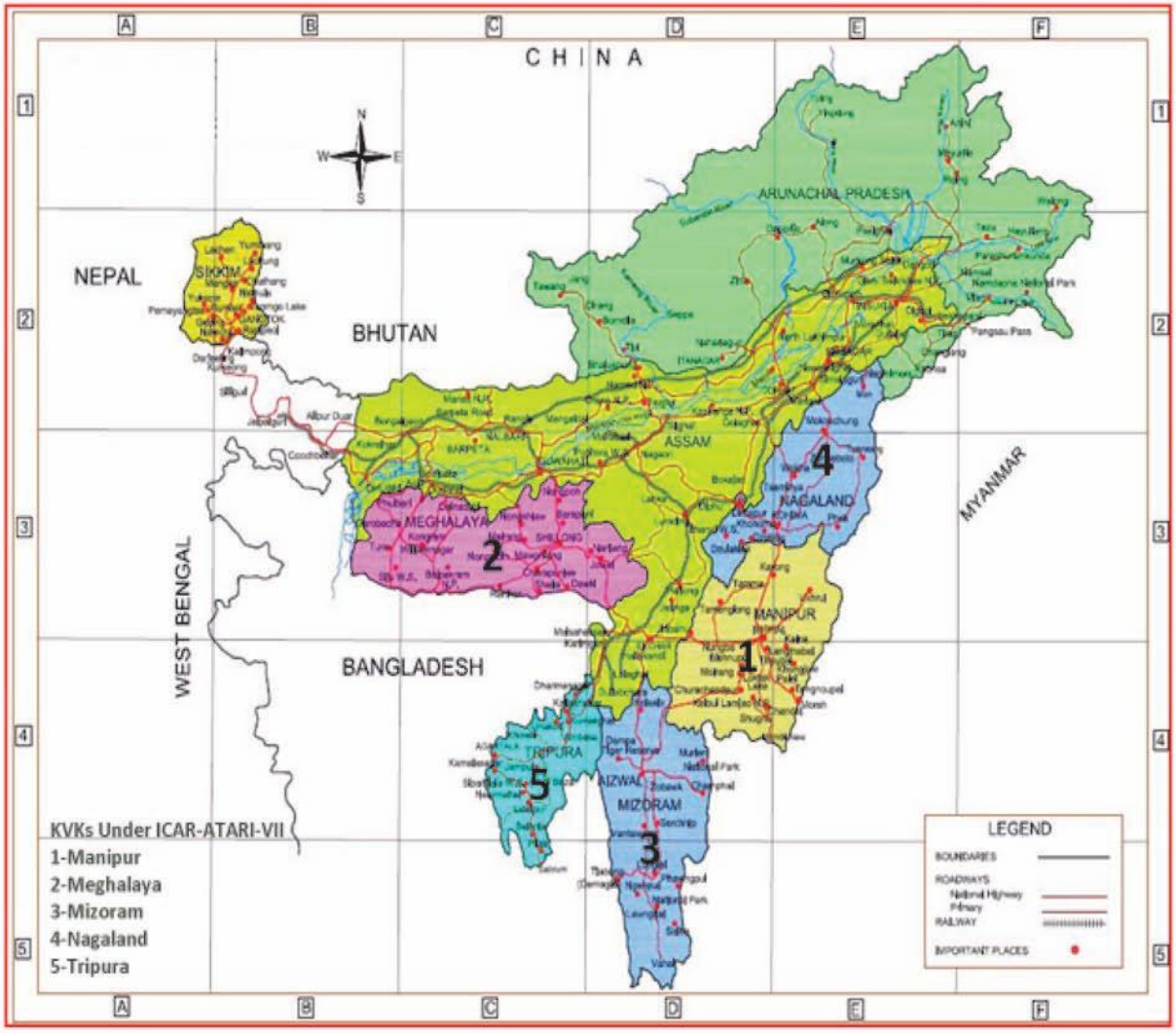


Fig 3 : Map of NE Region

1.6. Staff Position of Agricultural Technology Application Research Institute (ATARI), Zone-VII

Out of the sanctioned staff strength of 20, presently the Agricultural Technology Application Research Institute, Zone-VII has **13** staff in position. The details of the staff position of the institute are given in **Table-1.**

Table 1: Present Staff Position of Agricultural Technology Application Research Institute, Zone-VII

Sl. No.	Category	Sanctioned Strength	In Position	Vacant
1.	Director	1	**1**	0
2.	**Scientific Post**			
	Principal Scientist	1	1	0
	Senior Scientist	3	1	2
	Scientist	2	2	0
	Sub-Total	**6**	**4**	**2**
3.	**Technical Staff**			
	Asst. Chief Technical Officer	1	1	0
	Driver	1	1	0
	Sub-Total	**2**	**2**	0
4.	**Administrative Post**			
	Assistant Finance & Accounts Officer	1	1	0
	Assistant Administrative Officer	1	0	1
	Private Secretary	1	1	0
	Junior Accounts Officer	1	0	1
	Assistant	1	0	1
	U.D.C	1	1	0
	Stenographer Grade-III	1	1	0
	LDC	2	0	2
	Sub-Total	**9**	**4**	**5**
5.	Supporting Staff			
	(SSG-I, II, III, IV)	2	**2**	0
	Total	**20**	**13**	**7**

1.7. Budget provisions

Table 2: Statement of Host institute-wise and sub-head-wise break-up of Revised Estimate for 2017-18 in respect of ATARI & KVKs, Zone-VII, Umiam (NEH + TSP + other than NEH & TSP)

(Rupees in Lakh)

Sl.No	Host Institute	Details	Recurring Contingencies					Non Recurring Contingencies					RF	Grand Total
			Pay & Allow.	TA	HRD	Contig.	Total	Equip/ Fur.	Works	Lib	Vehicle	Total		
I.	ATARI, ZONE-VII	RE	149.84	19.00	5.00	33.51	207.35	0.00	231.95	0.00	0.00	231.95	0.00	**439.30**
II.	KVK, ZONE-VII													
A.	**ICAR INSTITUTE**													
1	ICAR RESEARCH COMPLEX	RE	1388.01	27.90	8.25	220.00	1644.16	0.00	10.05	0.00	0.00	10.05	0.00	**1654.21**
2	NRC MITHUN	RE	125.50	2.50	0.75	19.50	148.25	0.00	0.00	0.00	0.00	0.00	0.00	**148.25**
	TOTAL ICAR KVKs	**RE**	**1513.51**	**30.40**	**9.00**	**239.50**	**1792.41**	**0.00**	**10.05**	**0.00**	**0.00**	**10.05**	**0.00**	1802.46
B.	**AGRIL. UNIVERSITY**													
3	CENTRAL AGRIL UNIVERSITY, IMPHAL	RE	230.00	8.40	5.50	52.50	296.40	0.00	0.00	0.00	0.00	0.00	0.00	**296.40**
4	NAGALAND UNIVERSITY	RE	125.00	1.84	0.75	18.25	145.84	0.00	0.00	0.00	0.00	0.00	0.00	**145.84**
	TOTAL SAU/CAUs KVKs	**RE**	**355.00**	**10.24**	**6.25**	**70.75**	**442.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	442.24
C.	**STATE GOVT.**													
5	MANIPUR	RE	103.00	3.25	0.75	18.75	125.75	0.00	0.00	0.00	0.00	0.00	0.00	**125.75**
6	MEGHALAYA	RE	175.55	5.70	2.25	43.50	227.00	0.00	0.00	0.00	0.00	0.00	0.00	**227.00**

7	MIZORAM	RE	589.18	13.30	5.25	101.50	709.23	0.00	0.00	0.00	0.00	0.00	0.00	**709.23**
8	NAGALAND	RE	566.38	10.00	3.00	74.75	654.13	0.00	0.00	0.00	0.00	0.00	0.00	**654.13**
9	TRIPURA	RE	79.48	6.10	1.00	44.00	130.58	0.00	0.00	0.00	0.00	0.00	0.00	**130.58**
	TOTAL STATE GOVT. KVKs	**RE**	**1513.59**	**38.35**	**12.25**	**282.50**	**1846.69**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1846.69**
D.	**NGO**													
10	UTLOU, BISHNUPUR	RE	115.00	2.25	0.50	19.50	137.25	0.00	0.00	0.00	0.00	0.00	0.00	**137.25**
11	FEEDS, SENAPATI	RE	123.06	2.25	0.50	18.75	144.56	0.00	0.00	0.00	0.00	0.00	0.00	**144.56**
12	SRSK, KOLKATA	RE	120.00	3.00	0.50	18.50	142.00	0.00	0.00	0.00	0.00	0.00	0.00	**142.00**
	TOTAL NGOs	**RE**	**358.06**	**7.50**	**1.50**	**56.75**	**423.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**423.81**
	TOTAL KVKs already established		**3740.16**	**86.49**	**29.00**	**649.50**	**4505.15**	**0.00**	**10.05**	**0.00**	**0.00**	**10.05**	**0.00**	**4515.20**
E	**New KVKs to be Established**	RE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
GRAND TOTAL		**RE**	**3890.00**	**105.49**	**34.00**	**683.01**	**4712.50**	**0.00**	**242.00**	**0.00**	**0.00**	**242.00**	**0.00**	**4954.50**

2.0. ACHIEVEMENTS

2.1. Brief Account of KVK Genesis, Mandate and Growth

2.1.1. KVK Genesis

The Education Commission (1964-66) recommended that a vigorous effort be made to establish specialized institutions to provide vocational education in agriculture and allied fields at the pre and post-matriculate levels to cater the training needs of a large number of boys and girls of rural areas. The Commission further suggested that such institutions be named as Agricultural Polytechnics. The recommendation of the Commission was thoroughly discussed during 1966-72 by the Ministry of Education, Ministry of Agriculture, Planning Commission, ICAR and other allied institutions. Finally, the ICAR mooted the idea of establishing KVKs as innovative institutions for imparting vocational training to the practicing farmers, school dropouts and field level extension functionaries. ICAR Standing Committee on Agricultural Education in its meeting held in August, 1973 observed that since the establishment of KVKs was of national importance which would help in accelerating the agricultural production and also in improving the socio-economic conditions of the farming community, the assistance of all related institutions should be taken in implementing this scheme. The ICAR, therefore, constituted a committee in 1973 headed by Dr. Mohan Singh Mehta of Seva Mandir, Udaipur (Rajasthan) for working out a detailed plan for implementing this scheme. The Committee submitted its report in 1974.

The first KVK, on a pilot basis, was established in 1974 at Puducherry (Pondicherry) under the administrative control of the Tamil Nadu Agricultural University (TNAU), Coimbatore. In 1976-77, the Planning Commission approved the proposal of the ICAR to establish 18 KVKs during the Fifth Five Year Plan. With the growing demand for more such KVKs, the Governing Body (GB) of the ICAR approved 12 more KVKs in 1979 and they were established in the same year from Agricultural Produce Cess Fund (AP Cess Fund). Pending the clearance of Sixth Five-Year Plan scheme on KVK by the Planning Commission, the GB of the ICAR again approved 14 KVKs in 1981, which were established during 1982-83 from AP Cess Fund.

A High Level Evaluation Committee on KVK constituted by the ICAR in 1984, after thorough review of the programme, strongly recommended for establishment of more KVKs in the country. Keeping this in view the Planning Commission approved to establish 44 new KVKs during the Sixth Plan. Thus by the end of Sixth Plan, 89 KVKs had started functioning in the country. During the Seventh Plan, 20 new KVKs were established. The success of KVKs at many locations created a great demand for establishment of more KVKs in the remaining districts of the country. Accordingly, the Planning Commission further approved 74 new KVKs to be established during the period 1992-93. Again in the Eighth Plan (1992-97), 78 new KVKs were approved and the same were established in the country, making the total number of functional KVKs 261 by the end of the Eighth Plan. The number of KVKs increased to 290 during Ninth Plan with the establishment of 29 more KVKs.

On the occasion of the Independence Day Speech on 15th August, 2005 the Hon'ble Prime Minister of India announced that by the end of 2007 there should be one KVK in each of the rural districts of the country. This has taken the total number of KVKs to 551 at the end of Tenth Plan. At present, there are 700 KVKs established in the Country. This is an excellent network for exchange of technology and empowerment of farmers to enhance productivity and profitability.

All KVKs are working towards reducing the time lag between generation of technology at the research institution and its application in location specific farmer fields for increasing production, productivity and net farm income on a sustained basis.

2.1.2. Vision, Mission and Mandate of KVK

2.1.2.1. Vision

Science and technology-led growth leading to enhanced productivity, profitability and sustainability of agriculture.

2.1.2.2. Mission

Farmer-centric growth in agriculture and allied sectors through application of appropriate technologies in specific agro-ecosystem perspective.

2.1.2.3. Mandate

The mandate of KVK is *Technology Assessment and Demonstration for its Application and to enhance Capacity development (TADA-CD).* To implement the mandate effectively through creation of awareness about improved agricultural technologies, the following activities have been defined for each KVK.

i. On-farm testing to assess the location specificity of agricultural technologies under various farming systems.

ii. Out scaling of farm innovations through frontline demonstration to showcase the specific benefits/ worth of technologies on farmers' fields.

iii. Capacity development of farmers and extension personnel to update their knowledge and skills in modern agricultural technologies and enterprises.

iv. Work as Knowledge and Resource Centre for improving overall agricultural economy in the operational area.

v. Conduct frontline extension programmes and provide farm advisories using ICT and other media on varied subjects of interest to farmers

vi. Data documentation, characterization and strategic planning of farming practices.

KVK, while acting as a single window Agricultural Technology Information Centre (ATIC), should produce quality technology related inputs/ products (seeds, planting materials, bio-agents, livestock, fingerlings etc,) and make them available to farmers. Besides, identify and document selected farmer-led innovations and converge with ongoing schemes and programmes within the mandate of KVK.

2.1.3. Growth of KVKs under ICAR-ATARI, Umiam

The first KVK in the region was established in Kolasib district of Mizoram in February, 1979 to impart training to equip the farmers with skill and knowledge required for practicing advanced agricultural and allied practices by the farmers. Gradually with the increase in number, the sphere of KVKs also widened to shoulder other responsibilities like conducting front line demonstrations, on-farm trials, providing trainings to other stakeholders etc. During the IX the plan, the zone had only 13 KVKs with most of them were under ICAR administration. Presently the Zone-VII has 43 KVKs spread over five states of the region under the administrative control of 11 host institutes. Out of the total number of KVKs in the zone, 14 KVKs are with ICAR Research Complex, Umiam, 19 with State Department of Agriculture, 5 with Central Agricultural University, Imphal, 1 with Nagaland University, 1 with National Research Centre (NRC) on Mithun, Nagaland and 3 with Non-Government Organizations (NGOs) respectively.

Table 3: State-wise distribution of KVKs under ICAR-ATARI, Umiam

State	KVKs (No.)	Host Institutions
Manipur (9)	1	JCPCS Utlou, Manipur (NGO)
	5	ICAR RC for NEH Region, Barapani
	1	CAU Imphal, Manipur
	1	FEEDS, Hengbung (NGO)
	1	State Dept of Agriculture
Meghalaya (7)	3	State Dept of Agriculture
	2	ICAR RC for NEH Region, Barapani
	2	CAU Imphal, Manipur
Mizoram (8)	1	CAU Imphal, Manipur
	7	State Dept of Agriculture Education and Research
Nagaland (11)	5	ICAR RC for NEH Region, Barapani
	4	State Dept of Agriculture
	1	NRC on Mithun
	1	Nagaland University
Tripura (8)	4	State Dept of Agriculture
	2	ICAR RC for NEH Region, Barapani
	1	Rama Krishna Seva Kendra (NGO), Kolkata
	1	CAU Imphal, Manipur
Total	**43**	

2.2. MANPOWER AND INFRASTRUCTURAL FACILITIES IN KVKS

2.2.1. Brief Account of Manpower in KVKs

Presently the KVKs under ICAR-ATARI, Umiam have a total of 462 staff in different positions like Sr. Scientist & Head, Subject Matter Specialist, Programme Assistant, Assistant, Superintendant, Stenographer Grade III, Driver and Supporting Staff (Table 4), accounting 67.15% staff are in position. The remaining vacancies of different cadres are in the process of recruitment by the concerned host institutes.

Table 4: State-wise summary of present staff position of KVKs under ICAR-ATARI, Umiam

S. No.	State	No. of staff under different categories of posts									
		SS & H	SMS	Farm Manager	PA (Comp)	PA (lab Tech)	Assistant/ Suptd.	Steno	Driver	SS	Total
1	Manipur	8	50	9	7	7	5	7	17	18	**128**
2	Meghalaya	4	25	4	5	3	1	2	6	4	**54**
3	Mizoram	4	46	8	7	6	6	8	16	16	**117**
4	Nagaland	9	50	7	8	7	5	9	14	15	**124**
5	Tripura	1	16	3	2	1	1	1	6	8	**39**
	Total	**26**	**187**	**31**	**29**	**24**	**18**	**27**	**59**	**61**	**462**

SSH – Senior Scientist &Head, SMS – Subject Matter Specialist, PA- Programme Assistant, Asst.- Assistant, Sup. – Superintendant, SS – Supporting Staff

2.2.2. Brief account of infrastructural facilities in KVKs

With regard to infrastructure and other special facilities available in KVKs, 25 out of 43 KVKs have completed construction of their administrative building in their proposed sites. While 16 KVKs have completed farmers' hostels and 22 KVKs have their own staff quarters. The zone has also 107 functioning demonstration units in different KVKs with highest number of 30 in Mizoram followed by Manipur (27) and equal number of 20 demonstration units in Nagaland and Tripura. A total of 22 KVKs in the zone have fencing/ boundary walls (Table 5). Among the special programmes, 32 nos. of soil and water testing facilities including Mridaparikshak are available in KVKs under the zone with highest number in Manipur (10) followed by Mizoram (8) and Nagaland (6). Other special facilities such as e-connectivity (18), rain water harvesting structures (40), portable carp hatchery (6), integrated farming systems (12), Minimal Processing Facilities (15) are also available in KVKs in the zone.

Table 5: Summary of present infrastructure facilities and other special programmes at KVKs under ICAR-ATARI, Zone-VII, Umiam

Sl. No.	Infrastructure	Facility Available (No.)					
		Manipur	Meghalaya	Nagaland	Mizoram	Tripura	Total
A.	**Basic Infrastructure**						
1.	Administrative Building	8	1	7	8	1	**25**
2.	Farmers' Hostel	3	2	2	8	1	**16**
3.	Staff Quarter	5	0	7	8	2	**22**
4.	Demonstration Unit	27	10	20	30	20	**107**
5.	Fencing/ Boundary Wall	7	1	5	8	1	**22**
B.	**Special Programmes**						
6.	Soil and Water Testing Lab (including Mridparikshak)	10	5	6	8	3	**32**
7.	E-Connectivity	3	4	3	6	2	**18**
8.	Rain Water Harvesting Structure	10	3	6	17	4	**40**
9.	Portable Carp Hatchery	5	0	0	0	1	**6**
10.	Integrated Farming System	4	2	1	3	2	**12**
11.	Minimal Processing Facility	3	0	1	10	1	**15**
12.	Solar Panels	1	0	0	0	1	**2**
13.	Technology Information Unit	0	0	1	0	0	**1**

14.	V-KVK & KVK NET	0	0	0	0	0	**0**
15.	Specialized KVK	-	-	-	-	-	-
16.	Provision of IT Kit to E-Farmers	-	-	-	-	-	-
17.	Micro-Nutrient Analysis	4	0	0	0	0	
18.	Provision of 25 KVA Silent Genset	1	1	4	3	0	

2.3. Technology Assessment and Refinement

In order to assess the location specificity of agricultural technologies under various farming systems, the KVKs under Zone-VII made assessment and refinement of different agricultural technologies on farmers' fields during the period. The specific achievements made in various fronts by the KVKs in five states of the zone during the reporting year are given below.

Table-6: State-wise Summary of Agricultural Technologies Assessed and Refined by KVKs during 2017-18

Sl. No.	Area	States					
		Manipur	Meghalaya	Mizoram	Nagaland	Tripura	Total
Agricultural Technologies Assessed during 2017-18							
1	**Crop Based technologies**						
	i) No. of Trial	275	248	308	497	156	1484
	ii) No. of Technology	69	56	84	96	21	326
	iii) No. of Beneficiaries	306	684	464	956	375	2785
2	**Livestock technologies**						
	i) No. of Trial	118	43	53	124	97	435
	ii) No. of Technology	24	10	15	13	13	75
	iii) No. of Beneficiaries	245	188	149	343	297	1222
Agricultural Technologies Refined during 2017-18							
1	**Crop Based technologies**						
	i) No. of Trial	-	38	126	-	10	174
	ii) No. of Technology	-	5	31	-	2	38
	iii) No. of Beneficiaries	-	238	337	-	50	625
2	**Livestock technologies**						
	i) No. of Trial	10	4	3	-	-	17
	ii) No. of Technology	1	1	1	-	-	3
	iii) No. of Beneficiaries	55	24	33	-	-	112

Table-6 reveals that a total of 326 technologies were taken up on different areas of crop enterprises by the KVKs for their assessment to identify location specific technologies under local farming situations with 1484 nos. of trials (Fig. 4 a) benefitting a total of 2785 farmers. The highest numbers of technologies (96) were found assessed in the state of Nagaland with 497 nos. of trials. This was followed by Mizoram (84) with 308 trials, Manipur (69) with 275 trials and Tripura (21) with 156 trials. While a total of 75 technologies with 435 nos. of trials related to livestock enterprises such as cattle, piggery, fishery, poultry, duckery, goatery, rabbitery etc. were taken up for assessment during the period which could benefit a total of 1222 farmers in the zone. In case of refinement, 38 nos. of crop based technologies were made refinement at farmers' fields with 174 trials benefitting 625 farmers. While only 3 technologies in livestock enterprises were refined with 17 trials based on local needs and farming systems.

OFT on French bean, KVK Kolasib

During the year 2017-18, a total of 326 technologies were taken up on different areas of crop enterprises by the KVKs for their assessment to identify location specific technologies under local farming situations with 1484 nos. of trials (Fig. 4 b). The major thematic areas included for assessment were varietal evaluation with 468 nos. of trials, integrated nutrient management (197), integrated pest management (141), integrated crop management (68), drudgery reduction (32), integrated disease management (70), resource conservation technology (37), value addition (49), weed management (31), water management (13), biological control (20), mushroom cultivation (13), farm machineries/mechanization (11), production technology (11), etc. (Table-7).

Table-7: Summary of Crop based Technologies Assessed under different thematic areas during 2017-18

Sl. No.	Thematic area	No. of Technology Assessed	No. of Trials	No. of Locations	Farmer Beneficiary (No.)
1	Varietal Evaluation	107	468	260	791
2	Integrated Nutrient Management	42	197	98	291
3	Integrated Crop Management	14	68	25	83
4	Integrated Pest Management	31	141	54	181
5	Integrated Disease Management	19	70	35	114
6	Weed Management	6	31	20	51
7	Water management	4	13	8	15
8	Storage technique	4	14	13	14
9	Farm Machineries	4	11	10	9
10	Value addition	14	49	30	163
11	Small scale income generating enterprise	3	27	7	23
12	Seed / Plant production	5	20	13	55

13	Drudgery reduction	8	32	11	99
14	Resource Conservation Technology (RCTs)	7	37	17	71
15	Mushroom cultivation	4	13	8	39
16	Organic Cultivation	2	8	6	12
17	Biological control	2	20	10	40
18	Soil Health Management	5	40	6	69
19	Production Technology	3	11	5	44
20	Others	42	214	72	621
	Total	**326**	**1484**	**708**	**2785**

While a total of 75 technologies with 435 nos. of trials related to livestock enterprises such as cattle, piggery, fishery, poultry, duckery, goatery, rabbitery etc. were taken up for assessment with major thematic areas of evaluation of breed (167), small scale income generating enterprises (7), disease management (9), nutrition management (58), fish production (47), production and management (40) feed and fodder management (38), etc. (Table-8).

Table-8: Summary of Livestock Technologies Assessed under different thematic areas during 2017-18

Sl. No.	Thematic area	No. of Technology Assessed	No. of Trials	Location	Farmer Beneficiary (No.)
1	Disease Management	3	9	5	50
2	Evaluation of breed	29	167	69	444
3	Breed Improvement	1	30	8	50
4	Feed and fodder Management	7	38	11	143
5	Feeding Management	1	12	3	25
6	Nutrition Management	9	58	29	181
7	Production and Management	8	40	28	108
8	Small Scale income generating enterprises	2	7	5	12
9	Fish production	8	47	17	118
10	Fish Feeding Management	3	6	2	14
11	Others	4	21	21	77
	Total	**75**	**435**	**198**	**1222**

2.3.2. Technology Refinement

A total of 38 crop based technologies related to cereals, oilseeds, vegetables and fruit crops were taken up for refinement with 174 trials at various locations (Table-9). The major thematic areas were integrated pests management with 23 nos. of trials, value addition (8), varietal evaluation (16), integrated nutrient management (30), integrated disease management (21), integrated crop management (10), resource conservation technology (28) etc.

Table-9: Summary of Crop based Technologies Refined under different thematic areas during 2017-18

Sl. No.	Thematic area	No. of technology refined	No. of trials	No. of Locations	Farmer Beneficiary (No.)
1	Varietal Evaluation	3	16	5	45
2	Integrated Nutrient Management	5	30	6	78
3	Integrated Crop Management	1	10	1	30
4	Integrated Pest Management	4	23	13	145
5	Integrated Disease Management	5	21	6	60
6	Value addition	2	8	4	25
7	Seed / Plant production	4	20	6	60
8	Post-harvest lost/ technology	1	5	3	15
9	Resource Conservation Technology (RCTs)	3	28	28	128
10	Mushroom cultivation	1	2	1	14
11	Other	9	11	3	25
	Total	**38**	**174**	**76**	**625**

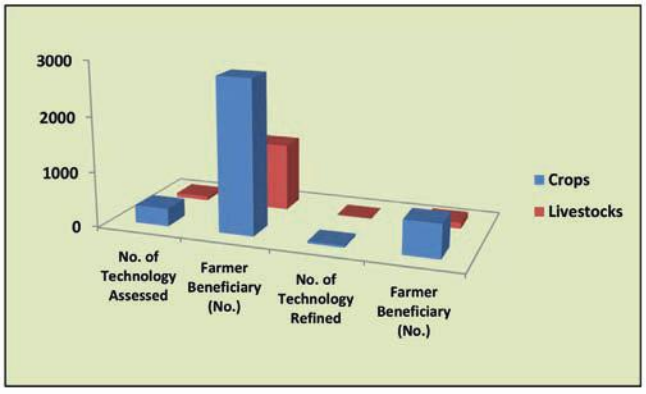


Fig. 4 (a): Distribution of technologies and farmer beneficiary through assessment and refinement of technologies during 2017-18

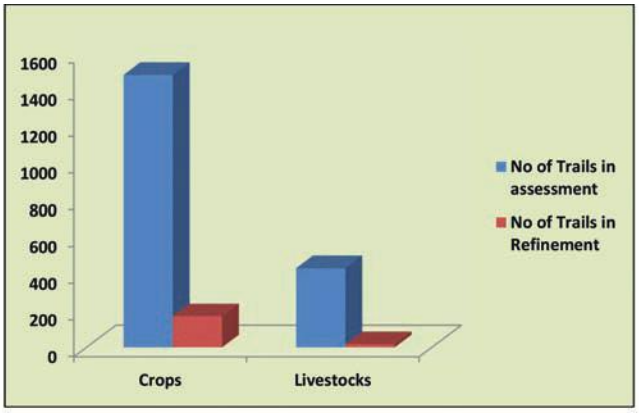


Fig. 4 (b): Distribution of trails under OFTs by the KVKs during 2017-18

In livestock sector, only 3 technologies with 17 trials under two thematic areas related to disease management (10) and evaluation of breed (7) were taken up by the KVKs in the year 2017-18 for their refinement as shown in Table-10.

Table-10: Summary of Livestock Technologies Refined under different thematic areas during 2017-18

Sl. No.	Thematic area	No. of Technology Refined	No. of Trials	Location	Farmer Beneficiary (No.)
1	Disease Management	1	10	1	55
2	Evaluation of breed	2	7	6	57
	Total	**3**	**17**	**7**	**112**

2.4. FRONT LINE DEMONSTRATIONS

KVKs under ICAR-ATARI, Umiam conducted Frontline demonstrations (FLDs) to demonstrate the production potential of newly released technologies on the farmers' fields at different locations in a given farming system and organize various extension activities and programmes for farmers, farm women and extension workers for dissemination of various technologies. A total of **7217** frontline demonstrations with **1659.13** ha were conducted by the KVKs during 2017-18 in close collaboration with farmers to establish production potential of improved agricultural technologies including Oilseeds (1385), Pulses (980), Other crops (2949), Livestock enterprises (812) and Other enterprises (1091) respectively.

FLD on Cabbage, KVK West Garo Hills

2.4.1. FLD on Oilseeds

During the year 2017-18 a total of 1385 demonstrations were conducted in different oilseed crops like groundnut, rapeseed and mustard, sesamum, soybean, toria, oil palm and linseed covering 593.35 ha area (Table-11). Demonstration on different varieties of Soybea (JS-335, JS 95 60) produced an average yield of 14.76 q/ha compared to 11.32 q/ ha yields of local check with 30.46% increase over the local check. Similarly, different varieties of Ground Nut such as ICGS 76, GPBD 4, G24 produced17.34 q/ha compared to local check of 10.40 q/ha with average increase of 66.73%. Rapeseed of varieties such as M-27, TS-36 had shown an average yield of 8.14 q/ha in demonstration as against only 6.54 q/ ha yield of the local check with 24.56% yield increase over local check. While Mustard was found with 9.75 q/ha against local check of 6.16 q/ha with average increase of 58.41%. Among the oilseed crops, the highest number of demonstrations (391) was conducted in Ground nut, covering an area of 100.5 ha (Fig.5). The highest Percentage increase in yield was also observed in Ground Nut (66.73 %). While the highest B:C ratio was observed in case of Linseed of varieties such as Ruchi, Sharda, RCL 92 (4.73).

FLD on Soybean, KVK Zunheboto

Table-11: Frontline Demonstration on Oilseed Crops during 2017-18

Crop	Variety	No. of Farmers/ Demo.	Area (ha)	Average yield (q/ha)		Avg. % Increase	Avg. cost of cultivation (Rs./.ha)		Avg. Benefit-Cost ratio
				Demo	Check		Demo.	Check	
Soybean	JS-335, JS 95 60	279	93.75	14.76	11.32	30.46	35704	30814	2.21
Groundnut	ICGS 76, GPBD 4, G24	391	100.5	17.34	10.40	66.73	46816	26708	2.19
Mustard	NRCHB 101	139	59	9.75	6.16	58.41	22305	18742	2.09
Rapeseed	M-27, TS-36	140	105	8.14	6.54	24.56	17690	16220	2.21
Oilpalm	Tenera	2	2	2240	1512	48.15	57000	57000	3.16
Toria	TS-36, TS-38, TS 67	219	149	9.87	7.18	37.50	25547	19739	3.77
Linseed	Ruchi, Sharda, RCL 92	127	50	15.55	11.65	33.48	31400	25100	4.73
Sesamum	Kaliabor Til-1, Tripura Siphing, ST-1683	88	34.1	6.06	4.79	26.34	19753	18643	1.76
Total		**1385**	**593.35**						

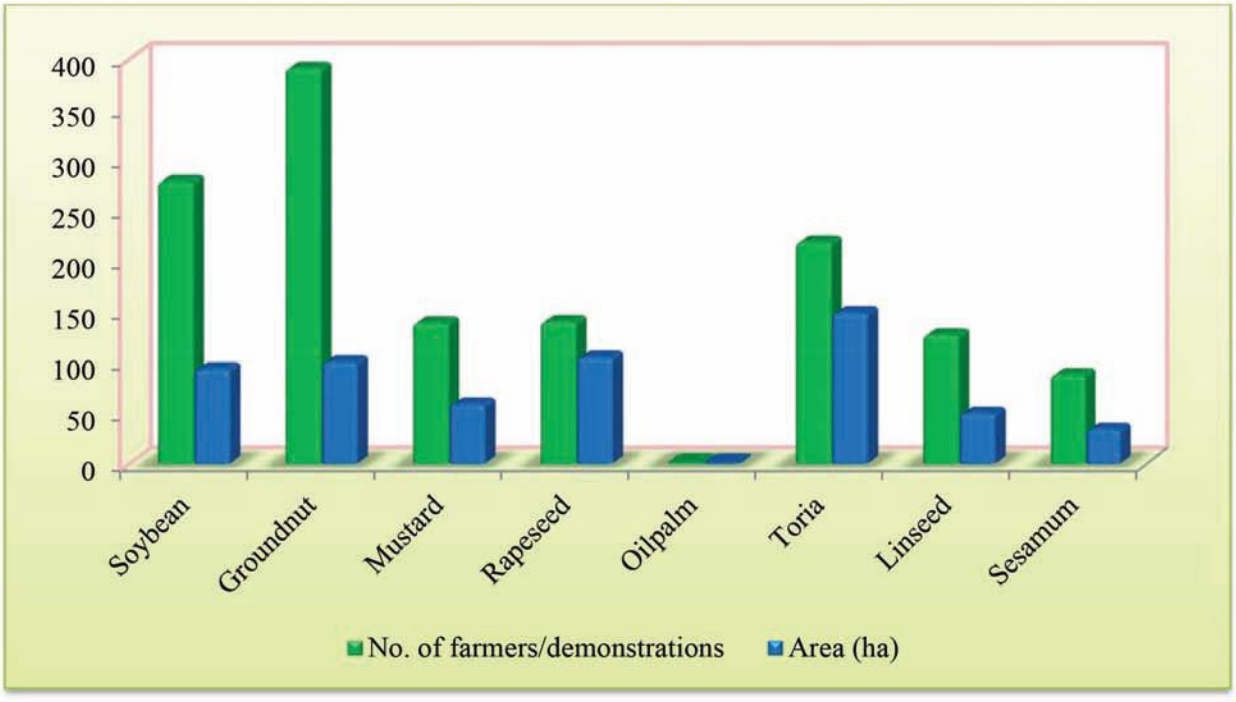


Fig. 5: Number and area under demonstration on different oilseed crops in 2017-18

2.4.2. FLD on Pulses

A total of **980** demonstrations were conducted on various pulse crops like Black gram, Green gram, Lentil, Arhar, Rajma, French bean, Field pea, Cow pea, Chick pea, Rice bean, Rajmah and Lathyrus etc. covering an area of 385.96 ha (Table-12). Among the pulse crops, the highest numbers of demonstrations were conducted in Fieldpea (336) of varieties such as HUDP-15, Arkel, Vikash, Aman, Rachna, Prakash covering 108.3 hectares area with average yield of 25.46 q/ha compared to local check of 16.31 q/ha having highest increase yield level over local check 56.08% (Fig. 6). The most promising B: C ratio was observed in Rajmah (3.23) with varieties such as Tripura Sel-1, VL 63 during the period.

FLD on Field pea, KVK South Tripura

Table-12: Frontline Demonstration on Pulse Crops during 2017-18

Crop	Variety	No. of Farmers/ Demo.	Area (ha)	Average yield (q/ha)		Avg. % Increase	Avg. cost of cultivation (Rs./.ha)		Avg. Benefit-Cost ratio
				Demo.	Check		Demo.	Check	
Blackgram	PU-31, Tripura Maskolai 1	221	95.5	7.48	5.04	48.49	19833	13556	2.03
Field pea	HUDP-15, Arkel, Vikash, Aman, Rachna, Prakash	336	108.3	25.46	16.31	56.08	43923	42752	2.79
Ricebean	Local	14	5	11.35	9.57	18.66	20080	18500	1.98
Frenchbean	Anupama, Arka anoop, Arka komal	28	14	57.75	41.28	39.92	50750	142000	2.44
Greengram	IPM 2-3, Pratap, Tripura Mung	55	24.66	8.51	7.20	18.15	27369	18453	2.14
Lentil	HUL-57, Parvati	276	107.75	7.85	5.67	38.49	25387	23077	2.65
Arhar	TS3R	3	0.75	9.78	6.74	45.10	33000	33000	2.07
Rajma	Tripura Sel-1, VL 63	27	22	41.25	31.25	32.00	45995	40578	3.23
Lathyrus	Ratan	20	8.0	5.6	0		14944	0	1.49
Total		**980**	**385.96**						

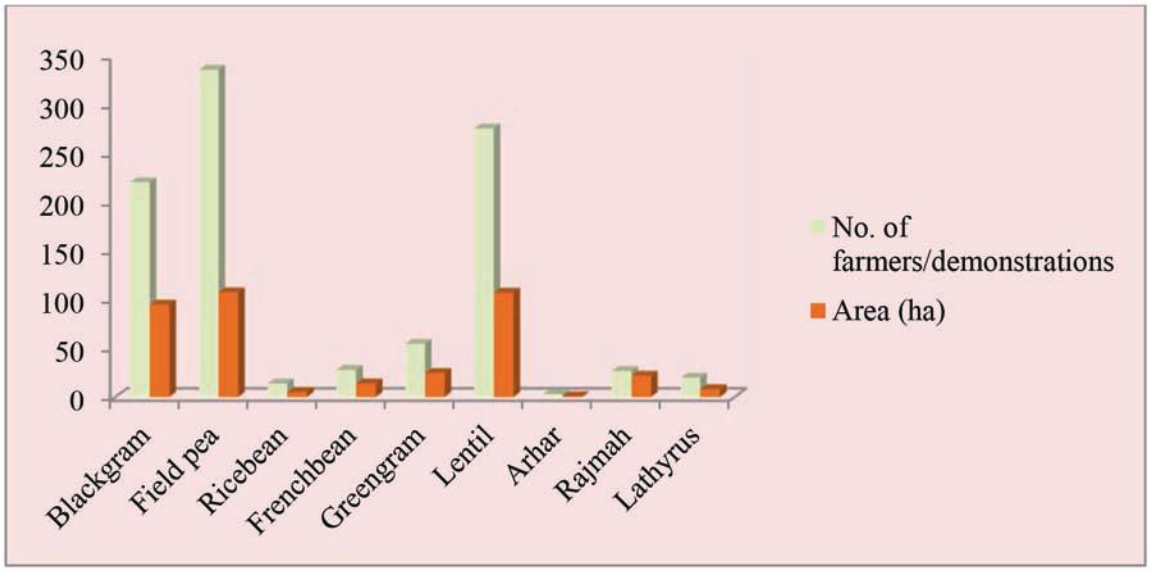


Fig. 6: Number and area under demonstration on different pulses crops in 2017-18

2.4.3. FLD on Other Crops

A total of 2949 demonstrations were conducted on cereal crops, vegetables, fruits, flowers, spices and condiments, cash crops, cole crops, stem and tuber crops and fodder crops covering an area of 580.32 ha. Among these crops, the largest area of 280.50ha was covered under rice with varieties such as RC Maniphou-10, RC Maniphou-13, CAU R-1, Shahsarang, Gitesh, RCM-10, Gomati, IR-36, Dishang. The highest number (948) of demonstration was also conducted under the same crop. The most promising B: C ratio (4.74) was recorded in Strawberry (Var. Sweet Charlie) among the crops. The highest percentage increase in yield (122.27%) was observed in case of Banana in varieties of Giant Cavendish, Grand Naine followed by Yard long bean of variety Arka Mangala (112.06%) and Oyster mushroom (107.77%). The average demonstration yield of rice was observed to be 46.21q/ ha against 33.51q /ha of local check (Table-13). Significant number of demonstrations were also conducted in Ginger (560), maize (283) of varieties such as RCM-1-76, Pusa Composite-3, HQPM 1, NMH-1247, Tomato (Arka Rakshak, Arka samrat, Megha Tomato-3, Arka anamika, Avinash) with 161 demonstrations, Cabbage (140) with varieties of Green Hero, Rare ball, Pusa Mukta, Golden Acre, KGMR-1, Bee Keeping (Apis Spp, A. Mellifera) with 110 demonstrations, Broccoli (TSX-0788, Green Magic, Ashwarya, Solan Green Head, KTS-1, Green Magic) with 81 demonstrations etc.

FLD on Paddy, KVK Dimapur

Table-13: Frontline Demonstration on Other Crops during 2017-18

Crop	Variety	No. of Demo.	Area (ha)	Average yield (q/ha)		Avg. % Increase	Avg. cost of cultivation (Rs./.ha)		Avg. Benefit-Cost ratio
				Demo.	Check		Demo.	Check	
CEREALS									
Paddy	RC Maniphou-10, RC Maniphou-13, CAU R-1, Shahsarang, Gitesh, RCM-10, Gomati, IR-36, Dishang	948	280.5	46.21	33.51	37.88	42420	34877	2.22
Oat	JHO 822	4	1	270	0	0.00	31000	0	1.74
Wheat	HD-2923	4	0.75	15	13	15.38	28000	28000	1.6
Maize	RCM-1-76, Pusa Composite-3, HQPM 1, NMH-1247	283	61.5	42.27	31.01	36.33	44010	29928	2.62
MILLETS									
Pearlmillet	PC-612	10	5	12.65	8.17	54.83	10500	10500	2.41
Finger millet	KMR 301, KMR 340	20	3.2	20.59	14.2	44.96	10200	9755	4.26
VEGETABLES (OPEN CULTIVATION)									
Tomato	Arka Rakshak, Arka Samrat, Megha Tomato-3, Avinash	161	28.42	314.48	209.46	50.13	115705	72634	3.87
Broccoli	TSX-0788, Green Magic, Ashwarya, Solan Green Head, KTS-1, Green Magic	81	7.25	132.94	110.18	20.65	74648	74163	3.48
Okra	Arka Anamika	39	7.5	82.83	63.33	30.79	77513	70160	2.44
Brinjal	NS 797, Singnath	30	12.2	163.92	140.52	16.65	70333	68833	3.61
Garden pea	Arkel, Arka Apoorva, Azad pea 5	64	5	69.51	58.64	18.53	78000	56000	2.52
Cabbage	Green Hero, Rare ball, Pusa Mukta, Golden Acre, KGMR-1	140	21.03	221.80	153.06	44.91	199179	113903	2.66
Knol khol	White Vienna, Early White	84	1.57	40	0	0.00	22752	0	2.73
Potato	Kufri Megha, Kufri Himalini, Kufri Girdhari, Kufri kanchan	30	3.5	182.43	126.15	44.61	103864	88435	3.01

Cucumber	Local	26	2	51.35	32.00	60.47	45940	26475	2.05
Colocasia	Mukta Keshi	53	1	152.50	109.00	39.91	65415	53900	2.33
Chow-chow	Local	274	1	280	250	12.00	105500	103000	2.3
Bottle Gourd	Sharda	35	0.5	305	196.5	55.22	28456	19876	3.88
French Bean	Arka Anoop, Arka Komal	25	12.05	94.67	68.33	38.54	78333	197667	2.77
Pumpkin	Local	10	0	114.30	78.50	45.61	65000	55000	3.51
Yard long beans	Arka Mangala	20	1	109.00	51.40	112.06	61500	61500	3.22
Tapioca	Shree Shaya	7	2	340	290	17.24	45500	43520	2.1
Cauliflower	Early white	20	3.2	365	294	24.15	78302	75210	366
VEGETABLES (PROTECTED CULTIVATION)									
Cabbage	Wonder ball	10	1	54kg/ unit	0	0	0	0	2.80
Carrot	Super Selection	10	1	40kg/ unit	0	0	0	0	2.80
Capsicum	Solan Bharpur	5	0	1.1/100 m2	1.0/100 m2	0	5459	4314	2.50
Broccoli	Pushpa	10	1	24kg/ unit	0	0	0	0	2.80
Lettuce	Green Rapids	10	1	20kg/ unit	0	0	0	0	2.80
Cauliflower	White Contessa	10	1	46kg/ unit	0	0	0	0	2.80
Radish	White Glory	10	1	34kg/ unit	0	0	0	0	2.80
Beet Root	Valley Queen	10	1	26kg/ unit	0	0	0	0	2.80
Garden Pea	Arka Priya	10	1	50kg/ unit	0	0	0	0	2.80
Coriander	Kalmi	10	1	16kg/ unit	0	0	0	0	2.80
Mint	Local	10	1	16kg/ unit	0	0	0	0	2.80
SPICES									
Chilli	Arka Meghna, Pusa Sadabahar, Guntur hope,	51	7.6	60.04	47.08	27.52	69059	65651	2.52
Ginger	Nadia, Bhaisa/ Thinglaidum, Suprabha	69	16.9	132.35	91.55	44.57	85092	75730	2.63
Turmeric	Megha turmeric -1, Lakadong	28	5	409.0	207.0	97.58	122667	48333	3.28

Onion	Prema -178, Bhima shakti, Nasik red	25	4.8	119.27	89.32	33.53	111489	51783	2.80
Garlic	G-282	10	6	70.00	55.00	27.27	203225	198000	3.1
Betel vine	Local	3	0.04	3022222 No. of leaves	430178 No. of leaves	0.00	387519	28558	1.95
FRUITS									
Water melon	NS-295	2	1	200	120	66.67	68600	50000	2.91
Khasi Mandarin	Tamenglong orange, Citrus special	24	20.5	96.85	63.25	53.12	77500	40000	2.88
Kachai lemon		0	2	39.50	36.20	9.12	52000	0	3.80
Kiwi fruit	Hayward, Allison, Tomuri	12	1.5	70.03	36.25	93.17	156160	102660	2.91
Straw berry	Sweet charlie	18	10.55	82.5	67.0	23.13	671667	550000	4.74
Mango	Rangkuai	9	4	55.0	38.0	44.74	68000	55000	2
Banana	Giant Cavendish, Grand Naine	16	3.5	507.33	228.25	122.27	208049	229875	2.90
Papaya	Tripura Papita	10	0.35	200	145	37.93	87700	80750	2.7
Coconut		10	1	6000 nuts/ annum	2000 nuts/ annum	0	12000	7000	2.65
FLORICULTURE									
Marigold	Pusa Narangi	12	2.4	60.25 lakhs	42.5 lakhs	41.74	625000	579000	4.55
MUSHROOM									
Oyster mushroom		33	14	1.87 kg/ kg dry straw	0.9 kg/ kg dry straw	107.77	1747.50	0	3.76
APICULTURE									
Bee keeping	Apis Spp, A. mellifera	110	4	6.5 kg/ colony/ year	3.5kg/ colony/ year	0	19633	2333	3.70
OTHERS									
Other activities		34	9	87.00	52.5	65.71	13167	2400	2.07
Total		**2949**	**580.32**						

The state-wise distribution of number of demonstrations and area under oilseeds, pulses and other crops conducted by KVKs under Zone-VII is given in Table-14.

Table-14: State-wise Details of FLD on Oilseeds, Pulses and Other Crops during 2017-18

Crop	Manipur			Meghalaya			Mizoram			Nagaland			Tripura			Total Farmers/ Demo.	Total Area (ha.)
	No. of KVKs	Farmers/ Demo	Area (ha.)	No. of KVKs	Farmers/ Demo	Area (ha.)	No. of KVKs	Farmers/ Demo	Area (ha.)	No. of KVKs	Farmers/ Demo	Area (ha.)	No. of KVKs	Farmers/ Demo	Area (ha.)		
A. OILSEEDS																	
Soybean	3	25	4.75	-	-	-	3	33	19	5	221	70	-	-	-	279	93.75
Groundnut	4	44	17	1	306	70	2	26	12	1	15	1.5	-	-	-	391	100.5
Mustard	2	79	43	-	-	-	1	10	4	-	-	-	1	50	12	139	59
Rapeseed	4	140	105	-	-	-	-	-	-	-	-	-	-	-	-	140	105
Oilpalm	-	-	-	-	-	-	1	2	2	-	-	-	-	-	-	2	2
Toria	-	-	-	-	-	-	2	20	6	7	199	143	-	-	-	219	149
Linseed	-	-	-	-	-	-	-	-	-	2	127	50	-	-	-	127	50
Sesamum	-	-	-	-	-	-	-	-	-	2	54	21	2	34	13.1	88	34.1
Sub Total	**13**	**288**	**169.75**	**1**	**306**	**70**	**9**	**91**	**43**	**17**	**616**	**285.5**	**3**	**84**	**25.1**	**1385**	**593.35**
B. PULSES																	
Blackgram	4	73	43	1	73	42.5	-	-	-	-	-	-	2	75	10	221	95.5
Field pea	5	120	63.8	2	35	11.5	3	32	17	4	116	13	1	33	3	336	108.3
Ricebean	2	14	5	-	-	-	-	-	-	-	-	-	-	-	-	14	5
Frenchbean	1	8	2	-	-	-	1	20	12	-	-	-	-	-	-	28	14
Greengram	1	11	10	-	-	-	-	-	-	1	25	2.5	1	19	12.16	55	24.66
Lentil	2	68	40	-	-	-	1	3	0.25	1	75	30	3	130	37.5	276	107.75
Arhar	1	3	0.75	-	-	-	-	-	-	-	-	-	-	-	-	3	0.75
Rajma	-	-	-	1	15	10	1	12	12	-	-	-	-	-	-	27	22
Lathyrus	-	-	-	-	-	-	-	-	-	-	-	-	1	20	8	20	8
Sub Total	**16**	**297**	**164.55**	**4**	**928**	**163.5**	**6**	**67**	**41.25**	**6**	**216**	**45.5**	**8**	**277**	**70.66**	**980**	**385.96**

C. OTHER CROPS																	
CEREALS																	
Paddy	8	153	95	4	354	39.5	7	103	64	7	98	36	3	240	46	948	280.5
Oat	1	4	1	-	-	-	-	-	-	-	-	-	-	-	-	4	1
Wheat	1	4	0.75	-	-	-	-	-	-	-	-	-	-	-	-	4	0.75
Maize	3	35	12	3	110	7	1	20	10	7	93	27.5	1	25	5	283	61.5
Sub Total	**13**	**196**	**108.75**	**7**	**464**	**46.5**	**8**	**123**	**74**	**14**	**191**	**63.5**	**4**	**265**	**51**	**1239**	**343.75**
MILLETS																	
Pearlmillet	-	-	-	-	-	-	-	-	-	1	10	5	-	-	-	10	5
Fingermillet	-	-	-	-	-	-	-	-	-	-	-	-	1	20	3.2	20	3.2
Sub Total	-	-	-	-	-	-	-	-	-	**1**	**10**	**5**	**1**	**20**	**3.2**	**30**	**8.2**
VEGETABLES (OPEN CULTIVATION)																	
Tomato	2	13	1.25	2	82	4.07	4	43	18.9	1	3	1	1	20	3.2	161	28.42
Broccoli	2	16	2	1	51	1	1	5	1	2	9	3.25	-	-	-	81	7.25
Okra	1	8	1	-	-	-	-	-	-	1	6	3	2	25	3.5	39	7.5
Brinjal	1	8	2	-	-	-	1	10	0	-	-	-	1	12	10.2	30	12.2
Garden pea	1	6	2	-	-	-	1	10	1	2	48	2	-	-	-	64	5
Cabbage	5	31	9	2	76	0.57	2	20	10.15	3	13	1.31	-	-	-	140	21.03
Knol khol	1	8	1	1	76	0.57	-	-	-	-	-	-	-	-	-	84	1.57
Potato	1	4	1	2	15	1.5	1	3	0	1	8	1	-	-	-	30	3.5
Cucumber	-	-	-	1	24	1	-	-	-	1	2	1	-	-	-	26	2
Colocasia	-	-	-	1	53	1	-	-	-	-	-	-	-	-	-	53	1
Chow-chow	-	-	-	1	274	1	-	-	-	-	-	-	-	-	-	274	1
Bottle Gourd	-	-	-	1	35	0.5	-	-	-	-	-	-	-	-	-	35	0.5
French Bean	-	-	-	-	-	-	2	25	12.05	-	-	-	-	-	-	25	12.05
Pumpkin	-	-	-	-	-	-	1	10	0	-	-	-	-	-	-	10	0
Yard long beans	-	-	-	-	-	-	-	-	-	1	20	1	-	-	-	20	1

Tapioca	-	-	-	-	-	-	-	-	-	1	7	2	-	-	-	7	2
Cauliflower	-	-	-	-	-	-	-	-	-	-	-	-	1	20	3.2	20	3.2
Sub Total	**14**	**94**	**19.25**	**12**	**686**	**11.21**	**13**	**126**	**43.1**	**13**	**116**	**15.56**	**5**	**77**	**20.1**	**1099**	**109.22**
VEGETABLES (PROTECTED CULTIVATION)																	
Cabbage	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Carrot	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Capsicum	-	-	-	1	5	0	-	-	-	-	-	-	-	-	-	5	0.01
Broccoli	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Lettuce	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Cauliflower	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Radish	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Beet Root	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Garden Pea	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Coriander	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Mint	-	-	-	1	10	1	-	-	-	-	-	-	-	-	-	10	0.5
Sub Total	-	-	-	**11**	**105**	**5**	-	-	-	-	-	-	-	-	-	**105**	**5.01**
SPICES																	
Chilli	2	18	3.25	-	-	-	1	10	1.5	1	3	1.5	1	20	1.35	51	7.6
Ginger	3	16	5	1	5	0.5	3	28	7.9	3	20	3.5	-	-	-	69	16.9
Turmeric	1	4	2	1	4	2	-	-	-	1	20	1	-	-	-	28	5
Onion	1	4	0.5	-	-	-	1	10	2.5	2	11	1.8	-	-	-	25	4.8
Garlic	-	-	-	-	-	-	1	10	6	-	-	-	-	-	-	10	6
Betel vine	-	-	-	-	-	-	1	3	0.04	-	-	-	-	-	-	3	0.04
Sub Total	**7**	**42**	**10.75**	**2**	**9**	**2.5**	**7**	**61**	**17.94**	**7**	**54**	**7.8**	**1**	**20**	**1.35**	**186**	**40.34**
FRUITS																	
Water melon	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Khasi Mandarin	1	6	2.5	-	-	-	2	15	16.5	1	3	1.5	-	-	-	24	20.5

Kachai lemon	1	0	2	-	-	-	-	-	-	-	-	-	-	-	-	0	2
Kiwi fruit	1	8	1	1	4	0.5	-	-	-	-	-	-	-	-	-	12	1.5
Straw berry	-	-	-	-	-	-	3	18	10.55	-	-	-	-	-	-	18	10.55
Mango	-	-	-	-	-	-	1	9	4	-	-	-	-	-	-	9	4
Banana	-	-	-	-	-	-	1	10	2.5	1	6	1	-	-	-	16	3.5
Papaya	-	-	-	-	-	-	-	-	-	-	-	-	1	10	0.35	10	0.35
Coconut	-	-	-	-	-	-	-	-	-	-	-	-	1	10	1	10	1
Sub Total	**4**	**16**	**6.5**	**1**	**4**	**0.5**	**7**	**52**	**33.55**	**2**	**9**	**2.5**	**2**	**20**	**1.35**	**101**	**44.4**
FLORICULTURE																	
Marigold	-	-	-	-	-	-	-	-	-	-	-	-	1	12	2.4	12	2.4
Sub Total	-	-	-	-	-	-	-	-	-	-	-	-	**1**	**12**	**2.4**	**12**	**2.4**
MUSHROOM																	
Oyster mushroom	1	0	5	-	-	-	-	-	-	2	18	9	1	15	0	33	14
Sub Total	**1**	**0**	**5**	-	-	-	-	-	-	**2**	**18**	**9**	**1**	**15**	**0**	**33**	**14**
APICULTURE																	
Bee keeping	1	0	4	-	-	-	1	100	0	-	-	-	1	10	0	110	4
Sub Total	**1**	**0**	**4**	-	-	-	**1**	**100**	**0**	-	-	-	**1**	**10**	**0**	**110**	**4**
OTHERS																	
Other activities	-	-	-	1	3	3	1	5	0	2	26	6	-	-	-	34	9
Sub Total	-	-	-	**1**	**3**	**3**	**1**	**5**	**0**	**2**	**26**	**6**	-	-	-	**34**	**9**
Total (OC)	**40**	**348**	**154**	**34**	**1271**	**69**	**37**	**467**	**169**	**41**	**424**	**109**	**16**	**439**	**79**	**2949**	**580.32**
GRAND TOTAL	**69**	**933**	**489**	**39**	**2505**	**302**	**52**	**625**	**253**	**64**	**1256**	**440**	**27**	**800**	**175**	**5314.00**	**1559.63**

2.4.4. FLD on Livestock

In livestock sector, a total of 812 demonstrations were conducted by the KVKs during 2017-18 covering 848292 nos. of animals, poultry/ other birds and fingerlings. The demonstrations under livestock comprised of Poultry (323), Piggery (103), Fisheries (222), Duckery (14), Goatery (13), Rabbitry (50), IFS (64) and Dairy (23) (Table-15). The percentage change in parameters ranged from 44.84 % in Rabbitry with performance parameters like Litter size at weaning, body weight gain and kits production, litter size at birth to 106.47% in case of Dairy (Cross breed) in performance parameters such as General health, Milk Production, Growth rate, mortality, resistance to diseases, calving period (Table15).

Table-15: Frontline Demonstration on Livestock Enterprise during 2017-18

Enterprise	Name of Breed/ Species	No. of farmers/ Demons	No. of animals/ poultry birds/ fingerlings etc.	Performance parameters / indicators	% change in the parameter
Piggery	Hampshire Cross, Ghungroo, Large white Yorkshire x Zovawk	103	505	Litter size at birth & weaning, individual body weight at birth, weaning	46.03
Poultry	Vanaraja, Kamrupa, Grama Priya, Srinidhi, Dahlem Red X Tripura Black	323	13372	Egg production, Egg weight, disease resistance, mortality rate	70.83
Duckery	Khaki Campell	14	300	Body weight, Egg production and Egg weight	99.00
Goatery	Black Bengal	13	272	Litter size at birth & weaning, individual body weight at birth, weaning	65.75
Dairy	Cross breed	23	43	General health, Milk Production, Growth rate, mortality, resistance to diseases, calving period	106.47
Rabbitry	New Zealand White and Soviet Chinchilla	50	100	Litter size at weaning, body weight gain and kits production, litter size at birth, No. of crops/doe/year	44.84
Fishery	*Catla catla, L. rohita, C. mrigala*, Pabda	222	833650	Yield, water quality, duration maturity, average weight	62.79
IFS	Duck Cum Fish, Paddy cum fish culture, piggery	64	50 ducklings + 600 fingerlings + IMC seeds @ 20000/ha + 12 piglets	Weight of fish (kg/ha), Duck meat yield (kg/ha), Paddy yield (kg/ha), pig weight (kg)	88.5
Total		**812**	**848292**		**73.03**

The state-wise details of FLDs on Livestock Enterprises conducted by KVKs in the zone are given in Table-16. A perusal of the table depicts that out of 812 demonstrations, the maximum number of demonstrations (303) were conducted in the state of Tripura with highest in Fishery sector (164) and 33400 nos. of fingerlings were supplied to the farmers in this sector followed by Manipur (164) and Nagaland (136). While maximum number of inputs such as animals/ birds/ units etc. were supplied among the famers for conducting demonstrations by the KVKs in Manipur (800042 + (30 ducklings + 600 fingerlings) followed by Tripura with 43880 + 20 Nos. Duck + IMC seeds @ 10000/ha.

Table- 16: State-wise Details of FLD on Livestock Enterprises during 2017-18

Enterprise	Manipur		Meghalaya		Mizoram		Nagaland		Tripura		Total	Total animals/ units
	No. of farmers/ Demo.	No. of animals/units	No. of farmers/ Demo.	No. of animals/units	No. of farmers/ Demo.	No. of animals/units	No. of farmers/ Demo.	No. of animals/units	No. of farmers/ Demo.	No. of animals/units		
Piggery	36	180	19	38	10	15	8	32	30	240	103	505
Poultry	78	1550	13	230	70	1150	78	242	84	10200	323	13372
Duckery	14	300	-	-	-	-	-	-	-	-	14	300
Goatery	3	12	-	-	10	260	-	-	-	-	13	272
Dairy	-	-	-	-	3	3	-	-	20	40	23	43
Rabbitry	-	-	-	-	-	-	50	100	-	-	50	100
Fishery	28	798000	30	2250	-	-	-	-	164	33400	222	833650
IFS	5	30 ducklings & 600 fingerlings	14	IMC seeds-10000/ ha + 12 piglets	40	-	-	-	5	Duck – 20 nos, IMC seeds – 10000/ ha	64	50 ducklings + 600 fingerlings + IMC seeds @ 20000/ha + 12 piglets
Total	**164**	**800042 + (30 ducklings + 600 fingerlings)**	**76**	**2518**	**133**	**1428**	**136**	**374**	**303**	**43880 + 20 Nos. Duck + IMC seeds @ 10000/ ha.**	**812**	**848242 animals and (50 ducklings + 12 piglets + 600 fingerlings + IMC seeds @ 20000/ha) under IFS**

2.4.5. FLD on Other Enterprises

The KVKs had not confined their demonstrations in crops and livestock only. Taking into account the ever increasing importance of secondary agriculture for securing sustainable rural livelihood, the KVKs

of the zone had also taken numerous initiatives to popularize several secondary agricultural ventures like bee keeping, mushroom cultivation, utilization of waste materials, production of vermicompost, production and utilization of organic dye etc. During the year 2017-18, a total of 1091 demonstrations were conducted in such enterprises like Farm implements & Machinery (272), Mushroom (Oyster Mushroom) with 395 demonstrations, Apiculture (202), Promotion of nutritional garden (29), Charcoal briquette cake (15), Impact Assessment (60), Value addition (46), Fodder (Hy. Napier Guinea Congosignal) with 26 demonstrations, Vermicompost of Eisenia foetida & Eudrillus eugeniae, Silpauline (12) etc. (Table-17).

FLD on Groundnut decorticator, KVK Chaurachandpur

Table-17: Frontline Demonstration on Other Enterprises during 2017-18

Enterprise	Activity	No. of farmers/ Demo.	Performance parameters / indicators	% change in the parameter
Farm Implements & Machinery				
i. Groundnut decorticator	Groundnut decorticator	16		418.13
ii. Maize sheller	Mounted maize sheller	137		252.75
iii. Grain cleaner	Hanging type grain cleaner	10		34.56
iv. Solar dryer	Drying of seeds	6		63.22
v. Mechanical paddy harvesting	Use of paddy reaper	3		Harvesting cost is reduced by Rs. 8,200/ ha
vi. Improved serrated sickle	Paddy	50		39.72
vii. Power operated paddy thresher	Rice	12		118.76
viii. Cono weeder for weeding	Rice	5	Labour use efficiency, cost effectiveness, Average of output	80.00
ix. Adjustable row marker	Garden pea(Arkel)	5		88.00
x. Twin wheel hoe	Garden pea(Arkel)	5		57.00
xi. Seed drill	Eight row tractor drawn zero till seed drill	1		66.9
xii. Direct sowing of paddy	Use of 8 row drum seeder for paddy variety CAU-R3	7		54.13
Revolving milking stool and stand	Uses of Revolving milking stool and stand for reducing drudgery	15	Perception of body discomfort, Psychological perception	68.75
Sub-Total		**272**		

Mushroom	Oyster Mushroom	395	No. of days required for pinhead formation, average yield	0
Vermicompost	Eisenia foetida & Eudrillus eugeniae, Silpauline (12 x 4.5 x2.5) ft 3	12	Decomposition rate, organic matter production	37.5
Charcoal briquette cake	Bee hive charcoal briquette	15	Duration of combustion (in min), Cost price/ unit wt.	203.25
Control of EUS disease in IMC		7	Disease control	90
Jalkund	Jalkund	3	Amt. of water harvested and income generated	0
Promotion of nutritional garden	Cabbage, amaranthus, Spinach, Coriander, chilly, onion, beans)	29	Percentage increase in consumption of vegetables per day, health status, nutritional status	0
Polyhouse	Vegetable production under low cost polyhouse (20m X 5m)- Tomato, King Chilli and Broccoli	2	Income generated (Rs./ month)	0
Apiculture	Scientific method of Beekeeping (Species – Indian hive bee, aphis cerana)	202	Average yield of honey	46.28
Fodder	Hy. Napier Guinea Congosignal	26	Yield	50
Value Addition	Tamarind	46	Increased shelf life, marketability, consumer acceptability	0
Impact Assessment		60	Income generated (Rs./ month)	56.7
Food Processing	Jackfruit	5	Income generated (Rs./ month)	0
Soakage pit	Soakage pit	12	Water stagnant, odd smell, mosquito breeding	75
Chulha	Grihalaxmi Chulha	5	Fuel save, smoke, drudgery	67.5
Total		**1091**		**98.41**

The state-wise details of FLDs on other enterprises conducted by KVKs under Zone-VII during 2017-18 are given in Table-18. The table revels that out of 5 states under the zone, KVKs in Meghalaya conducted highest number of FLDs on other enterprises (550) followed by Nagaland, Manipur and Mizoram with 227, 131 and 111 nos. of demonstrations respectively.

Table-18: State-wise Details of FLD on Other Enterprises during 2017-18

Enterprise	No. of farmers/Demo.					Total
	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	
Farm implements and machinery	66	-	10	181	-	257
Revolving milking stool and stand	10	-	-	-	5	15
Mushroom production	15	350	-	-	30	395
Vermicompost	4	-	8	-	-	12
Charcoal briquette cake	15	-	-	-	-	15
Control of EUS disease in IMC	7	-	-	-	-	7
Jalkund	3	-	-	-	-	3
Promotion of nutritional garden	5	-	24	-	-	29
Polyhouse	2	-	-	-	-	2
Apiculture	4	194	-	4	-	202
Fodder	-	6	-	-	20	26
Value Addition	-	-	4	42	-	46
Impact Assessment	-	-	60	-	-	60
Food Processing	-	-	5	-	-	5
Soakage pit	-	-	-	-	12	12
Chulha	-	-	-	-	5	5
Total	**131**	**550**	**111**	**227**	**72**	**1091**

2.5. Training programmes

A number of training programmes had been organized by the KVKs to provide up-to-date knowledge and up-gradation of skills of farmers, farm women and rural youth in improved agricultural and allied practices and to keep the extension functionaries abreast with recent developments in technological breakthroughs, government schemes along with enhancing their managerial skill to effectively deal with the farming community. The training courses were of varying duration depending upon the extent of knowledge and skill required to be transferred to the intended beneficiaries as well as budget provision for the same. The programmes encompassed a number of thematic areas covering almost all the enclaves of rural livelihood options. During the year 2017-18, as indicated by Table-19, a total of 3372 training programmes were conducted by the KVKs in different areas of agriculture and allied activities (Fig. 7 a) benefitting a total of

75965 farmers and farm women, rural youth, in-service extension personnel, civic bodies, NGOs, entrepreneurs etc.. The highest number of training programmes (2045) was conducted for farmers and farm women that could benefit a total of 51646 farmers representing 13753 farmers from the state of Mizoram followed by Meghalaya (12864) and Nagaland (11197). In case of rural youth, out of total of 565 nos. of training programmes, the states of Mizoram, Nagaland and Tripura conducted the highest number of 129 courses each accounting 68.49% with 6796 youth beneficiaries. During the reporting period 188 training programmes were conducted by the KVKs under the zone for extension personnel for the benefit of 3921 participants. The table also shows that a total of 203 Vocational and 371 Sponsored training programmes were also conducted during 2017-18 benefitting a total of 3319 and 5288 of different target groups including unemployed rural youth, NGOs members, SHGs etc.

Skill development training programme under KVK Khowai

Table-19: State-Wise Summary for Training Programmes during 2017-18

Training	No. of Courses						No. of participants					
	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	Total	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	Total
Farmers & Farm Women	399	406	405	585	250	**2045**	8981	12864	13753	11197	4851	**51646**
Rural Youth	112	103	124	115	111	**565**	2486	2509	2861	2442	1493	**11791**
Extension Personnel	40	33	46	39	30	**188**	1057	594	912	846	512	**3921**
Vocational Training Programme	72	57	11	45	18	**203**	1179	901	203	712	324	**3319**
Sponsored Training Programme	117	64	63	55	72	**371**	1802	972	795	725	994	**5288**
Total	**740**	**663**	**649**	**839**	**481**	**3372**	**15505**	**17840**	**18524**	**15922**	**8174**	**75965**

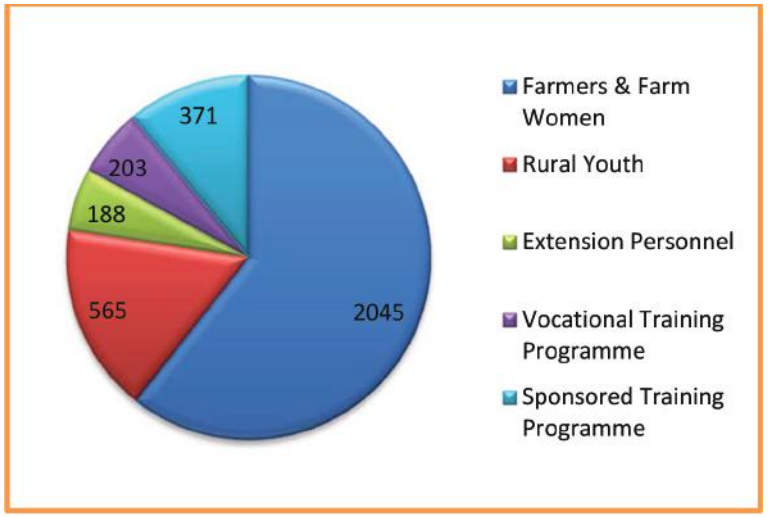


Fig. 7(a). No. of Courses conducted for different target groups

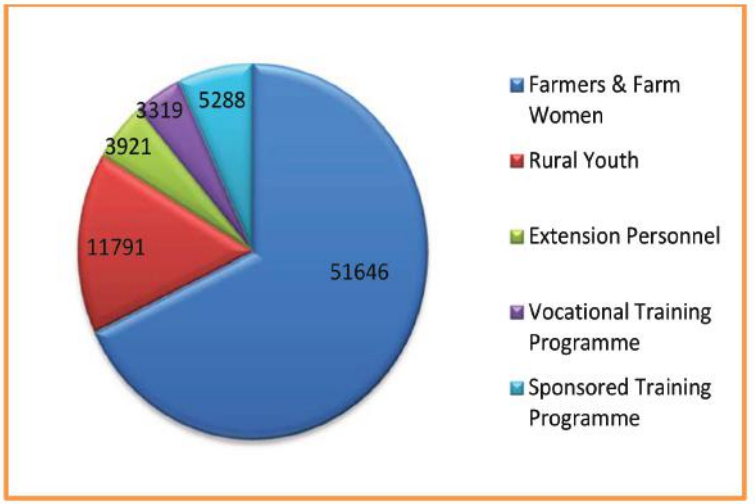


Fig. 7(b). No. of participants in different training programmes

2.5.1. Training programmes for Farmers and Farm Women

A total of 2045 training courses benefitting a total of 51646 farmers and farm women were conducted during the period on various agricultural technologies. Among the participants 26348 were male and remaining 25298 were female (Table-20). The thrust areas under which these programmes had been conducted included productivity enhancement of crop production (329), horticultural crops (350), Plant protection (265), Livestock production and management (438), Soil health and fertility management (189), Home Science/Women empowerment (163), Capacity building and group dynamics (105) etc. Training programmes had been conducted in different areas of Agro forestry (48) and fish production and management (93) and Agricultural engineering (25).

Table-20: Summary of training programmes conducted for Farmers and Farm Women during 2017-18

Area of training	Courses (No.)	No. of Participants								
		General			ST/SC			Total		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop Production	329	624	270	715	3939	3153	2610	4563	3423	7986
Horticulture										
a)Vegetable Crops	199	269	127	396	2464	2909	5373	2733	3036	5769
b)Fruits	84	75	45	120	1378	892	1953	1731	937	2668
c)Ornamental Plants	15	0	0	0	177	228	405	177	228	405
d)Plantation Crops	12	9	4	13	106	151	215	115	155	270
e)Tuber Crops	10	31	5	36	106	73	179	137	78	215
f)Spices	26	29	15	44	176	243	419	191	249	440
g)Medicinal and Aromatic Plants	4	0	0	0	26	80	106	26	80	106
Soil Health & Fertility Management	189	301	127	428	2784	2379	5163	3085	2506	5591
Livestock Production and Management										
a)Dairy Management	12	77	10	87	115	66	181	192	76	268

b)Poultry Management	177	116	48	164	971	985	1956	1087	1033	2120
c)Piggery Management	167	45	4	49	839	1035	1874	884	1039	1923
d) Goattery Management	2	0	0	0	10	20	30	10	20	30
e) Rabbitry	2	0	0	0	27	39	66	27	39	66
f) Duckery	1	0	0	0	9	31	40	9	31	40
g) Disease Management	37	59	6	65	447	552	999	506	558	1064
h) Feed Management	24	80	34	114	353	256	609	433	290	723
i) Production Of Quality Animal Products	7	12	28	40	110	49	159	122	77	199
j)Housing Management	7	11	5	16	101	66	167	112	71	183
k)Breeding Management	1	0	0	0	17	5	22	17	5	22
l) Integrated Farming System	1	0	0	0	15	7	22	15	7	22
Home Science/ Women empowerment	163	139	476	615	266	2397	2663	405	2873	3278
Agriculture Engineering	25	147	115	262	479	307	786	626	422	1048
Plant Protection	265	323	82	405	4244	4017	8261	4567	4099	8666
Fisheries	93	293	103	396	902	566	1468	1195	669	1864
Production of Input at Site	40	8	5	13	592	457	1049	600	462	1062
Capacity Building and Group Dynamics	105	41	16	57	1510	2000	3510	1551	2016	3567
Agroforestry	48	0	0	0	1232	819	2051	1232	819	2051
Total	**2045**	**2689**	**1525**	**4035**	**23395**	**23782**	**42336**	**26348**	**25298**	**51646**

Training on liming and manuring of Fish Pond by KVK West Khasi Hills

2.5.2. Training programmes for Rural Youth

During 2017-18 as many as 565 skill oriented training programmes were organized by the KVKs for 11791 rural youths, which included 6267 male and 5524 female participants. The major thematic areas of the training programmes included Livestock Production and Management with 74 courses benefitting 2056 participants, 128 courses in different horticultural technologies with 1676 participants, 26 courses of Soil Health and Fertility Management/ INM Including vermicomposting benefitting 615 participants, 38 courses of mushroom production, Post harvest technology (19) and 43 courses on value addition which could benefit for 933, 412 and 807 participants, respectively. Besides, special care was also taken for women empowerment through different homestead activities, hence a total of 12 courses in Home science/ women empowerment benefitting 213 female participants were also organized. A summary of training programmes organized for the rural youth in the region during the reporting period has been produced in Table-21.

Training of Rural Youth on Soap making by KVK Mamit, Mizoram

Table -21: Summary of training programmes conducted for Rural Youth during 2017-18

Area of training	Courses (No.)	No. of Participants								
		General			ST/SC			Total		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop Production	76	152	88	240	806	683	1489	958	771	**1729**
Horticulture										
a)Vegetable Crops	54	107	48	155	472	487	959	579	535	**1114**
b)Ornamental Crops	2	0	0	0	28	12	40	28	12	**40**
c)Fruits	72	8	3	11	306	205	511	314	208	**522**
Mushroom Production	38	87	149	236	291	406	697	378	555	**933**
Bee-Keeping	22	137	36	173	201	106	307	338	142	**480**
Plant Protection	14	0	7	7	193	150	343	193	157	**350**
Fishery	18	142	29	171	150	85	235	292	114	**406**
Post Harvest Technology	19	15	3	18	109	285	394	124	288	**412**
Small Scale Processing	11	0	0	0	125	221	346	125	221	**346**
Value Addition	43	8	53	61	204	542	746	212	595	**807**
Home Science/ Women Empowerment	12	0	0	0	36	169	219	36	177	**213**
Livestock Production And Management										
Piggery	27	74	23	97	307	210	517	381	233	**614**
Poultry	26	109	54	163	418	203	621	527	257	**784**
Rabbitry	7	19	13	32	78	58	136	97	71	**168**
Management In Animal Farms	1	0	0	0	12	3	15	12	3	**15**

Sheep And Goat Rearing	5	18	4	22	82	49	131	100	53	**153**
Disease Management	3	8	2	10	59	28	87	67	30	**97**
Production of quality animal by products	5	36	7	43	133	49	182	169	56	**225**
Agri Engineering	9	0	0	0	166	65	231	166	65	**231**
Capacity Building And Group Dynamics	8	0	0	0	74	120	194	74	120	**194**
Agroforestry	3	0	0	0	46	24	70	46	24	**70**
Integrated Farming System	28	49	22	71	266	219	485	315	241	**556**
Soil Health Management	13	45	5	50	225	86	311	270	91	**361**
Vermiculture	13	10	3	13	134	107	241	144	110	**254**
Sericulture	1	0	0	0	15	8	23	15	8	**23**
Planting Material Production	6	6	2	8	37	37	74	43	39	**82**
Others	29	0	0	0	264	348	612	264	348	**612**
Total	**565**	**1030**	**551**	**1581**	**5237**	**4965**	**10216**	**6267**	**5524**	**11791**

2.5.3. Training programmes for Extension Personnel

During the year 2017-18 different training programmes for the extension personnel in the zone were organized to upgrade their knowledge and skills in the frontier areas of agricultural technology development. A total of 188 courses benefiting 3921 in-service extension personnel had been arranged in the region during the period under report (Table-22). A total of 22 courses benefitting 334 extension personnel were conducted on different areas of horticulture, while 22 courses benefitting 475 extension personnel were organized in crop production by the KVKs during the year. In plant protection, 31 courses were arranged for 690 extension personnel. The other important thrust areas covered were soil health and fertility management/ INM (2 courses, 30 participants), livestock production and management (35 courses, 829 participants), home science/women empowerment (20 courses, 417 participants), capacity building and group dynamics (9 Courses, 205 participants), fisheries (5 Course, 79 participants) etc.

Table-22: Summary of training programmes conducted for Extension Personnel during 2017-18

Area of training	Courses (No.)	No. of Participants								
		General			ST/SC			Total		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop Production	22	47	25	**72**	264	139	403	311	164	**475**
Vegetable Crops	14	37	11	**48**	82	70	152	119	81	**200**
Fruits	8	0	0	**0**	70	64	134	70	64	**134**
Livestock Production and Management										
Management in Farm Animals	21	102	35	**137**	205	166	371	307	201	**508**
Livestock Feed And Fodder Production	7	6	2	**8**	79	68	147	85	70	**155**
Feeding Management	1	0	0	**0**	0	20	20	0	20	**20**
Disease Management	6	37	23	**20**	42	31	73	79	54	**133**
Housing Management	1	0	0	**0**	0	13	13	0	13	**13**
Plant Protection	31	59	22	**75**	392	217	609	451	239	**690**
Production and Use of Organic Inputs	12	0	0	**0**	113	165	278	113	165	**278**
Fisheries	5	19	7	**26**	30	23	53	49	30	**79**
Home Science/ women empowerment	20	0	27	**27**	82	308	390	82	335	**417**
Capacity Building and Group Dynamics	9	9	3	**12**	97	96	193	106	99	**205**
Integrated Nutrient Management	12	13	3	**16**	85	57	142	98	60	**158**
Soil Health Management	2	0	0	**0**	18	12	30	18	12	**30**
Others	17	43	54	**45**	185	144	329	228	198	**426**
Total	**188**	**372**	**212**	**486**	**1744**	**1593**	**3337**	**2116**	**1805**	**3921**

2.5.4. Sponsored training programmes

The KVKs in the zone conducted 317 training courses during the period sponsored by different agencies/organizations which benefitted a total of 5288 participants. Out of the total number of participants, 2563 were male and 2725 were female (Table-23). The participants in the sponsored training programmes comprised of farmers, farm women, rural youth, in-service extension personnel and members of different NGOs and civic bodies. The training programmes were organized to upgrade their knowledge and skills in major areas of crop production (27 courses, 801 participants), horticulture (86 courses, 1201 participants), value addition (32 courses, 432 participants), piggery (30 Courses, 305 participants), poultry production (15 courses, 232 participants), capacity building and group dynamics (7 courses, 276 participants), plant protection (18 courses, 387 participants) etc.

Hob'ble Governor of Tripura inaugurating Awareness programme sponsored by PPV&FRA

Table-23: Summary of Sponsored training programmes conducted by KVKs during 2017-18

Area of training	Courses (No.)	No. of Participants								Overall Total
		General			ST/SC			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop production	27	86	47	133	389	279	670	475	326	**801**
Soil Health	3	0	0	0	57	19	76	57	19	**76**
Horticulture										
Vegetable crops	66	75	34	109	425	327	752	500	361	**861**
Fruits	20	0	14	14	198	128	326	198	142	**340**
Value Addition	32	20	31	51	72	309	381	92	340	**432**
Mushroom production	30	14	6	20	42	75	117	56	81	**137**
Piggery	30	0	0	0	84	221	305	84	221	**305**
Poultry production	15	0	0	0	85	147	232	85	147	**232**
Dairying	1	0	0	0	10	12	22	0	0	**0**
Management of farm animals and feed	9	27	13	40	47	5	52	22	5	**27**

Capacity building and Group Dynamics	7	17	13	30	184	62	246	201	75	**276**
Plant protection	18	22	5	27	179	181	356	201	186	**387**
PPV FRA	10	57	4	61	278	287	567	335	291	**626**
Small scale processing	2	0	0	0	0	116	116	0	116	**116**
Health Care	2	0	0	0	18	56	74	18	56	**74**
Rural Craft	22	0	0	0	5	45	50	5	45	**50**
Others	77	114	52	166	120	262	382	234	314	**548**
Total	**371**	**432**	**219**	**651**	**2193**	**2531**	**4724**	**2563**	**2725**	**5288**

2.5.5. Vocational training programmes

The KVKs in the region conducted 203 vocational training courses during the period which benefitted a total of 3319 participants. Out of the total number of participants, 1850 were male and 1469 were female (Table-24). The participants in the vocational training programmes mainly comprised of farmers, farm women and rural youth. The training programmes were organized to upgrade their knowledge and skills in major areas of crop production and management (20 courses, 334 participants), horticulture (12 courses, 225 participants), mushroom production (42 courses, 620 participants), value addition (20 courses, 301 participants), plant protection (12 courses, 180 participants), capacity building and group dynamics (19 courses, 219 participants), livestock production and management (21 courses, 352 participants), fisheries (15 courses, 253 participants), post harvest technology (7 courses, 124 participants) etc.

Table-24: Summary of Vocational training programmes conducted by KVKs during 2017-18

Area of training	Courses (No.)	No. of Participants								
		General			ST/SC			Total		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Soil Health and Fertility Management	9	25	25	**50**	60	37	**97**	85	62	**147**
Crop production	20	30	10	**40**	173	121	**294**	203	131	**334**
Horticulture										
Vegetable crops	7	20	14	**34**	**42**	**63**	**105**	62	77	**139**
Fruits	5	5	10	15	**43**	**28**	71	48	38	**86**
Fishery	15	25	10	**35**	**130**	**88**	**218**	155	98	**253**
Value Addition	20	10	20	**30**	**95**	**176**	**250**	105	196	**301**

Mushroom production	42	101	78	**179**	**194**	**247**	**441**	295	325	**620**
Planting material production	6	0	0	**0**	**83**	**31**	**114**	83	31	**114**
Livestock production and management										
Piggery	12	21	10	**31**	101	65	**166**	122	75	**197**
Poultry production	9	0	0	**0**	96	59	**155**	96	59	**155**
Capacity building and group dynamics	19	0	0	**0**	175	115	**290**	175	115	**290**
Vermicomposting	7	0	0	**0**	69	66	**135**	69	66	**135**
Bee-keeping	11	40	0	**40**	93	69	**162**	133	69	**202**
Post Harvest Technology	7	0	0	**0**	83	41	**124**	83	41	**124**
Plant protection	12	0	0	**0**	119	61	**180**	119	61	**180**
ICTs	1	0	0	**0**	7	18	**25**	7	18	**25**
Small scale Income generating activities	1	0	0	**0**	10	7	**17**	10	7	**17**
Total	**203**	**277**	**177**	**454**	**1573**	**1292**	**2844**	**1850**	**1469**	**3319**

Vocational Training Programme for women on Tailoring and Stitching by KVK Khowai

2.6. Extension Activities

During 2017-18, KVKs in the zone were involved in a number of extension programmes and activities. Along with traditional media of technology dissemination, the KVKs used the recent technological innovations like ICT to reach among the unreached. A vast stretch of the region being extreme remote to access, technology dissemination is a huge challenge. In this particular context, the efforts put by the KVKs during 2017-18 to disseminate the improved farming technologies by exploiting over thirty types of possible extension approaches suitable for North Eastern region, is noteworthy.

The KVKs in the region organized 30707 nos. of extension programmes/ activities, reaching over 209953 farmers and other targeted beneficiaries including farm women, rural youth, civil societies and school children in the region in different aspects of agri-preneural opportunities. The extension activities conducted by the KVKs had been categorized into five major groups, namely field trips and visits, group activities, mass outreach programmes, camps and campaigns and publications. The highest number (15808) of activities was conducted under the group field trips and visits (Fig. 8) while the highest number (106218) of beneficiaries had been served through different mass outreach programmes of KVKs. A detail of the extension activities including number of beneficiaries is given in Table-25.

Table-25: Summary of Extension Activities organized by KVKs during 2017-18

Category	Extension activity	No. of programme	No. of participants								
			Male				Female				
			SC/ ST	OBC	Gen	Sub-Total	SC/ ST	OBC	Gen	Sub-Total	Total
Field Trips and Visits	Diagnostic visits	3683	3600	330	746	4676	2626	73	358	3057	7733
	Scientists visit to farmers field	6443	5883	1285	805	7913	4924	385	237	5494	13407
	Exposure visits	89	1018	117	478	1563	644	21	277	912	2475
	Farmers Visit to KVK	5593	4348	405	615	5368	3614	180	182	3976	9344
	Total	**15808**	**14849**	**2137**	**2644**	**19520**	**11808**	**659**	**1054**	**13439**	**32959**
Group activities	Farmers Scientist Interaction	122	1627	64	331	2022	1198	15	96	1309	3331
	Group meetings/ Discussion	679	5467	974	610	6901	4574	464	195	5133	12034
	Kisan Gosthi	15	386	104	20	510	312	67	10	389	899
	Mahila Mandal Conveners' meetings	2	0	0	0	0	72	0	0	72	72
	Self Help Group Conveners meetings	107	132	3	116	211	474	707	45	1206	1417
	Method Demonstrations	948	5511	500	787	6798	6009	402	437	6848	13646
	Farm Science Club Conveners meet	59	812	4	334	1150	602	3	99	704	1854
	Lecture Delivered as resource person	198	411	170	200	781	340	48	48	436	1217
	Ex-trainees meet	7	113	6	9	128	73	1	19	93	221
	Total	**2137**	**14459**	**1825**	**2407**	**18501**	**13654**	**1707**	**949**	**16190**	**34691**

Mass outreach programmes	Advisory Services	9034	7356	804	959	9119	4540	85	330	4955	14074
	Kisan Mela	25	3884	348	484	4656	4058	299	339	4656	9312
	Film show	308	4968	1285	2074	8327	3687	596	592	4875	13202
	Exhibition	79	17720	2653	534	20857	15845	1541	288	17624	38481
	Farmers Seminar/ workshop	33	767	217	249	1183	478	130	159	717	1900
	Field Day	198	3015	492	595	3892	2297	227	197	2581	6473
	PRA	18	171	0	35	206	136	0	12	148	354
	Celebration of important days	192	9245	716	911	10872	6607	237	273	7117	17989
	TV Talks	72	500	0	0	500	400	0	0	400	900
	Radio talks	93	600	0	0	600	350	0	0	350	950
	News paper coverage	434	1453	0	0	1453	1130	0	0	1130	2583
	Total	**10486**	**49679**	**6515**	**5841**	**61665**	**39528**	**3115**	**2190**	**44553**	**106218**
Camps and Campaigns	Animal Health Camp	131	1604	29	202	1835	1182	5	27	1214	3049
	Plant health camp	14	703	53	6	762	653	12	2	667	1429
	Awareness Camp	57	1620	92	182	1894	1076	16	82	1174	3068
	Soil health/ testing Campaigns	513	1817	209	155	2081	1013	78	43	1034	3115
	Total	**715**	**5744**	**383**	**545**	**6572**	**3924**	**111**	**154**	**4089**	**10661**
Publications	Training/ practical manual	20	750	0	0	750	550	0	0	550	1300
	Extension literature	107	3697	0	0	3697	2193	100	0	2293	5990
	News letter	12	1	0	0	1	0	0	0	0	1
	Research papers	46	0	0	0	0	0	0	0	0	0
	Technical report/ article	77	700	0	0	700	300	0	0	300	1000
	Literature delivered to resource person	481	5616	371	682	6669	2889	1202	360	4451	11120
	Electronic media	212	175	0	0	175	62	0	0	62	237
	CD publication	9	0	0	0	0	0	0	0	0	0
	Technical bulletins	16	0	0	0	0	0	0	0	0	0
	Leaflets/folders	102	1235	0	0	1235	756	300	0	1056	2291
	Other	479	1564	196	216	1976	1292	144	73	1509	3485
	Total	**1561**	**13738**	**567**	**898**	**15203**	**8042**	**1746**	**433**	**10221**	**25424**
	Grand Total	**30707**	**98469**	**11427**	**12335**	**121461**	**76956**	**7338**	**4780**	**88492**	**209953**

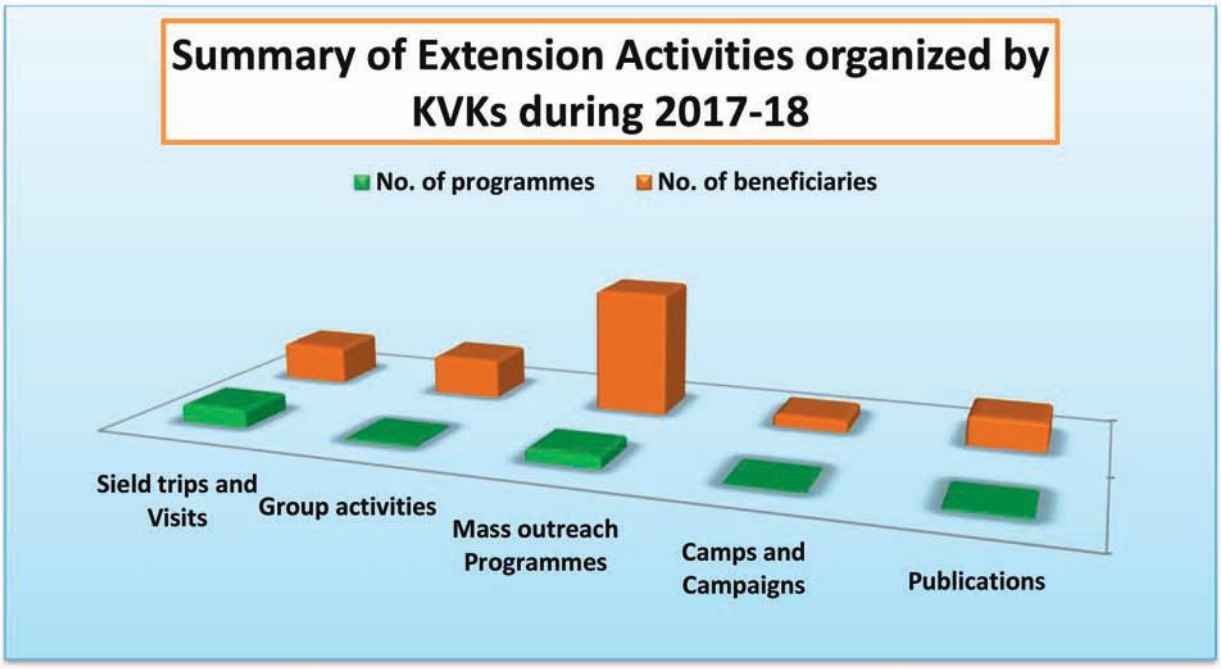


Fig. 8: Major categories of extension activities conducted by the KVKs during 2017-18

The state-wise details of extension programmes and activities conducted by KVKs under Zone-VII during 2017-18 are presented in Table-26.

Table-26: State-wise Extension Activities organized by KVKs during 2017-18

Sl. No.	State	Extension activity	No. of programme	No. of participants								
				Male				Female				
				SC/ST	OBC	Gen	Sub-Total	SC/ ST	OBC	Gen	Sub-Total	Total
1	Manipur	Diagnostic visits	1600	530	270	615	1415	381	49	320	750	2165
2	Manipur	Advisory Services	3849	1072	709	695	2476	323	67	280	670	3146
3	Manipur	Animal Health Camp	14	531	0	150	681	395	0	20	415	1096
4	Manipur	Plant health camp	2	0	50	0	50	0	12	0	12	62
5	Manipur	Training/ practical manual	10	600	0	0	600	400	0	0	400	1000
6	Manipur	Celebration of important days	38	1028	339	80	1447	710	131	34	875	2322
7	Manipur	Exhibition	21	2498	2423	0	4871	1635	1339	0	2924	7795
8	Manipur	Exposure visits	23	415	20	355	740	272	9	234	485	1225
9	Manipur	Farm Science Club Conveners meet	38	479	0	276	755	300	0	87	387	1142

10	Manipur	Farmers Seminar/ workshop	16	191	62	0	203	136	15	0	101	304
11	Manipur	Farmers Visit to KVK	3657	927	267	431	1625	813	171	129	1113	2738
12	Manipur	Field Day	33	904	292	149	1135	585	127	91	663	1798
13	Manipur	Group meetings/ Discussion	155	1125	802	79	1856	856	379	38	1173	3029
14	Manipur	Awareness Camp	16	616	0	58	674	403	0	43	446	1120
15	Manipur	Kisan Gosthi	3	56	94	0	150	43	57	0	100	250
16	Manipur	Kisan Mela	9	448	103	0	491	228	54	0	242	733
17	Manipur	Method Demonstrations	210	709	231	175	1115	701	202	85	988	2103
18	Manipur	Scientists visit to farmers field	4105	1319	1138	340	2737	886	353	120	1307	4044
19	Manipur	Self Help Group Conveners meetings	96	119	0	112	191	434	700	36	1150	1341
20	Manipur	Soil health/ testing Campaigns	139	460	164	70	594	273	53	10	236	830
21	Manipur	Film show	71	558	160	82	800	419	86	47	552	1352
22	Manipur	Farmers Scientist interaction	33	444	0	126	570	253	0	47	300	870
23	Manipur	Ex.trainee Sammelan	5	113	0	0	113	62	0	0	62	175
24	Manipur	News paper coverage	116	300	0	0	300	200	0	0	200	500
25	Manipur	News letter	3	0	0	0	0	0	0	0	0	0
26	Manipur	Research papers	10	0	0	0	0	0	0	0	0	0
27	Manipur	Technical report/ article	8	0	0	0	0	0	0	0	0	0
28	Manipur	Radio talks	51	500	0	0	500	300	0	0	300	800
29	Manipur	TV Talks	50	500	0	0	500	400	0	0	400	900
30	Manipur	Electronic media	6	0	0	0	0	0	0	0	0	0
31	Manipur	CD publication	3	0	0	0	0	0	0	0	0	0
32	Manipur	Extension literature	23	1350	0	0	1350	1000	0	0	1000	2350
33	Manipur	Technical bulletins	1	0	0	0	0	0	0	0	0	0

34	Manipur	Literature delivered to resource person	137	247	296	0	543	296	218	0	514	1057
35	Manipur	Lecture delivered as resource person	142	41	63	0	104	81	19	0	100	204
36	Manipur	Leaflets/folders	39	250	0	0	250	250	0	0	250	500
37	Manipur	PRA	5	120	0	0	120	60	0	0	60	180
38	Manipur	Other	19	96	128	55	279	17	106	22	145	424
		Total	**14756**	**18546**	**7611**	**3848**	**29235**	**13112**	**4147**	**1643**	**18320**	**47555**
39	Meghalaya	Diagnostic visits	531	1212	0	17	1229	1237	0	0	1237	2466
40	Meghalaya	Advisory Services	1172	2158	0	0	2158	1772	0	0	1772	3930
41	Meghalaya	Animal Health Camp	2	5	0	0	5	23	0	0	23	28
42	Meghalaya	Plant health camp	1	2	0	0	2	20	0	0	20	22
43	Meghalaya	Training/ practical manual	3	150	0	0	150	150	0	0	150	300
44	Meghalaya	Celebration of important days	34	1977	0	0	1977	2309	0	0	2309	4286
45	Meghalaya	Exhibition	16	2348	0	14	2362	2790	0	0	2790	5152
46	Meghalaya	Exposure visits	30	340	34	0	374	192	0	0	192	566
47	Meghalaya	Farm Science Club Conveners meet	3	150	0	0	150	185	0	0	185	335
48	Meghalaya	Farmers Seminar/ workshop	4	146	0	0	146	83	0	0	83	229
49	Meghalaya	Farmers Visit to KVK	515	1219	0	25	1244	1175	0	0	1175	2419
50	Meghalaya	Field Day	60	370	0	46	416	501	0	0	501	917
51	Meghalaya	Group meetings/ Discussion	165	1538	0	176	1714	1863	0	0	1863	3577
52	Meghalaya	Awareness Camp	9	266	0	0	266	222	0	0	222	488
53	Meghalaya	Kisan Gosthi	4	103	0	0	103	126	0	0	126	229
54	Meghalaya	Kisan Mela	2	110	0	0	110	90	0	0	90	200
55	Meghalaya	Mahila Mandal Conveners' meetings	1	0	0	0	0	28	0	0	28	28
56	Meghalaya	Method Demonstrations	284	2007	0	178	2185	2380	0	10	2390	4575

57	Meghalaya	Scientists visit to farmers field	853	2286	0	96	2382	2696	0	0	2696	5078
58	Meghalaya	Self Help Group Conveners meetings	1	0	0	0	0	11	0	0	11	11
59	Meghalaya	Soil health/ testing Campaigns	4	280	0	0	280	305	0	0	305	585
60	Meghalaya	Film show	47	1023	0	157	1180	971	0	0	971	2151
61	Meghalaya	Farmers Scientist interaction	16	447	0	0	447	320	0	0	320	767
62	Meghalaya	News paper coverage	17	3	0	0	3	0	0	0	0	3
63	Meghalaya	News letter	5	1	0	0	1	0	0	0	0	1
64	Meghalaya	Research papers	3	0	0	0	0	0	0	0	0	0
65	Meghalaya	Technical report/ article	39	0	0	0	0	0	0	0	0	0
66	Meghalaya	Radio talks	9	0	0	0	0	0	0	0	0	0
67	Meghalaya	TV Talks	2	0	0	0	0	0	0	0	0	0
68	Meghalaya	Electronic media	2	0	0	0	0	0	0	0	0	0
69	Meghalaya	CD publication	4	0	0	0	0	0	0	0	0	0
70	Meghalaya	Extension literature	16	100	0	0	100	0	100	0	100	200
71	Meghalaya	Technical bulletins	8	0	0	0	0	0	0	0	0	0
72	Meghalaya	Literature delivered to resource person	140	2949	0	260	3209	718	934	0	1652	4861
73	Meghalaya	Leaflets/folders	11	303	0	0	303	0	300	0	300	603
74	Meghalaya	Other	24	478	0	29	507	624	0	0	624	1131
		Total	**4037**	**21971**	**34**	**998**	**23003**	**20791**	**1334**	**10**	**22135**	**45138**
75	Mizoram	Diagnostic visits	1088	1122	0	0	1122	524	0	0	524	1646
76	Mizoram	Advisory Services	2990	2209	0	0	2209	997	0	0	997	3206
77	Mizoram	Animal Health Camp	12	599	0	0	599	244	0	0	244	843
78	Mizoram	Plant health camp	8	639	0	0	639	581	0	0	581	1220
79	Mizoram	Training/ practical manual	2	0	0	0	0	0	0	0	0	0

80	Mizoram	Celebration of important days	35	1696	0	0	1696	974	0	0	974	2670
81	Mizoram	Exhibition	12	5208	0	0	5208	4536	0	0	4536	9744
82	Mizoram	Exposure visits	5	59	0	0	59	50	0	0	50	109
83	Mizoram	Farm Science Club Conveners meet	6	61	0	0	61	14	0	0	14	75
84	Mizoram	Farmers Seminar/ workshop	5	364	0	0	364	221	0	0	221	585
85	Mizoram	Farmers Visit to KVK	1056	1322	0	0	1322	838	0	0	838	2160
86	Mizoram	Field Day	45	647	0	0	647	228	0	0	228	875
87	Mizoram	Group meetings/ Discussion	108	1279	0	0	1279	519	0	0	519	1798
88	Mizoram	Awareness Camp	9	321	0	0	321	169	0	0	169	490
90	Mizoram	Kisan Gosthi	7	197	0	0	197	123	0	0	123	320
91	Mizoram	Kisan Mela	11	3065	0	0	3065	3565	0	0	3565	6630
92	Mizoram	Mahila Mandal Conveners' meetings	1	0	0	0	0	44	0	0	44	44
93	Mizoram	Method Demonstrations	149	916	0	0	916	495	0	0	495	1411
94	Mizoram	Scientists visit to farmers field	454	745	0	0	745	192	0	0	192	937
95	Mizoram	Self Help Group Conveners meetings	9	11	0	0	11	24	0	0	24	35
96	Mizoram	Soil health/ testing Campaigns	9	262	0	0	262	113	0	0	113	375
97	Mizoram	Film show	14	640	0	0	640	262	0	0	262	902
98	Mizoram	Farmers Scientist interaction	25	135	0	0	135	80	0	0	80	215
100	Mizoram	News paper coverage	140	1150	0	0	1150	930	0	0	930	2080
101	Mizoram	News letter	1	0	0	0	0	0	0	0	0	0
103	Mizoram	Technical report/ article	7	700	0	0	700	300	0	0	300	1000
104	Mizoram	Radio talks	24	100	0	0	100	50	0	0	50	150
105	Mizoram	TV Talks	18	0	0	0	0	0	0	0	0	0

106	Mizoram	Electronic media	202	175	0	0	175	62	0	0	62	237
107	Mizoram	CD publication	2	0	0	0	0	0	0	0	0	0
108	Mizoram	Extension literature	59	2247	0	0	2247	1193	0	0	1193	3440
109	Mizoram	Technical bulletins	2	0	0	0	0	0	0	0	0	0
110	Mizoram	Literature delivered to resource person	47	575	0	0	575	294	0	0	294	869
112	Mizoram	Leaflets/folders	31	630	0	0	630	486	0	0	486	1116
114	Mizoram	Other	2	35	0	0	35	5	0	0	5	40
		Total	**6595**	**27109**	**0**	**0**	**27109**	**18113**	**0**	**0**	**18113**	**45222**
115	Nagaland	Diagnostic visits	346	541	0	0	541	400	0	0	400	941
116	Nagaland	Advisory Services	752	1581	0	0	1581	1411	0	0	1411	2992
117	Nagaland	Animal Health Camp	99	361	0	0	361	397	0	0	397	758
118	Nagaland	Plant health camp	1	50	0	0	50	50	0	0	50	100
119	Nagaland	Training/ practical manual	3	0	0	0	0	0	0	0	0	0
120	Nagaland	Celebration of important days	71	3824	0	0	3824	2337	0	0	2337	6161
121	Nagaland	Exhibition	23	7431	0	0	7431	6659	0	0	6659	14090
122	Nagaland	Exposure visits	9	59	0	0	59	68	0	0	68	127
123	Nagaland	Farm Science Club Conveners meet	6	56	0	0	56	73	0	0	73	129
124	Nagaland	Farmers Visit to KVK	245	710	0	0	710	732	0	0	732	1442
125	Nagaland	Field Day	37	814	0	0	814	906	0	0	906	1720
126	Nagaland	Group meetings/ Discussion	150	1201	0	0	1201	1235	0	0	1235	2436
127	Nagaland	Awareness Camp	10	209	0	0	209	217	0	0	217	426
128	Nagaland	Kisan Mela	1	32	0	0	32	22	0	0	22	54
129	Nagaland	Method Demonstrations	224	1538	0	0	1538	2195	0	0	2195	3733
130	Nagaland	Scientists visit to farmers field	759	789	0	0	789	655	0	0	655	1444

131	Nagaland	Soil health/ testing Campaigns	356	754	0	0	754	282	0	0	282	1036
132	Nagaland	Film show	85	1324	0	0	1324	1657	0	0	1657	2981
133	Nagaland	Farmers Scientist interaction	37	395	0	0	395	452	0	0	452	847
134	Nagaland	News paper coverage	120	0	0	0	0	0	0	0	0	0
135	Nagaland	News letter	3	0	0	0	0	0	0	0	0	0
136	Nagaland	Research papers	20	0	0	0	0	0	0	0	0	0
137	Nagaland	Technical report/ article	18	0	0	0	0	0	0	0	0	0
138	Nagaland	Electronic media	2	0	0	0	0	0	0	0	0	0
139	Nagaland	Extension literature	3	0	0	0	0	0	0	0	0	0
140	Nagaland	Technical bulletins	4	0	0	0	0	0	0	0	0	0
141	Nagaland	Literature delivered to resource person	65	1126	0	0	1126	1114	0	0	1114	2240
142	Nagaland	Lecture delivered as resource person	34	239	0	0	239	220	0	0	220	459
143	Nagaland	Leaflets/folders	14	52	0	0	52	20	0	0	20	72
144	Nagaland	PRA	9	37	0	0	37	47	0	0	47	84
145	Nagaland	Other	426	826	0	0	826	559	0	0	559	1385
		Total	**3932**	**23949**	**0**	**0**	**23949**	**21708**	**0**	**0**	**21708**	**45657**
146	Tripura	Diagnostic visits	118	195	60	114	369	84	24	38	146	515
147	Tripura	Advisory Services	271	336	95	264	695	37	18	50	105	800
148	Tripura	Animal Health Camp	4	108	29	52	189	123	5	7	135	324
149	Tripura	Plant health camp	2	12	3	6	21	2	0	2	4	25
150	Tripura	Training/ practical manual	2	0	0	0	0	0	0	0	0	0
151	Tripura	Celebration of important days	14	720	377	831	1928	277	106	239	622	2550
152	Tripura	Exhibition	7	235	230	520	985	225	202	288	715	1700
153	Tripura	Exposure visits	22	145	63	123	331	62	12	43	117	448

154	Tripura	Farm Science Club Conveners meet	6	66	4	58	128	30	3	12	45	173
155	Tripura	Farmers Seminar/ workshop	8	66	155	249	470	38	115	159	312	782
156	Tripura	Farmers Visit to KVK	120	170	138	159	467	56	9	53	118	585
157	Tripura	Field Day	23	280	200	400	880	77	100	106	283	1163
158	Tripura	Group meetings/ Discussion	101	324	172	355	851	101	85	157	343	1194
159	Tripura	Awareness Camp	13	208	92	124	424	65	16	39	120	544
160	Tripura	Kisan Gosthi	1	30	10	20	60	20	10	10	40	100
161	Tripura	Kisan Mela	2	229	245	484	958	153	245	339	737	1695
162	Tripura	Method Demonstrations	81	341	269	434	1044	238	200	342	780	1824
163	Tripura	Scientists visit to farmers field	272	744	147	369	1260	495	32	117	644	1904
164	Tripura	Self Help Group Conveners meetings	1	2	3	4	9	5	7	9	21	30
165	Tripura	Soil health/ testing Campaigns	5	61	45	85	191	40	25	33	98	289
166	Tripura	Film show	91	1423	1125	1835	4383	378	510	545	1433	5816
167	Tripura	Farmers Scientist interaction	11	206	64	205	475	93	15	49	157	632
168	Tripura	Ex.trainee Sammelan	2	0	6	9	15	11	1	19	31	46
169	Tripura	News paper coverage	41	0	0	0	0	0	0	0	0	0
170	Tripura	Research papers	13	0	0	0	0	0	0	0	0	0
171	Tripura	Technical report/ article	5	0	0	0	0	0	0	0	0	0
172	Tripura	Radio talks	9	0	0	0	0	0	0	0	0	0
173	Tripura	TV Talks	2	0	0	0	0	0	0	0	0	0
174	Tripura	Extension literature	6	0	0	0	0	0	0	0	0	0
175	Tripura	Technical bulletins	1	0	0	0	0	0	0	0	0	0

176	Tripura	Literature delivered to resource person	92	719	75	422	1216	467	50	360	877	2093
177	Tripura	Lecture delivered as resource person	22	131	107	200	438	39	29	48	116	554
178	Tripura	Leaflets/folders	7	0	0	0	0	0	0	0	0	0
179	Tripura	PRA	4	14	0	35	49	29	0	12	41	90
180	Tripura	Other	8	129	68	132	329	87	38	51	176	505
181	Tripura	**Total**	**1387**	**6894**	**3782**	**7489**	**18165**	**3232**	**1857**	**3127**	**8216**	**26381**
		Grand Total	**30707**	**98469**	**11427**	**12335**	**121461**	**76956**	**7338**	**4780**	**88492**	**209953**

Field Visit programme of farmers in KVK Mamit

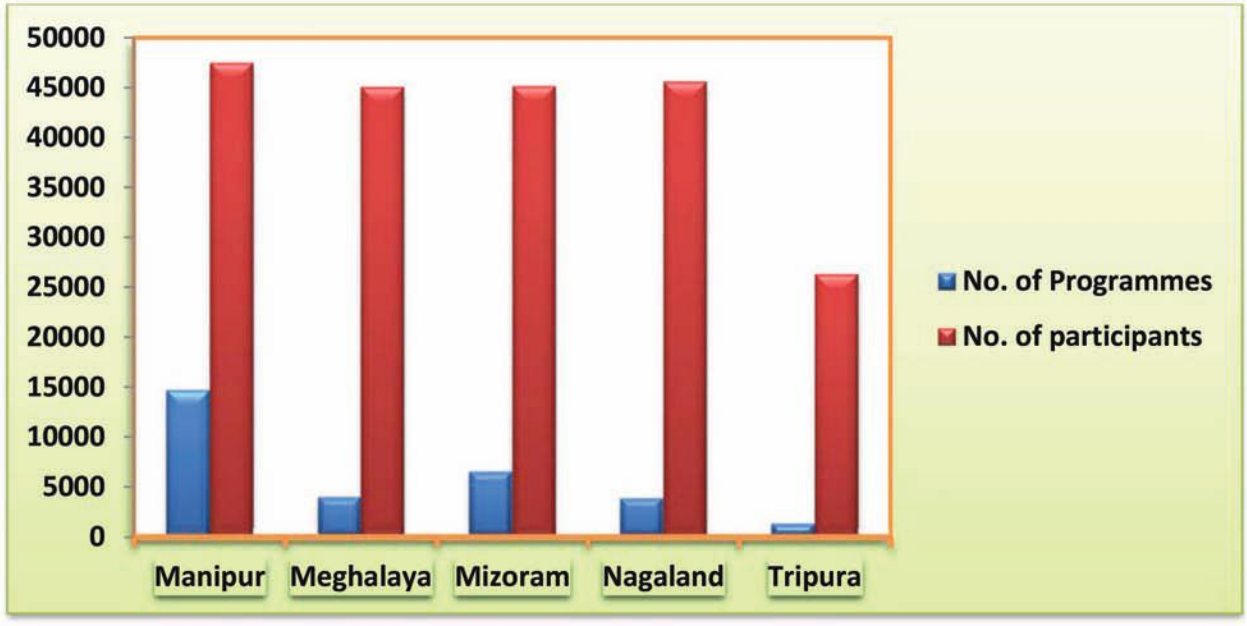


Fig. 9: State-wise Extension Activities organized by KVKs during 2017-18

Dr. V.P. Chahal, ADG (AE) visiting farmer's field at KVK Dimapur

2.7. Women Empowerment through Technological Interventions

In a bid to empower the farm women, female rural youth and female extension personnel different activities such as capacity building, skill improvement, drudgery reduction, formation of SHGs, resource mobilization etc. was arranged by the KVKs in the region during 2017-18. A total of 36821 women representing 48.47 percent of the total beneficiaries (75965) were imparted skill oriented trainings in different areas of crop and livestock enterprises/ farming. A total of 25298 farm women participated in various capacity building programmes conducted by KVKs accounting 48.98 percent of the total participants of 51646. During the period, it is found that a total of 5524 female rural youth with 46.85 percent of the total attended various training programmes which could improve their knowledge and skills specially entrepreneurship development. Out of a total of 3921 extension personnel trained during 2017-18, 1805 were female extension personnel (46.03%).

Post-harvest training programme conducted by KVK Dimapur

Women empowerment was taken care with preference while conducting the sponsored and vocational training programmes also. A total of 2725, accounting 51.53 percent of the total number of beneficiaries (5288) participating in the sponsored training programmes was female. Likewise, 44.26 percent of the total number of beneficiaries (3319) participated in the vocational training programmes were also female. The training programmes mainly included the specific aspects like nursery raising, post harvest processing and value addition, vermin-compost production, drudgery reduction through use of farm implements and tools, duckery, tailoring, mushroom cultivation, bee keeping, goatery, piggery, poultry, dairying and floriculture.

2.8. Production of Seeds, Planting materials and Bio-products

Production of quality seeds and planting materials by the KVKs and their supply to the farmers were among the important activities undertaken by the KVKs in the region. During the period, KVKs of the zone produced 1037.09 tonnes of quality seeds, 10.87 lakh of planting materials, 272.34q of bio-products and 20.42 lakh of livestock and fingerlings which included 20.25 lakh fish fingerlings. A total of 500.87 tonne cereals seeds with highest in the state of , Meghalaya (154.76 t), Oilseeds (163.2 t), pulses (110.9 t), 6.34 tonne seeds of vegetables, 52.4 tonne seeds of spices and 107.35 tonnes of seeds of other crops such as fruits, fodder, fibre crops etc. were produced by the KVKs in the region. Planting materials of fruits (38163), plantation crops (9320), vegetables (958740), flower crops (6784), spices (43738), Ornamental crops (17200), forest species (13000) and others (603) were produced for supply and distribution to farmers. The KVKs of the zone also produced a total of 272.34 q of bio-products including 78.67q of bio-agents, 153.39 q of bio-fertilizers, 19.78 q of bio-pesticides and 20.50 q of Organic manures besides 150 Packets of Trichogamma & 19 Bottles of Tobacco Leaf Extract. Among the livestock products produced by the KVKs during the reporting period were 313 nos. of piglets, 16416 nos. of Poultry birds, Goattery (338), Duckery (150) besides 20.25 lakh of Fingerlings in the zone (Table-27).

Seedling Nursery in KVK Lunglei

Table-27: State-wise details of Seeds and Planting materials production during 2017-18

Major Group/ Class	State					Total
	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	
A. Seed Materials (t)						
Cereals	119.67	154.76	12.85	66.42	147.17	**500.87**
Oilseeds	43.23	1.34	21.45	48.06	49.12	**163.2**
Pulses	26.11	0.95	2.92	4.54	76.38	**110.9**
Spices	10	33	5.40	4.00	0	**52.4**
Vegetables	1.40	0.17	1.5	1.80	1.47	**6.34**

Tuber Crops	1.12	3	3.45	4.76	1.20	**13.53**
Tree Bean	50	0	0	0	0	**50**
						0
Others	100	0.5	0	6.7	0.15	**107.35**
Total	**384.03**	**193.72**	**47.57**	**136.28**	**275.49**	**1037.09**
B. **Planting Materials (Nos.)**						
Vegetables	170270	73910	538160	66000	110400	**958740**
Spices	20070	0	13500	3375	6793	**43738**
Fruits	8964	450	7100	11353	10296	**38163**
Plantation Crops	2320	0	0	2000	5000	**9320**
Ornamental Crops	500	1500	1500	5000	8700	**17200**
Forest Spp	7000	0	0	6000	0	**13000**
Flower Crops	4500	0	0	100	2184	**6784**
Others	0	3	0	600	0	**603**
Total	**213624**	**75863**	**560260**	**94428**	**143373**	**1087548**
C. **Bio-Products (in q)**						
Bio Agents	76.67	0	0	2.00	0	78.67
Bio Fertilizers	95	0.61	54	3.78	0	**153.39**
Bio Pesticides	0	0	10.08	150 Packets of Trichogamma & 19 Bottles of Tobacco Leaf Extract	9.70	**19.78**
Organic Manures	0	0	0	20.30	0.2	**20.50**
Total	**171.67**	**0.61**	**64.08**	**26.08**	**9.90**	**272.34**
D. **Livestock & Fingerlings (No.)**						
Fingerlings	1830048	1,70,000	0	0	25000	**2025048**
Piggery	48	47	26	44	148	**313**
Poultry	2746	275	1200	2600	9595	**16416**
Cattle/Dairy	3	3	0	6	0	**12**
Goattery	43	12	254	5	24	**338**
Rabbitry	0	0	0	0	8	**8**
Duckery	150	0	0	0	0	**150**
Total	**1833038**	**170337**	**1480**	**2655**	**34775**	**2042285**

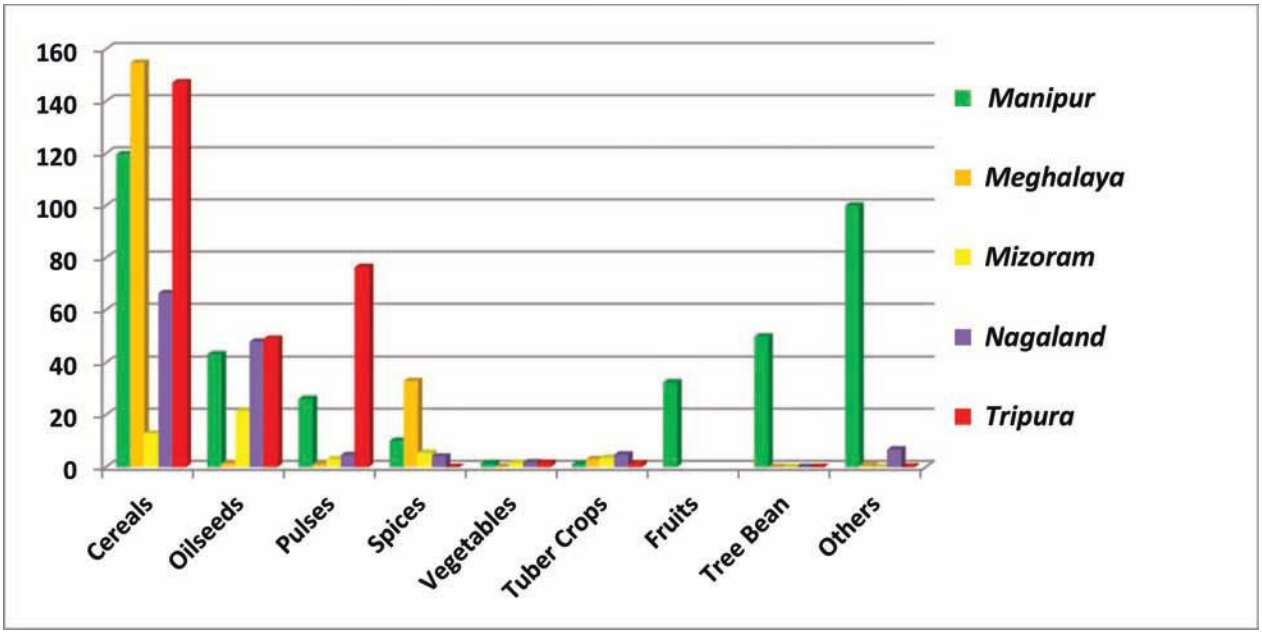


Fig. 10 (a). State-wise graphical representation of Seed Materials production

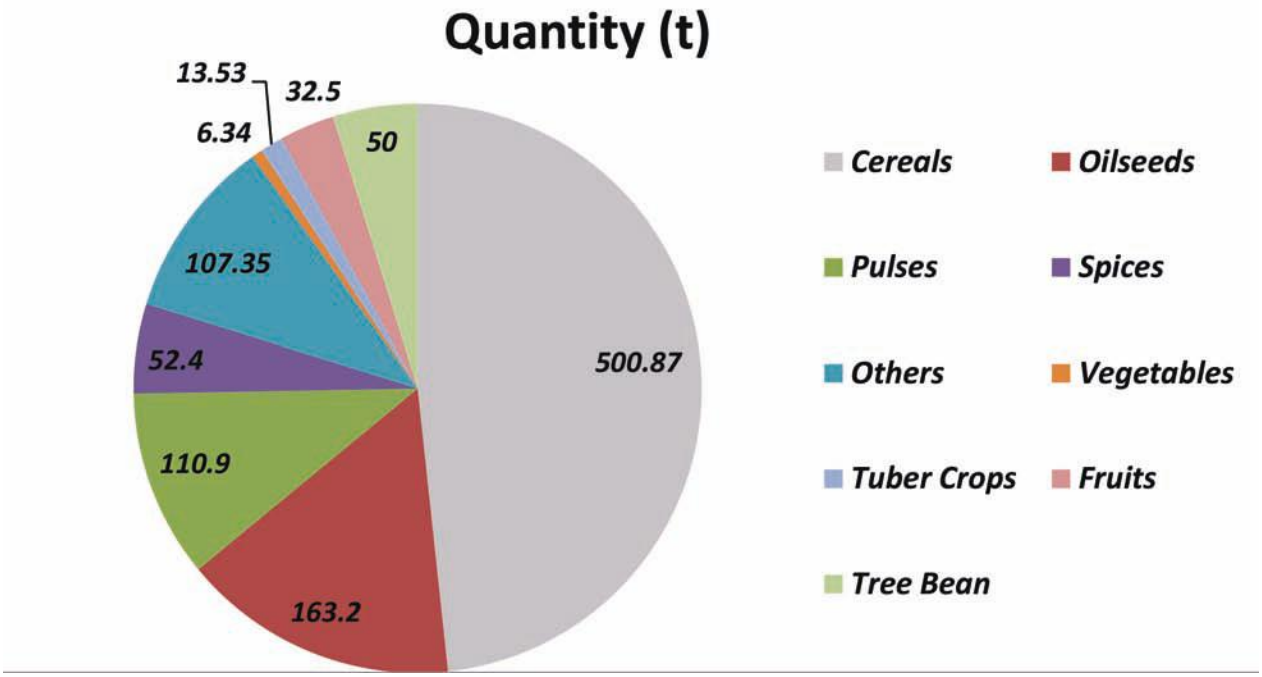


Fig. 10 (b). Crop-wise graphical representation Seed Materials production

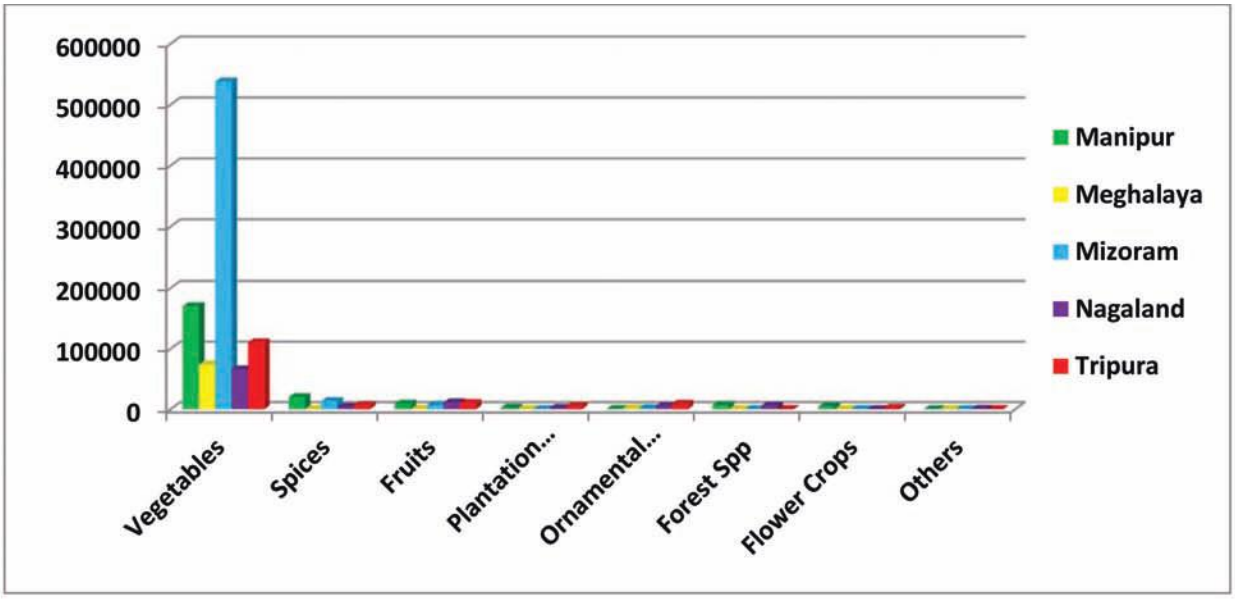


Fig. 10 (c) Summary graphical representation Planting Materials

2.9. Scientific Advisory Committee (SAC) Meetings

A total of 37 Scientific Advisory Committee (SAC) meetings were organised during the year 2017-18 by the KVKs (Table-28). In the SAC meetings, a detailed review of the progress of activities made by the individual KVKs during the reporting period was made by the committee members and plan of actions for the next year was discussed and finalised for the concerned districts. Members from various line departments including input agencies, mass media, farmer representatives as well as financial institutions participated in the meetings and suggestions were made accordingly for further improvement and well functioning of the KVKs in their respective districts.

SAC meeting of KVK Longleng

Table-28: Scientific Advisory Committee (SAC) meetings of KVKs during 2017-18

Sl. No	State	No. of SAC Conducted
1	Manipur	8
2	Meghalaya	5
3	Mizoram	8
4	Nagaland	12
5	Tripura	4
Total		**37**

2.10. Institute Management Committee (IMC) Meeting

The 6th Institute Management Committee (IMC) meeting of ICAR-ATARI, Zone VII, Umiam was held on 25th September, 2017 in the ICAR-ATARI, Umiam Meghalaya under the chairmanship of Dr. Bidyut C. Deka, Director, ICAR-ATARI, Umiam as per the prescribed norms of the committee. The following agenda items were discussed in details.

Agenda Items

1. Action taken report on recommendations of 5th IMC
2. Seeking approval for procurement of equipment/ furniture and other other non-recurring items for KVKs and ATARI
3. Seeking approval for procurement of vehicles for KVKs
4. Seeking approval for the construction of administrative building of KVK Dhalai, North Tripura, Jaintia hills and West Khasi hills.
5. Seeking approval for release of 2nd and 3rd instalments to CPWD against the administrative building of ICAR-ATARI.
6. Seeking approval for expansion of Administrative building of ICAR-ATARI, Umiam
7. Seeking approval for solar electrification of Administrative building of ICAR-ATARI, Umiam
8. Any other items with the permission of Chairman.

At the very outset, the Chairman welcomed all the members of the committee and requested to provide their valuable suggestions for effective functioning of the ICAR-ATARI, Zone III, Umiam. He highlighted different areas of improvement for successful functioning of KVKs in the region including the establishment of new KVKs at Paren, Kiphere, Unokati, Gomati, Tripura West, East Garo hills and South Garo hills during 2016-17 and till date. He briefed the house about the holding of various workshops on doubling farmers' income by 2022 for the state of Meghalaya, Manipur, Mizoram, Nagaland and Tripura. Dr. Deka also informed the house about progress of works of Administrative building of ICAR-ATARI, Umiam. After the opening remark of the chairman, the agenda items of the meeting as mentioned above were taken for discussion.

Major Recommendations

1. The house recommended the procurement of need based equipments including computer & accessories, photocopier, camera and furniture etc for the newly established KVK, viz. Paren, Kiphere, Unokati Gomati, Tripura West, East Garo hills, South Garo hills and ICAR-ATARI and release of fund accordingly as per budget provision with the approval of competent authority and availability of fund.
2. The house recommended for purchase of vehicles for newly established KVKs, Viz. Paren, Kiphre, Unokati, Gomati, Tripura West, East Garo hills and South Garo hills within this financial year subject to the approval of competent authority and availability of fund.
3. The IMC recommended the construction of administrative building of KVK Jaintia Hills and West Khasi hills as per the EFC provision and release of 1st instalment to the host Institutes within this financial year subject to the availability of fund and approval of competent authority.
4. The house recommended the release of 2nd and 3rd in respect of Administrative building of ICAR-ATARI to CPWD subject to following of all codal formalities and availability of fund.
5. The house decided to defer the agenda for expansion of floor area of the Administrative building of ICAR-ATARI (on-going) in top floor in the next IMC after vetting of plan and estimates for the same by the Director (Works).
6. The house recommended for solar electrification of the Administrative building through CPWD subject to the approval of competent authority and availability of fund.

6th IMC Meeting of ICAR-ATARI, Zone-VII

2.11. Revolving Fund (RF)

A total of Rs. 65,35947 was reported by KVKs as the opening balance as on 1st April, 2017 and generated income of Rs. 30,92681 during the year 2017-18 with the closing balance of Rs. 70,87988 by the end of March, 2018. The revolving funds were used for generating income and resources from the available land of the KVK farm. KVKs are producing quality seeds and planting materials of different crops/enterprises like rice, oilseeds, pulses, fruits, vegetables, spices, ornamental crops, plantation crops, bio-fertilizers, bio-agents, bio-pesticides, piglets, fingerlings, chicks etc. and supplied to farmers and the concerned line departments for further supply and distribution to farmers during the period. The state-wise opening balance and the present status of revolving funds of KVKs are given below (Table-29).

Table- 29: Status of Revolving Fund (RF) of KVKs during 2017-18

Sl.No	State	No. of KVKs	Opening Balance	Income generated during the Year (Rs)	Closing Balance (as on 31.3.2018)
1	Manipur	9	1332817.50	473670.00	989086.50
2	Meghalaya	5	799431.00	63065.00	795968.00
3	Mizoram	8	2639680.00	965159.00	3040684.00
4	Nagaland	11	1212709.50	1029583.00	1277439.50
5	Tripura	5	551309.00	561204.00	984810.00
Total		**38**	**6535947.00**	**3092681.00**	**7087988.00**

2.12. Special Programmes

2.12.1. Cluster FLDs under National Mission on Oilseed and Oil Palm (NMOOP) and National Food Security Mission (NFSM) during 2017-18

Under ICAR-ATARI Zone-VII, there were 23 KVKs selected for implementation of Cluster Demonstration programme. These KVKs conducted Cluster frontline demonstration (FLDs) to demonstrate the production potential of newly released technologies on the farmer's fields at different location in a given farming system and organized various extension activities for farmers and extension workers for dissemination of the latest technologies.

Achievements during 2017-18

During the year 2017-18, a total of 4055 nos. of Cluster Frontline Demonstrations were conducted on Oilseeds and Pulses in 5 North-eastern States of Manipur, Meghalaya, Nagaland, Mizoram and Tripura covering 1908.7 hectares (Table-30).

- The total area covered by Pulses (Kharif & Rabi Season 2017-18) was 753.2 ha through 1527 demonstrations. In Oilseeds, total area covered (Kharif & Rabi Season 2017-18) was 1155.5 ha through 2528 demonstrations.
- Cluster Frontline Demonstration was conducted in different Pulses crops like Blackgram (PU-31, Tripura Maskolai, PU-31), Green gram (IPM-2-3, Pusa Vishal, Tripura Mung 1), Rice Bean (var. local), Rajma (Local, Utkarsh, HUR-301), Lentil (var. HUL-57), Field Pea (var. Prakash) and French Bean (var. Anupam).
- In Oilseed crops, Cluster Frontline Demonstration was conducted in Soybean (var. JS-335, JS-9560), Sesamum (ST-1683, Chhibung, Tripura Siphing), Groundnut (K-6, ICGS-76, TG-38), Rapeseed & Mustard (TS-36, TS-38, TS-67) and Linseed (Sharda, RLC-92, Ruchi).

Table-30: State-wise Cluster Frontline Demonstration on Pulses & Oilseeds under NFSM & NMOOP 2017-18

State	Area (ha) allocated		Demo allocated (No.)		Area (ha) covered		Demo conducted (No.)	
	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses
Manipur	400	490	1000	1225	350	367	646	766
Meghalaya	120	20	300	50	85.5	20	175	54
Mizoram	130	60	325	150	130	56.2	180	82
Nagaland	330	80	825	200	330	80	809	109
Tripura	260	230	650	575	260	230	718	516
Total	**1240**	**880**	**3100**	**2200**	**1155.5**	**753.2**	**2528**	**1527**

Table-31 revels that the state of Tripura produced the highest yield level of 9.30q/ha of Blackgram followed by Manipur (7.65) and Meghalaya (7.29) with the average yield level of 8.09 q/ha in the zone. In case of Green gram, the KVKs in the zone reported yield level of 7.92 q/ha. The table also indicated that the highest of yield 13 q/ha was reported by the state of Nagaland in cultivation of Field pea of varieties such as Prakash, HUDP-15 with the zonal average yield of 10.88 q/ha. The Lentil (Var. HUL-57, WBL-77) and Rajma (Var. HUR-301, Dhansri) were reported with average yield level of 7.69 q/ha and 13.02 q/ha at zonal level. While Rice bean (Var. Local improved by ICAR) was demonstrated by the KVKs of Manipur in which they obtained average yield level of 7.74q/ha and French bean (Var. Anupam) was demonstrated by the KVKs of Meghalaya with the average yield level of 12.50q/ha.

CFLD on Rajma, KVK Serchipp

Table-31: State-wise details of productivity of Pulses Crops under NFSM during 2017-18

Sl. No.	State	Avg. Productivity (q/ha) of Pulses Crops						
		Blackgram (Var. PU-31, T-9)	Greengram (Var. IPM2-3, PUSA Vishal)	Field pea (Var. Prakash, HUDP 15)	Ricebean (Var. Local improved by ICAR)	Lentil (Var. HUL-57, WBL-77)	Rajma (Var. HUR-301, Dhansri)	French bean (Var. Anupam)
1	Manipur	7.65	7.60	10.67	7.74	8.72	17.61	-
2	Meghalaya	7.29	-	-	-	-	-	12.50
3	Mizoram	-	-	8.20	-	7.80	11.00	-
4	Nagaland	-	-	13.00	-	6.96	10.45	-
5	Tripura	9.30	8.25	11.65	-	7.29	-	-
Av. Yield (Zonal)		**8.09**	**7.92**	**10.88**	**7.74**	**7.69**	**13.02**	**12.50**

In case of Oilseed crops, the Table-32 indicates that Soybean (Var. JS-335, JS 9560) was demonstrated by the selected KVKs in the states of Manipur, Mizoram and Nagaland with the highest average yield of 18.53q/ha in Mizoram followed by Manipur and Nagaland. KVKs of Mizoram, Nagaland and Tripura reported the average yield of 7.11q/ha in case of Sesame (Var. AST-1, ST-1683, Kaliabor, Chhibung, Tripura Siphing). Likewise, the average yield of 15.24 q/ha and 8.34 q/ha were recorded in demonstration of Groundnut (Var. K-6, ICGS-76, TG-38) and Rapeseed & Mustard (Var. TS-36, TS-38, TS-67, M-27, NRCHB-101, TRC T-1-1-5-1), respectively at zonal level. The Linseed (Var. Sharda, RLC 92, Ruchi, Parvati) was also demonstrated by the KVKs of Nagaland with an average of yield of 7.03q/ha.

CFLD on Toria, KVK West Garo Hills

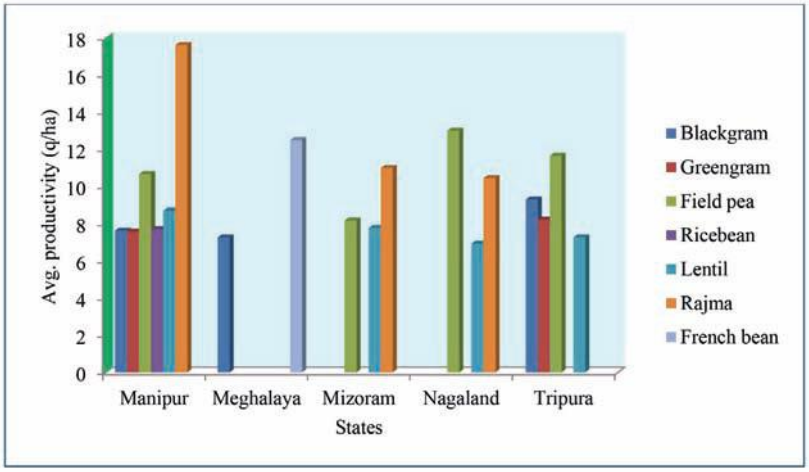


Fig.11: State-wise productivity of Pulses crops under NFSM during 2017-18

Table-32: State-wise Productivity of Oilseed crops under NMOOP during 2017-18

Sl. No.	State	Average productivity (q/ha)				
		Soybean (Var. JS-335, JS 9560)	**Sesame (Var.** AST-1, ST-1683, Kaliabor, Chhibung, Tripura Siphing)	**Groundnut (Var.** K-6, ICGS-76, TG-38)	**Rapeseed & Mustard (Var.** TS-36, TS-38, TS-67, M-27, NRCHB-101, TRC T-1-1-5-1)	**Linseed (Var.** Sharda, RLC 92, Ruchi, Parvati)
1	Manipur	17.66	-	15.95	7.05	-
2	Meghalaya	-	-	16.9	10.85	-
3	Mizoram	18.53	7.8	20.7	5.41	-
4	Nagaland	14.2	6.02	8.93	8.42	7.03
5	Tripura	-	7.5	13.74	9.99	-
Av. Yield (Zonal)		**16.80**	**7.11**	**15.24**	**8.34**	**7.03**

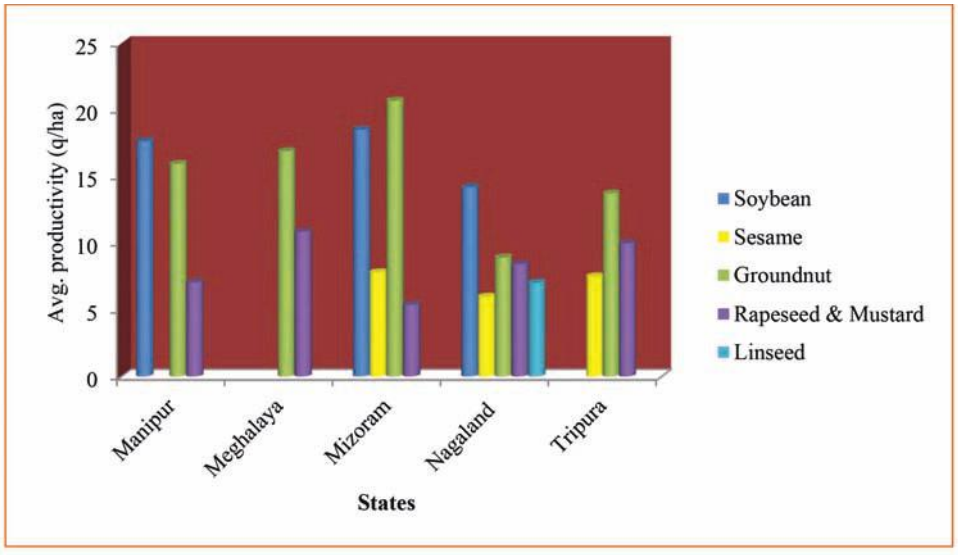


Fig. 12: State-wise productivity of Oilseeds crops under NMOOP during 2017-18

2.12.2. Rain Water Harvesting Structure

During 2017-18 a total of 9 KVKs conducted several kinds of activities related to rain water harvesting and its management including training, demonstration, production of planting materials and other extension activities like field visits, farmers-scientists interactions etc. for enhancing knowledge and skills of farmers on construction and use of rain water harvesting structures. Some of the KVKs under the zone are also putting concerted efforts on awareness generation in rain water harvesting for timely utilization during lean season in fields. A detail of the achievements of rain water harvesting structure and its management by the KVKs is given in Table-33.

During the period under report, as many as 26 training programmes and 36 demonstrations were conducted by the KVKs on construction and use of rain water harvesting structures using locally available resources which could help in production of 65024 numbers of planting materials. During the same period, a total of 1105 farmers visited to the KVKs for the said purpose and 135 nos. of visits were made by the KVK scientists to the farmers' fields to guide efficient construction of the structures.

Table -33: Achievement of Rain Water Harvesting Structures during 2017-18

State	KVK	No. of Training Programme	No. of Demonstration	No. of Planting Materials Produced	Visit by Farmers	Visit by KVK Staff
Manipur	Chandel	4	9	696	328	27
	Imphal East	1	2	2500	4	8
	Senapati	3	9	28000	132	14
	Tamenglong	12	12	12000	150	18
Total		**20**	**32**	**43196**	**614**	**67**
Mizoram	Aizawl	3	3	4500	390	29
	Champhai	0	0	15000	70	12
	Serchhip	1	0	0	0	0
Total		**4**	**3**	**19500**	**460**	**41**
Nagaland	Dimapur	1	0	1828	26	10
	Mon	1	1	500	5	17
Total		**2**	**1**	**2328**	**31**	**27**
Grand Total		**26**	**36**	**65024**	**1105**	**135**

2.12.3. Soil and Water Testing

2.12.3 .a. Sample Analysis

Along with their mandated activities, the KVKs under Zone-VII during 2017-18 rendered special assistance to the farmers in terms of laboratory based analysis of soil, water and plant samples. During the period under report, the KVKs analyzed a total of 10087 samples comprising of soil samples (9763), water samples (302) and plant samples (22). In the process, a total of 612 villages had been covered and as many as 15395 farmers were benefitted (Table-34).

Table-34: Status of Soil, Water and Plant Testing labs in KVKs under Zone-VII during 2017-18

Sl. No	State	Samples tested/ Analysed	Sample (No.)	Farmer beneficiaries	Village covered
	Manipur	Soil Sample	2172	3464	181
		Water Sample	152	152	28
		Plant Sample	0	0	0
	Meghalaya	Soil Sample	976	2295	68
		Water Sample	80	4	4
		Plant Sample	12	13	12
	Mizoram	Soil Sample	2193	3076	88
		Water Sample	68	68	14
		Plant Sample	10	10	6
	Nagaland	Soil Sample	3044	4024	163
		Water Sample	0	0	0
		Plant Sample	0	0	0

Tripura	Soil Sample	1378	2287	47
	Water Sample	2	2	1
	Plant Sample	0	0	0
Total	Soil Sample	9763	15146	547
	Water Sample	302	226	47
	Plant Sample	22	23	18

2.12.3. b. Soil Health Cards (SHCs)

Under the scheme, the government plans to issue soil health cards to farmers which will carry crop wise recommendations of nutrients and fertilizers required for the individual farms to help farmers to improve productivity through judicious use of inputs. KVKs in the zone tested soil samples in various soil testing labs including Mridaparikshak and analysed the strength and weaknesses (micro-nutrients deficiency) of the soil and suggested measures to deal with it. The result and suggestions are displayed in the soil health cards (SHCs). As many as 13288 numbers of Soil Health Cards (SHCs) were distributed to 15146 farmers on the eve of World Soil Health Day on 5th December, 2017 and other farmers' programmes organised by KVKs in the zone (Table-35).

Seed Hub Structure at KVK Thoubal

Table-35: State-wise details of Soil Health Cards (SHCs) distributed to the farmers during 2017-18

Sl. No	State	SHCs Distributed (No.)	Farmers' benefitted (No.)
1	Manipur	3402	3464
2	Meghalaya	2174	2295
3	Mizoram	2526	3076
4	Nagaland	2901	4024
5	Tripura	2285	2287
Total		**13288**	**15146**

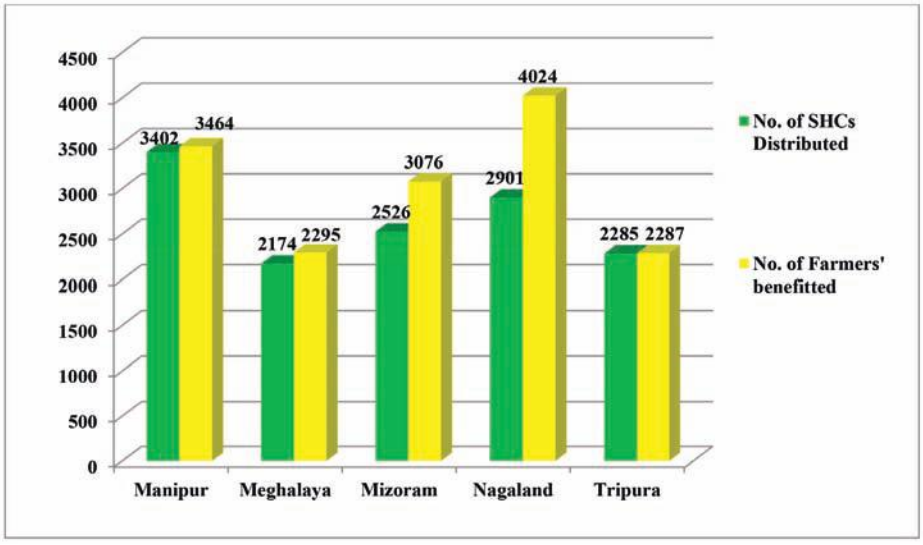


Fig. 13. State-wise graphical representation of SHCs and farmers benefitted

2.12.4. Kisan Mobile Advisory Services rendered by KVKs

During 2017-18, KVKs rendered Kisan Mobile Advisory Services in connection with transfer of technologies by providing information, advices, solutions and suggestions to various problems related to agriculture and allied activities as well as collection of feedback from the farmers for further assessment and refinement for generating location specific technologies. It is seen from Table-36 that as many as 27049 nos. of messages had been sent benefitting 175856 no. of farmers in remote districts of the zone. The messages included crops (9125), livestock (3886), weather (10767), marketing (351), awareness generation (2033) and other enterprises (887).

Table-36: Kisan Mobile Advisory Services (KMAS) rendered by KVKs during 2017-18

Enterprise/Activity	Type of Message	No. of Message	No. of beneficiaries
Crop	Text only	3014	47375
	Voice only	5558	7265
	Voice and Text both	553	756
	Total	**9125**	**55396**
Livestock	Text only	1477	42315
	Voice only	2222	3669
	Voice and Text both	187	315
	Total	**3886**	**46299**
Weather	Text only	5471	26529
	Voice only	5233	373
	Voice and Text both	63	121
	Total	**10767**	**27023**
Marketing	Text only	150	9846
	Voice only	173	186
	Voice and Text both	28	28
	Total	**351**	**10060**
Awareness	Text only	908	15540
	Voice only	993	1522
	Voice and Text both	132	355
	Total	**2033**	**17417**
Other Enterprise	Text only	481	18793
	Voice only	266	658
	Voice and Text both	140	210
	Total	**887**	**19661**
Grand Total		**27049**	**175856**

2.12.5. Mera Gaon Mera Gaurav (MGMG)

The flagship programme of the Prime Minister of India, "Mera Gaon Mera Gaurav" has been under implementation by the KVKs in the region by adopting villages for promoting best farming practices and government's policies among the farmers. During the period, a total of 36 KVKs involved in the programme by adopting 607 no. of villages. The notable activities under the programme included 611 nos. of field demonstrations on various agriculture and allied technologies as well as 557 nos. of training programmes for farmers and farm women (Table- 37).

Table- 37: Achievements under Mera Gaon Mera Gaurav (MGMG) during 2017-18

Sl. No	State	No. of KVKs	No. of village selected	No. of Demons.	No. of training
1	Manipur	9	86	99	91
2	Meghalaya	5	118	41	54
3	Mizoram	8	163	173	88
4	Nagaland	9	175	230	300
5	Tripura	5	65	68	24
Total		**36**	**607**	**611**	**557**

2.12.6. Creation of Seed Hubs for increasing indigenous Production of Pulses in India 2017-18

For increasing the production of Pulses in India during the year 2017-18, only one KVK/Seed Hub Centre, namely KVK Thoubal in Manipur under ICAR-ATARI, Umiam was selected for creation of Seed Hubs to meet the seed requirement of the farmers in the zone. The KVK centre could produce as much as 30.00 q of pulses seeds of black gram (PU-31) and Moong (SML-668) during Kharif, 2017 and 102.5 q of Pulse seeds such as Field Pea (Aman), Lentil (HUL-57) and Chick Pea (J4-16) in Rabi, 2017. This could produce a total production of 132.5 q covering 62 ha during the reporting period as depicted in Table 38.

Table-38: Creation of Seed Hubs for indigenous production of pulses in India 2017-18

Seed Hub Centre	Season	Crop	Variety	Area Sown (ha)	Production (q)
KVK, Thoubal	Kharif 2017	Blackgram	PU-31	10	25
		Moong	SML-668	5	5
	Sub total			**15**	**30**
	Rabi 2017-18	Fieldpea	Aman	20	10
		Lentil	HUL-57	12	62.5
		Chickpea	J4-16	5	30
	Sub total			**37**	**102.5**
	Summer/Spring 2018	Pigeon pea	TS-3R	10	Sowing started
	Sub total			**10**	**-**
	Total			**62**	**132.5**

2.12.8. PPV & FRA programmes organized by KVKs during 2017-18

KVKs under Zone-VII organised awareness programme on “Protection of Plant Varieties and Farmers Rights” in their KVK premises with the financial support from Protection of Plant varieties and farmers’ Right Authority, India (PPV&FRA), Government of India, New Delhi. The objective of the programme was to sensitize the farmers about their rights and protection acts and discuss the issues and perspectives of PPV&FRA for the agricultural development in their districts. The experts in the field explained the technicalities of the Protection of Plant Varieties and Farmers Rights Act (PPV&FRA) to the farmers in detail. During the awareness meeting a number of applications for registrations of different crop varieties were submitted to PPV &FR Authority. A brief highlight of the programme is given in Table 39.

Table-39: Programme under Protection of Plant Varieties and Farmers' Right Authority (PPV&FRA), India

Sl. No	State	KVK	No. of Registered Farmers	No. of Plant Varieties applied for registration
1	Manipur	Chandel	10	8
2		Imphal West	12	15
3		Senapati		3
4		Thoubal	15 (1 individual others in group)	11
5	Meghalaya	Ri Bhoi	105	10
6		West Khasi Hills	10	11
7		West Garo Hills	10	7
8	Mizoram	Aizawl	100	0
9		Kolasib	0	0
10		Lunglei	10	10
11		Mamit	0	0
12	Nagaland	Dimapur	174	17
13		Kohima	24	24
14		Mokokchung	10	10
15		Mon	100	12
16		Phek	106	8
17		Wokha	11	11
18		Zunheboto	0	0
19	Tripura	Dhalai	10	10
20		Khowai	12	11
21		South Tripura	5	5

Training cum awareness programme under PPV&FRA at KVK Dimapur

2.13. Sankalp Se Sidhi Programme (19 Aug-10 Sept, 2017)

The "Sankalp Se Sidhi" program was organized across the zone by the KVKs to commemorate the 75th Anniversary of Quit India Movement. The programs comprised of Kisan Film having message of Hon'ble PM to double farmers' income by year 2022, followed by pledge for Sankalp Se Sidhi, lecture by agriculture experts and address of the chief guest. The farmers were also shown various activities in the KVKs and institutes to acquaint them with the latest technologies. A film on patriotism was also screened on this occasion to motivate the participants. In this programs, 2 Union Ministers, 6 Hon'ble MPs (Loksabha/ Rajyasabha), 8 State Ministers, 14 MLAs, 91 Chairman of Zila Panchayat besides 11729 farmers attended during the week of celebration. Around 644 other dignitaries including District Collector/ DM, Bank Officials and Govt. Officials, PRI members etc. also graced the occasion. The programs were covered widely by Doordarshan and other channels which played key roles in taking the message across the zone and the region. A brief summary of the programme is presented in Table-40.

Table-40: State-wise Summary of Sankalp Se Sidhi Programme during 2017-18

State	Number of KVKs Organised the programme	No. of Union Ministers attended in the programme	No. of Hon'ble MPs (Loksabha/ Rajyasabha) participated	No. of State Govt. Ministers	MLAs Attended the programme	Participants (No.)						Coverage by Door Darshan (Number)*	Coverage by other channels (Number)**
						Chairman Zila Panchayat	Distt. Collector/ DM	Bank Officials	Farmers	Govt. Officials, PRI members etc.	Total		
Manipur	9	0	0	3	2	9	5	9	2478	49	2552	8	7
Meghalaya	5	2	3	0	1	1	3	3	1391	84	1483	3	9
Mizoram	8	0	2	2	5	69	6	18	3961	146	4205	7	7
Nagaland	9	0	1	2	0	5	6	11	1926	154	2102	4	1
Tripura	6	0	0	1	6	7	2	22	1973	126	2136	4	13
Total	**37**	**2**	**6**	**8**	**14**	**91**	**22**	**63**	**11729**	**559**	**12478**	**26**	**37**

***Number of KVK programmes covered under DDK**

****Number of KVK programmes covered by other Channels (other than DDK**

Oath taking ceremony by the Dignitaries during the Sankalp Se Siddhi Programme organized by KVK Bishnupur, Manipur

Oath taking ceremony by the participants during the Sankalp Se Siddhi Programme organized by KVK Aizawl, Mizoram

2.14. Hindi Pakhwada, 2017-18

हिन्दी पखवाड़ा (04-14 सितम्बर, 2017)
भा. कृ. अनु. परि. - कृषि प्रौद्योगिकी अनुप्रयोग अनुसन्धान संस्थान (अटारी), क्षेत्र - VII, उमिअम

The Hindi Pakhwada programme was organized in ICAR-ATARI, Zone-VII, Umiam, Meghalaya during 4th-14th May, 2017 where all the Scientist and Staffs of the Institute took active participation. The 1st day of the programme started with an inaugural session followed by playing of ICAR song and Hindi poem recitation. During the opening day the following agenda items were proposed to be carried out in the 10 days programme.

दिनांक	कार्यक्रम/Programme
4 सितंबर, 2017 प्रात : 11:00 बजे से 1:00 बजे 4 September, 2017 Morning 11:00 am to 1:00 pm	उद्घाटन, दीपक रोशनी, संस्थान गीत, हिंदी कविता पाठ और रिफ़्रेशमेंट Inauguration, Institute song, **Hindi poem recitation** and Refreshment
5 सितंबर, 2017/5 September, 2017 दोपहर: 12:00 बजे से 1:00 बजे Afternoon 12:00 noon to 1:00 pm दोपहर: 2:00 बजे से 3:00 बजे Afternoon 2:00 pm to 3:00 pm	उपनिवेश भाषण प्रतियोगिता Extempore Speech Competition श्रुतलेख और वर्तनी **Dictation and Spelling**
6 सितंबर, 2017 दोपहर:2:00 बजे से 3:00 बजे 6 September, 2017 Afternoon 2:00 pm to 3:00 pm	अष्टाशी प्रतियोगिता **Antakshari Competition**
7 सितंबर, 2017 दोपहर:2:00 बजे से 4:00 बजे 7 September, 2017 Afternoon 2:00 pm to 4:00 pm	मुक अधिनिय प्रतियोगिता सामान्य, गैर-हिंदी भाषी और एनईएच क्षेत्र जैसे सभी ३ श्रेणियों के लिए एक संयुक्त समूह होगा **Dumb Charade** There will be one combined group for all 3 categories like General, Non-Hindi speaking & NEH region
8 सितंबर, 2017 दोपहर:2:00 बजे से 4:00 बजे 8 September, 2017 Afternoon 2:00 pm to 4:00 pm	प्रश्नोत्तरी प्रतियोगिता **Quiz Competition**
14 सितंबर, 2017 दोपहर:2:00 बजे से 3:00 बजे 14 September, 2017 Afternoon 2:00 pm to 3:00 pm	पुरस्कार वितरण और समापन समारोह **Prize Distribution and Closing Ceremony**

Poem Recitation Competition

Extempore Speech

The Extempore speech was carried out successfully with the topics being mainly on the current issues like "Education system in India" (भारत में शिक्षा प्रणाली), Women Empowerment (महिला सशक्तिकरण), Beef Ban (बीफ़ प्रतिबंध) etc. A Quiz Competition programme was also held among the staff of the institute as part of the programme.

Quiz Competition

2.15. Activities conducted for Doubling Farmers' Income by 2022

Under the guidance of Hon'ble Prime Minister, Shri Narendra Modi, it has been for the first time that a strategic planning has been done to double the farmers' income leading to improvement in their economic condition in the country. Several schemes have been launched for this purpose at the national level. ICAR-ATARI, Umiam also tok up the issue very seriously and identified one village per KVK to take up various activities for doubling the income of farmers in convergence mode after detail household survey.

The details of activities being taken up by the KVKs under Zone-VII for doubling farmers' income by 2022 are given in **Table-41**.

Table-41: Details of Activities for Doubling Farmers' Income by 2022

State	KVK	Name of the Village	Activities conducted
Manipur	Bishnupur	Leimaram	• Participatory seed production of rice • Intervention of pulse crop with full package of scientific technology • Intervention of oilseed crop with full package of scientific technology • Fishery production
	Chandel	Chandonpokpi	• Demonstration on Back yard poultry farming • Training on poultry farming • Demonstration on improved breed Hampshire pig • Training on piggery farming • Enterprise on processing of value added product from fruit & vegetables • Life saving irrigation during rabi season enabling doubling – cropping • Seed production of cereal, pulses and oilseeds
	Churachandpur	Saihenjang	• Production of Okra Var. Arka Anamika • Method Demonstration on chilli cultivation • Vaccination cum awareness programme on animal health • Demonstration on groundnut cultivation • Demonstration on rice cultivation
	Imphal East	Nung Brung	• Utilization of cultivable waste land of foothills with maize and blackgram cultivation • Utilization of canal water for cage culture • Integrated Farming System
	Imphal West	Wangoi Wahengbam Leikai	• IFS, Weaving & vegetable farming • Mushroom cultivation
	Senapati	Makhan	• Banana cultivation • Vegetable production • Mushroom production • Fishery production • Poultry production • Piggery production • Oilseed and pulse production

	Tamenglong	Noney Part-I	• Protected cultivation of quality seedling production of vegetables • Ginger & Turmeric production • Development of Orange & Citrus orchard • Pulse Production • Participatory Pig Breeding Unit
	Thoubal	Ukhongshang	• Seed production of cereals,pulses & oilseeds • Offseason vegetable production • Organic farming • Production of Fish seed • Dairy farming • Piggery and Goattery farming • Integrated Farming System • Secondary Agriculture
	Ukhrul	Lungshang Chingkha	• OFT conducted on Animal production, Fisheries and Horticulture • FLD conducted on Animal production, Fisheries and Horticulture
Meghalaya	East Khasi Hills	Pashang	• On farm production of bio-agents like bio organics, bio fertilizers, Bio pesticides and compost. • Integrated Farming System • Fodder production for Livestock • Homestead gardening • Protective cultivation • Tea plantation
	Jaintia Hills	Niawkmai	• Formation of Farmer club • Maize based double cropping • Value addition of horticultural crops • Horticulture Nursery • Off season vegetable production • Water harvesting and Composting • Mushroom cultivation • Poultry production • Piggery production • Fishery production • Integrated Farming System • Sericulture

	Ri-bhoi	Umraleng	• CFLD on Groundnut • FLD on HYV of Paddy • Pineapple cultivation in double row system
	West Garo Hills	Okkhapara Songittcham	• Paddy cum fish culture in kharif season • Scientific cultivation on turmeric & ginger in mid land area • Scientific cultivation on paddy in low areas • Scientific cultivation on mid or up land paddy • Backyard poultry farming • Low cost pig farming
	West Khasi Hills	Mawkyrwat	• Paddy cum fish • Vegatable cultivation in rice fallow • Protected cultivation of vegetables (capsicum,tomato, coriander,cabbage) • Vermicompost production • Oyster mushroom cultivation • Introduction of improved breed of pig
Mizoram	Aizawl	Durtlang North	• Introduction of improved breed of poultry • Introduction of milch cattle • Introduction of improved fodder crops
	Champhai	Arro	• Provide Cane crusher to a group of farmers at Arro Village • Demonstration of Groundnut Production
	Kolasib	Buhchangphai	• Paddy (WRC) cultivation • Oil palm production • Vegetable cultivation • Poultry, piggery and goattery production • Fishery production
	Lawngtlai	Chawnhu	• Method demonstration and training on bee-keeping • Vaccination and deworming of pigs • Diagnostic visit and method demonstation on chilly

	Lunglei	Thiltlang	• Identification of Self Help Groups for ginger production • Identification of Self Help Groups for piggery production
	Mamit	Rulpuihlim	• Introduction of Improved varieties of mango • Arrangement of loan for farmers • Tillage and terracing of rice • Bee-keeping • Animal health Camp • Terrace construction for soil conservation
	Saiha	NIAWHTLANG – III (KM – 10)	• Scientific cultivation practices of strawberry • Construction of low cost water harvesting structures. • Intercropping of Strawberry with mustard between the interspaces of strawberry terraces (proposed) • Intercropping of Strawberry with cabbage between the interspaces of strawberry terraces (proposed)
	Serchipp	East Lungdar	• Method demonstration on vegetable production • Organising Animal Health camp • Training and discussion with farmers on Resource Conservation technologies • Training and discussion with farmers on Resource Conservation technologies on protected cultivation practices
Nagaland	Dimapur	Zuheshe	• Demonstration on soyabean • Demonstration on maize
	Kohima	Nehra-bheza	• Oilseed and pulses production
	Longleng	Nyang	• Demonstration on Back yard poultry farming • Training on poultry farming • Demonstration on improved breed Hampshire pig • Training on piggery farming • Enterprise on processing of value added product from fruit & vegetables • Life saving irrigation during rabi season enabling doubling – cropping • Seed production of cereal, pulses and oilseeds

	Mokokchung	Sungratsu	• Piggery and poultry farming • Seasonal vegetable production • Scientific paddy and maize cultivation • Preparation of processed products from colocasia
	Mon	Langmeang	• Scientific cultivation of paddy, maize and millet • Piggery and poultry farming • Bee keeping • Mushroom cultivation • Low cost water harvesting structure
	Phek	Gidemi	• Training, method demonstration and field day on vermicomposting and water harvesting • Training, method demonstration and field day on duck farming, rabbitry production, goatery production • Training, method demonstration and field day on paffy cultivation, maize production, cultivation technology of large cardamom and tree bean • Post harvest processing for value addition of fruits • Demonstration on protected cultivation technology of king chilly and tomato
	Tuensang	Chendang	• Rearing of improved poultry birds • Pig production at village level through scientific interventions. • Large scale improved Maize production • Integrated Farming System • Potato Seed Tubers Production
	Wokha	Koio	• Establishment of low cost mushroom (Oyster) production unit • Establishment of improved pig (Hampshire Cross) breeding unit • Establishment of Vanaraja & Gramapriya poultry unit for meat & egg purpose • Seasonal & Off season vegetable production, high value crop production • Lilium cut flower production under poly house • Rain Water harvesting & Soil Water conservation, piggery unit, Duck cum fish culture, mushroom spwan & Seasonal Vegetables.

	Zunheboto	Littami	• Supply of bio-agents (Trichoderma) • Supply of noni saplings • Supply of seeds and training on long bean • Training and supply of soyabean seeds • Training and supply of groundnut seeds
Tripura	Dhalai	Uttar Kachucherra	• Nursery management and quality seedling production
	Khowai	Nayanpur	• Lentil production • System of Rice Intensification on Paddy • Cultivation of Arhar as intercrop in between the vegetables • CFLD on green gram, Field pea, Sesamum and Mustard • Simplified Azolla Production Method • Fishery production • Preparation of soakage pit • Preparation of Grihalaxmi chullah
	North Tripura	Khudrakandi West Para	• Practical exposure on breeding and seed production on Indian Major Carps and fresh water prawn. • Scientific Fish culture and pond management • Fish Health Camp on disease prevention and pond management • Popularization of Polyculture of Pabda (O. bimaculatus) along with Carps. • Popularization of Polyculture of Giant Fresh Water Prawn (M. rosenbergii) along with Carps. • Popularization of Duck (Var. – Khaki Campbell) cum Fish culture. • Introduction of Coloured broiler , breed – Coloured broiler • Popularization of Guinea Grass as a fodder crop. Var.- Hamil, BG-2 • Introduction of Hybrid Paddy cultivation to increase the productivity per unit • Emphasising Rice – Pulse cropping system to increase cropping intensity as well as their income

South Tripura	West Pilak	• Activities related to crop production (Rice, Pulses and Oil seeds etc.) • Mushroom production unit especially by the farming family women • Produciton of biofertilizer (vermicompost) for local farms. • Production of Honey and income generation • New initiative for fruit orchard (Mango, litchi etc.) • Poultry production: (Backyard poultry with dual purpose variety) • Fodder production: Round the year fodder Cultivation for feeding of dairy cattle. • Goatery development: (Scientific feeding, health and housing management of goat) • Duckery development: Popularization of meat purpose duck, White Pekin. • Carp fry and fingerling Production • Polyculture of freshwater prawn and carps Integrated fish farming

2.16. Observance of "Vigilance Awareness Week 2017" by ICAR-ATARI, Zone-VII, Umiam

The Vigilance Awareness Week 2017 was observed by the office of the ICAR-Agricultural Technology Application Research Institute, Zone-VII, Umiam, Meghalaya during the period from 30th October to 4th November, 2017 with the theme "My Vision-Corruption Free India with much enthusiasm and active participation by the staff of the Institute.

The week long programme commenced on the 30th October, 2017 at the chamber of the Director who gave a brief speech on the evils of corruption and how it hinders the development of our country and the ways and means to curb and prevent this evil of society. This was followed by the administration of Integrity Pledge by the Director for the Organisation. E-pledge was also taken by the Organisation through the CVC Portal and additionally 3(three) citizen's E-pledge was taken by individual staff of the Office.

As part of the Vigilance Awareness programme, activities like display of anti-corruption and vigilance posters was carried out during the week under the prescribed theme. The programme concluded by the active participation of the staff including SRF's, DEO's etc of the Institute in a Discussion Panel/Elocution session on the theme of the awareness week where in each participant was allowed to speak up and provide their views and ideas on making India corruption free. The Programme ended with the distribution of Certificates.

Administration of Integrity Pledge

Discussion Panel/Elocution Session

2.17. Swachta Pakhwada

The Swacchta Pakhwada programme was organized in ICAR-ATARI, Umiam Barapani during 16th-31st May, 2017 with an oath taking event by the Scientists and other staff of the institute. The first day of the programme started with the oath taking ceremony in the presence of Dr. Bidyut C. Deka, Director, ICAR-ATARI, Umiam. The various activities which were carried out during the 15 days programme included cleaning drive of the office premises, cleaning of old files and materials, arrangement and cataloguing of file and other important documents as per sequence, awareness and demonstration on the importance of human and animal hygiene and sanitation were elucidated at some of the LP schools in the nearby villages of Ri-Bhoi district. Deworming tablets were also distributed to the pig rearers along with hands-on demonstration of hygienic maintenance of animal farm as part of the programme.

Oath taking ceremony of the Swacchta Pakhwada Programme

Cleaning of office and clearing of old files

2.18. Celebration of "Swachhta Hi Seva Campaign" under "Swachh Bharat Mission", ICAR-ATARI, Zone-VII

The Union Government has launched 'Swachhta Hi Seva' (cleanliness is service), a nation-wide fortnight-long sanitation campaign to highlight the government's flagship cleanliness initiative Swachh Bharat Mission. It was launched by President Ram Nath Kovind from Ishworiganj village in Kanpur, Uttar Pradesh. The ICAR-ATARI, Zone-VII, Barapani celebrated the mission successfully with its staff to fulfil the very objectives of the mission from 15th September to 2nd October, 2017.

The day-wise details of the activities taken up during the programme period are presented in Table-43.

Table-43: Celebration of "Swachhta Hi Seva Campaign" under "Swachh Bharat Mission", ICAR-ATARI, Zone-VII (15th September to 2nd October 2017)

Date	Programme as directed by Council	Action Taken
15.09.2017	Oath Taking Ceremony	All the Scientists and Staffs of the Office took the "Swacchta Hi Sewa" pledge led by Dr. Bidyut. C. Deka, Director, ICAR-ATARI, Zone-VII Umiam and also sort out Action Plan for the Programme.
17.09.2017	Celebration of Sewa Diwas	ICAR-ATARI, Zone-VII, Umiam, Celebrated "*Sewa Diwas*" under *"Swachhta Hi Sahi Hai"* programme today i.e. the 17th, September 2017 where all the Scientists and staffs under the supervision of Dr. Bidyut C. Deka, Director, ICAR-ATARI, Umiam dedicated 2 hours (10:00 a.m- 12:00 noon) in cleaning and sweeping of the entire office which included: • Dusting and moping of individual work places. • Sorting of office files and sequential arrangement for easy accessibility. • Discarding of all wastes materials from the store room. • Cleaning of doors and windows and washing of curtains. • Proper arrangement of computers, printers, other electronic devices including chairs and tables. • Cataloguing of books and publications in the office library. • Cleaning of office corridors and ceilings. • Sweeping and moping of the office stairway
24.09.2017	Celebration of Samagra Swachhta Diwas	ICAR-ATARI, Zone-VII, Umiam, celebrated "*Samagra Swachhta Diwas*" under the "Swachhta hi Seva" Campaign**.** During the programme, all the Employees of the Institute performed *"Shramdaan"* and contributed towards cleaning of the toilets and the surroundings at Bethany Higher Secondary School, Nonsder, Ri-bhoi District, Meghalaya. The entire staff of ICAR-ATARI, Zone-VII, Umiam along with the teachers and students of the school actively participated in the programme.
25.09.2017	Celebration of Sarwatra Swachhta Diwas	ICAR-ATARI, Zone-VII, Umiam, celebrated *"Sarwatra Swachhta"* under the *"Swachhta hi Seva"* Campaign**.** During the programme, all the employees of ATARI, Zone-VII, Umiam carried out a cleaning drive at Barapani Maket, Umiam, Meghalaya. This Institute has also donated 2 (two) no. of dustbins to the village headman, who has expressed his whole-hearted thanks to the institute as this was really the need of an hour at this market as there were scarcity of dustbins. The activities carried during the day long programme were: Cleaning of the whole market area. Interaction with the vegetable vendors at the market and educating them about the importance of proper hygienic maintenance of the market. Disposing of the unwanted materials by burning it. Hands on Demonstration on proper usage of the dustbins donated by the institute.

1.10.2017	Swachhta of a Nearby Tourist Spot	As part of the programme, the Scientists & Staffs of ICAR-ATARI, Zone-VII, Umiam carried out a cleaning drive at Dam side View point which is one of the most beautiful site in the State of Meghalaya attracting thousands of tourists every year. The activities carried during the day long programme were: ➢ Sweeping of the whole area ➢ Disposing and burning of unwanted waste materials ➢ Moping of the wire nettings on the site.
2.10.2017	Public Function/Award Ceremony	On the last Day of the "Swachhta Hi Seva" Campaign, an initiative of "Swachh Bharat Mission" ICAR-ATARI, Zone-VII, Umiam organized a Drawing Competition at Bethany Higher Secondary School, Nongsder, Umiam, Meghalaya. Dr. Bidyut. C. Deka, Director of ICAR-ATARI, Zone-VII, Umiam was the chief guest at the prize distribution ceremony which was attended by a total of 25 No. of Scientist and staffs of ICAR-ATARI, ZONE-VII, 25 Teachers and 250 students of the school. Dr. Deka during his speech emphasized mostly on the importance of cleanliness at Schools, markets and other public places and also highlighted the main aim of the "Swachhta Hi Seva" Campaign which was to commemorate the successful completion of 3 years of "Swachh Bharat Abhiyan" and to celebrate the birthday of the "Father of the Nation" Mahatma Gandhi who had a vision of a Clean India**.** Everyone present at the meeting was enlightened by the encouraging speech of the Dr. Deka. Various prizes were distributed to the winners of the Quiz competition and also to the outstanding contributors towards a "Green and Clean" India. The programme ended with a Vote of Thanks from the Principal of the School and a Light Refreshment arranged by ICAR-ATARI, Zone-VII, Umiam.

Oath taking Ceremony

Samagra Swachhta Diwas

Swachhta of Nearby Tourist Spot

2.19. Awards and Recognition

During the year 2017-18, the Scientists of ICAR-Agricultural Technology Application Research Institute (ATARI), Umiam was awarded with the Best Poster Presentation Award on "Potential, Prospects and Strategies for Doubling Farmers Income: Multi-stakeholder Convergence" in 8th National Seminar, organized by Society for Community Mobilization for Sustainable Development, New Delhi at College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati, 09-11 Nov, 2017. The KVKs under ICAR-ATARI, Umima received a number of awards and recognitions during 2017-18 for their outstanding achievements in different areas of agricultural development. Among those, the most significant ones were- the Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar 2017-18 (Zonal) to KVK, Ribhoi, Meghalaya which was conferred during 10th National Conference of KVKs-2018 during 16th – 17th March, 2018 at IARI, New Delhi; ICAR-IARI Innovative Farmers Award,2017, conferred to a farmer of KVK, Aizawl by Hon'ble Union Minister of State for Agriculture and Farmers Welfare, Govt. of India on the 18th March, 2018 during Krishi Unnati Mela from 16-18 March, 2018 held at IARI Campus, New Delhi.

Director, ICAR RC for NEH Region with Head of KVK Ribhoi receiving Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar 2017-18 (Zonal) from Hon'ble Prime Minister, Govt. of India

Farmer from KVK Aizawl along with Head, KVK Aizawl receiving the "ICAR-IARI Innovative Farmers Award, 2017" from Hon'ble Union Minister of State for Agriculture and Farmers Welfare and Panchayati Raj, Govt. of India

2.20. Linkages and Collaboration

During 2017-18, KVKs under ICAR-ATARI, Zone-VII established strong linkages with National Fisheries Development Board (NFDB), Hyderabad for dissemination of latest technologies to the farmers through 52 nos. of training programmes by KVKs of the region with the financial assistance from NFDB. The collaborative programme was undertaken with PPV&FRA for organizing awareness programme and registration of farmers' variety.

The KVKs in North East are maintaining strong enabling, functional as well as diffusion linkages with different stakeholders including their host institutes, ATARI, Umiam, all line departments of their respective state governments and farmers of the respective districts in matters related to implementation of their mandated and other collaborative programmes such as conduct of on farm testing, frontline demonstration, identification and selection of trainees and training needs of farmers, rural youth and extension personnel for training programmes and conduct of several kinds of extension activities etc. KVKs have also close coordination with other agencies including NGOs and other public and private sectors. KVKs are directly involved in preparation of SREP of ATMA districts and in implementation of various schemes like Mission for Integrated Development in Horticulture, NREGS, SGSY, RKVY etc. Sr. Scientists & Heads and Subject Matter Specialists of KVKs also acted as resource persons for different collaborative HRD programmes sponsored by different organizations such as Assam Agricultural University, ICAR Research Complex for NEH Region, DRDA, DRDO, NABARD, ATMA including HRD programmes organized by ICAR-ATARI, Zone-VII.

2.21. Performance of Agricultural Technology Information Centres (ATICs)

The ATIC at ICAR Research Complex for NEH Region, Barapani was sanctioned in 1999 by Indian Council of Agricultural Research. The rationale for establishment of ATIC were-

- ❖ To provide diagnostic services for soil and water testing, plant and livestock health
- ❖ To supply research products such as seeds and other planting materials, poultry strains, livestock breeds, fish seed, processed products etc. emerging from the institution for testing and adaptation by various clientele
- ❖ Providing information through published literature and communication materials as well as audio-visual aids
- ❖ Providing an opportunity to the institution/ SAU to generate some resource through the sale of their technologies.

Salient Achievements of ATIC, ICAR Research Complex for NEH Region, Umiam during 2017-18

- A total of 6246 nos. of farmers visited the ATIC for technology information related to the production and management of various crops and livestock enterprises. While 2916 farmers visited for seeking various technology products during the period.
- A total of 358.7 q of Seeds (paddy, potato, mustard, Groundnut, Lentil, Field Pea, Peas, Maize, Turmeric, Ginger, Green Gram, Black Gram, Rajma & Vegetables seeds) were sold to 7280 farmers during 2017-18.
- Distributed a total of 200 Soil Health Cards (SHCs) through Soil and Water Testing and also made 36 nos. of plant diagnosis.
- A total of 5229 copies of books & technical bulletins were sold which could generate revenue of Rs. 2,75,752 in the zone.

- The ATIC also distributed as many as 1245 copies of technology inventories to the farmers in various programmers of the institute.
- The Centre during the reporting period provided a total of 14870 nos. of quality livestock and fingerlings to the selected farmers of the zone including Piglets (1100), poultry birds/fingerlings (13300) and Rabbit (470) etc.

2.22. Technology Backstopping through Directorates of Extension Education

The Directorate of Extension Education (DEE) of Central Agricultural University, Imphal is providing technological backstopping to the KVKs through different activities at university level. During 2017-18, a total of 32 visits were made by Director of Extension Education (DEE) and his scientists in KVKs under its jurisdiction. The Directorate also organised 5 nos. of review meetings to oversee the activities of KVKs and organised 9 HRD Programmes for knowledge empowerment and technology backstopping to the KVKs with total 258 KVK participants/ staff. As many as 22 publications including extension bulletins (2), technical bulletins (1), training manuals (2) and farm magazine (4) were brought out by the Directorate during the period (Table-44).

Input distribution through training programme by ATIC, ICAR RC for NEH Region, Umiam

Group discussion cum Brain storming session under DEE, CAU

Table-44: Activities conducted by Directorate of Extension Education, CAU, Imphal

Sl No	Particulars	Number
1	No. of Visits by DEE to KVKs	22
2	No. of visits of other scientists to KVKs	10
3	No. of Review meetings held	5
4	Any other monitoring and review meeting held	4
5	HRD Programme conducted for knowledge empowerment and technology backstopping to the KVKs	
	a) No. of programme	9
	b) No. of participants	258
6	Other publications, bulletins, CDs etc. brought out (No)	4
7	Extension bulletin (in various topics)	2
8	Technical bulletins	1
9	Leaflets	3
10	News letters	4
11	Farm magazine	4
12	Kishan diary	1
13	Training Manuals	2
14	Calendar	1

3. RESEARCH AND DEVELOPMENT PROJECTS FOR HUMAN RESOURCE DEVELOPMENT

3.1. Institutional Research Projects

3.1.1. Information need of farmers of NE Region for adoption of Agricultural Technologies

PI : Dr. R. Bordoloi

Co-PI : Dr A.K Singha, Dr. Bagish Kumar, Dr. Bidyut C. Deka and Dr. U.K. Singh

Objectives

1. To study the extent of information need of farmers with respect to adoption of various agricultural technologies disseminated by KVKs
2. To find out the information sources utilized by the farmers for adoption of scientific technologies
3. To examine the credibility level of different information sources as perceived by the farmers
4. To determine the problems faced by the farmers in fulfilling their information needs

Salient Findings

1. Extent of information need of farmers with respect to adoption of selected agricultural technologies disseminated by KVKs.

a. Information need on Major Crop

The information need on major crop rice was found to be mostly needed (48.82%) followed by somewhat needed (35.38%) and least needed (15.80%). In state-wise comparison, the information on rice was found to be mostly needed in West Tripura, Cachar, Lower Dibang Valley, Senapati, East Sikkim, Lunglei and Dimapur districts and interestingly only in East Khasi Hills district it was found to be somewhat needed.

The information on major crop maize was found to be mostly needed (46.20%) followed by somewhat needed (35.26%) and least needed (18.54%) by the respondents.

b. Information need on other major Crops

Other major crops include black gram, green gram, field pea, chick pea and other vegetable crops like cabbage, cauliflower, brinjal, oilseed crops, sesamum, tomato etc.. The information on other major crops was found to be mostly needed (45.90%) followed by somewhat needed (35.17%) and least needed (18.93%).

c. Information need on Poultry

As per the responses of the respondents majority (55.72%) of the responses towards information need of poultry were found to be mostly needed followed by somewhat needed (33.95%) and least needed (10.33%).

d. Information need on Piggery

It was observed that in pooled data, based on the responses of the respondents, the information need on piggery were found to be mostly needed (54.62%) followed by somewhat needed (38.20%) and least needed (7.18%). State-wise data revealed that the information on piggery were found to be mostly needed in West Tripura, Cachar, Lower Dibang Valley, Senapati and Lunglei KVKs and an interesting finding was observed in Dimapur district where equal responses were observed where the information on piggery were found to be equal. i.e. mostly needed and somewhat needed.

e. Information need on Fishery

The information need on fishery was found to mostly needed by 56.73% respondents followed by somewhat needed (32.56%) and least needed (10.71%). In state-wise comparison, the information on fishery was found to be mostly needed in West Tripura, Cachar, Lower Dibang Valley, Senapati, Lunglei and Dimapur districts followed by somewhat needed in East Sikkim and East Khasi Hills district.

2. Information sources utilized by the farmers for adoption of scientific technologies

Based on the information sources utilized by the farmers for adoption of scientific technologies, it was observed that majority (40.61%) of the respondents utilized the information sources sometimes only followed by never (33.56%). Only 25.83% utilized different information sources regularly. State-wise distribution revealed that majority of the responses in West Tripura, Cachar, Senapati, East Khasi Hills and Lunglei KVKs were in somewhat category when it comes to utilization of information sources followed by never in Lower Dibang Valley, East Sikkim and Dimapur KVKs. The information sources like KVK, Marketing Board, Mobile app, Relatives, NGOs and Training were mostly used by the respondents.

The frequency and percentage of the respondents on the basis of their extent of utilization of different sources for acquiring agricultural information was calculated out on a 3-pouint continuum, 'regular', 'sometimes' and 'never' then the mean score was calculated to find out the rank of sources as per utilization.

All the respondents used/consulted input dealers for various information related to cultivation of vegetables regularly. Neighbours were also consulted by 70% of the respondents on regular basis

More than 80% of the respondents consulted VLEW, friends, relatives, progressive farmers, radio, leaflets/bulletins on 'sometimes'. In between 60-80% of the respondents consulted neighbours, television, newspapers, field trial, exhibition, agricultural training as 'sometimes'. A sizeable portion of respondents 'never' utilised television (31.25%), newspapers (20.83%), leaflets/bulletins (18.75%), exhibition (20.83%), agricultural training (28.13%).

According to the rank order of the information sources it was found that input dealer was the most consulted sources of information. It is a discouraging fact that the input dealer holding the first position while there is a well knit network of extension personnel under S.D.A. The officials of State Department of Agriculture have a great role to play in this matter. It is obvious that most of the input dealers are not having sufficient scientific agricultural knowledge and they are likely to mislead the farming community for their commercial motives. So there should be a proper mechanism to supervise the activities of those dealers and periodic training may also be organized for those input dealers to aware them on sustainable agriculture.

The information sources neighbours, KVK, progressive farmer, VLEW and radio occupied the 2nd, 3rd, 4th and 5thand 6th rank, respectively. However, their mean scores differed slightly. It indicates that the respondents preferred to consult with their neighbours and progressive farmers than other official sources. Of course, progressive farmers play a positive role in dissemination of various agricultural information and therefore extension functionaries should try to train up/develop the knowledge as well as attitude of help of the progressive farmers. The grass root level extension personnel, VLEWs are also playing an important role, for which they should keep themselves upto date with latest agricultural information to fulfil the information needs of the farmers.

The findings on mass media like T.V. and newspapers indicates that proper care should be taken by the media people to fulfil the information needs of the farmers in right time as those sources were utilized poorly by the respondents.

3. Credibility level of different information sources as perceived by the farmers

Based on the credibility level of different information sources as perceived by the farmers,, it was observed that majority (47.97%) of the respondents had somewhat credible level towards information sources followed by mostly (31.49%) and least (20.54%) level of credibility towards information sources. State-wise distribution exhibited that majority of the responses in West Tripura, Senapati, East Sikkim, East Khasi Hills, Lunglei and Dimapur KVKs were in somewhat category when it comes to credibility level of information sources followed by mostly in Cachar and Lower Dibang Valley.

Most of the respondents accorded highest credibility towards sources like Field trial, Exhibition, KVK, Agricultural trainings, Progressive farmers etc.

4. Problems faced by the farmers in fulfilling their information needs

Based on the problems faced by the farmers in fulfilling their information needs it was observed that, majority (46.91%) of the responses of the respondents indicated that the problems that they faced were somewhat serious followed by least serious (30.61%) and most serious (22.48%). State-wise distribution exhibited that majority of the responses with regards to the problems faced by the farmers were somewhat serious in all the KVKs i.e West Tripura, Cachar, Lower Dibang Valley, Senapati, East Sikkim, East Khasi Hills and Dimapur KVK.

The most serious problems faced by the respondents for fulfilling information needs were Poor communication, Non understandability of language in mass media, untimely message, Non accessibility of news paper, Erratic power supply etc.

3.2. Externally funded Projects

3.2.1. National Innovations on Climate Resilient Agriculture (NICRA)

NICRA is a network project of the Indian Council of Agricultural Research (ICAR) and was launched during February, 2011. During the year 2011 to 2015, there were 17 numbers of KVKs representing different agro-climatic conditions in 8 North East States and in the year 2015-16, Six new NICRA KVKs were included in the Seven districts of North East viz., KVK Karbi Anglong in Assam , KVK Ukhrul in Manipur, KVK Jaintia Hills in Meghalaya, KVK Serchhip in Mizoram, KVK Mon in Nagaland and KVK Dhalai in Tripura and altogether a total numbers of 23 KVKs are under NICRA Project. After bifurcation of ICAR-ATARI, Zone-VI, Guwahati from the erstwhile Zone-III, the present Zone-VII, Umiam retains only 14 NICRA KVKs across the five states under its jurisdiction as presented in Table-45.

Table-45: State wise distribution of NICRA KVKs along with their climate Vulnerability

State	District	Village Name	Agro-climate	Vulnerability
Manipur	Senapati	Hengbung & Hengbung-I	Sub Trop Plain Zone	Drought/water
	Imphal East	Chingtha	Mild Tropical Hill Zone	stress
	Ukhrul	Ramva	Sub Tropical Hill Zone	Frost /Soil Erosion
Mizoram	Lunglei	Hnathial	Sub Tropical Hill Zone	Water stress
	Serchipp	North Vanlaiphai	Mid Tropical Plain Zone	Drought and Cold stress
Meghalaya	Ri-bhoi	Kyrdem	Mid Tropical Hill Zone	Drought/Frost/ Hail-storm
	West Garo Hills	Marapara, Sanang-gre, Rongbokgre	Sub Tropical Hill Zone	stress
	Jaintia Hills	Umjalasiaw	Sub Tropical Hill Zone	Drought/ Flood
Nagaland	Phek	Thipuzumi	High hill Zone	Drought/water
	Dimapur	Dhansiripar	Sub & Mild Tropical Plain Zone	stress
	Mokokchung	Aliba	Mild Hill Zone	
	Mon	Ngangching	Upper Brahmaputra Valley Zone	Drought/ Soil erosion
Tripura	Dhalai	Methirmia	Mid Tropical Plain Zone	Flood/ Soil erosion
	West Tripura	North Pulinpur ADC village	Mid Tropical Plain Zone	Drought

A brief detail of interventions made by KVKs under NICRA during 2017-18 is given in Table-46.

Table-46: Brief Summary of NICRA Interventions during 2017-18

Intervention	No. of farmers benefitted	SHGs	Area (ha)	Units	Animal	Fingerlings
Natural Resource Management	648		430.95	32	-	-
Crop production	1069		269.96	40	-	-
Livestock & Fisheries	353	4	1.03	71	1057	6630
Institutional Interventions	1232	-	256.52	16	-	-
TOTAL	**3302**	**4**	**958.46**	**159**	**1057**	**6630**

Intervention	No. of Courses	No. of beneficiaries		
	Male	Female	Total	
Capacity Building	117	1474	1550	**3024**
Extension Activities	336	2675	1797	**4472**
TOTAL	**453**	**4149**	**3347**	**7496**

Module-wise achievements under Technology Demonstration component of the project

Module-I: Natural Resource Management

Interventions such as In-situ moisture conservation, Water harvesting and recycling for supplemental irrigation, Improved drainage in flood prone areas, Conservation tillage, Artificial ground water recharge measures, Water saving irrigation method, Crop residue incorporation instead of burning, Installation of Vermicompost units for income generation, Soil Health Management, Polyhouse construction for growing of vegetable crops under protected cultivation etc., with a total number of 32 units of demonstration covering an area of 430.95 ha benefitted 648 number of farmers.

Renovation of Rock Filled Dam

Module - II: Crop Production

Short duration varieties/ drought tolerant Varieties/ flood tolerant varieties/ temperature tolerant varieties/ High Yielding Varieties, Advancement of planting dates of Rabi crops in areas with terminal heat stress, Water saving paddy cultivation methods, Frost management in horticultural crops through fumigation, Community nurseries for delayed monsoon, Custom hiring centers for timely planting, Location specific intercropping systems with high sustainable yield index, Crop diversification, Protected cultivation, Zero tillage Practices, Crop diversification, Soil health management, Integrated crop management, Pest and disease management, Apiary, Mushroom cultivation, Integrated farming system & others were demonstrated which covered an area of 272.96 ha area and benefitted 1069 numbers of farmers with 40 numbers of units demonstrated.

Demonstration of Short duration rice variety 'Dishang'

Growing of Dhaincha before rice transplanting

Module - III: Livestock & Fisheries

Interventions such as use of community lands for fodder production during drought / flood, Introduction of new fodder, Improved fodder/ feed storage methods, Preventive vaccination, Deworming, Animal health check-up, Improved shelters for reducing heat stress in livestock, Management of fish ponds / tanks during water scarcity and excess water, Improved feeding like location specific mineral mixtures or mineral bricks, Piggery, Backyard Poultry Farming, Goatery & Duckery were demonstrated which benefitted 353 numbers of farmers and covered 1.03 ha of area. 1057 number of livestock and birds and about 6630 numbers of fingerlings were distributed to the farmers.

Cage Culture of Tilapia

Module - IV: Institutional Interventions

Demonstrations on Seed Bank, Fodder Bank, Commodity groups, Community nursery establishment, Custom hiring centre, Collective marketing, Climate literacy through a village level weather station and other interventions like Survey and Participatory Rural Appraisal, Site selection, Diagnostic visits, Rabi vegetables seed distribution programme covering an area of 256.52 ha which benefited 1232 numbers of farmers.

Custom Hiring Centre

Seed Bank

Module - V: Capacity Building

Various training programmes in different fields such as Crop diversification, Composite fish culture, Group dynamics, Integrated pest management, Soil and water conservation etc. amounting to a total of 117 training courses were conducted by the KVKs under Zone-VII which benefited a total of 3074 number of male and female farmers as well as rural youth.

Capacity Building Activities

Module - VI: Extension Activities

Extension activities like Exposure visits of farmers, Strengthening SHGs, a number of Field days, Method demonstrations, and Awareness programmes covering various aspects of climate resilient agriculture were conducted by KVKs which offers a wide range of benefits providing vital information for the upliftment of farming communities of the NICRA villages and likely the adjoining villages as well. A total number of 4472 farmers were benefitted from a total of 336 number of courses/programmes conducted.

Extension Activities

Success Story-1

(Water Reed cum Fish Farming in Imphal East District of Manipur)

Mr. Maibam Nabakishor Singh of Yairipok Top Chingtha, Imphal East district is an enthusiastic and progressive farmer in nature, with a family size of 6 members, was cultivating only paddy on his 2 ha of land. He was upset by experiencing low return from paddy cultivation. On his request, KVK Imphal East identified the suitable farming system for the farmer as diversification and intensification of his low productive paddy cultivation by the integrated farming system of water reed cum fish farming. The technology in these proposed IFS is Periphyton based aquaculture for enhancing fish productivity using water reed as a substrate in addition to the income from water reed which is estimated at Rs. 2.5 lakh/ha/year. He was suggested for taking up water reed cum fish farming at his 0.25 ha area of low productive paddy land and Mr. M. Nabakishore Singh started the activity as a participating farmer in KVK, Imphal East's technology demonstration programme under the project "National Initiatives on Climate Resilient Agriculture - Technology Demonstration Component".

Output and Outcome

Economics of Water Reed cum Fish Farming (0.25 ha) for one year

I. Input cost

Sl. No.	Particulars	Quantity	Rate (Rs.)	Amount (Rs)
1	Plot construction	1 (0.25 ha)	-	8900.00
2	Fertilizer			
	Urea	65 kg	10/kg	650.00
	SSP	95 kg	12/kg	1140.00
	MOP	28 kg	28/kg	784.00
3	Water reed plant	6000 plant	2/plant	12000.00
4	Fish fingerling			
	1st six months	1500	5/fingerling	7500.00
	2nd six months	1500	5/fingerling	7500.00
5	Transplantation of plant	4 persons	@200/person	800.00
6	Water pumping	-	-	1500.00
7	Cost of harvesting and bundle preparation	4 times in a year with 7 persons per harvest	@300/person	8400.00
8	Feeds for fish			
	Mustard oil cake	50 kg	@21/kg	1050.00
	Rice bran	300 kg	@4/kg	1200.00
9	Ploughing	3 times (3 hours)	@600/hour	1800.00
10	Water reed transportation cost	-	-	1700.00
11	Miscs	-	-	3000.00
Total				**Rs. 57924.00**

II. Return (Water Reed Production)

1st harvest	2nd harvest	3rd harvest	4th harvest	Total no. of bundles
187 bundles	275 bundles	107 bundles	221 bundles	790 bundles
1832.6 kg	2965 kg	1048.6 kg	2165.8 kg	7742 kg

Average selling price per kg (S1) = Rs. 7742 x 10.20 (@Rs. 10.20 per kg)
= Rs. 78968.4

A. Fish production

1st harvest = 172 kg

2nd harvest = 120 kg

Selling price of fish (S2) = Rs. 292 x 170 (@Rs. 170 per kg of fish) = Rs. 49640.00

B. Associated items

Fetched an amount (S3) of Rs. 1300.00

C. Gross Return

S1 + S2 + S3 = 78968.4 + 49640 + 1300 = Rs. 129908.40

D. Net return

Rs. 129908.40 – Rs. 57924.00 = Rs. 71984.4 (in 1st year)

From second year onwards, the cost incurred in plot construction, plant cost, ploughing and transportation costs will be excluded and hence the net return would be Rs. 96,384.00 per year per 0.25 ha which turns out to be Rs. 3,85,536.00 per ha per year from second year onwards.

Impact

Water reed cum fish farming is a high income earning agro practice. Cultivation and promotion of such farming not only boost the economy and enhance employment opportunity, but also help in the conservation of wetlands and paddy field unsuitable for taking up paddy cultivation. Having unexpected harvest of water reed and fish, Mr. Maibam Nabakishore Singh was very happy by raising his income from his piece of land, measuring about 0.9 ha and appreciated the technological support and the information given by Krishi Vigyan Kendra, Andro, Imphal East and he commented "You have the will and power to bring thousand smile for the farmer of the district and also for the state". The farmers from different parts of the district and also from the state have shown keen interest for taking up such farming system and accordingly, horizontal spread of the technology has taken place at 7 new locations.

Demonstration on Water Reed cum Fish Farming at Farmers' field at Top Chingtha

3.2.2. Farmer FIRST Programme (FFP)

The Farmer FIRST project was conceived and implemented by ICAR so as to involve the practicing farmers for research problem identification, prioritization and to conduct of experiments in farmers' field utilizing the resources available with the farmers. The focus is on farmer's Farm, Innovations, Resources, Science and Technology (FIRST). Two terms 'enriching knowledge' and 'integrating technology' qualify the meaning of Farmer FIRST in Indian context. Enriching knowledge signifies the need for the research system as well as farmers to learn from each other in context to existing farm environment, perception of each other and interactions with the sub-systems established around. Technology integration is looked from the perspective that the scientific outputs coming out from the research institutions, many times do not fit as such in the farmers' conditions and thus, certain alterations and adaptations are required at field level for their acceptance, adoption and success. 'Farmer FIRST' programme aims at enhancing farmer-scientist interface for technology development and application. It will be achieved with focus on innovations, technology, feedback, multiple stakeholder's participation, multiple realities, multi method approaches, vulnerability and livelihood interventions.

Achievements during 2017-18

Two projects are presently being implemented by Central Agricultural University, Imphal and ICAR RC for NEH Region, Umiam, Meghalaya with the total budget provisions of Rs. 57.46 lakh and Rs. 95.10 lakh respectively. The institute/ university-wise and module-wise progress of the project is given below.

A. CENTRAL AGRICULTURAL UNIVERSITY (CAU), IMPHAL (Sustainable Livelihood Development of farmers in Manipur through Participatory Technology Application)

Crop based Module

- Undertaken Quality seed production of CAUR-1 with improved production technology during kharif 2018 with 6 farmers covering an area of 12 ha. The results indicated the increased average yield of 8500 kg/ha accounting 56% increase in yield over the local.
- Conducted Demonstration and quality seed production of pre-kharif rice varities CAUR-2 & CAUR-3 with improved production technology in Yairipok Top Chingtha and Yairipok Yambem villages in 6 ha area.
- Large scale cultivation of Rape seed Mustard Varieties M-27/TS-38, NRCHB-101, YSH-401 etc in rice fallows for additional income generation was made in Yairipok Top Chingtha and Yairipok Yambem in 50 ha area involving 20 households. Mustard var M-27 produced 900kg/ha from 4 ha area.
- Large scale cultivation of Pea Var. Arkel either as sole/mixed in rice fallows for additional income generation in Yairipok Top Chingtha and Yairipok Yambem villages in 12 ha with 10 farmers. The results indicated that Yield of about 2000kg/ha was harvested from around 8.5 ha and the var Arkel in zero tillage condition which is considered successful and beneficial to the farming community.

Horticulture based Module

- Scientific production technology of Makhana (Var. Swarna Vaidehi) for higher productivity through area expansion in Yairipok Top Chingtha and Yairipok Yambem villages in 2 ha. This could help to earn Rs. 80,000 to 90,000/- (approx) within 7-8 months in 0.25 ha. Additional income of not less than Rs. 10000/- was generated by keeping 20 nos. of bee boxes on boundaries of his farm area (1.5 ha).

Gorgon nut (Makhana) cultivation under FFP

- Scientific cultivation of hybrid varieties of Vegetables like Cauliflower, Cabbage, Bottle gourd, Onion, Tomato etc for higher income generation in Yairipok Top Chingtha and Yairipok Yambem villages in 2 ha involving 10 farmers. Farmers on an average earned more than Rs. 50000/- from an area of 0.5 ha Pumpkin (Big gold) & Bottlegourd (Disha) cultivation within 6 months by following improved production technologies.

Livestock & Fish Based Module

- Conducted Semi-intensive farming activity among rural farmers for judicious utilization of water resources. Fishes have been cultured in 2.5 ha area which could benefit a total of 120 farmers.
- Scientific rearing of improved breed of poultry viz. Giriraja & Girirani has been popularized. Birds have already started lying eggs @ 14-16 eggs/ month.
- Scientific rearing of good quality breeds of Pig namely Hampshire Cross & Rani for higher production in the same villages.

Giriraja breed of poultry under backyard farming

Enterprise based Module

- Conducted 3 training cum demonstration programmes on value addition technology especially to farm women and college going girls and Exposure visit to value added agro product manufacturing units in and around Imphal area. This could benefit 180 participants from the selected villages.

B. ICAR REASERCH COMPLEX FOR NEH REGION, UMIAM (Livelihood Improvement of Hill Farmers through Sustainable Farming Systems in North Eastern Hill Region)

Crop based modules

- Zero-tillage pulse production module was introduced to promote pulses (pea and lentil) in rice fallow through technological interventions.
- Promotion of vegetables in maize and rice fallow through technological interventions
- The raised and sunken bed cultivation of vegetables was introduced in the adopted area covering in 10 villages with 500 households.

Horticulture based module

- Turmeric (var: Mega Turmeric-1) and ginger (var: Nadia) rhizomes were distributed to around 121 and194 farmer beneficiaries respectively covering an area of more than 10 ha. The rhizomes were planted in the month of April and are presently at the harvesting stage. Some of the farmers have already harvested the produce and have kept it for drying.

Nursery bed for vegetable seedlings under FFP

Livestock based module

- Artificial insemination of pigs and deep litter housing model for pigs in 10 villages with 42 farmers. The results are still under observation.

- Around 50 poultry chicks were distributed to each in the month of March- April, 2017 among 6 farmers in 6 villages each. First egg laying was recorded in the month of July with the body weight of 2-2.5kg, Selling of eggs @ Rs.10 each and live birds @ Rs.300/kg.
- Another batch distribution of Kuroiler birds were also made in the month of September, 2017 among 25 farmers in 7 selected villages. Average weight of 2-2.5kg in female birds and 3-3.5kg in male birds in a duration of three months was recorded Out of the selected 25 beneficiaries, 17 of them were also provided financial help for construction of scientific deep litter poultry houses.

Deep litter house made in adopted village under FFP

Enterprise based module

- Taken up cultivation, processing and promotion of Ginger Candy, ginger powder, dehydrated ginger, turmeric powder in 10 selected villages for which infrastructures have been established.
- This processing unit will cater to the needs of Nalapara and villages under our FFP for value addition of seasonal available fruits and vegetables, as well as turmeric grinding unit which will be housed in a separate room of the same building.

NRM based module

Soil samples from the adopted villages was collected and tested to ensure corrective measures required for managing the problematic soil. Soil Health Cards (SHCs) had also been distributed to farmers in 10 villages. It was found that acidic soil and iron (Fe) toxicity played the major problems.

a. Bio-intensive pest management practices for enhancing yield of ginger

During the survey, shoot borer, white grub and rhizome fly were found to be the major problem of ginger in almost 10 villages selected under the project. Selected farmers from the villages were trained on diagnosis and eco-friendly management of major pest of ginger. Demonstrations were also conducted on plant protection practices in ginger and selected farmers were supplied with bio-pesticides. Farmers were advised to follow the integrated approaches viz., removal/ destruction of infested shoots/rhizome, soil application of Metarhizium anisopliae (Bio Magic) @ 8kg/ha and foliar spraying of Nimbecidine 0.3% @ 5ml/ litre water during July-August. Highest reduction in shoot borer damage was observed in Nalapara (48.67) and Umtham (39.67%) villages; whereas white grub damage was observed to be reduced in Umtham and Lalumpam villages.

b. Eco-friendly management of Bactrocera fruit flies and tea mosquito bugs in guava orchards

Fruit flies belonging to genus Bactrocera (Diptera: Tephritidae) and tea mosquito bugs, Helopeltisantoni and H. theivoraare, the most severe pests of guava in the region and responsible for huge losses in marketable yield of the fruits including guava. Awareness on pest management practices was created through trainings programmes and bio-intensive package was suggested consisting of placing fruit fly traps @ 15 traps/ha and soil application of entomopathogenic fungi, Metarhiziumanisoplae (1x109 cfu/gm)@ 4kg/ha with foliar spray of Nimbecidine 0.3% @ 2ml/litre water and Beaveria bassiana (Biopower @ 5ml/litre water during fruiting stage. Biopesticides and RC-fruit fly trapping kit were provided to the selected farmers and demonstrations were conducted on effective use of fruit fly traps. Bio-intensive pest management package has significantly reduced the pest losses compared to previous year and about 17.33 to 38.67% increase in marketable yield was observed in different villages.

c. Bio-intensive pest management in seasonal vegetable crops

Selected farmers from different villages were trained on diagnosis and eco-friendly management of major pest of tomato and cruciferous vegetables. Inputs including pheromone traps, pheromone lures and bio-pesticides have been distributed to the selected farmers for demonstration on tomato and Cole crops. tomato, cabbage and broccoli are yet in vegetative stages in field and bio-intensive pest management package are being implemented in the field.

Integrated Farming System (IFS) module

Pig based integrated farming system and Fish based integrated farming system

Fishery based IFS model with crop husbandry, piggery, poultry, duckery, fisheries, goatry, rabbitry, mushroom cultivation, vermicomposting, vegetable farming and agro forestry component has been developed in the Nalapara village. This demonstration unit will serve as a model for development of IFS at their respective farm of the different farmers. The visiting farmers can also interact and discuss their doubts regarding IFS model and its benefits in their local language which will easily facilitate them in understanding the different dimensions of the model.

Integrated Farming System under FFP

3.2.3. Attracting and Retaining Youth in Agriculture (ARYA)

In order to create interest and confidence among rural youth in agriculture, there is a need to make agriculture more profitable. Retaining youth in agriculture and making agriculture more profitable are thus, big challenges. There is a continuous increase in migration of rural youth to urban areas. On the other hand, small holdings are on the rise which posses challenge to food security for increasing population. Thus, it was felt to bring a comprehensive model for the development of rural youth in general and agricultural youth in particular. Thus, realising the importance of rural youth in agricultural development especially from the point of view of food security of the country, ICAR has initiated a programme on "Attracting and Retaining Youth in Agriculture (ARYA)".

Under ICAR-ATARI, Zone-VII, 3 (three) KVKs namely; Senapati in Manipur, Wokha in Nagaland and Lunglei in Mizoram are implementing the ICAR sponsored ARYA project. New proposals of three more KVKs-Jaintia Hills in Meghalaya, Dhalai in Tripura and Tuensang in Nagaland have been approved in principle for the project. Programme implementation of the activities as per the approved plan of works of the concerned KVKs has been initiated in their identified enterprises of the project with the selected rural/ tribal youth under different agricultural and allied enterprises.

Achievement during 2017-18

Location specific potential enterprises such as piggery, poultry, fisheries, mushroom cultivation, bee-keeping, large cardamom, floriculture etc. were taken up by the KVKs under the project for the benefit of rural youth in their respective districts. During 2017-18, a total of 14 nos. of training programmes were conducted on different enterprises under the project by the 3 ARYA KVKs benefitting a total of 278 rural youth and 24 demonstrations youth for beneficiaries.

Gerbera at the early blooming stage under ARYA, KVK Wokha

Pig breeding unit under ARYA, KVK Senapati

A brief achievement made by the implementing KVKs during 2017-18 is given in Table-46.

Table-46: Achievement of ARYA project during 2017-18

Name of KVK	Name of enterprise /Component	No of unit	Training		Demonstration (No.)	
			No. of training	No. of Participants	No. of demonstration	No. of Participants
Senapati Manipur	Mushroom cultivation	20	1	30	1	2
	Piggery	9	1	30	1	3
	Poultry	50	1	30	2	2
	Fishery	10	1	30	5	15
	Large Cardamom	10	-	-	-	-
Lunglei Mizoram	Piggery	1	2	22	1	5
	Poultry	2	1	18	2	10
	Mushroom	1	2	20	1	5
	Bee Keeping	1	1	15	1	5
Wokha Nagaland	Mushroom	4	4	83	4	11
	Poultry	3	-	-	3	8
	Piggery	2	-	-	2	5
	Floriculture-cut flowers	1	-	-	1	4
	Total	-	**14**	**278**	**24**	**80**

Success Story-2

(Livelihood Improvement of Tribal Youth through Cut flower Production under Polyhouse in Wokha district of Nagaland)

The educated unemployed tribal youth Mr. Thungdemo Ovung of Wokha district with the support and guidance of KVK Wokha formed a group in the village for taking up income generation activity such as Cut flower cultivation under polyhouse with the specific objectives of cut flowers production of commercial importance, year round production cut flowers and to uplift the economic status and livelihood status.

Technical details

Polyhouse of 80 sq. m has been constructed for the implementation of the ARYA project. The poly film of 200 micron and side wall with 75% green shade net has been used for the cover. Lilium has been selected as the crop for the cut flower. Both Asiatic and oriental varieties were cultivated. After thoroughly preparing the soil with FYM and sand, the bulbs were planted at a spacing of 15 cm X 15 cm.

Input /Support provided to youth groups

Before the initiation of the project, one skill training on floriculture was provided.

- Number of youth per group: 10 nos
- Input cost: Cost of polyhouse: Rs. 1 lakh
  Cost of lilium bulbs: Rs. 12000.00

Lilium in budding stage

Status of Enterprise: The first batch of Lilium bulbs (2500 nos.) supplied from ARYA project was planted during the month of June 2017 (23.06.17). The first flower stalk was harvested on 10. 08.17. A total nos. of 2400 flower stalks could be harvested which was completed by the month of September 2017.

Impact (yield, Production in nos.): 2400 nos. of flower stalk could be harvested. On an average 3 – 5 nos. of flower buds were observed per flower stalk.

Farm income

Gross income: Rs. 96000/- (@ Rs. 40/stalk)

Net income: Rs. 75500/-

Sustainability of the youth group: Under the initiative of Mr. Thungdemo Ovung, 10 nos. of youths were employed for floriculture and other agricultural activities. Apart from the production of cut flowers, they are also engaged in the production of seasonal flower seedlings utilising the polyhouse.

Benefit to farmers

- **Increase in income: The income of group has increased from Rs 48000 to Rs 123500 within 6 months of implementation of the project.**
- **Reduction in cost: Since 10 nos. of youths are engaged, the cost of labour has been reduced. FYM could also be collected in groups without costing labour.**
- **Market linkages established: Presently, all the cut flowers were sold in the local market but on excess production they have linked with the local florist in Dimapur and Kohima cities of Nagaland.**
- **Employment generated: Presently one youth has got full employment along with partial employment of 9 youths.**

Lilium ready to cut

Perception of others in the village: Fellow youths on seeing the success of the enterprise, has created interest among the youth on floriculture enterprise. Presently, group is waiting for the aerial parts of the lilium to die down to replace with a new batch.

Conclusion

In conclusion, the cut flower production under ARYA has shown a successful enterprise for providing employment opportunity to the tribal rural youth of hilly and remote area of Nagaland. From the cut flower enterprise a net profit of Rs 75,500/- was realised by the flower group within a six months of time.

3.2.4. Cluster FLDs under National Mission on Oilseed and Oil Palm (NMOOP) and National Food Security Mission (NFSM) during 2017-18

Under ICAR-ATARI Zone-VII, 23 KVKs implemented the Cluster Demonstration programme. These KVKs conducted Cluster frontline demonstration (FLDs) to demonstrate the production potential of newly released technologies on the farmer's fields at different locations in a given farming system and organized farming and extension activities for farmer and extension workers for dissemination of various technologies.

Achievements during 2017-18

During the year 2017-18, a total of 4055 nos. of Cluster Frontline Demonstrations were conducted on Oilseeds and Pulses in 5 North-eastern States of Manipur, Meghalaya, Nagaland, Mizoram and Tripura covering 1908.7 hectares (Table-47).

- The total area covered by Pulses (Kharif & Rabi Season 2017-18) was 753.2ha through 1527 demonstrations. In Oilseeds, total area covered (Kharif & Rabi Season 2017-18) was 1155.5 ha through 2528 demonstrations.
- Cluster Frontline Demonstration was conducted in different Pulses crops like Blackgram (PU-31, Tripura Maskolai, PU-31), Green gram (IPM-2-3, Pusa Vishal, Tripura Mung 1), Rice Bean (var. local), Rajma (Local, Utkarsh, HUR-301), Lentil (var. HUL-57) and Field Pea (var. Prakash).
- In Oilseed crops, Cluster Frontline Demonstration was conducted in Soybean (var. JS-335, JS-9560), Sesamum (ST-1683, Chhibung, Tripura Siphing), Groundnut (K-6, ICGS-76, TG-38), Rapeseed & Mustard (TS-36, TS-38, TS-67) and Linseed (Sharda, RLC-92, Ruchi).

Table-47: State-wise Cluster Frontline Demonstration on Pulses & Oilseeds under NFSM & NMOOP 2017-18

State	Area (ha) allocated		Demo allocated (No.)		Area (ha) covered		Demo conducted (No.)	
	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses
Manipur	400	490	1000	1225	350	367	646	766
Meghalaya	120	20	300	50	85.5	20	175	54
Mizoram	130	60	325	150	130	56.2	180	82
Nagaland	330	80	825	200	330	80	809	109
Tripura	260	230	650	575	260	230	718	516
Total	**1240**	**880**	**3100**	**2200**	**1155.5**	**753.2**	**2528**	**1527**

The data presented in Table-48 reveal that the state of Tripura produced the highest yield of 9.30q/ha of Blackgram followed by Manipur (7.65) and Meghalaya (7.29) with the average yield of 8.09 q/ha in the zone. In case of Green gram, the KVKs in the zone reported yield level of 7.92 q/ha. The table also indicates that highest level of yield (13 q/ha) was reported by the state of Nagaland in Field pea with the zonal average yield of 10.88 q/ha. The Lentil (Var. HUL-57, WBL-77) and Rajma (Var. HUR-301, Dhansri) were reported with average yield of 7.69 q/ha and 13.02 q/ha at zonal level. While Ricebean (Var. Local improved by ICAR) was demonstrated by the KVKs of Manipur in which they obtained average yield of 7.74q/ha.

CFLD on Rajma, KVK Serchipp

Table-48: State-wise details of productivity of Pulses Crops under NFSM during 2017-18

Sl. No.	State	Avg. Productivity (q/ha) of Pulses Crops						
		Blackgram (Var. PU-31, T-9)	**Greengram (Var.** IPM2-3, PUSA Vishal)	**Field pea (Var.** Prakash, HUDP 15)	**Ricebean (Var.** Local improved by ICAR)	**Lentil (Var.** HUL-57, WBL-77)	**Rajma (Var.** HUR-301, Dhansri)	**French bean (Var.** Anupam)
1	Manipur	7.65	7.60	10.67	7.74	8.72	17.61	-
2	Meghalaya	7.29	-	-	-	-	-	12.50
3	Mizoram	-	-	8.20	-	7.80	11.00	-
4	Nagaland	-	-	13.00	-	6.96	10.45	-
5	Tripura	9.30	8.25	11.65	-	7.29	-	-
Av. Yield (Zonal)		**8.09**	**7.92**	**10.88**	**7.74**	**7.69**	**13.02**	**12.50**

In case of Oilseed crops, the Table-49 indicated that Soybean (Var. JS-335, JS 9560) demonstrated by the KVKs in the states of Manipur, Mizoram and Nagaland the highest average yield of 18.53q/ha in Mizoram followed by Manipur and Nagaland. KVKs of Mizoram, Nagaland and Tripura reported the average yield of 7.11q/ha in case of Sesame (Var. AST-1, ST-1683, Kaliabor, Chhibung, Tripura Siphing). While the average yield of 15.24 q/ha and 8.34 q/ha was recorded in demonstration of Groundnut (Var. K-6, ICGS-76, TG-38) and Rapeseed & Mustard (Var. TS-36, TS-38, TS-67, M-27, NRCHB-101, TRC T-1-1-5-1) at zonal level, respectively. The Linseed (Var. Sharda, RLC 92, Ruchi, Parvati) demonstrated by the KVKs of Nagaland recorded the average yield of 7.03q/ha.

CFLD on Toria, KVK West Garo Hills

Table-49: State-wise Productivity of Oilseed crops under NMOOP during 2017-18

Sl. No.	State	Average productivity (q/ha)				
		Soybean (Var. JS-335, JS 9560)	**Sesame (Var.** AST-1, ST-1683, Kaliabor, Chhibung, Tripura Siphing)	**Groundnut (Var.** K-6, ICGS-76, TG-38)	**Rapeseed & Mustard (Var.** TS-36, TS-38, TS-67, M-27, NRCHB-101, TRC T-1-1-5-1)	**Linseed (Var.** Sharda, RLC 92, Ruchi, Parvati)
1	Manipur	17.66	-	15.95	7.05	-
2	Meghalaya	-	-	16.9	10.85	-
3	Mizoram	18.53	7.8	20.7	5.41	-
4	Nagaland	14.2	6.02	8.93	8.42	7.03
5	Tripura	-	7.5	13.74	9.99	-
Av. Yield (Zonal)		**16.80**	**7.11**	**15.24**	**8.34**	**7.03**

4.0. PUBLICATIONS

4.1. Papers in Research Journals (National/ International)

Buragohain J, Singh VB, Deka BC, Jha AK and Angami, T (2017). Nutritional evaluation of some commonly consumed leafy vegetables of Meghalaya. *Green Farming*, Vol. 8 (1): 183-187.

Devi S, Singha AK, Bordoloi R, Jat PC, Singha JK and Devi M (2017). Analysis of Socio-personal Characteristics of Adopters of Resource Conservation Technologies (RCTs) Under Rice Cultivation in Manipur, *Journal of Human Ecology*, Vol. 60 (2, 3):79-85.

Kharbamon B, Jha AK, Verma VK, Choudhury BU, Nath A and Deka BC (2017). Response of planting time and phosphorus dosage on yield and nutrient uptake in Dolichos bean (Lablab purpureus L.). *Indian J. Hill Agriculture*, 30(1): 28-34.

Medhi S, Singha AK, Singh R, and Singh RJ (2017). Effectiveness of Training Programmes of Krishi Vigyan Kendra (KVK) towards Socio-economic Development of Farmers in Meghalaya, *Economic Affairs*, Vol. 62 (4): 677-682.

Patra MK, Hajra DK, Das RK, Sarkar P and Deka BC (2017). Effect of season on growth and reproduction performance of improved backyard poultry in North Eastern Hill Region. *Indian J. Animal Research*, DOI: 10.18805/ijar.v0iOF.9122.

Singh KS, Hazarika S, Thakuria D, Lahar, Bordoloi1 J and Deka BC (2017). Long-term Management Impact on Soil Quality under Peach (Prunus persica L.) Orchard in Humid Subtropics of Eastern Himalayas. *Indian Journal of Soil Science*, 65(4): 401-409.

Singha AK, Tripathi AK, Jat PC, Bordoloi R, Singha JK and Devi M (2015-16). Comparative Analysis of Socio-economic and Psychological Behaviour of Adopted and Non-Adopted Farmers in Scientific Rice (Oryza sativa L.) Cultivation Practices in North Eastern Region, *Journal of Agril. Sciences*, Vol. 6-7 (1-2):1-8.

Singha AK, Tripathi AK, Jat PC, Bordoloi R, and Singha JK (2017). Extent of adoption of improved fish farming practices by the farmers in North-eastern region of India, *Indian Journal of Fisheries*, 64(1): 101-105

Talang H, Deka BC, Vinika KA, Rymbaiand H and Rajkhowa DJ (2017). Performance of Guava (Psidium guajava L.) Genotypes at Lower Hills of Nagaland, *Indian Journal of Hill Farming*, 30 (2): 198-200.

4.2. Book/ Book Chapter

Deka, B.C., Singha, A.K., Bordoloi and Jat, P.C. (2017). Birding the Rainbow-a glimpses of Success Stories, published by ICAR-ATARI, Umiam, Meghalaya, April, 2017.

Deka, B.C., Singha, A.K., Parisa, D. and Suchiang, R. (2018). Genesis-Dynamics of farm innovation, published by ICAR-ATARI, Zone-VII, Umiam, Meghalaya, March, 2018.

Divya Parisa and Bidyut C. Deka. 2017. *Entadascandens*. In: Underutilized and underexploited horticultural crops Vol.VI. Publishers: New India Publishing Agency, New Delhi, India.

4.3. Technical bulletin

Deka, B.C. Divya Parisa, A.K. Singha and Ripaia Singhshai (2018). Initiatives and Interventions under CFLD on Pulses in North East India, published by ICAR-Agricultural Technology Application Research Institute, Zone-VII, Barapani, Meghalaya.

Deka, B.C., Islam, M.M., Singha, A.K. and Suchiang, R. (2018). Strategy Document on Doubling Farmers Income in Meghalaya by 2022, published by ICAR-ATARI, Umiam, Meghalaya, February, 2018.

Deka, B.C., Islam, M.M., Singha, A.K. and Suchiang, R. (2018). Strategy Document on Doubling Farmers Income in Meghalaya by 2022, published by ICAR-ATARI, Umiam, Meghalaya, February, 2018.

Deka, B. C. and Kumar Bagish (2017). Doubling Farmers income: Role of ICAR-ATARI, Umiam. Souvenir published by CPGS, CAU in connection with 77th Annual Conference of the Indian Society of Agricultural Economics at CPGS, CAU, Umiam during October 12-14, 2017.

Jat, P.C., Deka, B.C. Singha, A.K., Bordoloi, R., Kumar, B. Sarma, C.K. and Pasweth, A.M. (2017). Climate Resilient Agricultural Interventions in North East India, published by ICAR-ATARI, Umiam, Meghalaya.

4.4. Popular articles

Deka B. C., Divya Parisa and A.K. Singha **(**2018). Attracting and Retaining Youth in Agriculture (ARYA): A special Focus on North Eastern States of India. In: Souveneir of North Eastern Zone Regional Agri-Fair (RAF-2018). January 6-9, 2018.

Divya Parisa and Eswar 2018. Alternate crops for sugar production (in Telugu). Raithunestam. Vol. no.11 issue No. 4. January, 2018.

Divya Parisa and Eswar 2018. Microgreens: New generation leafy vegetables (in Telugu). Raithunestam. Vol. no.11 issue No. 4. January, 2018.

Divya Parisa, Eswar and Shilpavandadi. 2018. Aflatoxin management in groundnut (in Telugu). Raithunestam. Vol. no.13 issue No. 6. March 2018. P.No. 43.

Divya Parisa, Eswar and Shilpavandadi. 2018. Water hyacinth: An aquatic weed for income generation. (in Telugu). Raithunestam. Vol. no.13 issue No. 6. March 2018. P.No. 17.

Kumar, R. Patra, M.K., Deka, B.C and Upadhay P.K. (2017). An alternative source of feed for poultry farming in north east India. Indian Farming 67(07): 54-56.

4.4. Presentation in Conference/Symposia/ Seminar/ Others

Divya Parisa and. Deka B. C (2018). Grafting- A tool to manage biotic stress in vegetable crops. Presented in 8th National Seminar on "Potential, Prospects and Strategies for Doubling Farmers Income: Multi-stakeholder Convergence" organized by Society for community mobilization for sustainable development, New Delhi, at College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati during November 09-11 Nov, 2017.

Divya Parisa and Deka B.C (2018). Initiatives and interventions of ICAR-ATARI, Meghalaya for sustaining agriculture under climate change scenario in North East India. Presented in 8th National Seminar on "Potential, Prospects and Strategies for Doubling Farmers Income: Multi-stakeholder Convergence" organized by Society for community mobilization for sustainable development, New Delhi, at College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati during November 09-11 Nov, 2017.

Divya Parisa, A.K. Singh, B. C.Deka and A.K. Singha (2018). Marine legumes- A boon to combat hidden hunger and protein malnutrition. Presented in international conference on "Sustainability of smallholder Agriculture in developing countries under climate changing scenario" held during 14-17 February, 2018 at Kanpur, India.

Divya Parisa, A.K. Singh, B.C.Deka and A.K. Singha (2018). Champereiamanillana an Underexploited and Underutilized Vegetable Crop of Nutritional Importance. Presented in international conference on "Sustainability of smallholder Agriculture in developing countries under climate changing scenario" held during 14-17 February, 2018 at Kanpur, India.

4.5. Others

- Monthly Reports of KVKs, Zone-VII
- Quarterly Reports of KVKs under Zone-VII
- Quarterly Monitorable Target Reports of KVKs under Zone-VII
- Half yearly Reports of KVKs under Zone-VIII

- Monthly RFD report of ICAR-ATARI-VII
- Quarterly TSP report during 2017-18.
- Annual Reports of KVKs
- Annual Report of ICAR-ATARI, Zone-III, 2016-17 (both English and Hindi)
- Monthly Report on Citizen Client Charter
- Report of ICAR-ATARI, Zone-VII.
- Monthly Report on Skill Oriented Training programmes for Farmers and Rural Youth under Zone-VII.
- Report on Soil & Water Testing of KVKs under Zone-VII, Barapani
- Report on Tribal Sub-Plan (TSP) of KVKs under Zone-VII, Barapani.
- Compilation of information for DARE report of ICAR for the 2017-18.
- Proceedings of Annual Zonal Workshop of KVKs under Zone-III (Old), 2016-17.
- ATR of Regional Committee Meeting of ICAR-ATARI, Zone-VII.
- Reports of Site selection Committee (SSC) for establishment of KVKs in Meghalaya and Tripura.

5.0. PARTICIPATION IN MEETINGS/ WORKSHOPS

Participation in meetings/Workshop

Dr. Bidyut C. Deka, Director

- Visited KVK, Sonitpur and farmers field on 01.04.17 to review KVK activities
- Attended the inaugural programme of the training programme for SMSs (Horticulture) of AAU on Advance in Horticulture at KVK, Kamrup organised by AAU, Jorhat on 03.04.17
- Delivered a lecture on "Doubling farmers by 2022 through horticulture" on 03.04.17
- Attended the SLEC of MIDH at Assam secretariat at Dispur as member on 03.04.17.
- Attended the SAC meeting of KVK, Ri-Bhoi on 07.04.17.
- Attended the SMD meeting in connection with EFC 2017-20 in the Division, ICAR, New Delhi 10.04.17.
- Attended the SMD meeting in connection with the finalization of EFC 2017-20 at KAB I, New Delhi on 11.04.17
- Attended the ICAR Review meeting at NIAP, New Delhi chaired by Dr. T. Ramaswami, Former Secretary, DST on 11.04.17.
- Attended a meeting in the DG's chamber regarding organization of a seminar at Barapani in collaboration with DoNER ministry on 11.04.17.
- Attended the Coordination committee meeting for doubling farmers' income at Itanagar for the state of Arunachal Pradesh on 19.04.17.
- Visited KVK, Papumpare, Arunachal Pradesh on 19.04.17.
- Organised Annual Zonal Review Workshop of ATARI, Zone III held at Agartala from 21.04.17 to 24.04.17.
- Attended the Coordination committee meeting for doubling farmers' income at Agartala for the state of Tripura on April 22 at CAU, Agartala on 22.04.17.
- Attended the Coordination committee meeting for doubling farmers' income at Jharnapani for the state of Nagaland on 26.04.17.
- Visited KVK, Dimapur on 26.04.17.
- Attended the Interactive Workshop on Doubling Farmers' income by 2022 in Assam in which Honourable Union Minister of State for Agriculture and Farmers Welfare Mr. S.S. Ahluwalia inaugurated the workshop in presence of Mrs. Bijaya Chakraborty, MP, Guwahati, two local MLA, Ramendra N. Kalita and Bhabesh Kalita on 30.04.17.
- Attended meeting with the DG, DDG and other officers at Krishi Bhawan regarding functioning of new ATARI on 08.05.17.
- Meeting with Addl Chief Secretary and Chief Secretary and DDG (Crop Scince) in connection with Prime Minister's visit for foundation stone laying of IARI, Assam at Dhemaji on 09.05.17.
- Attended meeting convened by DDG (Crops) at NRC on Pig, Rani in connection with Prime Minister's visit for foundation stone laying of IARI, Assam at Dhemaji on 10.05.17.
- Attended the action plan meeting of NICRA (2017-20) at CRIDA, Hyderabad on 18.05.17.
- Visited KVK, North Lakhimpur and KVK, Dhemaji on 24.05.17.
- Attended the Foundation stone laying ceremony of IARI, Assam at Gogamukh, Dhemaji by honourable Prime Minister on 26.05.17.
- Visited KVK, Sonitpur with Secretary, DARE & DG, ICAR on 27.05.17.
- Visited KVK, Churachanpur, Manipur on 29.05.17.

- Attended the inauguration programme of Administrative building of KVK, Tamenglong , Manipur by the Secretary, DARE & DG, ICAR on 29.05.17.
- Attended the RCM at City Convention Centre at Imphal on 30.05.17.
- Attended the RCM at City Convention Centre at Imphal on 31.05.17.
- Attended the inaugural function of KVK Unakati, Tripura on 02.06.17.
- Visited KVK South Tripura and interacted with SMSs and farmers on 03.06.17.
- Attended the National workshop on empowering farmers in tribal areas at NASC Complex, New Delhi on 07& 08.06.17.
- Attended the Joint Review of IFAD supported grant portfolio in India organised by IFAD, India at Royal Plaza hotel, New Delhi on 13 & 14.06.17.
- Attended the National Seminar on Nutrition sensitive Agriculture at ICAR Complex, Umiam organised by Deendayal Research Institute, New Delhi in collaboration with ICAR Complex, ICAR-ATARI, Umaim and ICAR-ATARI, Guwahati on 23.06.17.
- Attended the National Seminar on Nutrition sensitive Agriculture at ICAR Complex, Umiam on 24.06.17.
- Attended the IFAD project formulation meeting at Directorate of Agriculture, Aizawl on 03.07.17.
- Visited KVK, Mamit, Mizoram on 04.07.17.
- Attended the meeting of the selection committee of Sr. Scientist & Head, KVK, Khowai at Agartala on 05.07.17.
- Attended the one day workshop on Technology developed by ICAR-IIHR at Bengaluru and visited KVK, Ramnagar, Karnataka on 07.07.17.
- Attended NICRA Zonal Review meeting at AAU, Khanapara, Guwahati campus on 10.07.17.
- Attended Foundation Day of ICAR at NASC Complex, New Delhi on 16.07.17.
- Attended Directors' conference at NASC Complex, New Delhi on 16.07.17.
- Interface meeting for doubling farmers income with the Heads of KVKs of Nagaland at ICAR Complex, Nagaland centre on 25.07.17.
- Signed MoU with CIH in presence of Dr. N.K. Mohan and Dr. D.J. Rajkhowa at CIH, Medziphema, Nagaland on 26.07.17.
- Attended Annual Zonal Review Workshop of Oilseeds and pulses at AAU, Jorhat on 09.08.17.
- Attended Annual Zonal Review Workshop of Oilseeds and pulses at AAU, Jorhat on 10.08.17.
- Zonal review meeting of ARYA and Farmers FIRST project at AAU, Jorhat on 11.08.17.
- Attended the Sankalp Se Siddhi programme organised by KVK, Ri-Bhoi to commemorate the platinum jubilee celebration of Quit India movement and beginning of New India movement on 19.08.17.
- Attended Interface meeting on doubling farmers income in Meghalaya at Directorate of Agriculture, Govt. of Meghalaya, Shillong on 22.08.17.
- Visited KVK, Thoubal and had interaction with all the staff and visited CFLD on black gram in farmer's field on 24.08.17.
- Attended the Sankalp Se Siddhi prgarmmage at KVK, Bishnupur on 25.08.17.
- Attended the Sankalp Se Siddhi prgarmmage at KVK, Udalguri as an expert speaker on 26.08.17.
- Attended the Sankalp Se Siddhi prgarmmage at KVK, Baksa as an expert speaker on 27.08.17.
- Attended the Foundation Day celebration of NRC on Pig Rani in presence of DG, ICAR and Secretary, DoNER, New Delhi on 04.09.17.

- Attended the EFC meeting of the Division of Agril Extension at Krishi Bhawan, New Delhi on 05.09.17.
- Attended the Foundation laying ceremony of KVK-Kiphere, Nagaland on 07.09.17.
- Visited KVK-Phek at Poorba, Nagaland with Dr. Chahal, ADG (AE) on 08.09.17.
- Chaired a session entitled "Biodiversity management and organic farming" in the national seminar "Natural Resource Management for climate smart sustainable Agriculture" organised by CAU, Imphal and Indian Society of Soil Conservation, New Delhi on 12.09.17.
- Attended the Workshop on doubling farmers income at Guwahati organised by ICAR-ATARI, Umiam on 18.09.17.
- Attended the National seminar on "Smart farming for enhancing input efficiency, income and environment security" organised by IAHF and ICAR Complex from 19.09.17 to 21.09.17.
- Visited Farmer FIRST project area of ICAR Complex at Nongpoh with Dr. V.P. Chahal, ADG (AE) on 24.09.17.
- Chaired the IMC of ICAR-ATARI, Umiam on 25.09.17.
- Attended One day workshop on doubling farmers income in Mizoram organised jointly by Directorate of Agriculture (R&E) and ICAR-ATARI on 06.10.17.
- Visited KVK, Nalbari with ADG (AE) in absence of Director, ICAR-ATARI, Guwahati on 09.10.17.
- Attended the meeting on doubling farmers income called by Secretary, DARE & DG, ICAR at Krishi Bhawan, New Delhi on 10.10.17.
- Attended the 77th Annual Conference of the Indian Society of Agricultural Economics at CPGS, CAU, Umiam on 13.10.17.
- Expert speaker in State Level Stakeholders' Consultation in Safer and sustainable food for all organised by CONSUMERS' LEGAL PROTECTION FORUM (CLPF) at Hotel Kalyaniz, Hengrabari Road, Dispur, Guwahati on 26.10.17.
- Attended the inaugural programme of skill training programme on IFS at KVK Nalbari on 31.10.17.
- Inaugurated the Workshop on Mission Organic Value Chain Development (MOVCD) programme at Dhantala, Nalbari organised by Deptt. of Agriculture, Govt. of Assam in collaboration with KVK, Nalbari on 31.10.17.
- Attended the meeting of State level Coordination Committee's Meet on strategies & Plan for doubling Farmers income by 2022 called by Secretary, DARE & DG, ICAR at NASC Complex, New Delhi on 03.11.17.
- Attended the Regional Agri-Fare organised by CAU at Agartala and address the gathering as Guest of honour on 05.11.17.
- Visited KVK, West Tripura and discussed various issues related to KVK with the JD, ICAR Complex, Tripura and Head, KVK on 06.11.17.
- Visited the Director, Deptt. of Agriculture, Govt. of Tripura and discussed various issues related to KVKs under state department including recruitment of staff on 06.11.17.
- Attended the inaugural programme of National seminar on "Potential, prospects and strategies for doubling farmers income: Multi-stakeholders convergence" organised by MBILIZATION in collaboration with AAU, Jorhat and ICAR-ATARI, Guwahati on 09.11.17.
- Attended the Workshop cum brainstorming session on Jhum improvement in Northeast India at Hotel Classic Grande, Imphal organised by ICAR Complex, Manipur centre on 15.11.17.
- Meeting with Heads of KVKs of Manipur at KVK, Imphal West and reviewed the progress of various activities of KVKs on 16.11.17.
- Attended the SMD meeting at KAB-I, Pusa, New Delhi under the chairmanship of the DDG (AE) on 17.11.17.

- Attended the roundtable on Sustainable management of Jhum in North Esat India organised by Govt. of Nagaland in collaboration with IFAD at Dimapur on 20.11.17.
- Attended the valedictory function of the two days workshop on "Effective use of Geospatial Technology in Agriculture in Allied sectors in North Eastern Region" at NESAC, Barapani as Guest of honour on 22.11.17.
- Review of the activities of NICRA under KVK, Ri-bhoi as a team member of Zonal Monitoring team on 23.11.17.
- Visited the farmer's field of KVK, Imphal East under NICRA with Zonal Monitoring team on 24.11.17.
- Visited KVK, Imphal East and interacted the staff with the team on 25.11.17.
- Visited the farmer's field of Farmer FIRST project under CAU, Imphal on 27.11.17.
- Attended the first meeting of the project entitled "District wise resource mapping on potential food based industries in all the districts of Assam" under TEDF (Techno Economic Development Fund) of NEDfi in its HQ at Guwahati on 29.11.17.
- Attended the workshop entitled "Sustainability of mountain Agricultural systems in far-eastern Himalayas: A disciplinary experts' consultative workshop" organised by NERCORMP and ICIMOD at Shillong club on 06.12.17.
- Inaugurated the training programme on PFMS and Administrative reforms organised by ATARI for KVKs under State Departments of NEH states on 07.12.17.
- Attended the "Brainstoring session on Agriculture" at Assam Administrative Staff College, Guwahati organised by State Innovation and Transformation Aayog (SITA) on 08.12.17.
- Attended the inaugural session of review meeting of KVKs under ICAR Complex as an expert speaker on 11.12.17.
- Attended the "Regional Workshop and Agro-Biodiversity Exhibition" organised by PPV&FRA at KVK, Kamrup, Kahikuchi, Guwahati on 14.12.17.
- Attended DPC of scientists in ICAR Complex, Umiam as an expert on 15.12.17.
- Attended the meeting at BIRAC, DBT, New Delhi on synthesis of a new project on Women Biotech hub for secondary agriculture and processing on 19.12.17.
- Attended the Workshop on Farmers' feedback on doubling farmers income by 2022 at NAARM, Hyderabad on 22.12.17.
- Attended the Workshop on Farmers' feedback on doubling farmers income by 2022 at NAARM, Hyderabad on 23.12.17.
- Attended the Research Council meeting of UBKV, Kochbihar as ICAR nominee on 27.12.17.
- Attended the training programme on high impact leadership at IIM, Indore on Jan 10-12, 2018.
- Attended one day workshop on ICAR-TCS collaborative project on digital farming at NASC Complex, New Delhi on 22.01.18.
- Attended one day workshop on finalizing transparent performance indicators for functioning of KVKs at NASC Complex, New Delhi organised by IFPRI (International Food Policy Research Institute) on 23.01.18.
- Attended the Selection Committee for SMS at AAU, Jorhat as an expert on 01.02.18.
- Attended SAC meeting of KVK, Imphal West on 02.02.18.
- Attended SAC meeting of KVK, Tamenglong and Ukhrul on 03.02.18.
- Attended one day Awareness programme on Food processing organised by NERAMAC at NEDFi, Guwahati as Chief Guest on 07.02.18.
- Attended the inaugural programme of International Conference on Cotton at ICAR Complex and delivered lecture entitled" Horticulture for ARYA: Northeast

Prospective" in Consultative Meeting organised by NEC & ICC at Pinewood Hotel, Shillong on 20.02.18.

- Attended Farmer FIRST review meeting at IARI, New Delhi on 22.02.18.
- Attended SAC meeting of KVK, West Garo Hills, Tura on 06.03.18.
- Attended Directors' conference at NASC, New Delhi on 08 & 09.03.18.
- Chaired Annual Zonal Action Plan workshop of ATARI, Umiam held at Imphal on 10 & 11.03.18
- Meeting with DDG (AE) in SMD at KAB-I on 15.03.18.
- Attended National KVK Conference at IARI ground on 16.03.18.
- Attended inaugural programme of Krishi Unnati Mela addressed by honourable Prime Minister, attended National KVK Conference at IARI ground and Valedictory function of KVK conference on 17.03.18.
- Attended Valedictory function of Krishi Unnati Mela on 18.03.18.

Dr. A.K Singha, Pr. Scientist (AE)

- Attended as External Expert to review the progress of Ms. Alethea Dympep, Ph.D. student, Dept. of Agril. Extension, CPGS, CAU, Barapani for upgradation of National Fellowship for Higher Education (NFHE) of ST student from JRF to SRF on 1-4-2017 at CPGS, Barapani.
- Attended as External Member of Comprehensive Viva Voce of M.Sc (Agri) students of CPGS, Barapani on 23th June, 2017.
- Attended as Chairman of Student's Advisory Committee for the thesis viva voce of Mr. Samir Medhi, M.Sc (Agri) student on 25th July, 2017 at CPGS as major adviser.
- Attended thesis viva voce of Mr. Samir Medhi and Ms. Ditolyn Sumi, MSc (Agri) students on 13th July, 2017 at CPGS, Barapani.
- Attended Synopsis seminar of Sri Biswajit Debnath, MSc (Agri) student at CPGS, Barapani on 19th September, 2017.
- Attended as External Examiner of Comprehensive Viva voce of MSc (Agri) students of CPGS, Barapani on 23th June, 2017.
- Attended as External Member of Comprehensive Viva voce of MSc (Agri) students of CPGS, Barapani on 23th June, 2017.
- Attended as member for orientation training programme on PFMS in KVK system for Accountants of KVKs in Manipur at KVK Bishnupur on 15th September, 2017.
- Coordinated PFMS training programme in the afternoon of 3-11-2017 at Directorate of Agriculture, Govt. of Mizoram.
- Acted as Course Director of Training programme on Administration and Financial Management in KVK System from 7-8 December, 2017 at KVK Ribhoi.
- Coordinated Orientation cum Hand-on training programme on Audit and financial management in KVKs for the state of Nagaland on 15-17 January, 2018 at ICAR-ATARI, Zone-VII, Barapani.
- Attended 3-day Training programme on PFMS, Finance & Accounts and Backlog clearance of accounting work for KVK staffs under State Govt. of Nagaland at ICAR-ATARI, Zone-VII (06 participants).
- Acted as coordinator for Training cum Awareness programme on PPV&FRA organised by KVK Ribhoi on 26th March, 2018.
- Acted as Resource person on topic- "Organic farming and its promotional strategies in North East" in Summer school at CPGS, Barapani on 18th August, 2017.
- Successfully coordinated in organisation of Annual Zonal Workshop of KVK, 2016-17 of KVKs under Zone-III (Old) at Pragna Bhawan, Agartala, Tripura during 21-23 April, 2017.

- Acted as Chairman and Co-chairman in different technical sessions of the workshop and critically assessed and reviewed the activities presented by individual KVK during the workshop.
- Attended as member of District Committee of ARYA project to review the progress of activities under the project being implemented by KVK North Sikkim on 6-4-2017.
- Attended as member of District Committee of ARYA project to review the progress of activities under the project being implemented by KVK North Sikkim on 11-4-2017 at Aizawl.
- Attended State Coordination Committee meet on Doubling Farmers' income of Mizoram state on 10-4-2017 at KVK Aizawl.
- Organised Sankalp Se Siddhi programme of ICAR-ATARI, Zone-VII, Barapani in collaboration with KVK Ribhoi on 30-8-2017 at ICAR RC for NEH Region, Umiam.
- Organised successfully Interface meet cum workshop of the KVKs in Manipur on doubling farmers' income by 2022 on 15-9-2017 at KVK Bishnupur, Manipur.
- Organised Interface meet cum workshop of the KVKs in Mizoram on doubling farmers' income by 2022 on 06-10-2017 at Dept. of Agriculture, Govt. of Mizoram.
- Organised Annual Zonal Action Plan Workshop of KVKs under Zone-VII on 10-11 March, 2018 at KVK Bishnupur, Manipur to formulate action plan for individual KVK for the year 2018-19.
- Attended National Conference of KVKs, 2018 cum Krishi Unnati Mela at IARI, New Delhi on 16-17 March, 2018.
- Attended workshop cum meeting for preparation of action plan for doubling farmers income by 2022 at ICAR Tripura Centre for all KVKs in Tripura on 31-8-2017.
- Attended Sankalp Se Siddhi programme of KVK Khowai on 29-8-2017 at KVK Khowai, Tripura.
- Visited the site of KVK West Tripura at Jirania on 30-8-2017 along with the Head of KVK.
- Attended Interface meet of KVKs in Manipur on doubling farmers income by 2022 at KVK Bishnupur on 15th September, 2017.
- Visited KVK Imphal East on 14th September, 2017 along with AF&AO to review KVK activities including financial management of the KVK as well as visited demonstration farms under CFLD at farmers field.
- Visited KVK Imphal West on 16th September, 2017 to review KVK activities including technical and financial management of the KVK.
- Visited different activities under ARYA of KVK Senapati on 16th September, 2017 at farmers field including fisheries, poultry, piggery etc.
- Attended interaction meet with the staff and host of KVK Senapati on 16th September, 2017 along with AF&AO to review the KVK activities and financial management.
- Visited KVK Bishnupur on 15th September, 2017 to different KVK demonstration units.
- Visited KVK Mamit on 1-11-2017 along with Sri Ashit Biswas, AF&AO to review KVK activities interaction with staff and visit to demonstration farm of KVK and adopted village.
- Attended general meeting with the host institute (Director of Agriculture and Under-Secretary, Agri. Govt. of Mizoram) on 2-11-2017 at Directorate of Agriculture, Govt. of Mizoram in the forenoon.
- Visited KVK Serchhip on 3-11-2017 in the morning to review KVK activities interaction with staff and visit to demonstration farm of KVK, Amla Processing unit and adopted village and distributed seeds to farmers.
- Attended PFMS training programme in the afternoon of 3-11-2017 at Directorate of Agriculture, Govt. of Mizoram.
- Attended Review meeting of Cluster FLD on Pulses, Creation of seed hubs for increasing

indigenous production of pulses in India and Enhancing Breeder Seed production for increasing indigenous production of pulses in India" held at IIPR, Kanpur on 7-11-2017.

- Attended ZMC meeting of NICRA of KVK Ribhoi on 23-11-2017 at KVK Ribhoi.
- Visited KVK West Khasi Hills on 30-11-2017 along with Director, ICAR-ATARI, Zone-VII to review the progress of KVK activities in KVK farm as well as 5 different locations of villages under the district where KVK activities are in progress.
- Attended Review meeting of KVKs under ICAR RC for NEH Region on 11-12-2017 at ICAR RC, Barapani.
- Visited KVK Mokokchung on 12-12-2017 along with Sri Ashit Biswas, AF&AO to review technical and financial management of KVK.
- Visited KVK Tuensang along with Sri Ashit Biswas, AF&AO to review technical and financial management of KVK on 13-12-2017.
- Visited KVK Zunheboto along with Sri Ashit Biswas, AF&AO to review technical and financial management of KVK on 14-12-2017.
- Visited KVK Wokha along with Sri Ashit Biswas, AF&AO to review technical and financial management of KVK on 14-12-2017.
- Visited KVK Kohima along with Sri Ashit Biswas, AF&AO to review technical and financial management of KVK on 14-12-2017.
- Attended interactive meeting with the Director of Agriculture, Govt. of Nagaland along with Sri Ashit Biswas, AF&AO to review technical and financial management of KVKs under the department on 15-12-2017.
- Attended SAC meeting of KVK Bishnupur on 9th January, 2018.
- Attended SAC meeting of KVK Thoubal on 10th January, 2018.
- Attended SAC meeting of KVK Senapati on 11th January, 2018.
- Visited KVK Bishnupur to review field activities of the KVK and interaction with the staff on 12th January, 2018.
- Attended Annual Zonal Action Plan Workshop of KVKs under Zone-VII on 10-11 March, 2018 at KVK Bishnupur.
- Attended National Review Workshop of Farmers FIRST on 21-22 March, 2018 at IARI, New Delhi.
- Attended National Conference of KVKs, 2018 cum Krishi Unnati Mela at IARI, New Delhi on 16-17 March, 2018.

Mrs. Divya Parisa, Scientist (Vegetable Science)

- Participated in 8th National Seminar on "Potential, Prospects and Strategies for Doubling Farmers Income: Multi-stakeholder Convergence" organized by Society for community mobilization for sustainable development, New Delhi, at College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati, 09-11 Nov, 2017.
- Participated in farm innovators meet held at ICAR-NOFRI, Gangtok, Sikkim during April 20-21, 2018.

Mr. Ashit Biswas, AF&AO

- Visited Dept. of Agriculture & Research, Govt. of Mizoram to impart training to KVK staff of Mizoram in r/o PFMS implementation in KVK system on 3-11-2017.
- Participated as resource person for training programme on PFMS in KVK system on 15-9-2017 at KVK Bishnupur for the staff of KVKs in Manipur.
- Organised a 3-day Training programme on PFMS for staffs of ICAR-NRC On Orchid, Sikkim at NRC for Orchid from 13.11.2017 to 15.11.2017.
- Participated as resource person during 2-days Training programme on PFMS at CRIJAF for staffs of CIFRI & CRIJAF together from 20.10.2017 to 21.10.2017.

- Visited KVK Mokokchung on 12-12-2017 along with Dr. A.K. Singha, Pr. Scientist to review technical and financial management of KVK.
- Visited KVK Tuensang along with along with Dr. A.K. Singha, Pr. Scientist to review technical and financial management of KVK on 13-12-2017.
- Visited KVK Zunheboto along with along with Dr. A.K. Singha, Pr. Scientist to review technical and financial management of KVK on 14-12-2017.
- Visited KVK Wokha along with along with Dr. A.K. Singha, Pr. Scientist to review technical and financial management of KVK on 14-12-2017.
- Visited KVK Kohima along with along with Dr. A.K. Singha, Pr. Scientist to review technical and financial management of KVK on 14-12-2017.
- Attended interactive meeting with the Director of Agriculture, Govt. of Nagaland along with Dr. A.K. Singha, Pr. Scientist to review technical and financial management of KVKs under the department on 15-12-2017.

Mr. Johannes Wahlang, ACTO

- Attended the training programme on ICAR-ERP at ICAR-IASRI, Pusa, New Delhi during 17th -22nd July, 2017.
- Attended the Zonal Committee Meeting of ARYA Project and the ZPMC Meeting under Farmers First Project at AAU, Jorhat on 11.08.2017.

6.0. WORKSHOPS/ TRAINING AND CAPACITY BUILDING PROGRAMMES

The Director and the Scientists as well as other staff of the ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII, Umiam made a number of monitoring and review visits to the KVKs of different states during 2017-18. Different officials from the ICAR HQs, Agricultural Universities, Research Institutes and other developmental agencies also made visits to the KVKs to review and monitor the ongoing mandated activities of KVKs in the zone. The Agricultural Technology Application Research Institute (ATARI), Umiam during 2017-18 organized 12 HRD programmes for KVK staff, Rural Youth and Agri-preneurs of the zone in collaboration with KVKs and other institutions/organizations like AAU, Khanapara, Guwahati, AAU, Jorhat, Assam, IARI, New Delhi, ICAR Research Complex for NEH Region, Umiam, Dept. of Agriculture, Govt. of Meghalaya, Manipur, Nagaland, Mizoram, Tripura etc. (Table-53). The HRD programs had been conducted by the institute in different thematic areas like organic farming, livestock production & management, fisheries & aquaculture management, climate resilient agriculture, home science, group dynamics etc. Besides extension and research prioritization, review of progress of KVK activities and action plan formulation programs were also organized by this institute during the year.

2-day HRD programme on PFMS implementation in KVK system

Training cum orientation programme on administrative and financial affairs for the KVK staff of Mizoram

Table-50: Meetings/Workshops/ HRD programmes conducted during 2017-18

Sl. No.	Title/ Topic of the programme	Date	Venue
1	Zonal Review Workshop of NICRA KVKs	10-11 July, 2017	College of Veterinary Science, Khanapara
2	Annual Zonal Review workshop of CFLD on Oilseeds and Pulses under NMOOP and NFSM 2017-18	9-10 August, 2017	AAU, Jorhat
3	Zonal Committee (ZC) meeting of ARYA project of KKVKs in North East 2017-18	11 August 2017	AAU, Jorhat
4	Zonal Programme Management Committee (ZPMC) for Farmer FIRST project	11 August 2017	AAU, Jorhat
5	77th Annual Conference of the Indian Society of Agricultural Economics, October, 12-14, 2017	12-14 October, 2017	CPGS, CAU, Barapani
6	One-day Practical Orientation Programme on Implementation of PFMS in KVK System	3 November, 2017	Directorate of Agriculture, Govt. of Mizoram
7	Zonal Management Committee (ZMC) Meet of NICRA of KVK Ribhoi	23 November 2017	KVK Ribhoi, Meghalaya
8	Training Programme on PFMS and Administrative Matter for the Heads of KVKs and Administrative Staff of KVKs/ATARI	07-08 December 2017	ATARI, Barapani
9	Hand-on training programme on Audit and financial management in KVKs.	15-17 January, 2018	ICAR-ATARI, Zone-VII, Barapani
10	Annual Zonal Action Plan Workshop of KVKs under Zone-VII	10-11 March, 2018	KVK Bishnupur
11	National Conference of KVKs, 2018 cum Krishi Unnati Mela on 16-17 March, 2018	16-17 March, 2018	IARI, New Delhi
12	National Review Workshop of Farmers FIRST	21-22 March, 2018	IARI, New Delhi

7.0. PROMOTIONS/ TRANSFERS

APPOINTMENT

1. Mrs. Divya Parisa joined as Scientist (Vegetable Science), in ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-VII w.e.f. 16th August, 2017.

TRANSFER

1. Dr. P.C. Jat, Senior Scientist (Agronomy) transferred to ICAR-Indian Institute of Farming System Research, Modipuram, Meerut (U.P.) w.e.f. 30th June, 2017.

8.0. PERSONNEL

I. Scientific

Dr. Bidyut C. Deka	Director
Dr. A. K. Singha	Principal Scientist (Agricultural Extension)
Dr. R. Bordoloi	Principal Scientist (Agricultural Extension): Attached to ICAR-ATARI, Zone-VI, Guwahati
Shri. A. K. Bhalerao	Scientist (Agricultural Extension): On study leave
Mrs. Divya Parisa	Scientist (Vegetable Science)

II. Technical

Shri. J. Wahlang	Asst. Chief Technical Officer (ACTO)
Shri. K. K. Dutta	Driver (T-4)

III. Administration

Mrs. A. Nongrum	PS to Director
Mrs. B. Syiem	Junior Stenographer

IV. Finance

Shri Ashit Biswas	Asst. Finance & Accounts Officer (AF&AO)
Mrs. A. Pyrtuh	Upper Division Clerk

V. Supporting

Mrs. J. Lakhiat	Skilled Supporting Staff
Mrs. K. Kalita	Skilled Supporting Staff

भाकृअनुप
ICAR

हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch