वार्षिक प्रतिवेदन
ANNUAL REPORT
2018-19

भा कृ अनु प-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, अंचल-७
उमियम, मेघालय-793103

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

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PREFACE

Greetings from Team ICAR-ATARI, Umiam!

The ICAR- Agricultural Technology Application Research Institute (ATARI), 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 2018-19, the institute has been successful in implementing five externally funded projects like NICRA, ARYA, Farmers FIRST Programme, CFLD oilseeds and Pulses and seed hub (Pulses) and various special programmes like NARI, KSHAMTA, STRY (Skill Training for Rural Youth) sponsored by MANAGE, Hyderabad. Besides, flagship programmes like Mera Gaon Mera Gaurav (MGMG), Krishi Kalyan Abhiyan I and II, Awareness programme on PM Kisan Sanman Nidhi, Swachhta Hi Sewa etc. were also successfully implemented.

Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-VII published 4 (Four) research articles in prestigious national and international research journals having NAAS rating of more than 6.00 during 2018-19. The institute also brought out few other publications like Doubling Farmers Income in Meghalaya by 2022 (Strategy Document), Genesis-Dynamics of Farm Innovations (Resource Document), Action Plan of KVKs-2018-19 (Strategy Document), Farmers FIRST programme (FFP)-Technical guidelines and its implementation in Meghalaya and Manipur (Technical Bulletin on project guidelines), Attracting and retaining youth in agriculture (ARYA)-Project guidelines and its implementation in Manipur, Nagaland and Mizoram (Technical Bulletin on project guidelines), Technologies for doubling farmers income in NEH region (Technical Bulletin), Technologies for Enhancing Productivity of Pulse and Oilseed Crops in NEH Region (Training Manual) etc.

Mrs. Divya Parisa, Scientist of this Institute bagged prestigious Netaji Subhas ICAR international fellowship (2018-19) for pursuing her Ph.D in Germany. The KVKs under ICAR-ATARI, Umiam received a number of awards and recognitions during 2018-19 for their outstanding achievements in different areas of agricultural development. Among those, the most significant were Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar 2018-19 (Zonal) to KVK, Khowai, Tripura and DD National awards were bagged by women farmers of Manipur. One of the significant achievements during the year is successful completion of the construction of administrative building of ICAR-ATARI. The institute is giving major emphasis on digitalization and e-office as part of which PFMS is successfully implemented and online submission of performance report is made compulsory for the KVKs. 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 2018-19.

Through this document an attempt has been made to highlight the significant achievements of the institute and the KVKs during 2018-19. 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, 2019

(Bidyut C. Deka)
Director

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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 12 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 2018-19, the ICAR-Agricultural Technology Application Research Institute, ZoneVII, Umiam through its selected KVKs, research institute and agricultural university has been implementing 5 externally funded projects namely; National Innovations on Climate Resilient Agriculture (NICRA) for technology demonstration in farmers' fields through 14 selected KVKs, Attracting and Retaining Youth in Agriculture (ARYA) through 6 selected KVKs, Farmer FIRST Projects (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 and Skill Training of Rural Youth (STRY) on 111 different job roles by 37 KVKs with financial assistance of Rs. 46.63 lakh by MANAGE, Hyderabad. Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-VII during 2018-19, pubslished 4 (four) research articles in prestigious national and international research journals. The institute was also successful in implementing special programmes like NARI and NFDB. Flagship programmes like MGMG, Krishi Klayan Abhiyan I and II have been implemented during the period.

The institute was also successful in publication of Strategy Document on Doubling Farmers Income in Meghalaya by 2022 (Strategy Document), Genesis-Dynamics of Farm Innovations (Resource Document), Climate proofing technologies for climate resilient agriculture in Eastern Himalayan Region (Souvenir chapter), and Action Plan of KVKs, 2019-20 (Strategy Document), Impact of Technologies on Pulses Production in North Eastern Region (Technical Bulletin), Impact of Technologies on Oilseeds Production in North Eastern Region (Technical Bulletin), Farmers FIRST programme (FFP)-Technical guidelines and its implementation in Meghalaya and Manipur (Technical Bulletin), Attracting and retaining youth in agriculture (ARYA)-Project guidelines and its implementation in Manipur, Nagaland and Mizoram (Technical Bulletin), Technologies for doubling farmers income in NEH region (Technical Bulletin), Technologies for Enhancing Productivity of Pulse and Oilseed Crops in NEH Region (Training Manual).

With 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 321technologies with 1403 nos. of trials benefitting a total of 2568 farmers and refined 8 technologies with 25nos. of trials under different thematic areas of crop enterprises during the period. Besides, the KVKs also made assessment of 79 technologies with 476 numbers of trials and refined 1technology with 04 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 4849 frontline demonstrations in 1500.28ha 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 (1240), pulses (1023), other crops (2586), livestock enterprises (1334), and other enterprises (679).

During 2018-19 ICAR-ATARI organized 12 HRD programmes for Heads of KVKs, newly recruited SMS and skilled supporting staff (SSS) of KVKs under Zone VII. 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. Special programmes like Innovators Meet for NE Region were organized during April, 2018 at NOFRI, Gangtok, Sikkim. Workshop on Fostering Climate Resilient Upland Farming Systems in the Northeast (FOCUS) was also organized by ICAR-ATARI Barapani. Annual and Mid-term Zonal review workshops were organized to review the project activities of CFLD Pulses and Oilseeds as well as NICRA Projects.

During the year 2018-19 different training programmes for the extension personnel in the zone were organized by KVKs to upgrade their knowledge and skills in the frontier areas of agricultural technology development. A total of 178 courses benefiting 4306 in-service extension personnel had been arranged in the region during the period. A total of 22 courses benefitting 457 extension personnel were conducted in different areas of horticulture, while 66 courses benefitting 1797 extension personnel were organized in crop production by the KVKs during the year. In plant protection, 13 courses were arranged for 245 extension personnel. The other important thrust areas covered were soil health and fertility management/ INM (10 courses, 178 participants), livestock production and management (38 courses, 974 participants), home science/women empowerment (04 courses, 60 participants), capacity building and group dynamics (13 Courses, 251participants), fisheries (3 Course, 69 participants) etc.

In addition, 234 courses of sponsored training programmes were also conducted by the KVKs under the zone for 12371 participants as well as 103 nos. of vocational training courses benefitting a total of 2163 participants on different areas of income generating activities/ enterprises. With regard to effort to women empowerment, as many as 39838 women representing 47.01 percent of the total beneficiaries (84743) were imparted skill oriented trainings in different areas of crop and livestock enterprises/ farming by the KVKs under the zone.KVKs in the region alsoorganised a total of 28713 number of extension activities under close supervision and guidance of this institute for the benefit of 212025 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 1690.44 tonnes of quality seeds of cereals, pulses, oil seeds, vegetables *etc.*,18.92 lakh of planting materials of fruits, vegetables, forest species, plantation, ornamental crops *etc.*, 930.59 q of bio-products and 8.51 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 (2018-19) 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 29 visits by its Director of Extension Education (DEEs) 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 07HRD Programmes for knowledge empowerment and

technology backstopping to the KVKs with total 185 KVK participants/ staff. As many as 19 publications including extension bulletins (2), technical bulletins (2), leaflets (2) and farm magazine (8), kisan dairy (02), calendar (03) were brought out by the Directorate during the period.

During the period under report, the KVKs analyzed a total of 12559 samples comprising of soil samples (11811), water samples (206) and plant samples (542) to ascertain strength and weaknesses of the soil, water and plants and suggested fertilizers recommendations. In the process, a total of 494 villages had been covered and as many as 17304 farmers were benefitted. During the period, as many as 17072 numbers of Soil Health Cards (SHCs) were distributed to 19370 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 40 KVKs involved in the programme by adopting 10295 no. of villages. The notable activities under the programme included 9359 nos. of field demonstrations on various agriculture and allied technologies as well as 6529 nos. of training programmes for farmers and farmwomen.

During 2018-19, 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 by sending as many as 23614 nos. of messages which benefitted 166234 no. of farmers in remote districts of the zone.

कार्यकारी सारांश

भा. कृ. अनु. प। कृषि प्रौध्योगिकी अनुप्रयोग अनुसंधान संस्थान (अटारी) अंचल-7, अपने अधिकार क्षेत्र के 43 कृ. वि.के जो पाँच राज्यों यानी मणिपुर, मेघालय, मिजोरम, नागालैंड और त्रिपुरा में फैले हुये है, कृ. वि.के द्वारा क्षेत्र के हितधारकों एवं किसनों की आकांक्षावों को पूरा करने मे प्रयासरत है। केंद्रीय कृषि विश्वविध्यालय, इम्फाल के कृषि विस्तार निर्देशलय और 11 अन्य मेजबान संघटन की सहायता से संस्थान हितधारकों की फसल एवं दूसरी पशुधन उध्यम जैसी विभिन्न जरूरतों जैसे प्रौध्योगिकी एवं कार्य प्रणाली मदद, जानकारी सहायता कौशल उत्रायन, उध्यमिता विकास इत्यादि द्वारा क्षेत्र को सक्षम कर रहा है।

2018-19 के दौरान भा कृ अनु प- कृषि प्रौध्योगिकी अनुप्रयोग अनुसंधान संस्थान (अटारी) अंचल-7, उमियम ने कृषि प्रौध्योगिकों को अपनाने केलिए पूर्वोत्तर क्षेत्र के किसानों की सूचना की आवश्यकता पर संस्थान शोद परियोजना पूरी की थी और इसकी रिपोर्ट आरपीयफ -3 के रूप मे पहले ही जमा हो चुकी है। संस्थान अपने चयनित कृ. वि.के अनुसंधान संस्थान और कृषि विश्वविध्यालय के माध्यम से भी पाँच बाहरी रूप से वित्त पोषित परियोजनाओं को कार्यान्वित कर रहा है। 14 चयनित कृ. वि.के के माध्यम से किसानों के खेतों पर प्रोध्योगिकी प्रदर्शन के लिए कृषि में जलवायु पुनर्विक्रेता पर राष्ट्रीय नवाचार (एन आइसी आर ए), 6 चयनित कृ. वि.के के माध्यम से कृषि में युवायों का आकर्षित करना और बनाके रखना (आर्या) भा कृ अनु पकी उत्तर पूर्व पर्वतीय अनुसंधान संस्थान, उमियम एवं केंद्रीय कृषि विश्वविध्यालय, इम्फाल के माध्यम से किसान प्रथम परियोजनावों (एफ एफपि) और 23 कृ वि के के माध्यम से किसान एनएमओओपी / एन एफ एस एम के तहत

तिलहन और दलहन पर सामोहिक प्रदर्शन और कौशल विकास और उध्यमिता मंत्रालय, भारत सरकार के तहत 21 कृ वि के माध्यम से कौशल विकास प्रसिखन कार्यक्रम।

2018-19 के दौरान भा कृ अनु प। कृषि प्रौध्योगिकी अनुप्रयोग अनुसंधान संस्थान (अटारी) अंचल-7, उमियम के वैज्ञानिकों ने प्रतिष्ठित राष्ट्रीय और अंतर राष्ट्रीय शोध पत्रिकाओं में 4 शोध लेख प्रकाशित किए और फार्म नवाचारों की उत्पत्ति-गतिशीलता (संसाधन दस्तावेज़), पूर्वी हिमालयी क्षेत्र में जलवायु के अनुकूल कृषि के लिए जलवायु प्रमाण तकनीकें (स्मारिका अध्याय) कृ.वि.के की कार्य योजना, 2019-20 (रणनीति दस्तावेज), उत्तर पूर्वी क्षेत्र में दलहन उत्पादन पर प्रौद्योगिकी का प्रभाव (तकनीकी बुलेटिन), पूर्वोत्तर क्षेत्र में तिलहन उत्पादन पर प्रौद्योगिकी का प्रभाव (तकनीकी बुलेटिन), किसानों का पहला कार्यक्रम (एफएफपी) तकनीकी दिशानिर्देश और मेघालय और मणिपुर में इसका कार्यान्वयन (तकनीकी बुलेटिन), कृषि में युवाओं को आकर्षित करना और उन्हें बनाए रखना (ए आर वाय ए) -प्रदेश दिशा निर्देशों और मणिपुर, नागालैंड और मिजोरम में इसके कार्यान्वयन (तकनीकी बुलेटिन), एनईएच क्षेत्र में किसानों की आय को दोगुना करने के लिए प्रौद्योगिकी (तकनीकी बुलेटिन)। एनईएच क्षेत्र में दलहन और तिलहन फसलें का उत्पादकता बढ़ाने के लिए प्रौद्योगिकियां(प्रशिक्षण मैनुअल) प्रकाशित किया गया है।

आई सी ए आर-कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान (अटारी), अंचल-7 उमियम द्वारा निकट तकनीकी सहयोग और मार्गदर्शन के साथ, इस क्षेत्र के कृ वि के ने क्षेत्र स्तर मूल्यांकन द्वारा 321 प्रोध्योगिको का 1403 परीक्षण के साथ विभिन्न ऑन-फार्म परीक्षण (ओएफटी) का आयोजन किया जिस से कुल 2568 किसानों का लाभान्वित किया गया और इस अवधि के धौरान फसल उध्यमों के विभिन्न विषयगत क्षेत्रों की तहत 79 प्रोध्योगिको का मूल्यांकन किया जिसमें 476 परीक्षण किया गया और 04 परीक्षण के साथ एक प्रोध्योगिका का परिष्कृत किया गया ।व्यवस्थित समन्वय और निगरानी तंत्र से आई सी ए आर अटारी, अंचल-7 कृविके को 1500.28 हैकटैर क्षेत्र में 4849 फ्रंटलाइन प्रदर्शनों को

सफलतापूर्वक संचालित करने में मदद की, इनमें तिलहन (1240), दल्हन (1023), अन्य फसलों (2586), पशुधन उद्यमों (1334), और अन्य उद्यमों (679) में फ्रंटलाइन प्रदर्शन शामिल थे।

2018-19 में अटारी, अंचल-7 उमियम ने नए भर्ती किए गए एस एम एस और कृ वि के के कुशल सहायक कर्मचारी (एस एस एस) को 12 एचआरडी कार्यक्रम आयोजित किए गए है। विस्तार और अनुसंधान प्राथमिकता के अलावा, कृ वि के की गतिविधियों की प्रगति की समीक्षा और कार्य योजना कार्यक्रम भी आयोजित किए गए है। इनोवेटर्स मीट जैसे विशेष कार्यक्रम अप्रैल, 2018 को एन ओ एफ आरआई, गंगटोक, सिक्किम में आयोजित किए गए है। अटारी बारापानी द्वारा पूर्वोत्तर में फ़ॉस्टरिंग क्लाइमेट रेजिलिएंट अपलैंड खेती प्रणालियों पर कार्यशाला (फोकस) का भी आयोजन किया गया है। सी एफ एल डी दलहन और तिलहन के साथ-साथ निकरा प्रोजेक्ट्स की परियोजना गतिविधियों की समीक्षा के लिए वार्षिक और मध्य-कालिक जोनल समीक्षा कार्यक्रम आयोजित की गईं है।

वर्ष 2018-19 के दौरान कृषि प्रौद्योगिकी विकास में अपने ज्ञान और कौशल को उन्नत करने के लिए क्षेत्र में विस्तार कर्मियों के लिए विभिन्न प्रशिक्षण कार्यक्रम आयोजित किए गए है । इस अवधि में क्षेत्र में 4306 इन-सर्विस विस्तार कर्मियों को लाभान्वित करने वाले कुल 178 पाठ्यक्रमों की व्यवस्था की गई थी। 457 विस्तार कर्मियों को लाभान्वित करने वाले कुल 22 पाठ्यक्रम बागवानी के विभिन्न क्षेत्रों में आयोजित किए गए है, जबकि 1797 विस्तार कर्मियों को लाभान्वित करने वाले 66 पाठ्यक्रमों को कृ वि के द्वारा फसल उत्पादन में आयोजित किया गया था। संयंत्र संरक्षण में, 245 विस्तार कर्मियों के लिए 13 पाठ्यक्रमों की व्यवस्था की गई थी। अन्य महत्वपूर्ण जोर क्षेत्र जैसे मृदा स्वास्थ्य और प्रजनन प्रबंधन / आई एन एम (10 पाठ्यक्रम, 178 प्रतिभागी), पशुधन उत्पादन और प्रबंधन (38 पाठ्यक्रम, 974 प्रतिभागी), गृह विज्ञान / महिला सशक्तीकरण (04 पाठ्यक्रम, 60 प्रतिभागी), क्षमता निर्माण और समूह की गतिशीलता (13 पाठ्यक्रम, 251 समकक्ष), मत्स्य पालन (3 पाठ्यक्रम, 69 प्रतिभागी)आदि आयोजित किए गए है ।

इसके अलावा, कृ वि के के द्वारा 234 प्रायोजित प्रशिक्षण कार्यक्रमों के पाठ्यक्रम आयोजित किए गए थे जिन में 12371 प्रतिभागियों लभान्वित हुए है। 103 व्यावसायिक प्रशिक्षण पाठ्यक्रम उद्यमों के विभिन्न क्षेत्रों पर कुल 2163 समकक्षों को लाभ पहुंचाया हैं। महिला सशक्तीकरण के प्रयासों के संबंध में, कृ वि के के द्वारा फसल और पशुधन उद्यमों / खेती के विभिन्न क्षेत्रों में 39838 महिलाओं प्रशिक्षण प्रदान किए गए जो की कुल लाभार्थ (84743) का 47.01 प्रतिशत रहा । संस्थान की नज़दीकी पर्यवेक्षण और मार्गदर्शन के तहत कृषि प्रौद्योगिकियों और उनकी भूमिका के बारे में जागरूकता के लिए 28713 कार्यक्रम आयोजित किए गए है जिससे 212025 किसानों, कृषि महिलाओं, कृषि प्रधानों, विस्तार कर्मियों और ग्रामीण युवाओं लभान्वित हुए है।

इस अवधि के दौरान, जोन-VII के तहत केवीके ने उच्च गुणवत्ता वाले बीज, रोपण सामग्री और जैव-उत्पाद तैयार किए, जिसमें 1690.44 टन गुणवत्ता वाले अनाज, दालें, तेल के बीज, सब्जियां आदि शामिल थे, जिनमें 18.92 लाख पौधे, फल, सब्जियाँ, वन प्रजातियाँ , वृक्षारोपण, सजावटी फसलों 930.59 क्विंटल जैव उत्पादों और 8.51 लाख पशुधन और अंगुलियों आदि शामिल थीं। ।

नियमित गतिविधि के भाग के रूप में, संस्थान ने नियमित निगरानी तंत्र के माध्यम से क्षेत्र के अंतर्गत विस्तार शिक्षा निदेशालय (डि ई ई) और कृषि प्रौद्योगिकी सूचना केंद्रों (ए टिआई सी) के सुदृढ़ीकरण के गंभीर प्रयास किए। इस वर्ष, केंद्रीय कृषि विश्वविद्यालय, इंफाल ने अपने अधिकार क्षेत्र के विस्तार शिक्षा निदेशक (डि ई ई) और कृ वि के में अन्य वैज्ञानिकों द्वारा कुल 29 दौरे किए है। निदेशालय ने कृ वि के की गतिविधियों की देखरेख के लिए 5 समीक्षा बैठकों आयोजित किए है और केवीके कर्मचारियों को ज्ञान सशक्तिकरण और प्रौद्योगिकी अनुभव के लिए 07 (एच आर डी) कार्यक्रमों का आयोजन किया गया है जिन मे 185 प्रतिभागियों शामिल थे 2018-19 में विस्तार बुलेटिन (2), तकनीकी बुलेटिन (2), पत्रक (2) और फार्म पत्रिका (8), किसान डेयरी (02), कैलेंडर (03) सहित 19 प्रकाशनों निदेशालय द्वारा लाया गया था।

कृ वि के ने 2018–19 में मिट्टी, पानी और पौधों की शक्ति और कमजोरियों का पता लगाने और उर्वरकों की सिफारिशों का पता लगाने के लिए मिट्टी के नमूनों (11811), पानी के नमूनों (206) और पौधों के नमूनों (542) सहित कुल 12559 नमूनों का विश्लेषण किया है । इस प्रक्रिया में कुल 494 गाँवों को शामिल किया गया था और 17304 किसान लाभान्वित हुए थे। इस अवधि के दौरान, 19370 किसानों को 17072 संख्या में मृदा स्वस्थ्य कार्ड (एस एच सी) वितरित किए गए है ।

आईसीएआर–अटारी, जोन–VII किसानों के साथ वैज्ञानिकों के सीधे इंटरफेस को बढ़ावा देने के लिए कृ वि के की मदद से एक अभिनव पहल 'मेरा गाँव मेरा गौरव (एमजीएमजी)' लागू कर रहा है। इस योजना का मुख्य उद्देश्य गांवों को गोद लेकर किसानों को नियमित रूप से आवश्यक जानकारी, ज्ञान और सलाह प्रदान करना है। इस अवधि के दौरान, कुल 40 कृ वि के ने 10295 गाँवों को अपनाकर कार्यक्रम में शामिल हुए। कार्यक्रम के तहत उल्लेखनीय गतिविधियों में विभिन्न कृषि और संभन्ध प्रौद्योगिकियों 9359 क्षेत्र प्रदर्शन के साथ–साथ किसानों के लिए 6529 प्रशिक्षण कार्यक्रम आयोजन किया गया है।

कृ वि के ने 2018–19 में किसान मोबाइल सलाहकार के दौरान पर 23614 संदेशों को भेजकर कृषि और संबद्ध गतिविधियों से संबंधित विभिन्न समस्याओं की जानकारी, सलाह, समाधान और सुझाव प्रदान करके प्रौद्योगिकियों के हस्तांतरण के संबंध में सेवाएं प्रदान कीं है। जिससे 166234 सुदूर जिलों के किसान का लाभ हुआ है।

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. 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. 55 crores. 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. Presently the zone has 43 KVKs under 12 different host institutes.

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 2018-19, the ICAR-Agricultural Technology Application Research Institute, Zone-VII, Umiam 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 **6** selected KVKs, ***Farmer FIRST Projects (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 and Skill Training of Rural Youth (STRY) on **111** different job roles by **37** KVKs with financial assistance of **Rs. 46.63 lakh** by MANAGE, Hyderabad. Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-VII during 2018-19, **4 (four)** research articles in prestigious national and international research journals.

The institute was also successful in publication of Strategy Document on Doubling Farmers Income in Meghalaya by 2022 **(Strategy Document),** Genesis-Dynamics of Farm Innovations **(Resource Document),** Climate proofing technologies for

climate resilient agriculture in Eastern Himalayan Region ***(*Souvenir chapter*)*,** and Action Plan of KVKs, 2018-19 **(Strategy Document),** Impact of Technologies on Pulses Production in North Eastern Region **(Technical Bulletin**), Impact of Technologies on Oilseeds Production in North Eastern Region **(Technical Bulletin**), Farmers FIRST programme (FFP)-Technical guidelines and its implementation in Meghalaya and Manipur **(Technical Bulletin),** Attracting and retaining youth in agriculture (ARYA)-Project guidelines and its implementation in Manipur, Nagaland and Mizoram **(Technical Bulletin),** Technologies for doubling farmers income in NEH region **(Technical Bulletin**), Technologies for Enhancing Productivity of Pulse and Oilseed Crops in NEH Region **(Training Manual*).*** A total of 111 Skill Trainings of Rural Youth (STRY) with financial assistance by MANAGE, Hyderabad were conducted by 37 KVKs under Zone-VII during the period.

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, 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.,* covering an area of 517.82 ha benefitted 1286 number of farmers. With respect to crop production module a variety of interventions were carried out to increase the income of farmer in changing climate scenario that included promotion of 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 *etc*. In the NICRA villages Custom Hiring Centers played crucial role to facilitate timely planting of crops and some other interventions to enhance climate resilience were Location specific intercropping systems with sustainable yield index, Crop diversification, Protected cultivation, Zero tillage Practices, Soil health management, Integrated crop management, Pest and disease management, Apiary, Mushroom cultivation, Integrated farming system *etc*. These demonstrations covered an area of 255.58 ha and benefitted 910 numbers of farmers with 62 numbers of units demonstrated. The NICRA interventions for livestock and fisheries sector included introduction of new fodder and feed for animals, preventive vaccination against water borne diseases, construction of improved shelters such as deep litter housing in both piggery and poultry and Machang type housing (local intervention) in poultry in areas with excess heat, introduction and popularization of improved animal breeds such as Hampshire cross and Gurungroo cross in piggery, Srinidhi, Vanaraja in poultry, Soviet Chinchilla & New Zealand White in rabbitry, Khaki Campbell in ducks as well as popularization of composite fish culture through rearing of Indian Major Carps and other fish species. Other interventions practiced were popularization of crop cum animal based, livestock cum fishery based and crop cum fishery cum livestock based Integrated Farming Systems in the adopted villages. Overall, 504 farmers have been benefitted during last year's intervention. Number of units constructed and established was 48 in all with 6.62 ha of area covered. Over 1773 animals and 51500 fingerlings were distributed to the farmers and 676 animals were treated against diseases.

Moreover under the NICRA project various interventions were implemented that included popularization of seed banks, fodder banks, Custom Hiring Centers, climate literacy through village weather stations amongst establishments and collective marketing, community nurseries during unfavourable climatic conditions and others which benefitted 1830 farmers, by covering 341.18 ha area wherein 35 units were established. In addition, under the NICRA project 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 129 courses were conducted by the KVKs under Zone-VII which benefited a total of 3168 number of male and female farmers as well as rural youths. Besides above, extension activities like Exposure visit of farmers, Strengthening SHGs and *Kisan* clubs, Integrated Farming System, Field days, Method demonstrations, and Awareness programmes which covered 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 in the NICRA villages and likely the adjoining villages as well. A total number of 4934 farmers were benefitted from 521 number of such activities conducted during 2018-19.

In order to involve the farmers for research problem identification, prioritization and to conduct of experiments in farmers' field utilizing the resources available with the farmers, ICAR-ATARI, Zone-VII implemented the Farmer FIRST project which focuses on farmer's Farm, Innovations, Resources, Science and Technology where more than 800 farm families are being benefitted. Considering the need of retaining youth in agricultural sector towards sustaining food production the institute has initiated a programme on Attracting and Retaining Youth in Agriculture (ARYA). At present ARYA is being implemented by six KVKs of this zone wherein 76 demonstrations were conducted that benefited a total of 347 rural youth in agricultural sector. Furthermore, Under ICAR-ATARI Zone-VII, there were 23 KVKs selected for implementation of Cluster frontline 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. During the year 2018-19, a total of 4272 nos. of Cluster Frontline Demonstrations were conducted on Oilseeds and Pulses in 5 North-eastern States of Manipur, Meghalaya, Nagaland, Mizoram and Tripura covering 1889.4 hectares. Moreover, 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 321 technologies with 1403 nos. of trials benefitting a total of 2568 farmers and refined 8 technologies with 25 nos. of trials under different thematic areas of crop enterprises during the period. Besides, the KVKs also made assessment of 79 technologies with 476 numbers of trials and refined 1 technology with 4 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 **4849** frontline demonstrations in **1500.28** 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 (1240), pulses (1023), other crops (2586), livestock enterprises (1334), and other enterprises (679).

The institute during 2018-19 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. 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 (2018-19) to review the progress and achievements of KVKs. During the year 2018-19, a total of 3220 training programmes were conducted by the KVKs in different areas of agriculture and allied activities benefitting a total of 84743 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 1948 courses and 53635 participants of farmers, 757 courses and 12268 participants of rural youth and 178 courses and 4306 participants of extension personnel. In addition, 234 courses of sponsored training programmes were also conducted by the KVKs under the zone for 12371 participants as well as 103 nos. of

vocational training courses benefitting a total of 2163 participants on different areas of income generating activities/ enterprises. With regard to effort to women empowerment, as many as 25058 women representing 46.71 percent of the total beneficiaries (53635) 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 28713 number of extension activities under close supervision and guidance of this institute for the benefit of 212025 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 1690.45 tonnes of quality seeds of cereals, pulses, oil seeds, vegetables etc, 18.92 lakh of planting materials of fruits, vegetables, forest species, plantation, ornamental crops etc., 930.59 quintals of bio-products and 8.51 lakh of livestock and 8.11 lakh of fingerlings. In addition, for increasing the production of Pulses in the zone, only one KVK namely; KVK Thoubal in Manipur was selected as Seed Hub KVK Centre under ICAR-ATARI, Umiam for creation of Seed Hubs to meet the seed requirement of the farmers in the zone. During 2018-19 a total production of 315 quintal of Pulse seed is reported from Thoubal KVK.

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 29 visits by its Director of Extension Education (DEEs) 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 7 HRD Programmes for knowledge empowerment and technology backstopping to the KVKs with total 185 KVK participants/ staff. As many as 19 publications including extension bulletins (**2**), technical bulletins (1), extension bulletins (2) and farm magazine (8) were brought out by the Directorate during the period.

During the period under report, the KVKs analyzed a total of 12559 samples comprising of soil samples (11811), water samples (206) and plant samples (542) to ascertain strength and weaknesses of the soil, water and plants and suggested fertilizers recommendations. In the process, a total of 494 villages had been covered and as many as 17304 farmers were benefitted. During the period, as many as 17072 numbers of Soil Health Cards (SHCs) were distributed to 19370 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 40 KVKs involved in the programme by adopting 10295 no. of villages. The notable activities under the programme included 9359 nos. of field demonstrations on various agriculture and allied technologies as well as 6529 nos. of training programmes for farmers and farm women.

During 2018-19, 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 by sending as many as **23614** nos**.** of messages which benefitted **166234** no. of farmers in remote districts of the zone.

1.5. Profile of the Institute

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

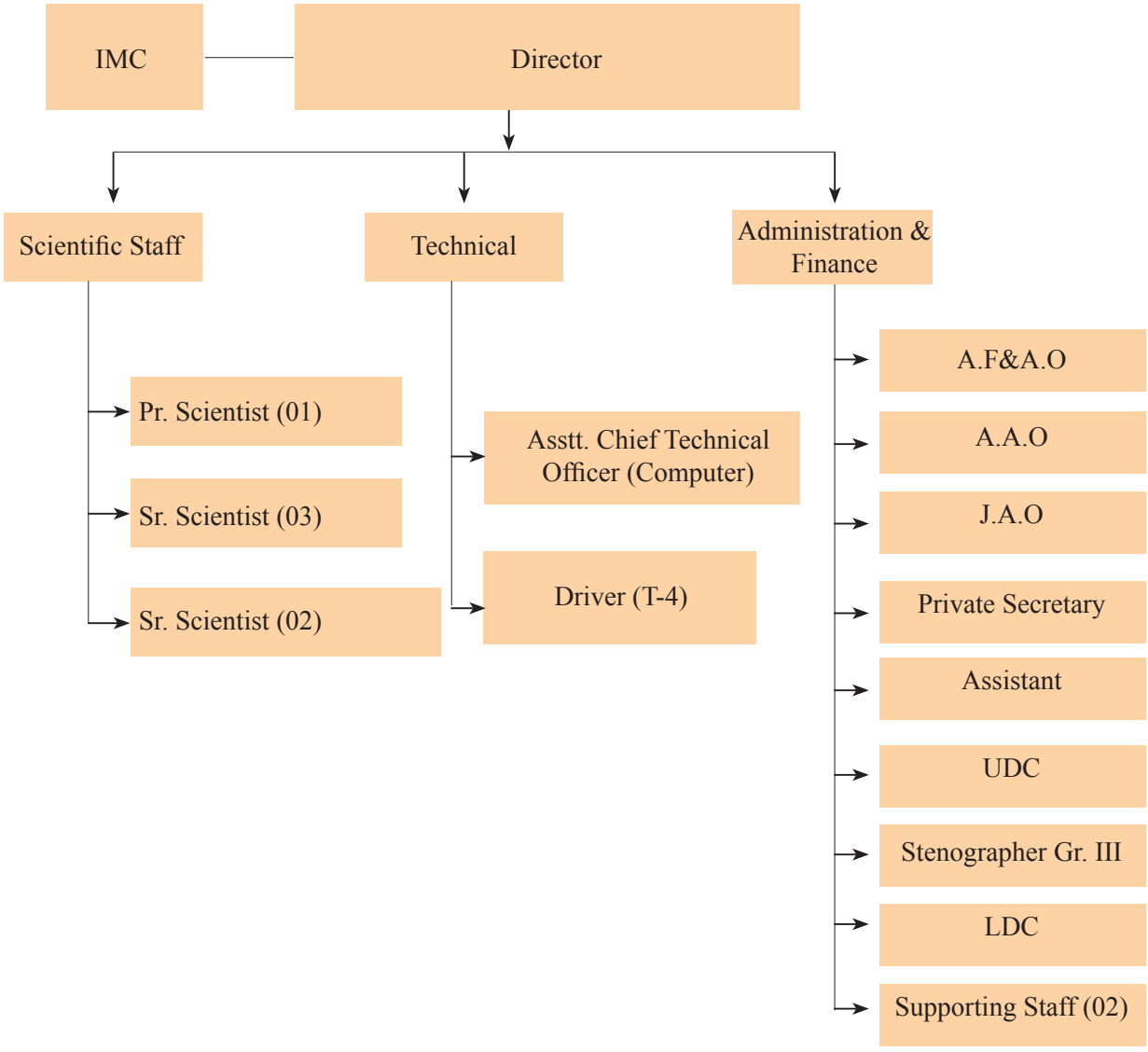
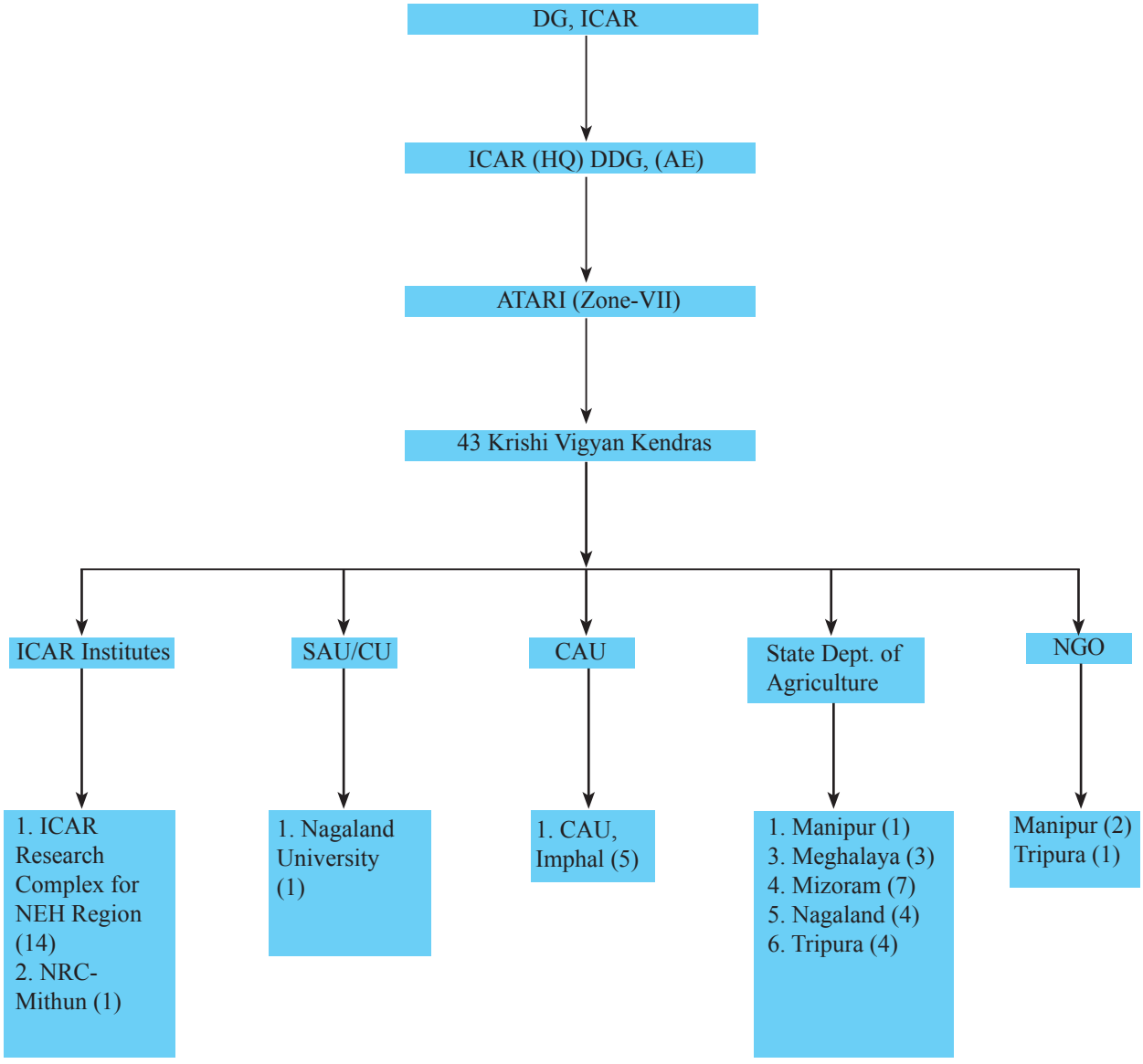


Fig 1 : Organizational Structure of ICAR-ATARI, Umiam

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
	Total	**6**	**4**	**2**
3.	**Technical Staff**			
	Asst. Chief Technical Officer	1	1	0
	Driver	1	1	0
	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
	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 2018-19 in respect of ATARI & KVKs, Zone-VII, Umiam (NEH + TSP + other than NEH & TSP)

(Rs. in lakhs)

Revised Estimate for 2018-19													
Sl.No	Host Institute	Recurring Head						TOTAL	Non Recurring				TOTAL	Grand Total
		Pay & Allowance	*TA*	*HRD*	*Contg*	*NARI*	*KSHAMTA*		*Equipment*	*Works*	*Lib*	*Vehicle*		
I	**ATARI,Zone-VII**	206.13000	10.00000	2.50000	46.14000	0.00000	0.00000	**264.77000**	7.83000	89.02000	0.00000	0.00000	**96.85000**	**361.62000**
II.	**KVK, Zone-VII**													
A	**ICAR INSTITUTE**													
1	ICAR Research Complex	1741.00000	42.00000	14.00000	239.25000	9.00000	2.40000	**2047.65000**	10.30000	50.00000	0.00000	24.00000	**84.30000**	**2131.95000**
2	NRC Mithun	150.00000	4.00000	1.10000	19.25000	3.00000	0.00000	**177.35000**	0.30000	0.00000	0.00000	0.00000	**0.30000**	**177.65000**
	TOTAL ICAR KVK	**1891.00000**	**46.00000**	**15.10000**	**258.50000**	**12.00000**	**2.40000**	**2225.00000**	**10.60000**	**50.00000**	**0.00000**	**24.00000**	**84.60000**	**2309.60000**
B	**AGRIL.UNIVERSITY**													
1	CENTRAL AGRICULTURAL UNIVERSITY (CAU,IMPHAL)	530.00000	13.60000	9.20000	66.50000	6.00000	0.80000	**626.10000**	8.20000	133.00000	0.00000	16.00000	**157.20000**	**783.30000**
2	NAGALAND UNIVERSITY	173.00000	3.50000	1.10000	19.25000	0.00000	0.80000	**197.65000**	0.30000	0.00000	0.00000	0.00000	**0.30000**	**197.95000**
	TOTAL SAU/Aus KVKs	**703.00000**	**17.10000**	**10.30000**	**85.75000**	**6.00000**	**1.60000**	**823.75000**	**8.50000**	**133.00000**	**0.00000**	**16.00000**	**157.50000**	**981.25000**
C	**STATE GOVT.**													
1	MANIPUR	135.00000	4.00000	1.10000	18.75000	3.00000	0.00000	**161.85000**	0.30000	0.00000	0.00000	0.00000	**0.30000**	**162.15000**
2	MEGHALAYA	276.00000	9.00000	3.30000	51.00000	0.00000	0.00000	**339.30000**	0.90000	150.00000	0.00000	0.00000	**150.90000**	**490.20000**
3	MIZORAM	880.00000	21.00000	7.70000	122.50000	3.00000	0.80000	**1035.00000**	2.10000	0.00000	0.00000	0.00000	**2.10000**	**1037.10000**
4	NAGALAND	729.00000	16.00000	4.40000	77.00000	3.00000	0.80000	**830.20000**	1.20000	0.00000	0.00000	0.00000	**1.20000**	**831.40000**
5	TRIPURA	93.50000	6.15000	2.00000	43.65000	0.00000	0.80000	**146.10000**	2.60000	200.00000	0.00000	0.00000	**202.60000**	**348.70000**
	TOTAL STATE GOVT. KVKs	**2113.50000**	**56.15000**	**18.50000**	**312.90000**	**9.00000**	**2.40000**	**2512.45000**	**7.10000**	**350.00000**	**0.00000**	**0.00000**	**357.10000**	**2869.55000**
D	**NGO**													
1	UTLOU, BISHNUPUR	158.00000	4.00000	1.10000	19.25000	0.00000	0.00000	**182.35000**	0.30000	0.00000	0.00000	0.00000	**0.30000**	**182.65000**
2	FEEDS, SENAPATI	140.00000	4.00000	1.10000	19.00000	0.00000	0.00000	**164.10000**	0.30000	0.00000	0.00000	0.00000	**0.30000**	**164.40000**
3	SRSK, KOLKATA	153.00000	4.00000	1.00000	20.50000	3.00000	0.00000	**181.50000**	0.30000	0.00000	0.00000	0.00000	**0.30000**	**181.80000**
	TOTAL NGOs	**451.00000**	**12.00000**	**3.20000**	**58.75000**	**3.00000**	**0.00000**	**527.95000**	**0.90000**	**0.00000**	**0.00000**	**0.00000**	**0.90000**	**528.85000**
	GRAND TOTAL KVKs	**5364.63000**	**141.25000**	**49.60000**	**762.04000**	**30.00000**	**6.40000**	**6353.92000**	**34.93000**	**622.02000**	**0.00000**	**40.00000**	**696.95000**	**7050.87000**

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 **706** 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. KVK Mandates

The mandate of KVK is *Technology Assessment and Demonstration for its wider 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 12 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	UJFPS 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. Account of Manpower in KVKs

Presently the KVKs under ICAR-ATARI, Umiam have a total of **522** staff are in position out of **687** sanctioned strength in KVKs in different positions like Sr. Scientist & Head, Subject Matter Specialist, Programme Assistant, Assistant, Superintendant, Stenographer Grade III, Driver and Supporting Staff (Table 4), accounting **75.98%** staff are in position. The remaining vacancies of different cadres are in the process of recruitment by the concerned host institutes. The State-wise and KVK-wise present staff position of KVKs under ICAR-ATARI, Umiam is given in Table-4.

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

S. No.	Name of the State	Name of the KVK	Name of the Host Organization	Sr. Scientist and Head			Subject Matter Specialist/T-6			Farm Manager/T-4			Program Assistant (computer)/T-4			Program Assistant (lab technician)/ T-4			Assistant			Stenographer grade III			Driver/T-1			Skilled Support Staff			Total		
				(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)			(Status of posts)		
				S	F	V	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V
1	Manipur	Bishnupur	NGO	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
2	Manipur	Churachandpur	ICAR	1	0	1	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	0	1	2	2	0	2	2	0	16	13	3
3	Manipur	Imphal East	CAU	1	0	1	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	2	2	0	2	2	0	16	14	2
4	Manipur	Imphal West	ICAR	1	0	1	6	5	1	1	1	0	1	1	0	1	1	0	1	0	1	1	0	1	2	2	0	2	2	0	16	12	4
5	Manipur	Senapati	NGO	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	0	0	16	14	0
6	Manipur	Tamenglong	ICAR	1	1	0	6	7	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	17	0
7	Manipur	Thoubal	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	0	1	1	1	0	1	1	0	2	2	0	2	2	0	16	14	2
8	Manipur	Ukhrul	ICAR	1	1	0	6	6	0	1	1	0	1	1	0	1	0	1	1	0	1	1	1	0	2	1	1	2	2	0	16	13	3
9	Manipur	Chandel	ICAR	1	1	0	6	6	0	1	1	0	1	1	0	1	0	1	1	1	0	1	0	1	2	2	0	2	2	0	16	14	2
		Total		**9**	**6**	**3**	**54**	**53**	**2**	**9**	**9**	**0**	**9**	**9**	**0**	**9**	**6**	**3**	**9**	**5**	**4**	**9**	**6**	**3**	**18**	**17**	**1**	**18**	**16**	**0**	**144**	**127**	**16**
1	Meghalaya	East Khasi Hills	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	15	1
2	Meghalaya	Jaintia Hills	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	2	2	0	2	2	0	16	15	1
3	Meghalaya	Ri-Bhoi	ICAR	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	0	1	2	1	1	2	0	2	16	11	5
4	Meghalaya	West Garo Hills	ICAR	1	0	1	6	3	3	1	0	1	1	1	0	1	1	0	1	1	0	1	0	1	2	2	0	2	2	0	16	10	6
5	Meghalaya	West Khasi Hills	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	15	1
6	Meghalaya	South Garo Hills	CAU	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	2	2	0	2	2	0	16	15	1
7	Meghalaya	East Garo Hills	CAU	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	2	2	0	2	2	0	16	15	1
		Total		**7**	**6**	**1**	**42**	**37**	**5**	**7**	**6**	**1**	**7**	**7**	**0**	**7**	**7**	**0**	**7**	**3**	**4**	**7**	**5**	**2**	**14**	**13**	**1**	**14**	**12**	**2**	**112**	**96**	**16**
1	Mizoram	Aizawl	CAU	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	2	2	0	2	2	0	16	15	1
2	Mizoram	Champai	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
3	Mizoram	Kolasib	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0

4	Mizoram	Lawngtlai	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
5	Mizoram	Lunglei	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	15	1
6	Mizoram	Mamit	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	15	1
7	Mizoram	Saiha (Chimtuipui)	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	15	1
8	Mizoram	Serchipp	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	15	1
		Total		**8**	**8**	**0**	**48**	**44**	**4**	**8**	**8**	**0**	**8**	**8**	**0**	**8**	**8**	**0**	**8**	**7**	**1**	**8**	**8**	**0**	**16**	**16**	**0**	**16**	**16**	**0**	**128**	**123**	**5**
1	Nagaland	Dimapur	ICAR	1	0	1	6	5	1	1	1	0	1	1	0	1	0	1	1	0	1	1	1	0	2	1	1	2	1	1	16	10	6
2	Nagaland	Kohima	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
3	Nagaland	Mokokchung	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
4	Nagaland	Mon	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
5	Nagaland	Phek (Medziphema)	ICAR	1	0	1	6	5	1	1	1	0	1	1	0	1	0	1	1	1	0	1	1	0	2	1	1	2	2	0	16	12	4
6	Nagaland	Tuensang	SG	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
7	Nagaland	Wokha	ICAR	1	1	0	6	4	2	1	0	1	1	0	1	1	0	1	1	0	1	1	1	0	2	2	0	2	1	1	16	9	7
8	Nagaland	Zunheboto	CU	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
9	Nagaland	Longleng	ICAR	1	1	0	6	2	4	1	0	1	1	1	0	1	1	0	1	0	1	1	1	0	2	0	2	2	1	1	16	7	9
10	Nagaland	Kiphire	ICAR	1	0	1	6	0	6	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	2	0	2	2	0	2	16	0	16
11	Nagaland	Peren	ICAR	1	0	1	6	2	4	1	1	0	1	0	1	1	0	1	1	0	1	1	0	1	2	0	2	2	0	2	16	3	13
		Total		**11**	**7**	**4**	**66**	**48**	**18**	**11**	**8**	**3**	**11**	**8**	**3**	**11**	**6**	**5**	**11**	**6**	**5**	**11**	**9**	**2**	**22**	**14**	**8**	**22**	**15**	**7**	**176**	**121**	**55**
1	Tripura	South Tripura	ICAR	1	0	1	6	4	2	1	0	1	1	1	0	1	0	1	1	0	1	1	0	1	2	1	1	2	2	0	16	8	8
2	Tripura	Khowai	NGO	1	1	0	6	6	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	2	0	2	2	0	16	16	0
3	Tripura	North Tripura	SG	1	0	1	6	4	2	1	1	0	1	1	0	1	0	1	1	0	1	1	0	1	2	1	1	2	2	0	16	9	7
4	Tripura	Dhalai	SG	1	0	1	6	1	5	1	1	0	1	0	1	1	0	1	1	0	1	1	0	1	2	1	1	2	2	0	16	5	11
5	Tripura	West Tripura	ICAR	1	0	1	6	2	4	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	2	0	2	1	0	1	15	2	13
6	Tripura	Gomati	SG	1	0	1	6	0	6	1	0	1	1	0	1	1	0	1	1	1	0	1	0	1	2	0	2	2	0	2	16	1	15
7	Tripura	Unakoti	SG	1	0	1	6	0	6	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	2	0	2	2	0	2	16	0	16
8	Tripura	Sepahijala	SG	1	1	0	6	5	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	2	1	1	2	2	0	16	14	2
		Total		**8**	**2**	**6**	**48**	**22**	**26**	**8**	**4**	**4**	**8**	**4**	**4**	**8**	**2**	**6**	**8**	**3**	**5**	**8**	**2**	**6**	**16**	**6**	**10**	**15**	**10**	**5**	**127**	**55**	**72**
	ATARI Total			**43**	**29**	**14**	**258**	**204**	**55**	**43**	**35**	**8**	**43**	**36**	**7**	**43**	**29**	**14**	**43**	**24**	**19**	**43**	**30**	**13**	**86**	**66**	**20**	**85**	**69**	**14**	**687**	**522**	**164**

N.B. : S- Sanctioned, F-Filled, V-Vacant

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 **25** KVKs have their own staff quarters. The zone has also **106** functioning demonstration units in different KVKs with highest number of **29** in Mizoram followed by Manipur (27) and equal number of 20 demonstration units in Nagaland and Tripura. Among the special programmes, soil and water testing facilities are available in **31** KVKs with highest number in Manipur (10) followed by Mizoram (7) and Nagaland (6). Other special facilities such as e-connectivity (21), rain water harvesting structures (40), portable carp hatchery (6), integrated farming systems (19), Minimal Processing Facilities (15) are also available in KVKs in the zone. The KVK-wise details are given in table 5.

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 Table 6 shows that a total of **321** 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 **1403** nos. of trials benefitting a total of **2568 farmers**. The highest number of technologies (89) were found assessed in the state of Nagaland with 402 nos. of trials. This was followed by Mizoram (85) with 344 trials, Manipur (68) with 238 trials and Tripura (22) with 164 trials. While a total of **79** technologies with **476** 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 **524** farmers in the zone. In case of refinement, 8 nos. of Crop Based technologies were made refinement at farmers' fields with 25 trials benefitting 48 farmers. While only 1 technology in livestock enterprises were refined with 4 trials based on local needs and farming systems.

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

S. No.	State	KVK	Administrative Building (Y/N)	Quarteres (Y/N)	Farmer's Hostel (Y/N)	Demonstration Unit (No.)	Soil and Water Testing Laboratory	Rain Water harvesting structure	Integrated Farming System	Minimal processing facility	e-Connectivity (ERNET)	Carp hatchery	Solar Panel	Micro-nutrient Facility	Tractor	Two Wheeler	Four Wheeler/ Vehicle
1	Manipur	Bishnupur	Y	Y	Y	2	1	1	0	1	0	2	0	2	1	0	1
2	Manipur	Churachandpur	Y	Y	N	2	1	2	1		0	0	0	0	1	1	1
3	Manipur	Imphal East	Y	N	N	0	0	0	1	0	0	1	0	0	1	1	1
4	Manipur	Imphal West	Y	N	Y	2	2	0	0	0	1	0	0	0	1	0	2
5	Manipur	Senapati	Y	Y	Y	7	1	3	1	1	0	1	1	1	1	1	1
6	Manipur	Tamenglong	Y	N	N	2	0	1	0	0	0	0	0	0	1	0	0
7	Manipur	Thoubal	Y	Y	N	7	1	0	1	1	1	1	0	1	1	0	1
8	Manipur	Ukhrul	N	N	N	3	2	1	0	0	1	0	0	0	0	0	0
9	Manipur	Chandel	Y	Y	N	2	2	2	0	0	0	0	0	0	1	0	0
		Total	**8**	**5**	**3**	**27**	**10**	**10**	**4**	**3**	**3**	**5**	**1**	**4**	**8**	**3**	**7**
1	Meghalaya	East Khasi Hills	N	N	N	8	0	1	1	0	0	0	0	0	1	0	1
2	Meghalaya	Jaintia Hills	N	N	N	0	2	0	0	0	1	0	0	0	1	0	1
3	Meghalaya	Ri-Bhoi	Y	Y	Y	0	2	0	1	0	1	0	0	0	0	0	1
4	Meghalaya	West Garo Hills	N	Y	Y	0	1	1	0	0	1	0	0	0	1	1	1
5	Meghalaya	West Khasi Hills	N	N	N	2	0	1	0	0	1	0	0	0	1	0	1
6	Meghalaya	South Garo Hills	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
7	Meghalaya	East Garo Hills	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**1**	**2**	**2**	**10**	**5**	**3**	**2**	**0**	**4**	**0**	**0**	**0**	**4**	**1**	**5**
1	Mizoram	Aizawl	Y	Y	Y	2	1	0	1	0	1	0	0	0	0	1	1
2	Mizoram	Champai	Y	Y	Y	4	1	7	1	7	1	0	0	0	2	0	1
3	Mizoram	Kolasib	Y	Y	Y	5	1	3	0	1	1	0	0	0	2	0	1
4	Mizoram	Lawngtlai	Y	Y	Y	2	1	1	0	0	1	0	0	0	1	0	1
5	Mizoram	Lunglei	Y	Y	Y	0	1	1	0	0	1	0	0	0	1	1	1
6	Mizoram	Mamit	Y	Y	Y	6	1	1	1	2	1	0	0	0	1	0	1

7	Mizoram	Saiha (Chimtuipui)	Y	Y	Y	9	1	3	0	0	0	0	0	0	2	0	2
8	Mizoram	Serchipp	Y	Y	Y	1	0	1	7	0	3	0	0	0	0	1	1
		Total	**8**	**8**	**8**	**29**	**7**	**17**	**10**	**10**	**9**	**0**	**0**	**0**	**9**	**3**	**9**
1	Nagaland	Dimapur	N	Y	Y	2	1	1	0	0	0	0	0	0	0	0	1
2	Nagaland	Kohima	Y	Y	N	2	0	1	0	0	0	0	0	0	0	1	1
3	Nagaland	Mokokchung	Y	Y	N	4	1	0	0	1	1	0	0	0	0	0	1
4	Nagaland	Mon	Y	Y	N	5	3	1	1	0	1	0	0	0	0	0	1
5	Nagaland	Phek	Y	Y	N	2	0	0	0	0	0	0	0	0	0	1	0
6	Nagaland	Tuensang	Y	Y	N	3	1	3	0	0	0	0	0	0	1	0	1
7	Nagaland	Wokha	Y	Y	Y	2	0	0	0	0	0	0	0	0	0	0	0
8	Nagaland	Zunheboto	Y	Y	N	0	0	0	0	0	0	0	0	0	1	0	1
9	Nagaland	Longleng	N	N	N	0	0	0	0	0	1	0	0	0	0	0	1
10	Nagaland	Kiphire	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
11	Nagaland	Peren	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**7**	**8**	**2**	**20**	**6**	**6**	**1**	**1**	**3**	**0**	**0**	**0**	**2**	**2**	**7**
1	Tripura	South Tripura	N	Y	N	4	1	2	1	1	1	1	0	0	0	1	1
2	Tripura	Khowai	Y	Y	Y	12	1	1	1	0	0	0	1	0	1	0	1
3	Tripura	North Tripura	N	N	N	2	0	0	0	0	0	0	0	0	0	0	1
4	Tripura	Dhalai	N	N	N	2	1	1	0	0	1	0	0	0	1	0	1
5	Tripura	West Tripura	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
6	Tripura	Gomati	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
7	Tripura	Unakoti	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**1**	**2**	**1**	**20**	**3**	**4**	**2**	**1**	**2**	**1**	**1**	**0**	**2**	**2**	**4**
GRD TOTAL			**25**	**25**	**16**	**106**	**31**	**40**	**19**	**15**	**21**	**6**	**2**	**4**	**25**	**11**	**32**

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 2018-19

Sl No	Area	States					
1	**Crops Based Technologies**	**Manipur**	**Meghalaya**	**Mizoram**	**Nagaland**	**Tripura**	**Total**
	i) No of Technologies	68	57	85	89	22	**321**
	ii) No of Trials	238	255	344	402	164	**1403**
	iii) No of Beneficiaries	249	587	380	672	680	**2568**
2	**Livestock Technologies**						
	i) No of Technologies	19	16	17	15	12	**79**
	ii) No of Trials	73	62	84	148	109	**476**
	iii) No of Beneficiaries	85	92	86	153	108	**524**
	Agricultural Technologies Refined during 2018-19						
1	**Crops Based Technologies**						
	i) No of Technologies	1	5	-	1	1	**8**
	ii) No of Trials	2	14	-	3	6	**25**
	iii) No of Beneficiaries	2	37	-	3	6	**48**
2	**Livestock Technologies**						
	i) No of Technologies	-	1	-	-	-	**1**
	ii) No of Trials	-	4	-	-	-	**4**
	iii) No of Beneficiaries	-	4	-	-	-	**4**

2.3.1. Technology Assessment

During the year 2018-19, a total of **321** 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 **1403** nos. of trials. The major thematic areas included for assessment were varietal evaluation with **329** nos. of trials, integrated nutrient management (178), integrated pest management (133), integrated crop management (93), drudgery reduction (54), integrated disease management (90), resource conservation technology (56), value addition (76),weed management (11), water management (3), biological control (12), mushroom cultivation (14), farm machineries/mechanization (10), production technology (3), *etc*. (**Table 7).**

Eco-friendly management of bacterial blight of Anthurium & rejuvenation of infected plants under shade net house by KVK Aizawl

Table 7- Summary of Crops Based Technologies Assessed under different thematic areas during 2018-19

Thematic area	No. of Technology Assessed	No. of Trials	No. of Locations	Farmer Beneficiary (No.)
Varietal Evaluation	98	329	214	443
Integrated Nutrient Management	36	178	72	213
Integrated Crop Management	20	93	42	114
Integrated Pest Management	31	133	69	138
Integrated Disease Management	22	90	55	129
Weed Management	2	11	9	11
Water management	1	3	3	3
Value addition	20	76	48	158
Small scale income generating enterprise	4	21	4	28
Seed / Plant production	8	26	19	45
Post-harvest lost/ technology	3	7	4	31
Resource Conservation Technology (RCTs)	14	56	41	67
Drudgery reduction	8	54	22	69
Cropping system	4	17	10	17
Micronutrient management	1	4	4	4
Biological control	3	12	10	44
Storage technique	1	4	3	3
Farm Machineries	3	10	2	10
Mushroom cultivation	3	14	5	25
Soil Health Management	7	33	15	33
Agril. Extension	2	6	4	160
Integrated farming System	4	12	5	12
Production & management technology	1	3	3	3
Nutrient Management	2	22	6	22
Others	23	189	46	786
Total	**321**	**1403**	**715**	**2568**

While a total of **79** technologies with **476** 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 (**174**), integrated farming system (18) disease management (**20**), breed introduction (12) feed and fodder management (50) nutrition management (**49**), fish production (**71**), production and management (**42)** feed and fodder management (**50**), *etc.*(**Table 8).**

Table 8- Summary of Livestock Technologies Assessed under different thematic areas during 2018-19

Thematic area	No. of Technology Assessed	No. of Trials	No. of locations	Farmer Beneficiary (No.)
Disease Management	2	20	6	20
Evaluation of breed	26	174	80	178
Breed Introduction	3	12	6	20
Feed and fodder Management	11	50	26	64
Nutrition Management	5	49	21	49
Fish production	11	71	20	88
Integrated Farming System	5	18	12	18
Production and Management	8	42	27	59
Others	8	40	22	28
Total	**79**	**476**	**220**	**524**

2.3.2. Technology Refinement

A total of **8** crop based technologies related to cereals, oilseeds, vegetables and fruit crops were taken up for refinement with **25** trials at various locations (Table 9). The major thematic areas were Varietal Evaluation (9) Integrated Nutrient Management (4) Integrated crop management (1) Storage technique (4) Seed/plant production (1) and cropping sequence (6) *etc*.

Varietal performance of aromatic rice varieties , Pusa 1509 and Chakhao Poireiton (Local check) by KVK Imphal West

Performance of Paddy var. CAU-R1 under ICM practice at Nungbrung, Imphal East

Table 9: Summary of Crop based Technologies Refined under different thematic areas during 2018-19

Thematic area	No. of technology refined	No. of trials	No. of Locations	Farmer Beneficiary (No.)
Varietal Evaluation	2	9	3	13
Integrated Nutrient Management	2	4	4	10
Integrated Crop Management	1	1	6	6
Storage technique	1	4	3	3
Seed / Plant production	1	1	1	10
Cropping Sequence	1	6	1	6
Total	**8**	**25**	**18**	**48**

Table 10: Summary of Livestock Technologies Refined under different thematic areas during 2018-19

Thematic area	No. of Technology Refined	No. of Trials	No. of locations	Farmer Beneficiary (No.)
Integrated Farming System	1	4	4	4
Total	**1**	**4**	**4**	**4**

In livestock sector, only one technology with 4 trials on Integrated Farming System were taken up by the KVKs in 2018-19 for their refinement as shown in **Table 10.**

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 **4849** frontline demonstrations with **1500.28** ha were conducted by the KVKs during 2018-19 in close collaboration with farmers to establish production potential of improved agricultural technologies including Oilseeds (**1240**), Pulses (**1006**), Other crops (**2535**), Livestock enterprises (**1334**) and Other enterprises (**679**) respectively.

2.4.1. FLD on Oilseeds

During the year 2018-19 a total of **1240** demonstrations were conducted in different oilseed crops like groundnut, rapeseed and mustard, sesamum, soybean, toria, oil palm and linseed covering **565.57** ha area (**Table 11**). Demonstration on different varieties of Soybean (JS-335, JS 95 60) produced an average yield of **18.94** q/ha compared to **14.51** q/ha yields of local check with **31.17%** increase over the local check. Similarly, different varieties of Ground Nut such as ICGS 76, GPBD 4, G2 produced 24.41 q/ha compared to local check of 13.28 q/ha with average increase of **108.26%.** Rapeseed varieties such as TS-46 had shown an average yield of **8.11** q/ha in demonstration as against only **7.08** q/ ha yield of the local check with **15.80%** yield increase over local check. While Mustard was found with **24.03** q/ha against local check of 16.73 q/ha with average increase of **53.82%.** Among the oilseed crops, the highest number of demonstrations (**251**) was conducted in Toria covering an area of **110.66** ha (Fig.5).The highest Percentage increase in yield was also observed in Ground Nut (**108.26%**). While the highest B:C ratio was observed in case of rapeseed variety TS-46 (**4.26**).

Table-11 : Frontline Demonstration on Oilseeds Crops During 2018-19

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, DSb 1, RVS 2001-04, RKS 18, JS-9305, JS 95 60	236	69.25	18.94	14.51	31.17	37936.94	35760.42	2.59
Groundnut	ICGS-76, ICGS 70, GPBD-4, G 2	159	92.5	24.41	13.28	108.26	84418.75	76390.00	2.30
Mustard	M-27, NRCHB-101, Local	238	96	24.03	16.73	53.82	44297.50	37986.75	3.89
Rapeseed	TS-46	79	55	8.11	7.08	15.80	11825	10681.25	4.26
Oilpalm	Tenera	10	10	2757.5	2112	23.41	120000	90000	11.49
Toria	TS-36, TS-38, TS- 68, TS-67, Tripura toria	251	110.66	8.88	6.14	47.22	22678.78	10344.44	2.38
Sesamum	TS-1683, TripursSiphing	227	112.16	6.17	4.81	26.56	14013.83	11634.17	1.51
Linseed	Shardha, T-397	40	20	7.2	6.2	16.129032	16000	15500	2.095
Total		**1240**	**565.57**	**356.90**	**272.59**	**40.30**	**43896.35**	**36037.13**	**3.81**

2.4.2. FLD on Pulses

A total of **1023** 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 **364.5** ha (**Table 12).** Among the pulse crops, the highest numbers of demonstrations were conducted in Field pea (**440**) of varieties such as Arka Priya, Prakash, Rachna, Azad Pea 3 covering 145.25 hectares area with average yield of **18.46 q/ha** compared to local check of **13.09 q/ha** having highest increase yield level over local check **46.13%** (Fig. 6). The most promising B:C ratio was observed in french bean (**2.6**) with varieties such as selection 9 and Arka Anoop.

Frontline Demonstration on improved cultivation of Greengram by KVK Imphal East

Table 12: Frontline Demonstration on Pulses Crops During 2018-19

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	Tripura Mashkoloi 1, Tripura Maskalai	154	71.5	5.6175	3.878889	26.61887	20116.25	17413.17	1.340833
Field pea	ArkaPriya, Prakash, Rachna, Azad Pea 3	440	145.25	18.46733	13.0906	46.1394	35218.9581	28785.28	2.140324
Cowpea	KashiKanchan	34	22	9	4	140	9782	6819	2.095
Frenchbean	Selection 9, ArkaAnoop	54	4	92	70.66667	26.96778	75171	62206.67	2.666667
Greengram	Tripura Moong 1	79	30	6.89	2.625	30.95	23937.5	10793	2.035
Lentil	Hul-57, TS-1, WBL-77	200	67	10.28	7.708889	30.10413	25344	22377.78	2.366667
Rajma	Tripura Rajmash 1	25	12	7.5	4.45	79.06	20976.5	17218	2.465
Lathyrus	Ratan	20	8	5.6	0	100	14944	0	1.49
Arhar	TS3R	7	2.75	10.48	8.55	26.68197	26430	26225	0.985
Chickpea	Local	10	2	9.14	5.42	70.99	31000	28000	2.42
Total		**1023**	**364.5**	**18.28**	**12.43**	**62.15**	**28498.91**	**21512.54**	**2.11**

2.4.3. FLD on Other Crops

A total of **2586** 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 **570.2** ha. Among these crops, the largest area of **291 ha** was covered under rice with varieties such as CAU-R1, RCM-10, Ranjit, Gomati, Swarna Sub-1, Tripura Nirog, Tripura Chikon.

The highest number (863) of demonstration was also conducted under the same crop. The most promising B:C ratio **(4.75)** was recorded in bee keeping followed by marigold (4.55) and tomato (3.75).The highest percentage increase in yield **(69.35%)** was observed in case of French bean with varieties of Anupam and Arka Komal followed by tomato (59.00 %) and cauliflower (57 %).The average demonstration yield of rice was observed to be **41** q/ha against **32** q/ha of local check (Table 13). Significant number of demonstrations were also conducted in maize (326 demonstrations) of varieties such as HQPM-1, DA-61 A, RCM-76 Win, and Orange followed by mushroom cultivation (282 no. of demonstrations) potato (105 demonstrations) with varieties such as Kufri Himalini, Kufri Jyoti, Kufri Kanchan *etc.*

Frontline Demonstration on System of Rice Intensification (SRI) by KVK Imphal East

Frontline Demonstration on scientific cultivation methods of potato by KVK Bishnupur

Table-13: Frontline Demonstration on Other Crops during 2018-19

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	
CEREALS									
Paddy	CAU-R1, RCM-10, Ranjit, Gomati, Swarna Sub-1, Tripura Nirog, Tripura Chikon, Local	863	291	41	32	31	35456	31332	2
Maize	HQPM-1, DA 61 A, RCM-76, Win Orange	326	51	115	81	42	34785	29918	2
Oat	JH0822	5	5	283	0	0	31100	0	1.78
Sub Total		**1194**	**347.47**	**146.30**	**37.53**	**289.81**	**33780.22**	**20416.49**	**1.98**
VEGETABLES (OPEN CULTIVATION)									
Tomato	Arka Rakshak, Arka Samrat, Bholanath, Amitabh 004, Avishkar, Chiranjevi, Local	128	30.675	317.04	244.38	31.55	93228.53	86831.9	3.7536
Brinjal	Pusa kranti, Chhaia Hybrid	17	4	210.52	181.75	21.45	138303.6	141375	1.92
Okra	Kashi Pragari, Kashi Pranti, Arka Anamika	18	5.5	74.37	55	35.22	36175	36000	1.795
Potato	Kufri Himalini, Kufri Jyoti, Kufri Kanchan	105	9	160	123	30	81019	71780	3
Sweet Potato	Local	10	2	3.5	2.8	25	2880	2466	2.35
Chilli	Mizo Chilli	10	3	9.6	7	37.14	150000	165000	2.1
Capsicum	Ark Harit	5	2	90	65	38.46	150000	137000	2.8
Cabbage	Rare Ball, Snow Ball, Jananese White, Green Express, Golden Arce, KGMR-1	93	22.6	170.89	127.23	52.45	73352.20	50600.33	2.59
Cauliflower	Pusa Beta Kesari	14	2.6	246	142.5	57.19	157125	129625	2.36
Broccoli	Solan Big Head, Big Magic, Green Magic, Palam Kanchan, Pushpa, KTS 1, Chiranjeevi	76	17	119	87	37	82839	78754	3
Bitter gourd	Pallee F1	3	1	152.45	132.6	14.96	64300	58000	2.3

Carrot	Early Nantes	6	4	75.3	52.8	29.88	37700	29100	2.79
Pumpkin	Local (Mizo Mayan)	5	0.5	145	98	47.95	90000	84000	3.02
Garden Pea	Azad pea 1	20	1	118.6	110.9	6.943	42000	42000	2.12
French Bean	Anupam/Arka Komal	4	1	105	62	69.35	53850	45700	2.91
Broad bean	Local cultivar	4	2	10.2	8.76	16.43	33460	26635	2
Colocasia	Local	3	1	180	120	50	50500	50500	1.8
Radish	Mino Early white long	2	0.01	22	12	83.33	0	0	2.06
Tapioca	Shree Jaya	6	2	341.5	291.2	17.27	46550	44560	1.88
Sub Total		**529**	**110.86**	**134.27**	**101.25**	**32.61**	**72804.33**	**67364.60**	**2.43**
VEGETABLES (PROTECTED CULTIVATION)									
Tomato	Megha tomato3	10.00	0.01	470.00	310.00	51.61	10200.00	12200.00	0.00
Sub Total		**10.00**	**0.01**	**470**	**310**	**51.61**	**10200**	**12200**	**0.00**
SPICES									
Ginger	Nadia, Thinglaidum, Thingria (Local), Local	49	11.5	129.93	96.35	29.78	121773.17	191403.33	2.86
Garlic	Yamuna safed 3 (G-282)	40.00	10.15	63.31	49.54	27.80	154563.33	325463.33	2.78
Onion	Bhima shakti, Arka Bhima, AFDR	56	6.5	175.18	85.82	21.16	146634.77	79254.17	3.44
Chilli	Pusa Sadabahar, Guntur hope, King chilli, Local	41	3.625	61.68	47.90	27.40	180554.84	158468.61	2.55
Turmeric	Lakadong	13	3	92	61	50.81	175000	140000	3.15
Sub Total		**199**	**34.78**	**104.42**	**68.12**	**289.81**	**155705.22**	**178917.89**	**2.96**
FRUITS									
Khasi Mandarin	Khasi Mandarin	41	19.9	61.90	42.22	40.62	57966.67	41590.00	1.91
Guava	RCGH-7, 1, L-49, AS	40	0.06	0	0	0	41600	0	Ongoing
Banana	G-9, Giant Cavendish	58	4.65	304.23	190.29	54.30	193701.33	231209.67	2.86
Lemon	Kachi Lemon	10	5	71.8	54	75.2	740000	54000	2.91
Pine apple	Queen	12	6	-	-	-	-	-	-
Kiwi fruit	Allison, Hayward	42	1.75	197.14	26.50	33.48	130606.67	68440	2.84
Strawberry	Festival	5	1	78	67	16.41	305000	275000	2.2

Grape	Bangalore Blue	10	5	73	59	23.72	87100	81000	3.1
Sub Total		**218**	**43.36**	**112.30**	**62.71**	**79.06**	**222282.10**	**107319.95**	**2.64**
FLORICULTURE									
Gerbera	RCGH-12, 22, 114	10	0.05	1860000	0	0	595862	0	3.5
Marigold	Pusa Narangi	16	6.4	6025000	4250000	41.74	62500	72000	4.55
Sub Total		**26**	**6.45**						**4.025**
MUSHROOM									
Mushroom	Oyster Mushroom	282	4						3.22
Sub Total		**282**	**4**						**3.22**
APICULTURE									
Bee Keeping	Apis cerena	29	10	0.0225	0.0175	87.82	2200	1750	4.745
Sub Total		**29**	**10**						**4.75**
OTHERS									
Sugarcane		10	1.75	386	350	10.285	172000	174000	2.79
Low cost evaporative cool storage structure	AAU Low cost evaporative cool storage structure	4	3 units	22 days shelf life	13 days (Control)	59.09	6750	-	-
Tomato	TO 017	18	3	151	290	59.00	275000	120000	2.77
Broccoli	Ashwarya			310					
Vermicomposting		35	0	0	0	39.4	6500	6500	2.585
Jalkhund	Water conservation (pea yield)	3	3	42	26	61.50	73600	67100	1.88
Water Resource management	Mini Sprinkler for Broccoli	20	0.53	31.97	9.48	75.64	21213.33	16106.67	0.21
Sloping Agriculture Land Technology	SALT (Maize)	2	2	19.40	17.90	61.60	45000.00	45000.00	1.65
	SALT (Paddy)			42.90	41.00	22.50	83683.00	83683.00	1.50
	SALT (Soyabean)			17.40	17.00	20.00	105275.00	105275.00	1.64
Broom grass	Local	7	3	53.25	46.01	20.40	60000	58000	1.84
Sub Total		**99**	**13.28**						**1.87**
Total		**2586**	**570.2**						**2.65**
			226 units						

Table-14: State-wise Details of FLD on Oilseeds, Pulses and Other Crops during 2018-19

Crop	Manipur			Meghalaya			Mizoram			Nagaland			Tripura			Total Farmers/ Demo.	Total Area (ha.)
	KVK	Farmers/ Demo	Area (ha.)	KVK	Farmers/ Demo	Area (ha.)	KVK	Farmers/ Demo	Area (ha.)	KVK	Farmers/ Demo	Area (ha.)	KVK	Farmers/ Demo	Area (ha.)		
OILSEEDS																	
Soybean	3	32	16.75				1	10	3	6	194	49.5				236	69.25
Groundnut	3	33	15	1	51	20	2	25	7.5	1	50	50				159	92.5
Mustard				1	7	2.5	1	10	4	2	8	1.5	4	213	88	238	96
Rapeseed	4	69	50	1	10	5										79	55
Oilpalm							1	10	10							10	10
Toria				1	10	1.5				5	190	97	1	51	12.16	251	110.66
Linseed										2	40	20				40	20
Sesamum										1	50	50	3	177	62.16	227	112.16
Sub Total	10	**134**	81.75	4	78	29	5	**55**	24.5	17	532	268	8	441	162.32	1240	565.57
PULSES																	
Blackgram	4	66	30.5							1	10	1	2	78	40	154	71.5
Field pea	7	86	44.75	3	95	27.5	2	30	7	9	201	46	1	28	20	440	145.25
Frenchbean	2	8	1	1	41	1	1	5	2							54	4
Greengram	1	34	10										1	45	20	79	30
Chickpea	1	10	2													10	2
Cowpea										1	4	2	1	30	20	34	22
Lentil	2	10	2							1	75	20	1	115	45	200	67
Arhar	1	3	0.75							1	4	2				7	2.75
Rajma							1	10	2				1	15	10	25	12
Lathyrus													1	20	8	20	8
Sub Total	18	**217**	91	4	136	28.5	4	**45**	11	13	294	71	8	331	163	1023	364.5
CEREALS																	
Paddy	9	187	87.63	4	51	24	2	19	15	5	46	20	5	560	144.5	863	291.13
Oat	1	5	5													5	5
Maize	3	22	3.5	2	49	7	3	20	7	4	151	22	2	84	11.84	326	51.34
Sub Total	13	**214**	96.13	6	100	31	5	**39**	22	9	197	42	7	644	156.34	1194	347.47

Vegetables (Open Cultivation)																	
Tomato	4	42	6.43	1	5	0.25	4	35	11.5	1	6	2.5	2	40	10	128	30.68
Chilli							1	10	3							10	3
Capsicum							1	5	2							5	2
Broccoli	3	23	3.15				3	25	8	4	28	5.5				76	16.65
Okra							2	15	5	1	3	0.5				18	5.5
Brinjal	1	7	2				1	10	2							17	4
Cabbage	3	20	4	2	23	5	1	10	5	5	30	6.6	1	10	2	93	22.6
Potato				3	38	7				3	67	2.32				105	9.32
Sweet Potato							1	10	2							10	2
Cucumber										1	3	1				3	1
Bottle Gourd										1	3	1				3	1
Garden Pea										1	20	1				20	1
Pumpkin							1	5	0.5							5	0.5
French Bean	1	4	1													4	1
Broad beans	1	4	2													4	2
Tapioca										1	6	2				6	2
Cauliflower							1	10	2	1	4	0.6				14	2.6
Carrot				1	6	4										6	4
Raddish										1	2	0.01				2	0.01
Sub Total	13	**100**	18.58	7	72	16.25	16	**135**	41	20	172	23.03	3	50	12	**529**	110.86
Vegetables (Protected Cultivation)																	
Tomato				1	10	0.01										10	0.01
Sub Total		**0**	0		10	0.01		**0**	0		0	0		0	0	**10**	0.01
Spices																	
Chilli	1	10	0.5							2	11	1.63	2	20	1.5	41	3.63
Ginger	2	19	6				2	20	5				1	10	0.5	49	11.5
Turmeric				1	13	3										13	3

Onion	1	6	1				2	25	5	1	25	0.5				56	6.5
Garlic							3	40	10.15							40	10.15
Sub Total	4	**35**	7.5	1	13	3	7	**85**	**20.15**	3	36	2.13	3	30	2	**199**	34.78
Fruits																	
Khasi Mandarin	1	6	2	2	20	1.4	2	15	16.5							41	19.9
Guava				1	40	0.06										40	0.06
Kiwi fruit	1	8	1	1	14	0.25				1	20	0.5				42	1.75
Strawberry							1	5	1							5	1
Banana	1	8	2	1	40	0.15	1	10	2.5							58	4.65
Pineapple				1	12	6										12	6
Grapes							1	10	5							10	5
Lemon	1	10	5													10	5
Sub Total	4	**32**	**10**	6	**126**	**7.86**	5	**40**	**25**	1	**20**	**0.5**	0	**0**	**0**	**218**	**43.36**
Floriculture																	
Gerbera				1	10	0.05										10	0.05
Marigold													1	16	6.4	16	6.4
Sub Total		**0**	**0**	1	**10**	**0.05**	0	**0**	**0**	0	**0**	**0**	1	**16**	**6.4**	**26**	**6.45**
Mushroom																	
Oyster mushroom	1	70	4	1	95	95 units	1	5	5 units	2	37	37 units	4	75	0	282	4
Sub Total	1	**70**	4	1	95	0	1	**5**	0	2	37	0	4	75	0	**282**	4
Apiculture																	
Bee keeping	1	4	10				1	5	1 unit				1	20	0	29	10
Sub Total		**4**	10		0	0		**5**	0		0	0		20	0	**29**	10
Others																	
Sugarcane	1	10	1.75													10	1.75
Cropping Systems				1	18	3										18	3

Low cost evaporative cool storage structure				1	4	3 units										4	3 units
Vermicompost							2	15	15 units	1	20	20 units				35	35 units
Other activities							3	29	5.53							29	5.53
Jalkund	1	3	3													3	3
Sub Total	2	**13**	4.75	2	22	3	5	**44**	5.53	1	20	0	0	0	0	**99**	13.28/38 units
TOTAL	66	**819**	**324**	33	**662**	**119**	49	**453**	**149**	66	**1308**	**407**	35	**1607**	**502**	**4849**	**1500/226 units**

State-wise Total Summary	**Manipur**			**Meghalaya**			**Mizoram**			**Nagaland**			**Tripura**			**Total Farmers/ Demo.**	**Total Area (ha.)**
	KVK	**Farmers/ Demo**	**Area (ha.)**	**KVK**	**Farmers/ Demo**	**Area (ha.)**	**KVK**	**Farmers/ Demo**	**Area (ha.)**	**KVK**	**Farmers/ Demo**	**Area (ha.)**	**KVK**	**Farmers/ Demo**	**Area (ha.)**		
Oilseeds	10	134	81.75	4	78	29	5	55	24.50	17	532	268.00	8	441	162.32	1240	565.57
Pulses	18	217	91	4	136	29	4	45	11	13	294	71	8	331	163	1023	364.50
Other crops	38	468	151	25	448	61	40	353	114	36	482	68	19	835	177	2586	570
Grand Total	**66**	**819.00**	**323.71**	**33**	**662.00**	**118.67**	**49**	**453.00**	**149.18**	**66**	**1308.00**	**406.66**	**35**	**1607.00**	**502.06**	**4849**	**1500.28/ 226 units**

2.4.4. FLD on Livestock

In livestock sector, a total of **1334** demonstrations were conducted by the KVKs during 2018-19 covering **400454** nos. of animals, poultry/ other birds and fingerlings. The demonstrations under livestock comprised of Poultry (**620**), Piggery (**120**), Fisheries (**182**), Duckery (**29**), Goatery (**29**), IFS (60) and Dairy (**31**) (Table 13). The percentage change in parameters ranged from **36.82%** in piggery with performance parameters like Litter size at weaning, body weight gain and kits production, litter size at birth to **94.67** % in case of fisheries in performance parameters such as General health, Growth rate, mortality, resistance to diseases *etc*.

Frontline Demonstration on Feed Management of Growing Piglets

Frontline Demonstration on Scientific Rearing of Backyard Piggery in KVK Imphal East

Table 15: Frontline Demonstration on Livestock Enterprise during 2018-19

Enterprise	Name of Breed/Species	No. of farmers/ Demons	No. of animals, poultry birds etc.	Performance parameters / indicators	% change in the parameter
Piggery	Hampshire cross, Gurungroo, Yorkshire Cross, LWY, Local	120	543	Litter size at birth & weaning, individual body weight at birth, weaning	36.82
Poultry	Srinidhi, Vanaraja, Kuroiler, White Leghorn, Rainbow Rooster, (Dahlem Red X Tripura Black X coloured Broiler) BND breed, Local	620	9665	Egg production, Egg weight, disease resistance, mortality rate	73.19

Goatery	Beetal Cross, Local	29	74	Litter size at birth & weaning, individual body weight at birth, weaning	42.08
Dairy	Holstein cross/ Jersey cross, Indigeneous	31	69	General health, Milk Production, Growth rate, mortality, resistance to diseases, calving period	32.62
Fishery	IMC, Amur carp, Magur, Pabda	182	182450	Yield, water quality, duration maturity, average weight	94.67
Duckery	White Pekin, Khaki Campbell	29	550	Body weight, Egg production and Egg weight	80.67
IFS	Duck cum Fish, Piggery cum Fish, Poultry cum Fish, Paddy cum Fish	60	207103	Weight of fish (kg/ha), Duck meat yield (kg/ha), Paddy yield (kg/ha), pig weight (kg)	90.48
Others	Mushroom, Apiculture, Banana fiber extractor, Vermicompost	263	32 units	-	82.9
Total		**1334**	**400454**	-	**66.68**

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 **1334** demonstrations, the maximum number of demonstrations (409) were conducted in the state of Nagaland with highest in poultry sector with a total number of 388 demonstrations and 3640 number of farm animals were distributed w.r.t poultry followed by Meghalaya (347) and Manipur (232). While maximum number of inputs such as animals/ birds/ units *etc*. were supplied among the famers for conducting demonstrations by the KVKs in Tripura (190100 fingerlings and ducklings for IFS followed by 129200 fingerlings of fishes under demonstrations of fisheries followed by Mizoram and Meghalaya with 24000 and 19500 fingerlings distribution respectively.

Table- 16: State-wise Details of FLD on Livestock Enterprises during 2018-19

Enterprise	Manipur		Meghalaya		Mizoram		Nagaland		Tripura		Total farmers/ Demo.	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	24	96	37	78	18	68	21	141	20	160	**120**	**543**
Poultry	139	4050	30	750	33	625	388	3640	30	600	**620**	**9665**
Goatery	9	24	-	-	10	20	-	-	10	30	**29**	**74**
Dairy	-	-	-	-	19	57	-	-	12	12	**31**	**69**
Fishery	28	9750	38	19500	38	24000	-	-	78	129200	**182**	**182450**
Duckery	29	550			-		-	-			**29**	**550**
IFS	3	1030	42	15973	-		-	-	15	190100	**60**	**207103**
Others	-	-	200	32 units	-		-	-	63	0	**263**	**0**
Total	**232**	**15500**	**347**	**36301**	**118**	**24770**	**409**	**3781**	**228**	**320102**	**1334**	**400454**

2.4.5. FLD on Other Enterprises

The KVKs had not only confined their demonstrations in crops and livestock but also had given emphasis to livelihood promotion activities. 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 2018-19, a total of **679** demonstrations were conducted in such enterprises like Farm implements & Machinery (**169**), Mushroom (Oyster Mushroom) with **26** demonstrations, Apiculture (**8**), Promotion of nutritional garden (**26**), Charcoal briquette cake (**36**), Impact Assessment (**20**), Value addition (**278**), Fodder (Hy. Napier Guinea Congosignal) with 37 demonstrations, Vermicompost of *Eiseniafoetida & Eudrillu seugeniae, Silpauline* (**4**) *etc*. (**Table 17).**

Frontline Demonstration on Popularization of oyster mushroom by KVK Imphal West

Frontline Demonstration On Bee Hive Charcoal Briquette Cake

Table 17: Frontline Demonstration on Other Enterprises during 2018-19

Enterprise	Activity	No. of farmers/ Demons	No. of animals, poultry birds etc.	Performance parameters / indicators	% change in the parameter
Farm Implements & Machinery					
Groundnut decorticator	Groundnut decorticator	6	6	Labour use efficiency, cost effectiveness, Average of output	258
Maize sheller	Mounted maize sheller	77	11		188
Solar dryer		51	9		3

Mechanical paddy harvesting	Use of paddy reaper	12	5.75		
Power operated paddy thresher	Rice	10	-		52.30
Seed drill	Eight row tractor drawn zero till seed drill	5	3.5		48.645
Low-cost pump Treadle pump	Irrigation of vegetables	3	1.5		150
Revolving milking stool and stand	Uses of Revolving milking stool and stand for reducing drudgery	5	5 units	Perception of body discomfort, Psychological perception	-
Mushroom	Oyster Mushroom	26	23 units	No. of days required for pinhead formation, average yield	
Vermicompost	Eisenia foetida & Eudrilluseugeniae, Silpauline (12 x 4.5 x2.5) ft 3	4	4 units	Decomposition rate, organic matter production	
Charcoal briquette cake	Bee hive charcoal briquette	36	36 units	Duration of combustion (in min), Cost price/ unit wt.	216.67
Promotion of nutritional garden	Cabbage, amaranthus, Spinach, Coriander, chilly, onion, beans)	26	-	Percentage increase in consumption of vegetables per day, health status, nutritional status	-
Polyhouse	Vegetable production under low cost polyhouse (20m X 5m)- Tomato, King Chilli and Broccoli	3	-	Income generated (Rs./month)	-
Apiculture	Scientific method of Beekeeping (Species – Indian hive bee, aphis cerana)	8	23 boxes	Average yield of honey	21
Fodder	Hy. Napier Guinea Congosignal	37	51	Yield	-
Value Addition & Food Processing	Ginger, Soybean, Amla, Tapioca, Jackfruit	278	3 units	Increased shelf life, marketability, consumer acceptability	52.04
Impact Assessment	Impact assessment on pest of strawberry, analysis on chilli	20	-	Income generated (Rs./month)	-
Others		72	28 units		
Total		**679**	**87.75**		**109.91**

The state-wise details of FLDs on other enterprises conducted by KVKs under Zone-VII during 2018-19 are given in **Table-18**. The table shows that out of 5 states under the zone, KVKs in Mizoram conducted highest number of FLDs on other enterprises (269) followed by Nagaland, Manipur Tripura and Meghalaya with **207**, **165**, **30** and **8** nos. of demonstrations respectively.

Table-18: State-wise Details of FLD on Other Enterprises during 2018-19

Enterprise	No. of farmers/Demo.					Total Farmers/ Demo.
	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	
Farm implements and machinery	80	8	10	66		164
Revolving milking stool and stand	5					5
Mushroom production	7			19		26
Vermicompost	4					4
Charcoal briquette cake	6		30			36
Control of EUS disease in IMC						0
Jalkund						0
Promotion of nutritional garden	5		20	1		26
Polyhouse	3					3
Apiculture				8		8
Fodder			5		30	35
Impact Assessment						0
Food Processing/Value Addition	10		162	106		278
Soakage pit						0
Chulha						0
Others	45		42	7		94
Total	**165**	**8**	**269**	**207**	**30**	**679**

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 2018-19, as indicated in **Table-19,** a total of **3220** training programmes were conducted by the KVKs in different areas of agriculture and allied activities (Fig. 4) benefitting a total of **84743** farmers and farm women, rural youth, in-service extension personnel, civic bodies, NGOs, entrepreneurs *etc*.

The highest number of training programmes (**1948**) were conducted for farmers and farm women which could benefit a total of **53635** representing **15573** farmers and farm women from the state

of Mizoram followed by Nagaland **(11948)** and Meghalaya (**11865**). In case of rural youth, a total of **757** nos. of training programmes were conducted by Manipur (242), Meghalaya (120), Mizoram (159), Nagaland (139) and Tripura (97) and benefitted a total number of 12268 no. of rural youth across the five north eastern states. While **178** training programmes were conducted by the KVKs under the zone for extension personnel for the benefit of **4306** participants. The table also shows that a total of **103** Vocational and **234** Sponsored training programmes were also conducted during 2018-19 benefitting a total of **2163** and **12371** of different target groups including unemployed rural youth, NGOs members, SHGs *etc*.

Training Programmes conducted by KVK Aizawl

Table 19 : State-Wise Summary for Training Programmes during 2018-19

Training	No. of Courses						No. of participants					Total	
	Man	Meg	Miz	Nag	Tri	Total	Man	Meg	Miz	Nag	Tri	Courses (No.)	Participants (No.)
Farmers and Farm Women	525	409	405	412	197	**1948**	9068	11865	15573	11948	5181	**1948**	**53635**
Rural youth	242	120	159	139	97	**757**	2449	2074	2576	3302	1867	**757**	**12268**
Extension personnel	41	35	32	39	31	**178**	987	694	677	1166	782	**178**	**4306**
Vocational Training Programme	23	25	23	15	17	**103**	436	831	457	105	334	**103**	**2163**
Sponsored Training Programme	59	35	81	36	23	**234**	537	1703	8732	792	607	**234**	**12371**
Total	**890**	**624**	**700**	**641**	**365**	**3220**	**13477**	**17167**	**28015**	**17313**	**8771**	**3220**	**84743**

Note: Man-Manipur, Meg-Meghalaya, Miz-Mizoram, Nag-Nagaland, Tri-Tripura

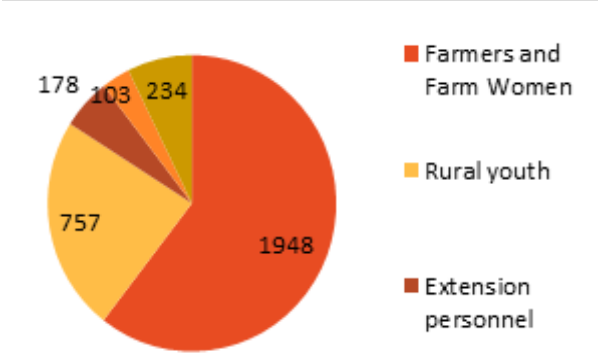


Fig 4: No. of Courses conducted for different target groups

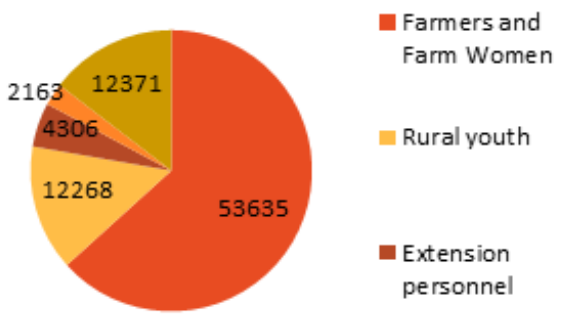


Fig 5:No. of participants in different training programmes

2.5.1. Training programmes for Farmers and Farm Women

A total of **1948** training courses benefitting a total of **53635** farmers and farm women were conducted during the period on various agricultural technologies. Among the participants, **28577** were male and remaining **25058** were female (**Table 20**).The thrust areas under which these programmes had been conducted includes productivity enhancement of crop production (375), horticultural crops (**272**), Plant protection (**294**), Livestock production and management (**276**), Soil health and fertility management (**208**), Home Science/ Women empowerment (**177**), Capacity building and group dynamics (**103**) etc. Training programmes had been conducted in different areas of Agro forestry (**39**) and fish production and management (**98**) and Agricultural engineering (**56**).

Training Programme of Farmer and Farm women by KVK Champhai

Table-20: Details of training programmes conducted for Farmers and Farm Women during 2018-19

Area of Training	Courses (No)	No. of Participants								
		General			SC/ST			TOTAL		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop Production	375	661	205	866	5036	4415	9451	5697	4620	**10317**
Horticulture										
Vegetable Crops	84	191	89	280	2708	2623	5331	2899	2712	**5611**

Fruits	110	82	49	131	1294	1093	2387	1376	1142	**2518**
Ornamental Plants	15	0	0	0	163	214	377	163	214	**377**
Plantation Crops	41	14	5	19	474	666	1140	488	671	**1159**
Tuber Crops	10	58	15	73	91	89	180	149	104	**253**
Spices	11	0	0	0	152	199	351	152	199	**351**
Medicinal and aromatic Plants	1	0	0	0	10	15	25	10	15	**25**
Soil health and fertility management	208	283	71	354	3084	2089	5173	3367	2160	**5527**
Livestock production and management										
Dairy Management	23	80	33	113	309	187	496	389	220	**609**
Poultry Management	111	129	98	227	1145	1155	2300	1274	1253	**2527**
Piggery Management	60	56	23	79	765	634	1399	821	657	**1478**
Duckery	1	0	0	0	9	11	20	9	11	**20**
Disease Management	39	70	22	92	405	488	893	475	510	**985**
Feed Management	27	112	20	132	291	235	526	403	255	**658**
Production of quality animal products	12	0	0	0	130	163	293	130	163	**293**
Housing Management	3	24	4	28	48	8	56	72	12	**84**
Home Science/ Women empowerment	177	724	260	984	632	2763	3395	1356	3023	**4379**
Agril. Engineering	56	76	55	131	584	436	1020	660	491	**1151**
Plant Protection	294	90	306	396	3578	2777	6355	3668	3083	**6751**
Fisheries	98	878	116	994	1416	838	2254	2294	954	**3248**
Production of inputs at site	50	247	20	267	210	168	378	457	188	**645**
Capacity Building and Group Dynamics	103	20	7	27	1499	1766	3265	1519	1773	**3292**
Agro-forestry	39	35	0	35	714	628	1342	749	628	**1377**
Total	**1948**	**3830**	**1398**	**5228**	**24747**	**23660**	**48407**	**28577**	**25058**	**53635**

2.5.2. Training programmes for Rural Youth

During 2018-19 as many as **757** skill oriented training programmes were organized by the KVKs for **12268** rural youths, which included **6310** male and **5958** female participants. The major thematic areas of the training programmes includes Livestock Production and Management with **111** courses benefitting **2164** participants, **111** courses in different horticultural technologies with **1573** participants, **38** courses of Soil Health and Fertility Management/ INM including vermicomposting benefitting **696** participants, **215** courses of mushroom production, Post harvest technology (**08**) and **16** courses on value addition which could benefit for **1482**, **141** and **334** participants, respectively.

Training Programme for Rural Youth by KVK East Garo Hills

Training Programme for Rural Youth by KVK Dimapur

Besides, special care was also taken for women empowerment through different homestead activities, hence a total of **06** courses in Home science/ women empowerment benefitting **118** 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**.

Table -21: Details of training programmes conducted for Rural Youth during 2018-19

Area of training	Course (No)	No. of Participants								
		General			SC/ST			TOTAL		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop production	71	118	23	141	777	604	1381	895	627	**1522**
Horticulture				0			0			
Vegetable crops	28	40	16	56	304	307	611	344	323	**667**
Fruits	49	48	5	53	257	284	541	305	289	**594**
Ornamental Crops	34	18	6	24	127	161	288	145	167	**312**

Mushroom Production	215	66	143	209	550	723	1273	616	866	**1482**
Bee Keeping	15	87	23	110	156	134	290	243	157	**400**
Plant Protection	16	30	9	39	88	95	183	118	104	**222**
Fishery	25	92	18	110	275	210	485	367	228	**595**
Post Harvest Technology	8	0	0	0	54	87	141	54	87	**141**
Small Scale Processing	5	0	9	9	7	56	63	7	65	**72**
Value Addition	16	12	18	30	55	249	304	67	267	**334**
Home Science/ Women Empowerment	6	0	0	0	57	61	118	57	61	**118**
Livestock Production and Management										
Piggery	40	74	19	93	249	241	490	323	260	**583**
Poultry production	23	67	27	94	200	180	380	267	207	**474**
Rabbit farming	3	0	0	0	36	36	72	36	36	**72**
Management in Animal Farm	6	8	3	11	84	91	175	92	94	**186**
Sheep and Goat Rearing	4	32	13	45	34	15	49	66	28	**94**
Duckery	3	0	0	0	40	40	80	40	40	**80**
Quail	4	0	0	0	73	73	146	73	73	**146**
Dairy	23	0	0	0	214	214	428	214	214	**428**
Disease Management	5	32	6	38	38	25	63	70	31	**101**
Agril Engineering	20	4	0	4	161	148	309	165	148	**313**
Capacity Building and Group Dynamics	13	0	26	26	116	210	326	116	236	**352**
Agro-forestry	2	2	2	4	2	2	4	4	4	**8**
Integrated Farming	47	91	46	137	702	640	1342	793	686	**1479**

Soil Health Management	5	35	2	37	78	82	160	113	84	**197**
Vermi culture	33	38	16	54	235	210	445	273	226	**499**
Planting Material Production	10	78	25	103	60	51	111	138	76	**214**
Rural Crafts	7	40	15	55	7	7	14	47	22	**69**
Others	21	70	41	111	192	211	403	262	252	**514**
Total	**757**	**1082**	**511**	**1593**	**5228**	**5447**	**10675**	**6310**	**5958**	**12268**

2.5.3. Training programmes for Extension Personnel

During the year 2018-19 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 **178** courses benefiting **4306** in-service extension personnel had been arranged in the region during the period (**Table-22**). A total of **22** courses benefitting **457** extension personnel were conducted on different areas of horticulture, while **66** courses benefitting **1797** extension personnel were organized in crop production by the KVKs during the year. In plant protection, **13** courses were arranged for **245** extension personnel. The other important thrust areas covered were soil health and fertility management/ INM (**10** courses, **178** participants), livestock production and management (**38** courses, **974** participants), home science/women empowerment (**04** courses, **60** participants), capacity building and group dynamics (**13** Courses, **251**participants), fisheries (**3** Course, **69** participants) *etc*.

Table-22: Details of training programmes conducted for Extension Personnel during 2018-19

Area of training	Course (No)	No. of Participants								
		General			SC/ST			TOTAL		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop Production	66	123	86	209	976	612	1588	1099	698	**1797**
Horticulture										
Vegetable Crops	8	17	3	20	148	37	185	165	40	**205**
Fruits	14	37	7	44	146	62	208	183	69	**252**
Livestock and Production Management										
Management in Farm Animals	27	81	26	107	406	203	609	487	229	**716**
Livestock feed and fodder production	10	65	7	72	120	46	166	185	53	**238**
Feeding Management	1	0	0	0	0	20	20	0	20	**20**

Plant Protection	13	32	16	48	129	68	197	161	84	**245**
Production and use of organic inputs	1	0	0	0	9	3	12	9	3	**12**
Fisheries	3	15	6	21	43	5	48	58	11	**69**
Home Science/ Women Empowerment	4	0	0	0	2	58	60	2	58	**60**
Capacity Building and Group Dynamics	13	44	29	73	131	47	178	175	76	**251**
Integrated Nutrient Management	3	4	0	4	33	8	41	37	8	**45**
Soil Health Management	7	42	18	60	54	19	73	96	37	**133**
Others	8	52	13	65	130	68	198	182	81	**263**
Total	**178**	**512**	**211**	723	**2327**	**1256**	3583	**2839**	**1467**	**4306**

2.5.4. Sponsored training programmes

The KVKs in the zone conducted **234** training courses during the period sponsored by different agencies/organizations which benefitted a total of **12371** participants. Out of the total number of participants, **6098** were male and **6273** 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(**26** courses, **747** participants), horticulture (**30**courses,**746** participants), piggery (**18** Courses,**402** participants), poultry production(**17** courses, **570** participants), mushroom production (**21** Courses, **319** participants)plant protection (**29** courses, **5244** participants) *etc.*

Table-23: Details of Sponsored training programmes conducted by KVKs during 2018-19

Area of training	Courses (No)	No of Participants						Total		Overall
		General			ST/SC					
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop Production	26	143	32	175	336	236	572	479	268	**747**
Soil Health	21	0	0	0	396	350	746	396	350	**746**
Vegetable crops	19	10	12	22	245	276	521	255	288	**543**
Fruits	3	0	0	0	31	29	60	31	29	**60**
Ornamental Crops	8	0	0	0	63	80	143	63	80	**143**
Home Science/ Women Empowerment	23	5	22	27	45	383	428	50	405	**455**
Mushroom Production	21	28	60	88	52	179	231	80	239	**319**
Livestock Production and Management										

Piggery	18	37	4	41	183	178	361	220	182	**402**
Poultry Production	17	12	15	27	216	327	543	228	342	**570**
Dairying	4	0	0	0	31	27	58	31	27	**89**
Management of Farm animals and Feed	5	10	1	11	44	25	69	54	26	**123**
Plant Protection	29	0	0	0	1753	1738	3491	1753	1738	**5244**
Small Scale Processing	5	0	0	0	12	48	60	12	48	**72**
Health Care	3	0	0	0	29	6	35	29	6	**64**
Others	32	80	8	88	2337	2237	4574	2417	2245	**6991**
Total	**234**	**325**	**154**	**479**	**5773**	**6119**	**11892**	**6098**	**6273**	**12371**

2.5.5. Vocational training programmes

The KVKs in the region conducted **103** vocational training courses during the period which benefitted a total of **2163** participants. Out of the total number of participants, **1073** were male and **1082** 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 (16 courses, **385** participants), horticulture (**14** courses, **291** participants), mushroom production (**26** courses, **320** participants), value addition (**05** courses, **195**participants**),** , capacity building and group dynamics (**03** courses, **08** participants), livestock production and management (**18** courses, **392** participants) *etc*.

Table-24: Details of Vocational training programmes conducted by KVKs during 2018-19

Area of training	Courses (No)	General			ST/SC			Total		Overall Total
		Male	Female	Total	Male	Female	Total	Male	Female	
Crop production	16	20	10	30	175	180	355	195	190	**385**
Horticulture										
Fruits	8	13	0	13	56	61	117	69	61	**130**
Vegetables	3	0	0	0	35	61	96	35	61	**96**
Floriculture	3	0	0	0	15	50	65	15	50	**65**
Mushroom cultivation	26	9	43	52	103	165	268	112	208	**320**
Value addition	5	0	0	0	92	103	195	92	103	**195**
Disease management	3	12	8	20	49	21	70	61	29	**90**
Dairy	2	19	1	20	5	12	17	24	13	**37**
Fisheries	8	0	0	0	109	94	203	109	94	**203**
Piggery	5	3	0	3	57	24	81	60	24	**84**
Bee keeping	3	4	1	5	36	19	55	40	20	**60**
Poultry	3	0	0	0	53	15	68	53	15	**68**

Home science	1	0	0	0	20	20	40	20	20	**40**
Vermi composting	10	0	0	0	138	144	282	138	144	**282**
Production of organic inputs	1	0	0	0	15	15	30	15	15	**30**
Integrated farming system	2	19	4	23	16	10	26	35	14	**49**
Capacity building and group dynamics	3	0	0	0	8	0	0	8	0	**8**
Small scale income generating activities	1	0	0	0	0	21	21	0	21	**21**
Total	**103**	**99**	**67**	**166**	**982**	**1015**	**1989**	**1073**	**1082**	**2163**

2.6. Extension Activities

During 2018-19, 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 2018-19 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 **28713** nos. of extension programmes/ activities, reaching over **212025** 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 (Table 25). 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 (**14009**) of activities was conducted under the group field trips and visits while the highest number (**45121**) of beneficiaries had been served through different publications like extension literature, electronic media, leaflets/folders and training manuals etc. A detail of the extension activities including number of beneficiaries is given in **Table-25**.

Method Demonstration on Use of Waste Decomposer on Paddy Straw for making Compost by KVK Imphal East

Exhibition by KVK Dimapur at Dimapur and Medziphema

Table-25: Details of Extension Activities organized by KVKs during 2018-19

Category	Extension activities	No. of programme	No. of participants								
			Male				Female				Total
			SC/ST	OBC	Gen	Sub-Total	SC/ST	OBC	Gen	Sub-Total	
Field Trips and Visits	Diagnostic visits	3340	4036	71	710	4817	3236	13	296	3545	8362
	Scientists visit to farmers field	2977	5751	163	959	6873	4168	88	191	4447	11320
	Exposure visits	82	856	63	249	1168	776	105	80	961	2129
	Farmers Visit to KVK	7610	5561	570	5143	11274	4099	56	688	4843	16117
	Total	**14009**	**16204**	**867**	**7061**	**24132**	**12279**	**262**	**1255**	**13796**	**37928**
Group activities	Farmers Scientist Interaction	83	1244	79	135	1458	1394	62	8	1464	2922
	Group meetings/ Discussion	692	4525	408	738	5671	4368	181	261	4810	10481
	Kisan Gosthi	30	638	205	0	843	389	165	0	554	1397
	Mahila Mandal Conveners' meetings	7	761	0	0	761	764	0	0	764	1525
	Self Help Group Conveners meetings	124	735	400	535	1670	703	500	553	1756	3426
	Method Demonstrations	670	4465	80	517	5062	4424	60	226	4710	9772
	Farm Science Club Conveners meet	66	348	180	348	876	396	250	200	846	1722

	Lecture Delivered as resource person	119	1082	225	344	1651	630	95	60	785	2436
	Ex-trainees meet	6	97	0	15	112	88	0	5	93	205
	Total	**1797**	**13895**	**1577**	**2632**	**18104**	**13156**	**1313**	**1313**	**15782**	**33886**
Mass outreach programmes	Advisory Services	9549	4823	558	2548	7929	4114	454	593	5161	13090
	Kisan Mela	16	3065	1765	273	5103	2413	795	141	3349	8452
	Film show	337	3971	80	521	4572	3850	40	236	4126	8698
	Exhibition	58	10173	65	94	10332	9499	78	83	9660	19992
	Farmers Seminar/ workshop	33	691	98	205	994	699	30	100	829	1823
	Field Day	197	3002	343	595	3940	2413	178	219	2810	6750
	PRA	27	865	0	460	1325	489	0	182	671	1996
	Celebration of important days	213	9382	460	1150	10992	7553	262	403	8218	19210
	TV Talks	45	0	0	0	0	0	0	0	0	0
	Radio talks	132	0	0	0	0	0	0	0	0	0
	News paper coverage	342	2656	0	0	2656	1591	0	0	1591	4247
	Total	**10949**	**38628**	**3369**	**5846**	**47843**	**32621**	**1837**	**1957**	**36415**	**84258**
Camps and Campaigns	Animal Health Camp	52	1925	145	433	2503	1532	68	115	1715	4218
	Plant health camp	7	179	0	9	188	200	0	2	202	390
	Awareness Camp	58	1340	78	211	1629	1105	11	46	1162	2791
	Soil health/ testing Campaigns	65	1810	137	327	2274	1043	56	60	1159	3433
	Total	**182**	**5254**	**360**	**980**	**6594**	**3880**	**135**	**223**	**4238**	**10832**
Publications	Training/ practical manual	35	523	224	0	747	370	0	0	370	1117
	Extension literature	103	30	0	0	30	80	0	0	80	110
	News letter	12	25	0	0	25	18	0	0	18	43
	Research papers	54	322	0	0	322	233	0	0	233	555
	Technical report/ article	14	600	0	0	600	600	0	0	600	1200
	Literature delivered to resource person	444	9234	0	0	9234	9788	0	0	9788	19022
	Electronic media	8	197	0	0	197	162	0	0	162	359

	CD publication	5	100	0	0	100	100	0	0	100	200
	Technical bulletins	11	295	0	0	295	305	0	0	305	600
	Leaflets/folders	143	3510	1262	110	4882	2708	115	105	2928	7810
	Other	947	6740	179	553	7472	6260	84	289	6633	14105
	Total	**1776**	**21576**	**1665**	**663**	**23904**	**20624**	**199**	**394**	**21217**	**45121**
	Grand Total	**28713**	**95557**	**7838**	**17182**	**120577**	**82560**	**3746**	**5142**	**91448**	**212025**

The state-wise details of extension programmes and activities conducted by KVKs under Zone-VII during 2018-19 are presented in **Table-26.**

Table-26: State-wise Extension Activities organized by KVKs during 2018-19

Sl. No.	State	Extension activities	No. of programme	No. of participants								
				Male				Female				Total
				SC/ST	OBC	Gen	Sub-Total	SC/ST	OBC	Gen	Sub-Total	
1	Manipur	Diagnostic visits	380	344	54	401	799	188	5	218	411	1210
2	Manipur	Advisory Services	5904	910	403	125	1438	484	424	43	951	2389
3	Manipur	Animal Health Camp	15	348	113	232	693	222	36	53	311	1004
5	Manipur	Training/ practical manual	13	68	224	0	292	0	0	0	0	292
6	Manipur	Celebration of important days	63	1132	380	483	1995	950	212	183	1345	3340
7	Manipur	Exhibition	15	2880	12	94	2986	2392	12	83	2487	5473
8	Manipur	Exposure visits	23	132	48	84	264	169	105	15	289	553
9	Manipur	Farm Science Club Conveners meet	47	193	180	295	668	207	250	200	657	1325
10	Manipur	Farmers Seminar/ workshop	7	37	0	0	37	27	0	0	27	64
11	Manipur	Farmers Visit to KVK	4800	1798	560	4314	6672	990	56	449	1495	8167
12	Manipur	Field Day	21	219	116	64	399	185	142	54	381	780
13	Manipur	Group meetings/ Discussion	138	608	196	178	982	640	124	134	898	1880
14	Manipur	Awareness Camp	18	429	0	0	429	369	0	0	369	798
15	Manipur	KisanGosthi	14	324	205	0	529	162	165	0	327	856
16	Manipur	KisanMela	3	100	0	50	150	100	0	50	150	300
17	Manipur	Method Demonstrations	133	492	0	118	610	607	0	69	676	1286

18	Manipur	Scientists visit to farmers field	977	887	153	197	1237	512	87	110	709	1946
19	Manipur	Self Help Group Conveners meetings	17	576	400	535	1511	522	500	535	1557	3068
20	Manipur	Soil health/ testing Campaigns	14	372	102	0	474	221	41	0	262	736
21	Manipur	Film show	30	328	0	47	375	397	0	41	438	813
22	Manipur	Farmers Scientist interaction	10	95	20	0	115	35	50	0	85	200
23	Manipur	Ex-trainee Sammelan	5	97	0	0	97	88	0	0	88	185
24	Manipur	News paper coverage	102	0	0	0	0	0	0	0	0	0
25	Manipur	News letter	3	25	0	0	25	18	0	0	18	43
26	Manipur	Research papers	20	22	0	0	22	33	0	0	33	55
27	Manipur	Technical report/ article	2	0	0	0	0	0	0	0	0	0
28	Manipur	Radio talks	50	0	0	0	0	0	0	0	0	0
29	Manipur	TV Talks	34	0	0	0	0	0	0	0	0	0
30	Manipur	Electronic media	3	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	15	0	0	0	0	0	0	0	0	0
33	Manipur	Technical report/ article	2	0	0	0	0	0	0	0	0	0
34	Manipur	Technical bulletins	1	0	0	0	0	0	0	0	0	0
35	Manipur	Literature delivered to resource person	148	4810	0	0	4810	5876	0	0	5876	10686
36	Manipur	Lecture delivered as resource person	55	350	220	0	570	115	95	0	210	780
37	Manipur	Leaflets/folders	31	366	1262	110	1738	496	115	105	716	2454
38	Manipur	PRA	3	76	0	0	76	44	0	0	44	120
39	Manipur	Other	38	227	179	0	406	207	84	0	291	697
		Total	**13157**	**18245**	**4827**	**7327**	**30399**	**16256**	**2503**	**2342**	**21101**	**51500**
40	Meghalaya	Diagnostic visits	398	845	0	32	877	1119	0	0	1119	1996

41	Meghalaya	Advisory Services	561	644	0	10	654	874	0	0	874	1528
42	Meghalaya	Animal Health Camp	10	187	0	17	204	268	0	0	268	472
43	Meghalaya	Plant health camp	1	24	0	0	24	26	0	0	26	50
44	Meghalaya	Training/ practical manual	2	50	0	0	50	50	0	0	50	100
45	Meghalaya	Celebration of important days	41	2028	0	0	2028	2076	0	0	2076	4104
46	Meghalaya	Exhibition	9	147	0	0	147	253	0	0	253	400
47	Meghalaya	Exposure visits	20	267	0	0	267	343	0	0	343	610
48	Meghalaya	Farm Science Club Conveners meet	12	85	0	35	120	163	0	0	163	283
49	Meghalaya	Farmers Seminar/ workshop	13	393	0	5	398	400	0	0	400	798
50	Meghalaya	Farmers Visit to KVK	390	1029	0	168	1197	1337	0	0	1337	2534
51	Meghalaya	Field Day	43	557	0	30	587	642	0	0	642	1229
52	Meghalaya	Group meetings/ Discussion	245	1734	0	87	1821	1971	0	0	1971	3792
53	Meghalaya	Awareness Camp	8	316	0	58	374	414	0	0	414	788
54	Meghalaya	Kisan Gosthi	10	167	0	0	167	119	0	0	119	286
55	Meghalaya	Kisan Mela	4	647	0	0	647	811	0	0	811	1458
56	Meghalaya	Mahila Mandal Conveners' meetings	3	750	0	0	750	750	0	0	750	1500
57	Meghalaya	Method Demonstrations	128	1186	0	0	1186	1241	0	0	1241	2427
58	Meghalaya	Scientists visit to farmers field	482	1243	0	82	1325	1212	0	0	1212	2537
59	Meghalaya	Self Help Group Conveners meetings	95	67	0	0	67	133	0	0	133	200
60	Meghalaya	Soil health/ testing Campaigns	9	266	0	0	266	301	0	0	301	567
61	Meghalaya	Film show	94	1426	0	44	1470	1574	0	0	1574	3044
62	Meghalaya	Farmers Scientist interaction	51	805	0	17	822	1009	0	0	1009	1831

63	Meghalaya	News paper coverage	14	0	0	0	0	0	0	0	0	0
64	Meghalaya	News letter	0	0	0	0	0	0	0	0	0	0
65	Meghalaya	Research papers	0	0	0	0	0	0	0	0	0	0
66	Meghalaya	Technical report/ article	0	0	0	0	0	0	0	0	0	0
67	Meghalaya	Radio talks	7	0	0	0	0	0	0	0	0	0
68	Meghalaya	TV Talks	4	0	0	0	0	0	0	0	0	0
69	Meghalaya	CD publication	0	0	0	0	0	0	0	0	0	0
70	Meghalaya	Extension literature	8	0	0	0	0	0	0	0	0	0
71	Meghalaya	Technical bulletins	0	0	0	0	0	0	0	0	0	0
72	Meghalaya	Literature delivered to resource person	155	1959	0	0	1959	2138	0	0	2138	4097
73	Meghalaya	Lecture delivered as resource person	18	127	0	81	208	203	0	0	203	411
74	Meghalaya	Leaflets/folders	23	40	0	0	40	40	0	0	40	80
75	Meghalaya	PRA	10	170	0	16	186	235	0	0	235	421
76	Meghalaya	Other	450	4633	0	0	4633	4690	0	0	4690	9323
		Total	**3318**	**21792**	**0**	**682**	**22474**	**24392**	**0**	**0**	**24392**	**46866**
77	Mizoram	Diagnostic visits	2061	1987	0	60	2047	1323	0	0	1323	3370
78	Mizoram	Advisory Services	1662	1920	0	720	2640	1396	0	0	1396	4036
79	Mizoram	Animal Health Camp	11	954	0	0	954	804	0	0	804	1758
80	Mizoram	Training/ practical manual	15	351	0	0	351	270	0	0	270	621
81	Mizoram	Celebration of important days	35	864	0	0	864	527	0	0	527	1391
82	Mizoram	Exhibition	10	3779	0	0	3779	4253	0	0	4253	8032
83	Mizoram	Exposure visits	4	93	0	0	93	57	0	0	57	150
84	Mizoram	Farm Science Club Conveners meet	4	11	0	0	11	14	0	0	14	25
85	Mizoram	Farmers Seminar/ workshop	3	144	0	0	144	126	0	0	126	270

86	Mizoram	Farmers Visit to KVK	558	1081	0	0	1081	753	0	0	753	1834
87	Mizoram	Field Day	49	997	0	50	1047	758	0	50	808	1855
88	Mizoram	Group meetings/ Discussion	92	1055	0	63	1118	532	0	0	532	1650
89	Mizoram	Awareness Camp	5	395	0	0	395	213	0	0	213	608
90	Mizoram	Kisan Gosthi	6	147	0	0	147	108	0	0	108	255
91	Mizoram	Kisan Mela	4	1415	0	0	1415	797	0	0	797	2212
92	Mizoram	Mahila Mandal Conveners' meetings	4	11	0	0	11	14	0	0	14	25
93	Mizoram	Method Demonstrations	195	1293	0	0	1293	803	0	0	803	2096
94	Mizoram	Scientists visit to farmers field	484	806	0	0	806	371	0	0	371	1177
95	Mizoram	Self Help Group Conveners meetings	4	55	0	0	55	25	0	0	25	80
96	Mizoram	Soil health/ testing Campaigns	20	513	0	0	513	170	0	0	170	683
97	Mizoram	Film show	43	591	0	0	591	427	0	0	427	1018
98	Mizoram	Farmers Scientist interaction	3	98	0	0	98	49	0	0	49	147
99	Mizoram	News paper coverage	104	1456	0	0	1456	791	0	0	791	2247
100	Mizoram	News letter	0	0	0	0	0	0	0	0	0	0
101	Mizoram	Research papers	3	300	0	0	300	200	0	0	200	500
102	Mizoram	Technical report/ article	6	0	0	0	0	0	0	0	0	0
103	Mizoram	Radio talks	5	0	0	0	0	0	0	0	0	0
104	Mizoram	TV Talks	4	0	0	0	0	0	0	0	0	0
105	Mizoram	Electronic media	0	0	0	0	0	0	0	0	0	0
106	Mizoram	CD publication	0	0	0	0	0	0	0	0	0	0
107	Mizoram	Extension literature	61	30	0	0	30	80	0	0	80	110
108	Mizoram	Technical bulletins	4	220	0	0	220	180	0	0	180	400
109	Mizoram	Literature delivered to resource person	71	1250	0	0	1250	547	0	0	547	1797

110	Mizoram	Lecture delivered as resource person	1	302	0	0	302	50	0	0	50	352
111	Mizoram	Leaflets/folders	61	3074	0	0	3074	2057	0	0	2057	5131
112		Other	3	39	0	0	39	19	0	0	19	58
		Total	**5595**	**25231**	**0**	**893**	**26124**	**17714**	**0**	**50**	**17764**	**43888**
113	Nagaland	Diagnostic visits	369	573	0	0	573	488	0	0	488	1061
114	Nagaland	Advisory Services	425	1159	0	0	1159	1321	0	0	1321	2480
115	Nagaland	Animal Health Camp	8	205	0	0	205	166	0	0	166	371
116	Nagaland	Plant health camp	3	143	0	0	143	172	0	0	172	315
117	Nagaland	Training/ practical manual	3	54	0	0	54	50	0	0	50	104
118	Nagaland	Celebration of important days	58	4874	0	0	4874	3748	0	0	3748	8622
119	Nagaland	Exhibition	20	3121	0	0	3121	2366	0	0	2366	5487
120	Nagaland	Exposure visits	9	85	0	0	85	53	0	0	53	138
121	Nagaland	Farm Science Club Conveners meet	1	4	0	0	4	7	0	0	7	11
122	Nagaland	Farmers Seminar/ workshop	4	37	0	0	37	121	0	0	121	158
123	Nagaland	Farmers Visit to KVK	266	639	0	0	639	794	0	0	794	1433
124	Nagaland	Field Day	57	588	0	0	588	676	0	0	676	1264
125	Nagaland	Group meetings/ Discussion	119	840	0	0	840	1114	0	0	1114	1954
126	Nagaland	Awareness Camp	12	115	0	0	115	59	0	0	59	174
127	Nagaland	Kisan Mela	2	283	0	0	283	237	0	0	237	520
128	Nagaland	Method Demonstrations	174	1193	0	0	1193	1679	0	0	1679	2872
129	Nagaland	Scientists visit to farmers field	669	1684	0	0	1684	1605	0	0	1605	3289
130	Nagaland	Self Help Group Conveners meetings	7	33	0	0	33	17	0	0	17	50
131	Nagaland	Soil health/ testing Campaigns	8	134	0	0	134	196	0	0	196	330
132	Nagaland	Film show	98	1288	0	0	1288	1380	0	0	1380	2668

133	Nagaland	Farmers Scientist interaction	10	183	0	0	183	291	0	0	291	474
134	Nagaland	News paper coverage	91	1200	0	0	1200	800	0	0	800	2000
135	Nagaland	News letter	9	0	0	0	0	0	0	0	0	0
136	Nagaland	Research papers	19	0	0	0	0	0	0	0	0	0
137	Nagaland	Technical report/ article	6	600	0	0	600	600	0	0	600	1200
138	Nagaland	Electronic media	5	197	0	0	197	162	0	0	162	359
	Nagaland	CD publication	2	100	0	0	100	100	0	0	100	200
139	Nagaland	Extension literature	5	0	0	0	0	0	0	0	0	0
140	Nagaland	Technical bulletins	2	75	0	0	75	125	0	0	125	200
141	Nagaland	Literature delivered to resource person	70	1215	0	0	1215	1227	0	0	1227	2442
142	Nagaland	Lecture delivered as resource person	19	143	0	0	143	177	0	0	177	320
143	Nagaland	Leaflets/folders	19	30	0	0	30	115	0	0	115	145
144	Nagaland	PRA	7	72	0	0	72	19	0	0	19	91
145	Nagaland	Other	404	1329	0	0	1329	1017	0	0	1017	2346
		Total	**2980**	**22196**	**0**	**0**	**22196**	**20882**	**0**	**0**	**20882**	**43078**
146	Tripura	Diagnostic visits	132	287	17	217	521	118	8	78	204	725
147	Tripura	Advisory Services	997	190	155	1693	2038	39	30	550	619	2657
148	Tripura	Animal Health Camp	8	231	32	184	447	72	32	62	166	613
149	Tripura	Plant health camp	3	12	0	9	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	16	484	80	667	1231	252	50	220	522	1753
152	Tripura	Exhibition	4	246	53	0	299	235	66	0	301	600
153	Tripura	Exposure visits	26	279	15	165	459	154	0	65	219	678
154	Tripura	Farm Science Club Conveners meet	2	55	0	18	73	5	0	0	5	78
155	Tripura	Farmers Seminar/ workshop	6	80	98	200	378	25	30	100	155	533

156	Tripura	Farmers Visit to KVK	1596	1014	10	661	1685	225	0	239	464	2149
157	Tripura	Field Day	27	641	227	451	1319	152	36	115	303	1622
158	Tripura	Group meetings/ Discussion	98	288	212	410	910	111	57	127	295	1205
159	Tripura	Awareness Camp	15	85	78	153	316	50	11	46	107	423
161	Tripura	Kisan Mela	3	620	1765	223	2608	468	795	91	1354	3962
162	Tripura	Method Demonstrations	40	301	80	399	780	94	60	157	311	1091
163	Tripura	Scientists visit to farmers field	365	1131	10	680	1821	468	1	81	550	2371
164	Tripura	Self Help Group Conveners meetings	1	4	0	0	4	6	0	18	24	28
165	Tripura	Soil health/ testing Campaigns	14	525	35	327	887	155	15	60	230	1117
166	Tripura	Film show	72	338	80	430	848	72	40	195	307	1155
167	Tripura	Farmers Scientist interaction	9	63	59	118	240	10	12	8	30	270
168	Tripura	Ex-trainee Sammelan	1	0	0	15	15	0	0	5	5	20
169	Tripura	News paper coverage	31	0	0	0	0	0	0	0	0	0
170	Tripura	Research papers	12	0	0	0	0	0	0	0	0	0
171	Tripura	Technical report/ article	0	0	0	0	0	0	0	0	0	0
172	Tripura	Radio talks	70	0	0	0	0	0	0	0	0	0
173	Tripura	TV Talks	3	0	0	0	0				0	0
174	Tripura	Extension literature	14	0	0	0	0	0	0	0	0	0
175	Tripura	Technical bulletins	4	0	0	0	0	0	0	0	0	0
177	Tripura	Lecture delivered as resource person	26	160	5	263	428	85	0	60	145	573
178	Tripura	Leaflets/folders	9	0	0	0	0	0	0	0	0	0
179	Tripura	PRA	5	547	0	444	991	191	0	182	373	1364
180	Tripura	Other	52	512	0	553	1065	327	0	289	616	1681
181	Tripura	**Total**	**3663**	**8093**	**3011**	**8280**	**19384**	**3316**	**1243**	**2750**	**7309**	**26693**
		Grand Total	**28713**	**95557**	**7838**	**17182**	**120577**	**82560**	**3746**	**5142**	**91448**	**212025**

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*. were organised by the KVKs in the region during 2018-19. A total of **39838** women representing **47.01** percent of the total beneficiaries (**84743**) were imparted different skill oriented trainings in different areas of crop and livestock enterprises/ farming. A total of **25058** farm women participated the various capacity building programmes conducted by KVKs accounting to **46.72** percent of the participants of **53635.** During the period, it was found that a total of **5958** female rural youth out of **12268** with **48.56** percent of the total attended various training programmes which could improve their knowledge and skills specially entrepreneurship development. Out of a total of **4306** extension personnel trained during 2018-19, **1467** were female extension personnel **(34.07%).** Women empowerment was taken care on priority while conducting the sponsored and vocational training programmes as well. A total of **6273**, accounting **50.71** percent of the total number of beneficiaries (**12371)** participating in the sponsored training programmes was female. While **50.02** percent of the total number of beneficiaries (**2163**) participated in the vocational training programmes were 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 zone. During the period, KVKs of the zone produced **16904.44 q** of quality seeds, **1892526** nos**.** of planting materials, **930.59 q** of bio-products and **8.51** lakh of livestock and fingerlings which included **8.11** lakh fish fingerlings. A total of **6016.99 q** cereals seeds with highest in the state of Nagaland (2443.73 quintals), Oilseeds (**1455.3 q),** Pulses (5570.2 q**), 3562.01 q** seeds of Vegetables, **16.7 q** seeds of Spices and **95.76** q seeds of Other crops such as fruits, fodder, fibre crops *etc*. were produced by the KVKs in the zone. Planting materials of fruits (**33492),** plantation crops (**33450**), vegetables (**1606688**), flower crops (**4548**), spices (**76577**), Ornamental crops (**81031),** forest species **(15000)** and others (**36600q)** were produced for supply and distribution to farmers. The KVKs of the zone also produced a total of **930.59 q** of bio-products including **115.25 q** of bio-agents, **809.37** q of bio-fertilizers, 1.97**q** of bio-pesticides. Among the livestock products produced by the KVKs during the reporting period were **39662** livestock strains and **811507** fingerlings were produced. (Table-27).

Table-27: State-wise details of Seeds and Planting materials production during 2018-19

Major Group/Class	State					
A. Seed Materials (in qt)	**Manipur**	**Meghalaya**	**Mizoram**	**Nagaland**	**Tripura**	**Total**
Cereals	1094.2	366.6	613.83	2443.73	1498.6	**6016.99**
Oilseeds	512.51	305	94.73	231.74	311.36	**1455.335**
Pulses	104.55	5030	63.81	107.29	264.55	**5570.2**
Vegetables	0	2957.52	526.5	56.527	21.463	**3562.01**
Spices	0	16.7	0	0	0	**16.7**
Others (Specify)	85	0.78	0	9.08	0.9	**95.76**
Flower Crops	10	0	0	0	0	**10**
Tuber Crops	0	11.5	0	165.95	0	**177.45**
Total	**1806.3**	**8688.1**	**1298.9**	**3014.32**	**2096.9**	**16904.445**
B. Planting Materials (Nos.)						
Vegetables	493397	0	933481	76310	103500	**1606688**
Spices	10600	0	50000	615	15362	**76577**
Fruits	10900	150	12150	3221	7071	**33492**
Forest Spp.	4000	0	1000	10000	0	**15000**
Others	600	0	0	1000	35000	**36600**
Ornamental Plants	0	0	76,500	2,000	2531	**81031**
Plantation Crops	0	150	8300	25000	0	**33450**
Cereals	0	140	0	0	0	**140**
Fodder Crops	0	0	0	0	5000	**5000**
Flowers	0	0	0	0	4548	**4548**
Total	**519497**	**440**	**1081431**	**118146**	**173012**	**1892526**
C. Bio Product						
Bio Fertilizers (q)	119.07	16.2	584	8	82.1	**809.37**
Bio Agents (q)	39.31	0	0	52	23.941	**115.25**
Bio Pesticides (q)	0	0	0	1	0.97	**1.97**
Mushroom Spawn (no.)	4 (1600 packets)	0	0	0	0	**4.00**
Total	**162.38**	**16.2**	**584**	**61**	**107.01**	**930.59**
D. Livestock & Fingerlings (Nos.)						
Livestock Strains	3638	0	24835	1282	9907	**39662**
Fingerlings	650100	130000	6172	0	25235	**811507**
Total	**653738**	**130000**	**31007**	**1282**	**35142**	**851169**

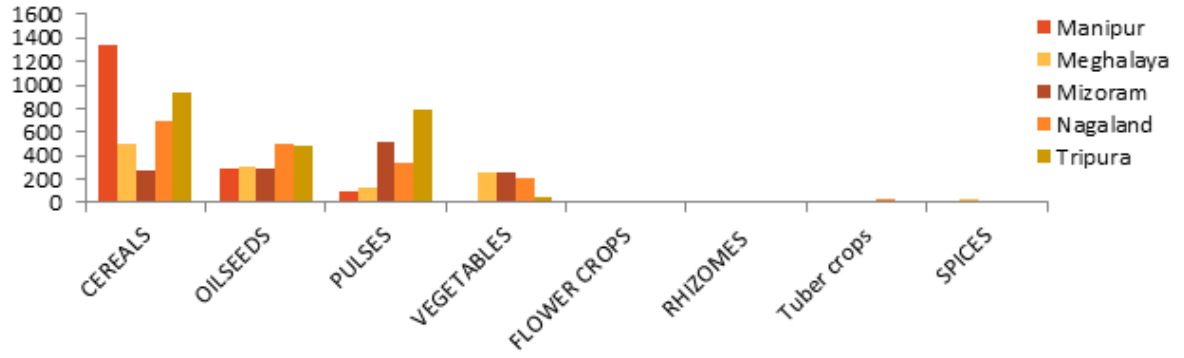


Fig 6: State-wise geographical representation of Seed Materials Production

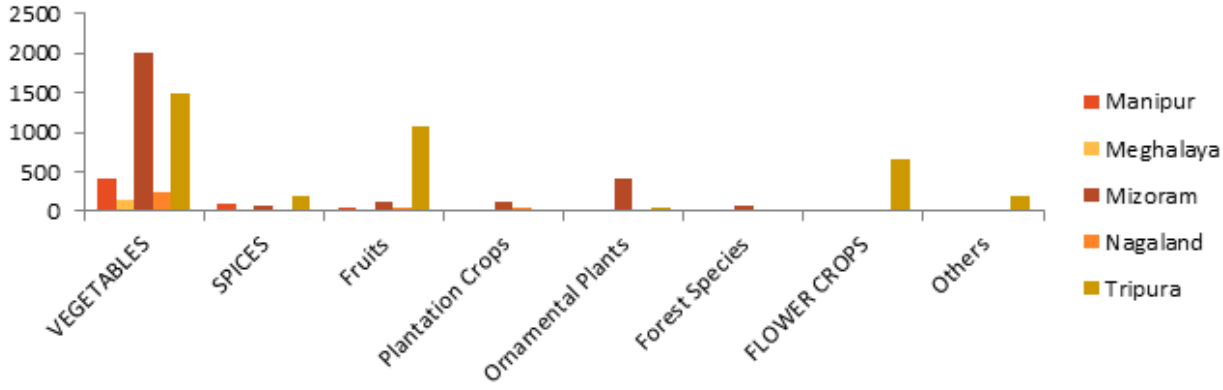


Fig 7: State-wise geographical representation of Planting Materials

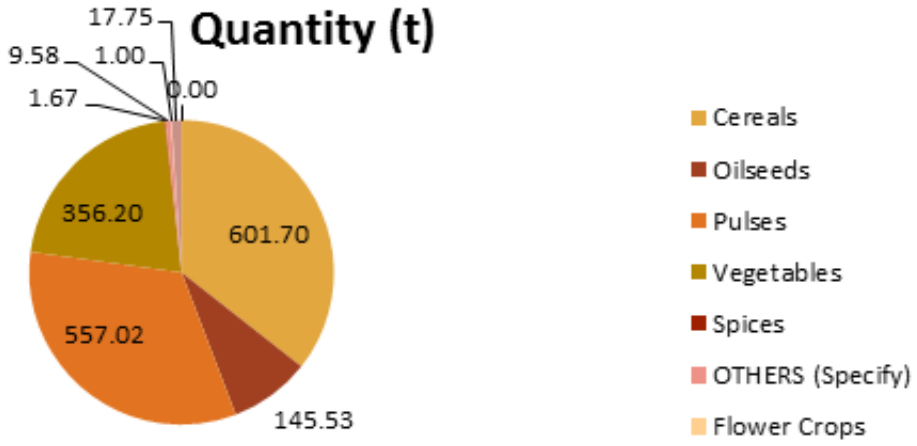


Fig 8: Crop-wise graphical representation of Seed Materials Production

2.9. Scientific Advisory Committee (SAC) Meetings

A total of **40** Scientific Advisory Committee (SAC) meetings were held during the year 2018-19 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.

Table 28: Scientific Advisory Committee (SAC) meetings of KVKs during 2018-19

Sl. No	State	No. of SAC Conducted
1	Manipur	8
2	Meghalaya	7
3	Mizoram	8
4	Nagaland	13
5	Tripura	4
Total		**40**

2.10. Institute Management Committee (IMC) Meeting

The 7th Institute Management Committee (IMC) meeting of ICAR-ATARI, Zone VII, Umiam was held on **14th May, 2018** 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 6th IMC
2. Appraisal of EFC & BE-2018-19
3. Approval for construction of Administrative Building and release of funds to the KVKs.
4. Procurement of vehicles for KVKs
5. Cadre review of Scientific and Administrative Staff in ICAR-ATARI.
6. Energisation of Administrative Building (ATARI).
7. Others.

Major Recommendations

- The house recommends for enhancing the allocation under capital head of BE 2018-19 from 814.95 lakh to Rs. 1000.00 lakh to meet up the proposed requirement for construction of Administrative building of KVKs at RE level.
- The IMC based on the vetting of the estimates by Director (Works) recommends the construction of administrative building of KVK Longleng, East Khasi Hills, Jaintia Hills and West Khasi hills@ Rs. 150.00 lakhs/ building and release of instalments to the host Institutes within this financial year subject to the availability of fund. Construction of Administrative buildings of other KVKs namely North Tripura, Dhalai, South Garo Hills and East Garo Hills, Dimapur, Gomati, Unakoti, Kiphire, Peren and West Tripura were also recommended within this year subject to vetting of estimates by Director (Works). The meeting also recommends the release 1stinstalment to these KVKs by following all codal formalities and subject to the availability of fund.

- The house recommends for purchase of 6 vehicles for newly established KVKs, and 2 vehicles for old KVKs on replacement basis subject to the approval of competent authority and availability of fund as per approved EFC document.
- The house recommends the pursuance for creation of the post of Personal Assistant while surrendering the existing filled post of Jr. Stenographer and vacant post of JAO for the career welfare of incumbent Jr. Stenographer.
- The house recommends for procurement of transformer for the Administrative building of ICAR-ATARI with available fund as per EFC provision within this financial year.
- The house suggested for taking up of projects by scientists of the Institute.
- The house recommends that the CPWD may be approached for facilitating fixtures in the new building.

2.11. Revolving Fund (RF)

A total of Rs.**55,64268.50** was reported by KVKs as the opening balance as on 1st April, 2018 and generated income of Rs. **6910395.00** during the year 2018-19 with the closing balance of Rs. **6253723.50** by the end of March, 2019. 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 2018-19

Status of Revolving Fund of KVKs during 2018-19					
Sl. No	**States**	**No of KVKs**	**Opening Balance**	**Income Generated during the Year (Rs)**	**Closing Balance (as on 31st March 2019)**
1	Manipur	9	1210050.00	395843.00	834608.00
2	Meghalaya	5	808105.00	65904.00	814981.00
3	Mizoram	8	1341031.00	997844.00	2008788.00
4	Nagaland	11	1230948.50	885897.00	1476676.50
5	Tripura	5	974134.00	4564907.00	1118670.00
Total		**38**	**5564268.50**	**6910395.00**	**6253723.50**

2.12. Special Programmes

2.12.1. Rain Water Harvesting Structure

During 2018-19 a total of 7 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. Details of the achievements of rain water harvesting structure and its management by the KVKs is given in **Table-30.**

During the period as many as **23** training programmes and **22** 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 **49939** numbers of planting materials. During the same period, a total of **459** farmers visited to the KVKs for the said purpose and **136** nos. of visits were made by the KVK scientists to the farmers' fields to guide efficient construction of the structures.

Table -30: Achievement of Rain Water Harvesting Structures during 2018-19

State	KVK Name	No. of Training Programme	No. of Demonstration	No. of Planting Materials Produced	Visit by Farmers	Visit by KVK Staff (No.)
Manipur	Bishnupur	0	0	0	0	0
	Chandel	3	1	189	237	16
	Churachandpur	0	0	0	0	0
	Imphal East	2	2	6250	24	6
	Imphal West	2	2	500	20	5
	Senapati	3	3	42000	32	14
	Tamenglong	0	0	0	0	0
	Thoubal	0	0	0	0	0
	Ukhrul	1	3		10	8
Total		**11**	**11**	**48939**	**323**	**49**
Meghalaya	East Khasi Hills	0	0	0	0	0
	Jaintia Hills	0	0	0	0	0
	Ri-Bhoi	0	0	0	0	0
	West Khasi Hills	0	0	0	0	0
	East Garo Hills	0	0	0	0	0
	SouthGaro Hills	0	0	0	0	0
	West Garo Hills	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**
Mizoram	Aizawl	11	10	0	55	30
	Champhai	0	0	0	0	0
	Kolasib	0	0	0	0	0
	Lawngtlai	0	0	0	0	0
	Lunglei	0	0	0	0	0
	Mamit	0		0	0	0
	Saiha	0	0	0	0	0
	Serchhip	0	0	0	0	0
Total		**11**	**10**	**0**	**55**	**30**
Nagaland	Dimapur	0	0	0	0	0
	Kiphire	0	0	0	0	0
	Kohima	0	0	500	76	40
	Longleng	0	0	0	0	0
	Mokokchung	0	0	0	0	
	Mon	1	1	500	5	17
	Phek	0	0	0	0	0

	Peren	0	0	0	0	0
	Tuensang	0	0	0	0	0
	Wokha	0	0	0	0	0
	Zunheboto	0	0	0	0	0
Total		**1**	**1**	**1000**	**81**	**57**
Tripura	Dhalai	0	0	0	0	0
	Khowai	0	0	0	0	0
	North Tripura					
	South Tripura	0	0	0	0	0
	West Tripura new	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**
Grand Total		**23**	**22**	**49939**	**459**	**136**

2.12.2. Soil and Water Testing

2.12.2.a. Sample Analysis

Along with their mandated activities, the KVKs under Zone-VII during 2018-19 rendered special assistance to the farmers in terms of laboratory based analysis of soil, water and plant samples in order to recommend balanced fertilizers in soil, water and plant health improvement. During the period the KVKs analyzed a total of **12559** samples comprising of soil samples (**11811**), water samples **(206**) and plant samples (**542**). In the process, a total of **494** villages had been covered and as many as **17304** farmers were benefitted. The state-wise details of Soil, Water and Plant samples analysis is given in **Table-31.**

Table-31: Status of Soil, Water and Plant Testing labs in KVKs under Zone-VII during 2018-19

State	Status of Soil/ Water/ Plant samples analysis		Farmer beneficiaries (No.)	Village covered (No.)
	Samples tested	Tested/ analysed (No.)		
Manipur	Soil sample	2539	3875	121
	Water Sample	162	390	41
	Plant Sample	430	430	27
Meghalaya	Soil sample	1640	2554	92
	Water Sample	0	0	0
	Plant Sample	12	12	5
Mizoram	Soil sample	4119	3770	75
	Water Sample	31	31	4
	Plant Sample	100	70	5
Nagaland	Soil sample	1779	3787	79
	Water Sample	10	10	2
	Plant Sample	0	0	0

Tripura	Soil sample	1734	2372	42
	Water Sample	3	3	1
	Plant Sample	0	0	0
	Soil sample	11811	16358	409
	Water Sample	206	434	48
Total	Plant Sample	542	512	37
G. Total		**12559**	**17304**	**494**

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 results and suggestion are displayed in the soil health cards (SHCs). As many as **17072** numbers of Soil Health Cards (SHCs) were distributed to **19370** farmers on different occasions and farmers' programmes organised by KVKs in the zone (**Table-32)**.

Table-32: State-wise details of Soil Health Cards (SHCs) distributed to the farmers during 2018-19

Sl. No.	State	SHCs Distributed	Farmers Benefitted
1	Manipur	4285	3875
2	Meghalaya	2412	2554
3	Mizoram	5001	3770
4	Nagaland	3248	5401
5	Tripura	2126	3770
	Total	**17072**	**19370**

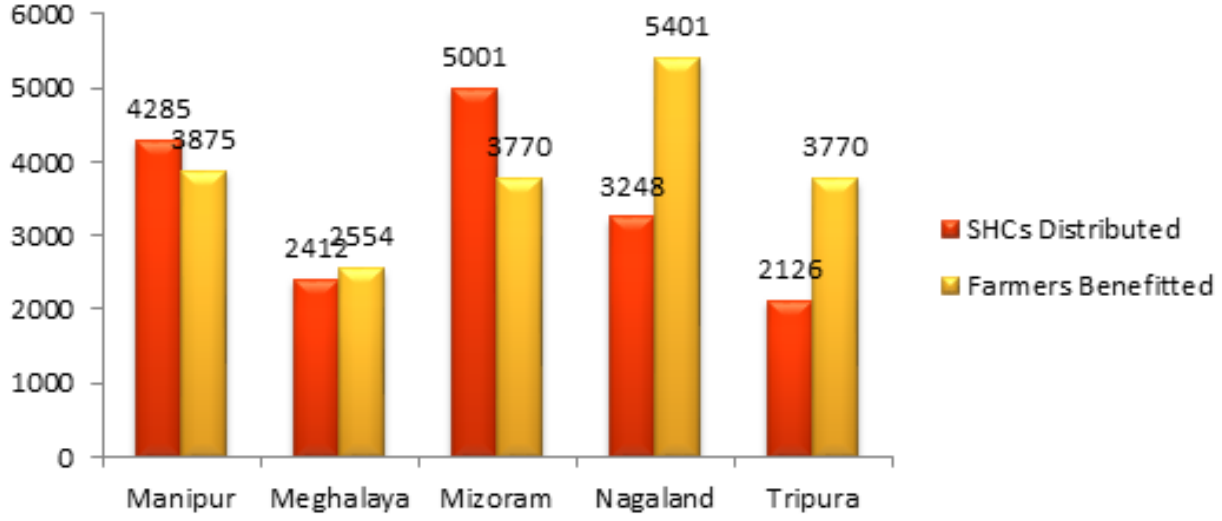


Fig 9: State-wise graphical representation of SHCs and farmers benefitted

2.12.4. Kisan Mobile Advisory Services rendered by KVKs

During 2018-19, 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-33** that as many as **23614** nos**.** of messages had been sent benefitting **166234** no. of farmers in remote districts of the zone. The messages included crops (**9776**), livestock (**5269**), weather (**1472**), marketing (**927**), awareness generation (**4437**) and other enterprises (**1733**) during 2018-19.

Table-33: Kisan Mobile Advisory Services (KMAS) rendered by KVKs during 2018-19

Enterprise/Activity	Type of Message	No of Message	No of beneficiaries
Crop	Text only	3960	56236
	Voice only	5215	8488
	Voice and Text both	601	995
	Total	**9776**	**65719**
Livestock	Text only	1893	44436
	Voice only	3128	6024
	Voice and Text both	248	440
	Total	**5269**	**50900**
Weather	Text only	687	9716
	Voice only	544	1026
	Voice and Text both	241	616
	Total	**1472**	**11358**
Marketing	Text only	371	1790
	Voice only	416	708
	Voice and Text both	140	340
	Total	**927**	**2838**
Awareness	Text only	2604	12646
	Voice only	1451	4863
	Voice and Text both	382	756
	Total	**4437**	**18265**
Other Enterprise	Text only	748	11809
	Voice only	629	4816
	Voice and Text both	356	529
	Total	**1733**	**17154**
Grand Total		**23614**	**166234**

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 zone by adopting villages for promoting best farming practices and government's policies among the farmers. During the period, a total of **40** KVKs involved in the programme by adopting **10295** no. of villages. The notable activities under the programme included **9359** nos. of field demonstrations on various agriculture and allied technologies as well as **6529** nos. of training programmes for farmers and farm women (**Table- 34).**

Table 34: Achievements under Mera Gaon Mera Gaurav (MGMG) during 2018-19

Sl. No.	State	No. of KVKs	No. of village selected	No. of Demons.	No. of training
1	Manipur	9	1589	935	1120
2	Meghalaya	7	844	798	587
3	Mizoram	8	4723	5583	2541
4	Nagaland	11	2879	1230	1205
5	Tripura	5	260	813	1076
Total		**40**	**10295**	**9359**	**6529**

2.12.6. Creation of Seed Hubs for increasing indigenous Production of Pulses in India 2018-19

For increasing the production of Pulses in the zone, only one KVK namely; KVK Thoubal in Manipur was selected as Seed Hub KVK Centre under ICAR-ATARI, Umiam for creation of Seed Hubs to meet the seed requirement of the farmers in the zone. The KVK centre could produce as much as **50 q** of pulses seeds of black gram (PU-31), Moong (SML-668) and Arhar (TS 3 R) during Kharif, 2018 and **265 q** of Pulse seeds such as Field Pea (Prakash and Aman), Lentil (HUL-57) and Chick Pea (JG-16) in Rabi, 2018. This could produce a total production of **315 q** covering **125** ha during the reporting period of 2018-19 as depicted in **Table 35**.

Table-35: Creation of Seed Hubs for indigenous production of pulses in India 2018-19

Creation of Seed hubs (2018-19)					
Seed hub Centre	**Season**	**Crop**	**Variety**	**Area Sown (ha)**	**Productivity (q)**
KVK Thoubal	Rabi	Lentil	HUL-57-2005	50	220
	Rabi	Chickpea	JG-16-2012	10	25
	Rabi	Fieldpea	Prakash,2010 Aman,2012	25	20
	Kharif	Blackgram	PU-31-2008	10	20
	Kharif	Moong	SML-668-2007	20	10
	Kharif	Arhar	TS-3R,2010	10	20
Total				**125**	**315**

2.13. Hindi Pakhwada, 2018-19

हिन्दी पखवाड़ा (14-22 सितम्बर, 2018)

भा. कृ. अनु. परि.- कृषि प्रौद्योगिकी अनुप्रयोग अनुसन्धान संस्थान (अटारी), क्षेत्र-VII, उमिअम

दिनांक	कार्यक्रम/Programme
14 सितंबर, 2018/ 14 September, 2018 15:00 -16:00	उद्घाटन, दीपकरोशनी, संस्थानगीत, श्रुतलेख और वर्तनी Inauguration, Institute song, Dictation and spelling
15 सितंबर, 2018/ 15 September, 2018 15.00 -16.00 pm	शब्दार्थ Word meaning English-Hindi
17 सितंबर,2018 17 September, 2018 14.00 to 15.00 pm	मुकअधिनिय प्रतियोगिता सामान्य, गैर-हिंदीभाषीऔरएनईएचक्षेत्रजैसेसभी 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
18 सितंबर, 2018 18 September, 2018 14.00-16.00	उपनिवेश भाषण प्रतियोगिता Extempore Speech Competition
19 सितंबर, 2018 19 September, 2018 14.00-16.00	प्रश्नोत्तरी प्रतियोगिता Quiz Competition
20 सितंबर, 2018 20 September, 2018 14.00-16.00	अष्टाशी प्रतियोगिता Antakshari Competition
22 सितंबर, 2018 22 September, 2018 14.00-16.00	पुरस्कार वितरण और समापन समारोह Prize Distribution and Closing Ceremony

2.14. Swachta Pakhwada

The SwacchtaPakhwada programme was organized in ICAR-ATARI, UmiamBarapani during **15thSeptember -2nd October, 2018** 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.

2.15. 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 NathKovind from Ishworiganj village in Kanpur, Uttar Pradesh. The ICAR-ATARI, Zone-VII, Barapani celebrated the mission successfully with its staff to fulfill the very objectives of the mission from **15th September to 2nd October, 2018.** The day-wise details of the activities taken up during the programme period is presented in Table-38.

Table-37: Celebration of "Swachhta Hi Seva Campaign"under"Swachh Bharat Mission",ICAR-ATARI, ZONE-VII (15th September to 2nd October 2018)

Sl. No.	Date	Programme as directed by Council	Action Taken
1	15.09.2018	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.
2	17.09.2018	Celebration of SewaDiwas	ICAR-ATARI, Zone-VII, Umiam, Celebrated ***"SewaDiwas"*** under ***"Swachhta Hi Sewa"*** programme 17th, September 2018 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

3	24.09.2018	Celebration of SamagraSwachhtaDiwas	ICAR-ATARI, ZONE-VII, Umiam, celebrated ***"SamagraSwachhtaDiwas"*** 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, Nongsder, 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.
4	25.09.2018	Celebration of SarwatraSwachhtaDiwas	ICAR-ATARI, ZONE-VII, Umiam, celebrated ***"SarwatraSwachhta"***under the ***"Swachhta hi Seva"*** Campaign**.** During the programme, all the employees of ATARI, ZONE-VII, Umiam carried out a cleaning drive at BarapaniMaket, 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 out 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. • Hands on Demonstration on proper usage of the dustbins donated by the institute.
5	1.10.2018	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.

6	2.10.2018	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**.

2.16. Awards and Recognition

Mr. Amol Kamalakar Bhalerao, Scientist, ICAR-ATARI, Umiam has been awarded with Doctorate Degree from University of Hamburg, Germany, which was funded by Netaji Subhas ICAR international fellowship. Mrs. Divya Parisa, Scientist, ICAR-ATARI Barapani has been awarded with Netaji Subhas ICAR international fellowship to pursue her doctoral programme abroad.

The KVKs under ICAR-ATARI, Umiam received a number of awards and recognitions during 2018-19 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 2018-19 (Zonal) to KVK, Khowai, Tripura which was conferred during 16th July, 2019 at ICAR, New Delhi. Best KVK Scientist award was conferred to Dr. Dipak Nath, Sr. Scientist and Head, KVK Khowai by Indian Society of Extension Education, New Delhi, Best Zonal NICRA KVK Award-2018 to KVK Khowai, Best KVK Award to KVK Chandel under ICAR Research Complex for NEH Research, Umiam, Meghalaya. Among the farmers, Mr. Khagembam Shamusaba Metei, a Progressive farmer under KVK Bishnupur received Pandit Deen Dayal Upadhyay Antyodaya Krishi Puraskar-2017, Pandit Deen Dayal Upadhaya Antodaya Krishak Purashkar to Mr. Bijay Lal Majimdar under KVK Khowai, Best Innovative Farmer of NER to Mr. Jiban Das under KVK Khowai, Best Innovative Rice Grower to Hiralal Das, Innovative Farmer Award for Climate Resilient Agriculture to Managal Debbarma by ICAR, Tripura Centre. Several National awards like Krishi Prerna Award (National award winner- Female)–2018-19, Krishak Samrat Sanman award by Mahindra Samriddhi India were awarded to the farmers of KVKs under Zone VII.

2.18. Linkages and Collaboration

During 2018-19, KVKs under ICAR-ATARI, Zone-VII established strong linkages with MANAGE, Hyderabad, National Fisheries Development Board (NFDB), Hyderabad, Agricultural Skill Council of India (ASCI), New Delhi, IARI, New Delhi, IIHR, Bangalore, CAU, Imphal, AAU, Jorhat, NABARD, ATMA for different collaborative programmes and activities related to mass awareness and dissemination of latest technologies to the farmers in the zone.

The KVKs in the zone are also 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, NABARD, ATMA including HRD programmes organized by ICAR-ATARI, Zone-VII.

2.18. Performance of Agricultural Technology Information Centres (ATIC)

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 2018-19

- **A total of** 589 nos. of farmers visited the ATIC for technology information related to the production and management of various crops and livestock enterprises.
- A total of **830** copies of books & technical bulletins were sold which could generate revenue of Rs. **97,606** in the zone.
- The ATIC also distributed as many as **830** copies of technology inventories to the farmers in various programmers of the institute.

2.19. Technology Backstopping

Table 38-: Activities conducted by Directorate of Extension Education, CAU, Imphal

Sl No	Particulars	Number
1	No of Visits by DEE to KVKs	29
2	No of visits of other scientists to KVKs	10
3	No of Review meetings held	05
4	Any other monitoring and review meeting held	04
5	HRD Programme conducted for knowledge empowerment and technology backstopping to the KVKs a) No of programme b) No of participants	 07 185
6	Other publications, bulletins, CDs *etc*. brought out (No)	
7	Extension bulletin (in various topics)	02
8	Technical bulletins	02
9	Leaflets	02
10	News letters	-
11	Farm magazine	08
12	Kishan diary	02
13	Training Manuals	-
14	Calendar	03

3.0. RESEARCH AND DEVELOPMENT PROJECTS FOR HUMAN RESOURCE DEVELOPMENT

3.1. Externally Funded Projects

3.1.1. National Innovations on Climate Resilient Agriculture (NICRA)

National Innovations on Climate Resilient Agriculture (NICRA) - a network project of the Indian Council of Agricultural Research (ICAR) was launched in February, 2011. The research on adaptation and mitigation covers crops, livestock, fisheries and natural resource management. The project consists of four components-Strategic Research, Technology Demonstration, Capacity Building and Sponsored/Competitive Grants. The project is implemented in 14 KVKs across five states under ATARI Zone VII as presented in Table 39.

Table 39: State wise distribution of NICRA KVKs along with their climatic vulnerablility

State	District	Village Name	Agro-climate	Vulnerability
Manipur	Senapati	Hengbung & Hengbung-I	Sub Tropical 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/ Hailstorm
	West Garo Hills	Marapara, Sananggre, 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
	Khowai	North Pulinpur ADC village	Mid Tropical Plain Zone	Drought

Table-40: Brief Summary of NICRA Interventions during 2018-19

Intervention	No. of farmers benefitted	Area (ha)	Units	Animal (No.)	Fingerlings (No.)
Natural Resource Management	1286	517.82	-	-	-
Crop production	910	255.58	-	-	-
Livestock & Fisheries	504	6.62	48	1773	51500
Institutional Interventions	1830	341.18	35	-	-
TOTAL	**4530**	**1121.20**	**83**	**1773**	**51500**

Intervention	No. of Courses Male	No. of beneficiaries		
		Female	Total	
Capacity Building	129	-	-	3168
Extension Activities	521	2886	2048	4934
TOTAL	**650**	**2886**	**2048**	**8102**

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.,* were made by KVKs during the period by covering an area of **517.82** ha and benefitted **1286** number of farmers.

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 sustainable yield index, Crop diversification, Protected cultivation, Zero tillage Practices, Soil health management, Integrated crop management, Pest and disease management, Apiary, Mushroom cultivation, Integrated farming system & others were the prominent interventions made by KVKs under the project. During 2018-19, demonstrations on areas of **255.58** ha were made on different aspects of selected interventions which could benefit a total of **910** farmers in the zone.

Module III: Livestock & Fisheries

Under this module, interventions such as introduction of new fodder and feed for animals, preventive vaccination against water borne diseases, construction of improved shelters such as deep litter housing in both piggery and poultry and Machang type housing (local intervention) in poultry in areas

with excess heat, introduction and popularization of improved animal breeds such as Hampshire cross and Gurungroo cross in piggery, Srinidhi, Vanaraja in poultry, Soviet Chinchilla & New Zealand White in rabbitry, Khaki Campbell in ducks as well as popularization of composite fish culture through rearing of Indian Major Carps and other fish species were systematically made by the KVKs. Other interventions practised were popularization of crop cum animal based, livestock cum fishery based and crop cum fishery cum livestock based Integrated Farming Systems in the adopted villages. Overall, **504** farmers have benefitted during last year's intervention. Number of units constructed and established was **48** in all with **6.62** ha of area covered. Over **1773** animals and **51500** fingerlings were distributed to the farmers and **676** animals were vaccinated/ treated against diseases.

Module IV: Institutional Interventions

Under this module, interventions were popularization of seed banks, fodder banks, Custom Hiring Centers, climate literacy through village weather stations amongst establishments and collective marketing, community nurseries during unfavorable climatic conditions and others. The number of farmers benefitted from this module during 2018-19 were **1830** by covering **341.18** ha area and **35** units established/popularized.

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.* were imparted by the KVKs under Zone-VII which consisted of **129** courses benefitting a total of **3168** number of male and female farmers as well as rural youth.

Module VI: Extension Activities

Exposure visit of farmers, Strengthening SHGs and Kisan clubs, Integrated Farming System, Field days, Method demonstrations, and Awareness programmes were the extension activities conducted by KVKs which covered various aspects of climate resilient agriculture by providing vital information for the upliftment of farming communities in the NICRA villages and other adjoining villages. Under this module, a total number of **4934** farmers were benefitted from a total of **521** number of such activities conducted during 2018-19.

3.1.2. Farmer First Programme (FPP)

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 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, and vulnerability and livelihood interventions.

CAUR-1 under SRI method of cultivation

Makhana(Swarna vaidehi) spacing 3.2mx 3.2m

Achievements during 2018-19

Two projects are presently being implemented by Central Agricultural University, Imphal and ICAR RC for NEH Region, Umiam, Meghalaya with the total budget provision of Rs. 57.46 lakh and Rs. 95.10 lakh respectively. The achievements of the project during 2018-19 are highlighted in Table- 42 and Table 41.

Table 41 : Salient achievements of FFP in respect of Central Agricultural University (CAU), Imphal during 2018-19

Modules	Intervention	Type of inputs provided for conducting demonstration	Area covered (ha)	Quantity of the inputs	Name of the villages covered	No. of Farm families covered
Title: Sustainable Livelihood Development of Farmers in Manipur through Participatory Technology Application						
Crop Based Module	Popularization & quality seed production	CAU R-1	25	1500 kg	Yairipok Top Chintha & Yairipok Yambem	75
	Popularization & quality seed production	CAU R-3	0.50	120 kg	Yairipok Top Chintha & Yairipok Yambem	4
	Popularization and Standardization of production technologies	Black Aromatic Rice *i.e* Chakhao Amubi & Chakhao Poireiton.	3	60 kg	Yairipok Top Chintha & Yairipok Yambem	8
	Yield augmentation and popularization	Rapeseed- mustard varieties; NRCHB-101, TS-38 & M-27	15	180 kg	Yairipok Top Chintha & Yairipok Yambem	20

Livestock Based Module	Popularization of Scientific rearing of Poultry under backyard farming.	Vanaraja, Srinidhi		3000 nos.	Yairipok Top Chintha & Yairipok Yambem	130
Enterprise Based Module	Entrepreneurial build up through motivational training	Pineapple harvester, Makhana harvester, Pineapple cutting/ quatering tools, Low cost fermenter for soybean, Hand pineapple peeling machine.		34 nos.	Yairipok Top Chintha & Yairipok Yambem	4 WSHGs
NRM Based Module		Vermicompost unit, Polythene lining, Mushroom unit, Low cost polyhouse		7 nos.	Yairipok Top Chintha & Yairipok Yambem	
IFS & Fish Module	Popularization of Fish cum Paddy Farming System	Fish & Paddy		Fish -2500 nos. Paddy – 60 kg	Mr. Sanayaima Singh, Yairipok Top Chintha	1
	Popularization of Fish cum Livestock cum Horticulture Integrated Farming System	Fish, Pigs, pumpkin, bottlegourd		Fish – 2500 nos. Pigs – 2 nos. Pumpkin seeds – 100 gm Bottlegourd seeds – 100 gm	Mr. Moirangthem Tomba Singh, Yairipok Top Chintha & Mr. Yumnam Ingo Singh, Yairipok Yambem	2
	Promotion of Scientific fish culture	Rohu, Mirgal, Common Carp, Silver carp, Grass carp, Tilapia		30,000 nos. of fingerlings	Yairipok Top Chintha & Yairipok Yambem	36

Table 42 : Salient achievements of FFP in respect of ICAR Research Complex For NEH Region, Umiam during 2018-19

Modules	Intervention	Type of inputs provided for conducting demonstration	Quantity of the inputs	Name of the villages covered	No. of Farm families covered
Title: Livelihood Improvement of Hill Farmers through Sustainable Farming Systems in North Eastern Hill Region					
Crop based module	**Seeds**	French bean	109kg	Borgang,	50
				Sarikhusi,	
		Cauliflower	220 g	Lalumpam,	11
				Purangang,	
		Broccoli	430 g	Umtham,	23
				Borkhatsari,	
		Lettuce	150 g	Nalapara/	14
				Joigang,	
		Cabbage	250 g	Nongagang,	19
				Mawphrew,	
		Pea	85 kg	Mawtnum.	54
		Potato	1100 kg		200
Livestock b	**Poultry**	Vanaraja, Srinidhi	3448 nos	Borgang, Sarikhusi, Lalumpam, Purangang, Umtham, Borkhatsari, Nalapara/ Joigang, Nongagang, Mawphrew, Mawtnum.	92
		Poultry houses	5nos	Mawphrew, Sarikhusi	5
	Piglets	Hampshire Cross	40 nos	Lalumpam, Purangang, Nalapara, Borkhatsari, Borgang, Sarikhusi	27
	Goats		3 nos	Sarikhusi, Lalumpam	3
	Rabbits		10 nos	Sarikhusi, Borkhatsari	5
	Poultry feed		26 bags	Umtham, Nalapara, Borkhatsari	10

Enterprise based module	Pig breeding cluster	Hampshire cross piglets	10	Sarikhusi, Nalapara	2
	Low cost mushroom production unit	Mushroom spawn	232 packets	Borkhatsari, Umtham, Sarikhusi, Purangang, Lalumpam	5
NRM based module		Jalkund	2	Purangang, Borkhatsari	2
	Vermicompost unit	Vermibeds	7	Purangang, Umtham, Sarikhusi	7
		Earthworms	1000 nos	Umtham, Sarikhusi	2

3.1.3. Attracting and Retaining Youth in Agriculture (ARYA)

The prospects of agriculture in India are getting affected because of the youth shunning farming and migrating to cities in search of menial and non-farming jobs. To sustain food security, it is imperative to encourage farmers to continue with agriculture, wherein the rural youth have a crucial role to play. 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 and also, small holdings poses big challenge in food security for increasing population. The only way of attracting them to agriculture is to turn farming into a profitable venture in rural areas. Thus, realizing 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)".

Poultry Production Unit, Senapati

Fish Production unit, Senapati

Piggery Production Unit, Lunglei

The project was under implementation in 3 KVKs of the zone for providing benefits to the rural youth leading to better livelihood. The programme was mainly taken up to attract and empower the youth to take up various agriculture and allied service sector enterprises, as most of the educated youth from rural areas tend to migrate to the cities searching for job. But, with the implementation of Project ARYA

in three KVKs *viz*. Wokha (Nagaland), Lunglei (Mizoram) and Senapati (Manipur) under ICAR-ATARI, Umiam, the youth in the North-Eastern Region have started taking up agriculture and allied activities as a major profession for getting additional income and employment generation. Along with the already functional 3 KVKs, ARYA Project is being implemented in three additional KVKs *viz*. Jaintia Hills (Meghalaya), Tuensang (Nagaland) and Dhalai (Tripura).

Salient achievement during 2018-19

Location specific potential enterprises such as piggery, poultry, fisheries, mushroom cultivation, bee-keeping, Cut flower production, *etc*. were taken up by the KVKs under the project for the benefit of rural youth in their respective districts. During 2018-19, a total of **88** nos. of training programmes were conducted on different enterprises under the project by the 3 ARYA KVKs benefitting a total of **1273** rural youth and established 81 different units of demonstrations. KVKs under the project also conducted **76** demonstrations for the benefit of **347** youth. The table given below depicts the enterprise-wise brief achievements of ARYA during 2018-19.

Table 43: Achievements of ARYA programme by KVKs during 2018-19

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	16	1	30	8	48
	Poultry	21	1	30	6	39
	Piggery	9	1	30	5	40
	Fishery	3	1	30	3	32
	Large Cardamom		1	34	4	45
Lunglei Mizoram	Mushroom cultivation	3	10	250	3	15
	Piggery	6	12	300	6	30
	Bee Keeping	3	10	220	3	15
	Poultry	4	11	279	5	25
Wokha Nagaland	Piggery	13	1	20	14	17
	Poultry	4	1	20	7	16
	Mushroom cultivation	5	1	20	10	19
	Cut Flower Production	1	1	10	2	6
Total		**88**	**52**	**1273**	**76**	**347**

3.1.4. Cluster FLDs under National Mission on Oilseed and Oil Palm (NMOOP) and National Food Security Mission (NFSM) during 2018-19

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 farming and extension activities for farmer and extension workers for dissemination of various technologies.

CFLD on Field Pea, KVK Bishnupur

CFLD on Rapeseed, KVK Imphal East

CFLD on mustard, KVK West Garo Hills

Achievements during 2018-19

During the year 2018-19, a total of **4272** nos. of Cluster Frontline Demonstrations were conducted on Oilseeds (**2328)** and Pulses (**1944**) in 5 North-eastern States of Manipur, Meghalaya, Nagaland, Mizoram and Tripura covering total area of **1889.4** ha **(Table-44).**

- The total area covered by Pulses (Kharif & Rabi Season 2018-19) was **871.4** ha through **1944** demonstrations. In Oilseeds, total area covered (Kharif & Rabi Season 2018-19) was **1018** ha through **2328** demonstration.
- Cluster Frontline Demonstration was conducted in different Pulses crops like **Blackgram** (PU-31, Tripura Maskolai), **Green gram** (IPM-2-3, Tripura Mung 1), **Rice Bean** (var. local), **Rajma** (Canadian Red, Local, Utkarsh, Kholar), **Lentil** (var. HUL-57, WBL 77), **Field Pea** (var. Aman, Prakash, Rachna) and **Cowpea** (Kashi Kanchan).
- In Oilseed crops, Cluster Frontline Demonstration was conducted in **Soybean** (var DSb 19, JS-97-52, JS-335, JS-9305, RVS 2001-04, JS 95-60), **Sesame** (var. Chhibung, ST-1683,Tripura siphing), **Groundnut** (var. ICGS-76, GPBD-4, ICGS-75,G-2, TG-38, TAG 28), **Rapeseed & Mustard** (var. NRCHB-101, TS-36 ,TS 38, TS-67,TRC T-1-1-5-1) and **Linseed** (var. T-397, Shardha, Parvati, Ruchi).

Table 44: State-wise Cluster Frontline Demonstration on Pulses & Oilseeds under NFSM & NMOOP 2018-19

State	Area (ha) allocated		Demo allocated (No.)		Area (ha) covered		Demo conducted (No.)	
	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses
Manipur	320	340	800	850	290	310	601	722
Meghalaya	70	70	175	175	70	70	133	140
Mizoram	110	120	275	300	108	81.4	231	134

Nagaland	310	140	775	350	320	140	794	329
Tripura	240	270	600	675	230	270	569	619
Total	**1050**	**940**	**2625**	**2350**	**1018**	**871.4**	**2328**	**1944**

Table 44 shows that the state of Tripura produced the highest yield level of 8.97 q/ha of Blackgram followed by Manipur (8.41 q/ha) and Meghalaya (8.21 q/ha) with the average yield level of 8.5 q/ha in the zone. In case of Green gram, the KVKs in the zone reported yield level of 7.6 q/ha. The table also indicates that highest level of yield (14.50 q/ha) was reported by the state of Nagaland in cultivation of Rajma (var. Canadian Red, Utkarsh, Kholar) with the zonal average yield level of 12.37 q/ha followed by Fieldpea with an average yield of 11.45 q/ha in the zone. Lentil (Var. HUL-57, WBL-77) and were reported with average yield level of 8.34 q/ha at zonal level. While Ricebean (Var. Local) was demonstrated by the KVKs of Manipur in which they obtained average yield level of 10.52 q /ha and Cowpea (Var . Kashi kanchan) was demonstrated by the KVKs of Tripura with the average yield level of 9 q/ha.

Table 45: State-wise details of productivity of Pulses Crops under NMOOP during 2018-19

S. No.	Name of KVK	Avg. productivity (q/ha) of Pulses Crops						
		Greengram (TripuraMung 1, IPM-2-3)	**Blackgram** (PU-31, Tripura Maskalai 1)	**Rice bean** (Local)	**Rajmah** (Canadian Red, Local, Utkarsh, Kholar)	**Cowpea** (Kashikanchan)	**Fieldpea** (Aman, Prakash, Rachna)	**Lentil** (HUL-57, WBL-77)
1	Manipur	7.11	8.41	10.52	13.72		12.51	8.47
2	Meghalaya		8.21				11.54	
3	Mizoram		-		13.25		8.85	7.80
4	Nagaland		-		14.50		11.87	
5	Tripura	8.50	8.97		8.00	9.00	12.48	8.76
Average Productivity		**7.81**	**8.53**	**10.52**	**12.37**	**9.00**	**11.45**	**8.34**

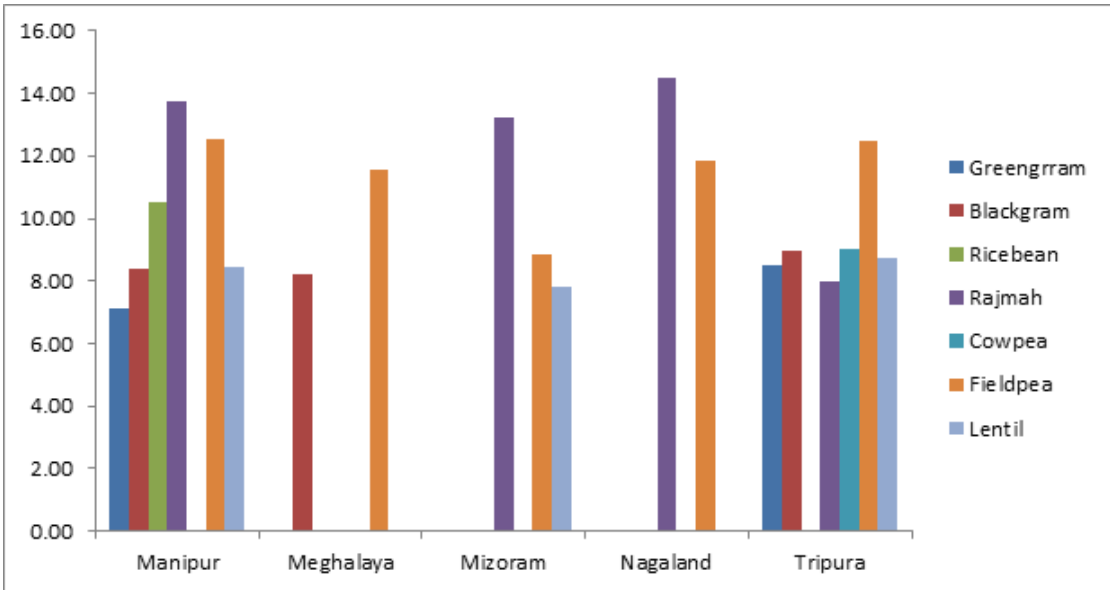


Fig 10: State-wise productivity of Pulses crops under NMOOP during 2018-19

In case of Oilseed crops, the **Table-46** indicates that Soybean (Var. DSb 19, JS-97-52, JS-335, JS-9305, RVS 2001-04, JS 95-60) was demonstrated by the selected KVKs in the states of Manipur, Mizoram and Nagaland in which the highest average yield level of Soybean was recorded in Mizoram with an average yield of 20.5 q/ha followed by Manipur and Nagaland and the average yield of **Soybean** is 16.27 q/ha . KVKs of Mizoram, Nagaland and Tripura reported the average yield of 5. 95 q/ha in case of **Sesame**(Var.Chhibung , ST-1683,Tripura Siphing). While the average yield of 16.27q/ha and 9.07 q/ha were recorded in demonstration of **Groundnut** (Var**.** ICGS-76, GPBD-4, ICGS-75,G-2, TG-38, TAG 28) and **Rapeseed & Mustard** (Var**.** NRCHB-101, TS-36 ,TS-38, TS-67,TRC T-1-1-5-1). The **Linseed** (Var.T-397, Sharda, Parvati, Ruchi) was demonstrated by the KVKs of Nagaland only in which 6.98 q/ha was obtained as average yield.

Table 46 : State-wise Productivity of Oilseed crops under NMOOP during 2018-19

Sl. No.	State	Average productivity (q/ha)				
		Soybean (Var. DSb 19, JS-97-52, JS-335,JS-9305, RVS 2001-04, JS 95-60)	Sesame (Var. Chhibung , ST-1683,Tripura Siphing)	Groundnut (Var. ICGS-76, GPBD-4, ICGS-75,G-2, TG-38, TAG 28)	Rapeseed & Mustard (Var. NRCHB-101, TS-36 ,TS 38, TS-67,TRC T-1-1-5-1)	Linseed (Var. T-397, Sharda,Parvati, Ruchi)
1	Manipur	15.65		19.92	8.75	
2	Meghalaya			23.6	9.14	
3	Mizoram	20.5	5.75	15	8.25	
4	Nagaland	12.67	4.5	8.88	7.32	6.98
5	Tripura		7.6	13.93	11.87	
Av. Yield (Zonal)		**16.27**	**5.95**	**16.27**	**9.07**	**6.98**

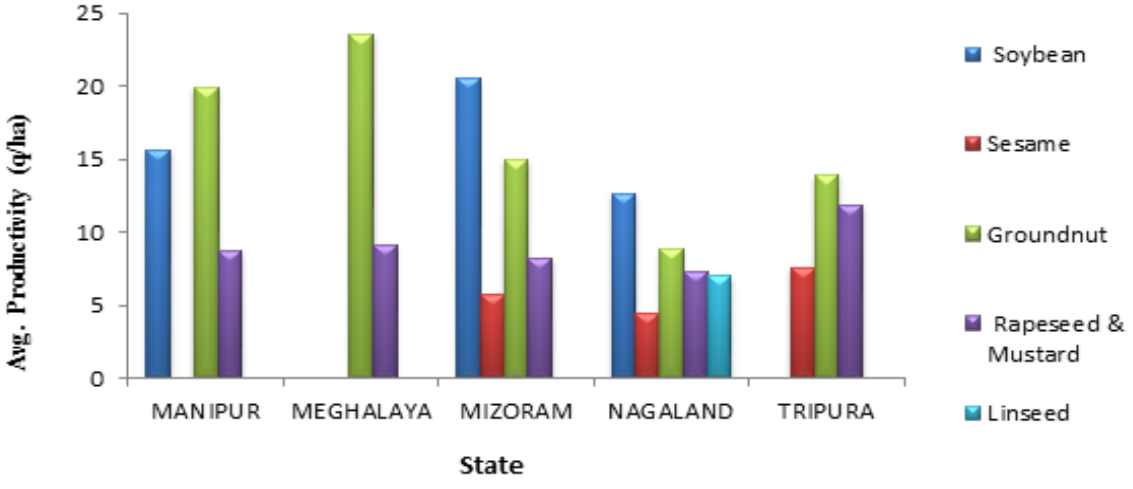


Fig 11: State-wise productivity of Oilseed crops under NMOOP during 2018-19

3.1.5. New Extension Methodologies and Approaches (NEMA)

The ICAR sponsored new project- **"New Extension Methodologies and Approaches (NEMA)"** to generate data on adoption of selected improved technologies, the determinants of adoption, constraints and impact from a large pool of samples across the country for generalisation and drawing meaningful conclusion is conceived with the following objectives-

- To study the existing extension methodologies and develop new extension methodologies.
- To develop technology map for different agro-ecosystems.
- To study the extent and determinants of adoption of selected improved NARS technologies.
- To assess the impact of the technologies in different agro-ecosystems.
- To undertake yield gap analysis and suggest suitable strategies to reduce gap.

The important and popular technologies in agriculture and allied sectors in the zone have been identified and submitted to the Council for consideration. The project is at the stage of formulation and finalisation of data collection at national level. The core committee of Scientists for implementation of the project has been constituted as per guidelines of the project, has been formed and submitted.

4.0. PUBLICATIONS

Research papers :

- A.K. Singha, A. K. Tripathi, P. C. Jat, R. Bordoloi, J. K. Singha and Merina Devi (2018). Critical Analysis of Adoption Behaviour of Rice (*Oryzasativa* L.) Production Technologies by the Farmers-A Case Study through Krishi Vigyan Kendras (KVKs) in North Eastern Region, ***Indian Journal of Hill Farming****, Special Issue: 126-132.*
- V.K. Verma, R.K. Patel, N.A. Deshmukh, A.K. Jha, S.V. Ngachan, A.K. Singha, B.C. Deka (2019). Response of ginger and turmeric to organic versus traditional production practices at different elevations under humid subtropics of north-eastern India, ***Industrial Crops & Products****,* 136 (2019): 21-27.
- Kumar Rakesh, Patra M.K., Thirugnanavel A, **Deka B.C.**, Chatterjee D, Borah T.R., Rajesha G, Talang H.D., Ray S.K., Kumar M and Upadhyay P.K. (2018). Comparative evaluation of different integrated farming system model for small and marginal farmers under the Eastern Himalayas. *Indian Journal of Agricultural Sciences* **88** (11): 1722–29.
- Thirugnanavel A, **Deka B.C.**, Kumar Rakesh, Rangnamei L, Meyase M and Rabi K. (2018). Evaluation of rajma bean landraces for growth, yield and quality under low altitude condition of Nagaland. International Journal of Current Microbiology and Applied Sciences **7**(10): 2641-2648.

Books/ Book Chapters/ Souvenir Chapter :

- A. Sharma, V.K. Aomi, Bidyut C. Deka, N.A. Deshmukh and D. J. Rajkhowa (2018). "Value chain development in citrus for North East India", ICAR Complex, Umiam
- Bidyut C. Deka, Divya Parisa, A.K. Singha**,** Rupaia S and Daegal A. (2018). "Impact of Technologies on Pulses Production in North Eastern Region", published by ICAR-Agricultural Technology Application Research Institute, Zone-VII, Barapani, Meghalaya.
- Bidyut C. Deka, Divya Parisa, A.K. Singha, Rupaia S and Daegal A. Massar (2018). Technical Bulletin –"Impact of Technologies on Oilseeds Production in North Eastern Region", published by ICAR-Agricultural Technology Application Research Institute, Zone-VII, Barapani, Meghalaya.
- A.K.Singha, Bidyut. C.Deka, Divya Parisa and Mesaya Rangsa Marak (2019). Farmers FIRST programme (FFP). Technical guidelines and its implementation in Meghalaya and Manipur.
- A.K.Singha, Bidyut. C. Deka, Divya Parisa and Mesaya Rangsa Marak and Anik Lyngdoh. (2019). Attracting and retaining youth in agriculture (ARYA). Project guidelines and its implementation in Manipur, Nagaland and Mizoram
- Bidyut C.Deka, Divya Parisa**,** A.k.Singha, Rimiki Suchiang and Careen Nongrum (2019). Technologies for doubling farmers income in NEH region.
- Deka, B.C., Divya Parisa, Mokidul Islam, A.K. Singha, A.K. Singh, Daegal, A. Massar and Namriboi (2019). Training manual: Technologies for Enhancing Productivity of Pulse and Oilseed Crops in NEH Region, published by ICAR-ATARI, Zone-VII, Umiam, Meghalaya.

Technical Bulletins :

- A. Sharma, V.K. Aomi, Bidyut C. Deka, N.A. Deshmukh and D. J. Rajkhowa (2018). "Value chain development in citrus for North East India", ICAR Complex, Umiam
- Bidyut C. Deka (2018). "Strategies for

doubling farmers' income in North East India", published by CAU, Umiam campus in connection with the Regional Meet on North East Agriculture: Farmers' perspective during December 7-8, 2018

- Divya Parisa, B.C. Deka, A.K. Singha, Janani, P and Balusamy (2018). "Climate proofing technologies for climate resilient agriculture in Eastern Himalayan Region", published on the occasion of International Conference on Climate Change, Biodiversity and Sustainable Agriculture (ICCBSA-2018) 13-16 December, 2018, P.N. 23-26
- Bidyut C. Deka, Divya Parisa, A.K. Singha, Rupaia S and Daegal A. (2018). "Impact of Technologies on Pulses Production in North Eastern Region", published by ICAR-Agricultural Technology Application Research Institute, Zone-VII, Barapani, Meghalaya.
- Bidyut C. Deka, Divya Parisa, A.K. Singha, Rupaia S and Daegal A. Massar (2018). Technical Bulletin –"Impact of Technologies on Oilseeds Production in North Eastern Region", published by ICAR-Agricultural Technology Application Research Institute, Zone-VII, Barapani, Meghalaya.
- A.K. Singha, Bidyut. C. Deka, Divya Parisa and Mesaya Rangsa Marak. 2019. Farmers FIRST programme (FFP). Technical guidelines and its implementation in Meghalaya and Manipur.
- A.K. Singha, Bidyut. C. Deka, Divya Parisa and Mesaya Rangsa Marak and Anik Lyngdoh. 2019. Attracting and retaining youth in agriculture (ARYA). Project guidelines and its implementation in Manipur, Nagaland and Mizoram
- Bidyut C. Deka, Divya Parisa, A.K. Singha, Rimikisuchiang and Careen Nongrum.2019. Technologies for doubling farmers income in NEH region.
- Deka, B.C., Divya Parisa, Mokidul Islam, A.K. Singha, A.K. Singh, Daegal, A. Massar and Namriboi (2019). Training manual: Technologies for Enhancing Productivity of Pulse and Oilseed Crops in NEH Region, published by ICAR-ATARI, Zone-VII, Umiam, Meghalaya.

Popular articles:

- Divya Parisa, Shilpa, V. and Eswar. G. 2019. Low cost incubator for hatching eggs. (Telugu) In: Pasunestam February, volume 7 Issue 3. P.No.28.
- Divya Parisa, Eswar. G. 2018. Mushroom cultivation as an alternate source of livelihood (In Telugu). In: Rytunestam. Volume14 Issue 4. P.No.45-46..
- Divya Parisa, Shilpa, V. and Eswar. G. 2019. Floating duckery unit. (Telugu) In: Pasunestam February, volume 7 Issue 3. P.No.23.
- Divya Parisa, and Shilpa, V. 2019. Beneficial insects: A boon to farmers. (Telugu) In: Krishijagran. P.No. 56-59.
- Divya Parisa, and Shilpa, V. 2019. Grafting in vegetables an innovative approach (Telugu) In: Krishijagran. P.No. 21-23.

Presentations in conferences/symposia/seminar/ others

- Divya Parisa, Awnindra K. Singh Bidyut C. Deka and A.K. Singha (2018). *Champereia manillana* an underexploited and underutilized vegetable crop of nutritional importance. "Sustainability of small holder agriculture in developing countries under changing climate scenario" In abstract book: on 14-17 February, 2018 at Kanpur.
- Divya Parisa, Awnindra K. Singh Bidyut C. Deka and A.K. Singha (2018). Marine legumes-A boon to combat hidden hunger and protein malnutrition. In abstract book: 14-17 February, 2018 at Kanpur.
- Divya Parisa, Bidyut C. Deka, Azriel M Tariang and A.K. Singha **(2018).** Climate Resilient Varieties of Rice Usher Prosperity to Farmers of North Eastern Region In abstract book: International Conference on *Climate Change,*

Biodiversity and Sustainable Agriculture (ICCBSA-2018) 13-16 December, 2018. p. 52.

- *Divya Parisa*, Bidyut C. Deka, Azriel M. Tariang and A.K. Singha (2018). Climate Smart Villages- A Means to Agricultural Research for Development in the Context of Climate Change. In abstract book: International Conference on *Climate Change, Biodiversity and Sustainable Agriculture (ICCBSA-2018),* 13-16 December, 2018, p. 68.
- Divya Parisa, Bidyut C. Deka, Azriel M. Tariang and A. K. Singha (2018).Agricultural Residue Management to Boost up The Economy of Farmers under Climate Changing Scenario. In abstract book: International Conference on *Climate Change, Biodiversity and Sustainable Agriculture (ICCBSA-2018),* 13-16 December, 2018. pp.105.
- Bidyut C. Deka (2018). "Sustainable approaches for doubling farmers' income" in the National Seminar on "Sustainable management of soil and water resources for doubling farmers' income" organised by AAU, Jorhat at Jorhat and chaired a session on "Approaches for doubling farmers' income through sustainable agriculture" on October 27, 2018
- Bidyut C. Deka (2018). "Role of ICAR-ATARI in Rural Development" in Review cum hand holding workshop on Sabki Yojana Sabka Vikas at NIRD, Guwahati organised by Ministry of Rural Development and Panchayati Raj on November 16, 2018
- Bidyut C. Deka (2018). "KVK mandates: its concept, methodology and implementation for doubling farmers' income for the MDP trainee at NAARM, Hyderabad on December 10, 2018.
- Presented the idea of transforming KVKs into knowledge centre in the Annual Zonal Action Plan workshop of ICAR-ATARI, Umiam attended by 43 Senior Scientist & Heads of 5 NEH states on March 01, 2019.
- Bidyut C. Deka (2018). KVK mandates: Its perspective for doubling farmers' income at ICAR-ATARI, Guwahati for newly recruited SMSs on March 27, 2019.

Others :

- Annual Report of ICAR-ATARI, Zone-VII, 2017-18 (both English and Hindi)
- Proceedings of Annual Zonal Workshop of KVKs under Zone-VII
- Compilation of information for report of CFLD project on Pulses and Oilseeds under ICAR-ATARI, Zone-VII.
- Compilation of report of NICRA project under ICAR-ATARI Zone VII
- Compilation of report of seed hub
- Monthly Reports of KVKs under 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-VII
- Monthly RFD report of ICAR-ATARI-VII
- Quarterly TSP report during 2018-19.
- Annual Reports of KVKs
- Monthly Report on Citizen Client Charter
- 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
- Preparation of report and ATR of Regional Committee Meeting of ICAR-ATARI, Zone-VII.

5.0 PARTICIPATION IN MEETINGS/ WORKSHOPS

Participation in Meetings/Workshops

Dr.Bidyut C.Deka, Director

- Chaired the Zonal Project Management Committee meeting of Farmer FIRST project at CAU, Imphal on 18.04.18
- Attended Northeast Farm Innovators' Meet at NOFRI, Gangtok on 20.04.18 to 21.04.2018
- Chaired Zonal NICRA Review workshop of ICAR-ATARI, Zone VI &VII at KVK, Ri-Bhoi, Umiam on 25.04.18 to 26.04.18
- Meeting with DG, ICAR and DDG (AE), Director (Works) and other Officers at Krishi Bhawan and KAB I & KAB II, New Delhi on 01.05.18
- Attended SMD meeting at KAB-I, New Delhi and Attended National review workshop on pulses at ICAR HQ on 08.05.18 to 09.05.18
- Attended Mid-term review meeting of Regional Committee no. 3 at ICAR Complex, Umiam on 11.05.18
- Chaired IMC of ICAR-ATARI, Umiam and discussion with Director and Sr. FAO, ICAR Complex regarding financial status of KVKs under ICAR Complex on 14.05.18
- Addressed the review workshop of KVKs under ICAR Complex as Chief Guest on 15.05.18
- Attended 2nd Hill consortium meeting at VPKMS, Almora on 17.05.18
- Attended Zonal Action Plan meeting of ICAR-ATARI, Guwahati at AAU, Khanapara campus, Guwahati on 19.05.18
- Attended Academic Council meeting of AAU at Jorhat on 25.05.18
- Attended review meeting called by MoS (Agri & FW), Govt. of India at Taj Vivanta, Guwahati on 28.05.18
- Attended review meeting called by MoS (Agri & FW), Govt. of India at Prayga Bhaban, Agartala on 29.05.18
- Discussion with Director (Agri), Govt. of Tripura and Dean, College of Fisheries, CAU, Agartala regarding holding of Zonal review workshop at CAU campus, Agartala on 30.05.18
- Visited KVK, Jaintia hills and discussion with Dalmia Bharat Cement for CSR project with KVK, Jaintia hills on 01.06.18
- Visited a Farmer's field under KVK, Baksa to witness Magur breeding and attended meeting at Hotel Pragati Manor, Guwahati organised by CIH, Jharnapani regarding popularization of Cashew in Northeast India on 05.06.18
- Inauguration of Annual Zonal Workshop of KVKs of Northeast India and reviewed the progress of the activities of the KVKs during 2017-18 on 08.06.18 to 10.06.18
- Visit to NICRA village (Aliba) under KVK, Mokochung, meeting with the villagers and KVK staff and reviewed NICRA activities and attended meeting with all the staff of KVK, Mokochung at Hotel Whisper Wings on 21.06.18
- Visit to KVK, Zonheboto, visit to KVK farm and held discussion with KVK staff, Visit to KVK, Wokha and farmer's fields of ARYA project under KVK, Wokha and Meeting with the Heads of KVKs (Mokokchung, Zonheboto, Wokha, Kohima) at Farmer's Hostel, KVK, Wokha regarding implementation of IFAD project on 22.06.18
- Visit to KVK, Kohima, visit to KVK farm and held discussion with KVK staff and visited KVK Dimapur and discussion with KVK staff on 23.06.18

- Organized One day Workshop on IFAD funded project " Fostering Climate Resilient Upland Farming Systems in the Northeast India" to be implemented in Nagaland and Mizoram on 03.07.18
- Attended a workshop organised by NAAS, Patna Chapter at ICAR Complex, Umiam on 11.07.18
- Attended the inaugural programme of project review meeting of DBT as Guest of honour at ICAR Complex, Umiam on 13.07.18
- Attended Annual Review Workshop of NICRA at NASC, New Delhi during 07.08.18 to 08.08.18
- Attended Inaugural programme of Seed Hub facilities at KVK, Thoubal, Manipur on 10.08.18
- Attended selection committee meeting of Associate Director (Ag. Extension), AAU, Khanapara as ICAR nominee on 11.08.18
- Attended Annual review workshop of ARYA at NASC, New Delhi during 24.08.18 to 25.08.18
- Attended the workshop on District Agricultural Contingency Plan at ICAR Complex, Umiam organised by CRIDA, Hyderabad and ICAR Complex DURING 30.08.18 TO 31.08.18
- Attended inaugural programme of ToT of Skill training conducted by ASCI at ICAR Complex, Umiam on 13.09.18
- Attended buyer-seller meet at CIH, Medziphema organised by CIH and reviewed the activities of all the KVKs of Nagaland at KVK, Dimapur on 14.09.18
- Visited KVK, Kolasib and meeting with KVK staff on 22.09.18
- Visited KVK, Aizawl and meeting with KVK staff on 23.09.18
- Attended interface meeting organised by ICAR Complex, Umaim at Aizawl club on 24.09.18
- Visited KVK, Champhai and meeting with KVK staff on 25.09.18
- Visited KVK, Mamit and reviewed the activities of all the KVKs of Mizoram on 26.09.18
- Reviewed the activities of 23 KVKs under CFLD on pulses and oilseeds at KVK, Ri Bhoi on 28.09.18
- Visited KVK North Tripura on 03.10.018
- Visited KVK North Tripura and review of the activities of KVKs in Tripura on 04.10.18
- Attended Mid-term review workshop of NICRA and reviewed the activities of 14 KVKs under NICRA at KVK, Ribhoi on 11.10.18
- Attended the World Food Day and Agri-start-up & Entrepreneurship Conclave at NAS Complex, New Delhi on 16.10.16
- Attended National Seminar on "Sustainable management of soil and water resources for doubling farmers' income" organised by AAU, Jorhat at Jorhat and chaired a session on " Approaches for doubling farmers' income through sustainable agriculture" on 27.10.18
- Visited KVK, Tuensang on 29.10.18
- Visited KVK, Mon on 30.10.18
- Attended Zonal Monitoring Committee meeting of NICRA at KVK, Dimapur under the chairmanship of Dr. Senapati on 13.11.18
- Attended Review cum hand holding workshop on Sabki Yojana Sabka Vikas at NIRD, Guwahati organised by Ministry of Rural Development and Panchayati Raj and delivered at lecture on Role of ICAR-ATARI in Rural Development on 16.11.18
- Attended Krishi Unnati Mela at KVK, Namsai, AP on 17.11.18
- Signed MoU with NERIWALM at its HQ at Tezpur for collaborative activities with the KVKs on 24.11.18
- Attended the workshop on GAP organised by Division of Agril. Extension at NASC, New Delhi on 26.11.18

- Attended 6th International Conference on Plants and Environmental Pollution organised by CSIR-NBRI and International Society of Environmental Botanists at Lucknow and chaired a session and signed MoU with CSIR-NBIR for collaborative research on 27.11.18
- Attended the National Seminar on " Challenges and Opportunities for Farmers' Prosperity in Hill Agriculture" organised by ICAR Complex & NAAS, New Delhi at ICAR Complex, Umaim on 29.11.18
- Attended the project review meeting at NEDFi, Guwahati as an outside expert on 30.11.12
- Attended the workshop on "Northeast Agriculture: Farmers' perspective organised by CPGS, CAU, Umiam on 07.12.18
- Delivered a lecture for the MDP trainee at NAARM, Hyderabad on 10.12.18
- Attended Academic Council meeting of AAU, Jorhat as ICAR nominee on 12.12.18
- Visited KVK, Nalbari and attended Doordarshan Live programme at KVK Nalbari on 15.12.18
- Attended State level Farmers' Fair & Farmer-Scientist interaction at ICAR-ATARI, Guwahati on 16.12.18
- Reviewed the progress of the activities scientist wise of Farmer FIRST project of ICAR Complex on 18.12.18
- Review of the progress of Farmer FIRST project of CAU, Imphal on 20.12.18
- Visit to KVK, Chandel and Reviewed the progress of the action plan 2018-19 on 21.12.18
- Review of the progress of the activities of DEE, CAU, Imphal on 22.12.18
- Chaired IMC meeting of ICAR-ATARI, Umiam on 29.12.18
- Organised MDP training programme for KVK heads for 5 days w.e.f Jan 7-11, 2019 on 07.01.19
- Visited KVK Bishnupur and attended Farmers' Fair at CAU, Imphal on 11.01.19
- Attended workshop on drought mitigation organised by IARI, New Delhi at NAAS complex during 22.01.19 to 23.01.19
- Attended Directors' Conference at NASC, New Delhi during 31.01.19 to 01.02.19
- Attended "National Seminar on Seed sector for Northeast-Problems and way forward" at RIMS, Imphal organised by ICAR Complex, Manipur Centre on 03.02.19
- Attended the Entrepreneur conclave organised by ICAR-ATARI, Umiam on 09.02.19
- Attended the SAC meeting of KVK, Zunheboto on 12.02.19
- Attended the IMC meeting of ICAR Complex on 15.02.19
- Attended the SAC meeting of KVK, Ukhrul on 18.02.19
- Attended the SAC meeting of KVK, Imphal West on 19.02.19
- Visited KVK, East Garo Hills and meeting with the staff on 22.02.19
- Attended SAC of KVK, South Garo Hills and East Garo Hills at CAU, Tura Campus on 23.02.19
- Attended launching programme of PM-KISAN by the honourable Governor of Tripura at ICAR Complex, Tripura centre on 24.02.19
- Chaired CFLD workshop on oil seeds and pulses organised by ICAR-ATARI at its new Administrative building on 28.02.19
- Chaired Annual Action plan workshop of KVKs of NEH states organised by ICAR-ATARI at its Administrative building during 01.03.19 to 02.03.19
- Visited NESAC, Barapani as an Expert for selection of Scientists on 11.03.19
- Visited KAB-I, Krishi Bhavan and met DG, ICAR in his office at New Delhi on 18.03.19
- Discussion with the Director (Works), KAB-I in his office at New Delhi on 19.03.19

- Conducted viva-voce exam of a Ph.D student of AAU at Jorhat on 23.03.19
- Attended meeting at NEDFi, Guwahati as an expert for review the inception report on establishment of Industries for value addition on 25.03.19
- Attended Valedictory programme of Skill training programme organised by ICAR-ATARI, Umiam for Skill Support staff of the KVKs of NEH states on 26.03.19
- Delivered lecture on KVK mandates: Its perspective for doubling farmers' income at ICAR-ATARI, Guwahati on 27.03.19

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

- Attended Brainstorming meeting at Division of Agril. Extension, ICAR, New Delhi on 12-2-2019 for Net Work project "Performance of selected NARS technologies: Determinants, Constraints and Impact".
- Attended Annual Zonal Workshop of KVKs, Zone-VI & VII, 2017-18 on 8-10 June, 2018 at CoF, Lumbucherra.
- Attended Annual Zonal Action Plan Workshop of KVKs under Zone-VII at ICAR-ATARI, Zone-VII, Umiam during 1-2 March, 2019
- Attended Review workshop of Farmer FIRST programme being implemented by ICAR RC for NEH Region, Umiam at ICAR RC, Barapani on 18th February, 2018.
- Attended Review workshop of Farmer FIRST programme being implemented by CAU, Imphal at College of Agriculture, CAU, Imphal during 20th December, 2018.
- Attended Brainstorming meeting at Division of Agril Extension, ICAR, New Delhi on for Net Work project " Performance of selected NARS technologies: Determinants, Constraints and Impact" during 12th December, 2018
- Attended Awareness programme on Swachhta Pakhwada at Kumbhi village organised by KVK Bishnupur during 21st December, 2018
- Attended Regional conference on "North East Agriculture: Farmers' Perspective" at CPGS, CAU, Barapani during 7th to 8th December, 2018
- Attended Stakeholders' Workshop on "Alternate Agricultural Production Pathways in Changing Climates" at ICAR RC for NEH Region, Barapani on 28th May, 2018
- Attended Workshop on Formulation of Action Plan for IFAD project at ICAR RC for NEH Region, Barapani on 3rd July, 2018
- Attended ZPMC of Farmer FIRST project as Member Secretary to review progress report of 2017-18 and action plan for 2018-19 during 17th to 18th April, 2018
- Attended 7th IMC meeting of ICAR-ATARI, Zone-VII at ATARI, Umiam on 14th May, 2018
- Attended Review meeting of KVKs in Meghalaya in presence of Addl. Chief Secretary and APC, Govt. of Meghalaya at Rajbhawan, Shillong on 18th July, 2018
- Attended as member of District Committee (DC) of ARYA of KVK Senapati to review component-wise progress under the project on 18th August, 2018
- Attended National Review Workshop of ARYA at NASC Complex, New Delhi during 24th to 25th August, 2018
- Attended District Committee (DC) meeting of ARYA of KVK Lunglei at KVK Aizawl on 27th August, 2018
- Attended ZMC meeting followed by field visits of KVK Mokokchung as Vice-Chairman of NICRA ZMC team to review activities under the project on 12th December, 2018.
- Attended ZMC meeting of KVK Serchhip, Mizoram under NICRA project on 21st January, 2019
- Attended ZMC meeting for KVK Lunglei, Mizoram under NICRA project during 22nd January, 2019

- Attended Workshop on District Contingency Planning of 25 KVKs under Zone-VI and VII at ICAR RC for NEH Region during 30-31 August, 2018
- Attended District Committee meeting of ARYA of KVK Wokha at ICAR Nagaland Centre, Jharnapani on 5th September, 2018
- Attended ZPMC of FFP for 2 zones-VI & VII at Majuli as Member Secretary to review progress report of the 3 implementing centres during 2018-19 and action plan for 2019-20 on 18th March, 2019

Mrs. Divya Parisa, Scientist (Horticulture)

- Attended Management development programme for HRD Nodal officers of ICAR for effective implementation of Training functions at ICAR-NAARM, Hyderabad during 14th to 16th March, 2019.
- Attended Annual Review workshop of KVKS under NICRA at ICAR-CRIDA, Hyderabad during 4th-6th June 2019
- Attended XIV Agricultural Science Congress at NASC Complex Pusa, New Delhi
- Attended Workshop on District Agriculture Contingency Plan at ICAR Research Complex for NEH Region during 30-31 August, 2018
- Attended 6th Annual Review workshop of NICRA held at NASC Complex, New Delhi during February 20-23, 2019
- Attended Annual Zonal Action Plan Workshop of KVKs under Zone-VII at ICAR-ATARI, Zone-VII, Umiam. 1-2 March, 2019
- Attended 7th IMC meeting of ICAR-ATARI, Zone-VII at ATARI, Umiam.
- Attended International Conference On Climate Change, Biodiversity and Sustainable Agriculture (ICCBSA-2018) during 13-16 December, 2018.
- Attended Regional conference on "North East Agriculture: Farmers' Perspective" at CPGS, CAU, Barapani during 7-8 December, 2018
- Attended ZMC meeting followed by field visits of KVK Dhalai as member of NICRA ZMC team to review activities under the project during 24thJuly, 2018
- Attended ZMC meeting followed by field visits of KVK Khowai as member of NICRA ZMC team to review activities under the project during 25th July, 2018
- Attended SAC meeting of KVK East Khasi Hills on 28th January, 2019 at state biological control laboratory, Shillong

Mr. Ashit Biswas, AF&AO

- Attended MDP (Phase-II) for newly recruited Senior Scientist & Heads of KVKs on topic 'Financial Management and Accounts handling'. as a resource person on 27th December, 2018 at KVK Ri-Bhoi.
- Attended IIIrd MDP for newly recruited Heads of KVKs under Zone VII as a resource person from 07- 11th January, 2019.
- Attended orientation programme for supporting staff under Zone VII as a resource person from 25- 26th March, 2019

Mr. Johannes Wahlang, ACTO

- Attended the training on ICAR-ERP at ICAR-IASRI, Pusa, New Delhi during 9-10th May, 2018.
- Attended the Workshop of Nodal Officers of ICAR Research Data Repository for knowledge management on 4-5th December, 2018 at ICAR-IASRI, New Delhi

6.0. WORKSHOPS/ TRAINING AND CAPACITY BUILDING PROGRAMMES

The Agricultural Technology Application Research Institute (ATARI), Umiam during 2018-19 organized 12 HRD programmes for Heads of KVKs, newly recruited SMS and skilled supporting staff (SSS) of KVKs under Zone VII. 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. Special programmes like Innovators Meet for NE Region were organized during 20-21 April, 2018 at NOFRI, Gangtok, Sikkim. Workshop on Fostering Climate Resilient Upland Farming Systems in the Northeast (FOCUS) was also organized by ICAR-ATARI Barapani. Annual and Mid-term Zonal review work shops were organized to review the project activities of CFLD Pulses and Oilseeds as well as NICRA Projects.

HRD programme for Skilled Supporting Staff (SSS) of KVKs under ATARI Zone VII

Table-47: Meetings/Workshops/ HRD programmes conducted during 2018-19

Sl. No.	Title/ Topic of the programme	Date	Venue
1	Innovators Meet for NE Region	20-21 April, 2018	Gangtok, Sikkim
2	NICRA review Meeting	25-26 April, 2018	KVK, RiBhoi, Umiam
3	7th IMC Meeting of ICAR-ATARI, Umaim	14th May, 2018	ICAR-ATARI, Umiam
4	Annual Zonal Workshop of KVKs 2017-18	8-10 June, 2018	College of Fisheries CAU, Lembuchera
5	Workshop on Fostering Climate Resilient Upland Farming Systems in the Northeast (FOCUS)	3rd July, 2018	D.N. Borthakur Conference Hall, ICAR RC for NEH Region, Umiam
6	Review workshop cum Training on Cluster Frontline Demonstration on Oilseeds& Pulses under NFSM 2018-19	28-29 September, 2018	KVK, RiBjoi, Umiam
7	Mid-Term Zonal Review Workshop of NICRA	1st October, 2018	KVK, RiBhoi, Umiam
8	Training scheduled for head of KVKs at ATARI, Zone-VII under MDP 3rd Phase	7-11 January, 2019	KVK, RiBhoi
9	Review Workshop on CFLD Pulses and Oilseeds under NFSM 2018-19	28th February, 2019	ICAR-ATARI, Zone-VII, Umiam
10	Orientation Training Programme on Preparation and Dissemination of Agromet Advisories at Block Level under GKMS Scheme for Nodal Officers of KVKs under ATARI, Zone-VII	28th February, 2019	ICAR-ATARI, Zone-VII, Umiam
11	Annual Zonal Action Plan Worskhop of KVKs, Zone-VII	1-2 March, 2019	ICAR-ATARI, Zone-VII, Umiam
12	HRD programme for Skilled Supporting Staff (SSS) of KVKs under Zone-VII	25th march, 2019	ICAR-ATARI, Zone-VII, Umiam

7.0 PROMOTIONS/TRANSFERS

Promotions

Shri Inderjit Singh has been appointed as AAO on deputation

Transfers

Shri Inderjit Singh, AAO, ICAR-ATRAI Zone VII has been transferred to ICAR-RC NEH Region.

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)
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 & Account Officer (AF&AO)
Mrs. A. Pyrtuh	Upper Division Clerk

V. Supporting

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

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