वार्षिक प्रतिवेदन
Annual Report
2015-16

भा कृ अनु प– कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधाान संस्थान, अंचल–३

ICAR-Agricultural Technology Application Research Institute, Zone – III

उमियम, मेघालय -793103

Umiam, Meghalaya- 793103

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Annual Report 2015-16

PREFACE

Greetings from Team ICAR- ATARI (Zone- III) !

The ICAR- Agricultural Technology Application Research Institute (ATARI), Zone – III with its headquarter at Umiam, Meghalaya is primarily responsible for monitoring and reviewing of technology assessment, refinement, demonstrations, training programmes and other extension activities conducted by the *Krishi Vigyan Kendras* (KVKs) in North East Region, which comprises of eight states, namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The institute is also engaged in formulation and implementation of need based research projects apart from regular monitoring, reviewing and evaluation of KVK activities and coordinating the same with various host institutes /organisations as well as ICAR Head Quarters, New Delhi. Three institute funded research projects, namely, *Impact Analysis of KVKs Activities in North East India, Job Performance of Subject Matter Specialists (SMSs) of Krishi Vigyan Kendras: The Case of North Eastern Region of India, Farmers' perception towards climate changes and their resilient strategies in agriculture* had been successfully completed during the reporting period and their reports had been submitted. Two institute research projects viz., *Cropping intensification and diversification for production enhancement in North East Region* and *Information needs of farmers of NE Region for adoption of Agricultural Technologies* are currently under operation in ICAR- ATARI, Zone-III. Besides, three externally funded projects, namely *National Innovation on Climate Resilient Agriculture (NICRA)* for demonstrating improved climate resilient farming technologies on farmers' fields through 23 KVKs, *Attracting and Retaining Youth in Agriculture (ARYA)* through 4 selected KVKs, and *Cluster Demonstrations on Oilseeds and Pulses under NMOOP/NFSM* through 53 KVKs are also presently under implementation in the region.

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 2015-16. Through this document, an attempt has been made to highlight the significant achievements of the institute and the KVKs under Zone-III during 2015-16 in a meaningful and comprehensive manner.

The institute has published seven research articles, two technical bulletins and made a number of presentations in different national seminars and conferences besides organising 18 capacity building programmes, thus strengthening the technology and methodology backstopping mechanism to the KVKs and other stakeholders in the Zone during the period. The online reporting system has been made mandatory for submission of all reports by KVKs. This not only saves lot of papers, but also reduces the time lag in communication with ICAR headquarters. The institute has taken steps in strengthening Directorates of Extension Education and ATICs under the Zone besides providing special facilities like Soil and Water Testing Labs, Water Harvesting Structures, Portable Carp Hatchery, Integrated Farming Systems etc.

I express my sincere thanks and gratitude to Dr. Trilochan Mohapatra, Secretary, DARE & Director General, ICAR, Govt. of India, Dr. A.K. Singh, DDG (Ag. Extension), Dr. V.P. Chahal, ADG (Ag. Extension), Dr. P. Adhiguru, Pr. Scientist (Ag. Extension), Dr. N. Girdhar, Sr. Scientist (Ag. Extension) and all the colleagues of Agricultural Extension Division in 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), Dr. Bagish Kumar (Scientist), Dr. P.C. Jat (Sr. Scientist), Dr. R. Bordoloi (Pr. Scientist), and Shri J. Wahlang, ACTO and all other administrative and supporting staff including the RA/SRFs/DEOs of the institute in bringing out this publication within a stipulated time period.

Place: Umiam,
Date: July, 2016

(Bidyut C. Deka)
Director

CONTENTS

EXECUTIVE SUMMARY

The ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III and 78 KVKs under its jurisdiction spread over eight North Eastern states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland, Mizoram, Sikkim and Tripura with their mandated activities have been making all out effort in fulfilling the aspiration of different stakeholders in the region. The support received from Directorates of Extension Education of Assam Agricultural University and Central Agricultural University as well as 18 host organizations enabled the zone 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 2015-16 the ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III successfully completed 3 (three) institute research projects namely; *Impact Analysis of KVK Activities in North East Region*, *Job Performance of subject Matter Specialists (SMSs) of Krishi Vigyan Kendras: A Case of North eastern Region of India,* and *Farmers' perception towards climate changes and their resilient strategies in agriculture*. Two In-house research projects viz., *Cropping intensification and diversification for production enhancement in North East Region* and *Information need of farmers of NE Region for adoption of Agricultural Technologies* are presently under operation**.** The institute is also currently undertaking three externally funded research projects namely, *National Innovation on Climate Resilient Agriculture (NICRA)* for technology demonstration on farmers' fields through 23 selected KVKs, *Attracting and Retaining Youth in Agriculture (ARYA)* through 4 selected KVKs and *Cluster Demonstration on Oilseeds and Pulses under NMOOP/NFSM* through 53 KVKs in the region. In addition, Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-III during the period published 7 research articles in prestigious national and international research journals, 3 technical/ extension bulletins, 5 popular articles and 8 oral presentations in the national seminars/ conferences, of which 2 presentations were judged for the **Best Oral Presentation Awards.** The institute, through KVKs under its jurisdiction, was successful in promotion of climate resilient agricultural technologies in North East region such as introduction and popularization of moisture stress and flood tolerant varieties of rice, better management of soil moisture, NRM intervention like in-situ moisture conservation, mulching, rain water harvesting and recycling, *jalkund*, agroforestry, effective agro-advisory services etc. As part of various technological backstopping programmes, this institute also organized 18 (eighteen) HRD programmes for KVK staff, farmers, rural youth and other agri-preneurs of the region in partnership with different allied organizations on different disciplines and thematic areas during the period. The institute through its regular monitoring mechanism helped in strengthening the Directorates of Extension Education (DEEs) and Agricultural Technology Information Centres (ATICs) under the zone. During the year, the two Directorates of Assam Agricultural University, Jorhat and Central Agricultural University, Imphal made 126 visits to different KVKs under their jurisdiction and organized 19 HRD programmes benefitting 420 KVK staff besides128 publications including CD materials for the benefit of farmers and other stakeholders in the region.

With systematic review and monitoring mechanism of the ICAR-ATARI, Zone-III, the KVKs in the region were successful in conducting on-farm testing through assessment of 308 latest technologies with 3009 nos. of trials and refined 8 technologies with 32 nos. of trials under different thematic areas of crop enterprises during the period. The KVKs also made assessment of 79 technologies with 822 numbers of trials and refined 2 technologies with 6 nos. of trials in different livestock enterprises. In regard to frontline demonstrations (FLDs), KVKs were able to conduct as many as 12123 frontline demonstrations covering 4,619.11 ha area to demonstrate the production potential of newly released technologies in the farmers' fields at different locations in a given farming system for promoting and popularising them among the farmers. These included frontline demonstrations in oilseeds (2365), pulses (2280), other crops (5361), livestock enterprises (1446) and other enterprises (671).

In case of capacity building programme, the KVKs under the region concentrated their sincere efforts towards providing latest knowledge and skill to the farmers, farm women, rural youth as well as extension personnel in practicing improved agricultural technologies. In the entire process, a total of **4809** training courses including sponsored programmes

were conducted by the KVKs under Zone-III which benefited **1,42,734** of farmers, farm women, rural youth and extension personnel on different thematic areas such as crop production, horticulture, soil health as well as fertility management, livestock production & management, home science & women empowerment, agricultural engineering, agro-forestry, plant protection, fisheries, capacity building and group dynamics etc. A close appraisal shows that as high as 60009 of the total beneficiaries were farm women representing **42.04 percent** of the total training beneficiaries during 2015-16. While **44655** number of extension activities and programmes were organized by the KVKs under close supervision and guidance by this institute for the benefit of **302016** 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 year 2015-16, KVKs in the region produced 167.48 tonnes seeds of cereals, pulses, oil seeds and vegetables etc., 24.62 lakh numbers of planting materials of fruits, vegetables, forest species, plantation & ornamental crops etc., 2310.13 qt. of bio-products including Azolla, Trichoderma, vermicompost and other composts, & 1500 litres of Neem and Tobacco extract, earth worms etc. and 449136 nos. of different livestock components including fish fingerlings.

Transfer of improved technologies and other allied farm related information was made through regular Kisan Mobile Advisory, websites of ATARI & KVKs, e-newsletters and different capacity building programmes. With sincere efforts of the scientists in the institute, KVKs under zone-III were successful in testing of soil samples in various soil testing labs and analysing the strength and weaknesses (micro-nutrients deficiency) alongwith remedial measures. As many as **19500** numbers of Soil Health Cards (SHCs) were distributed to the farmers on the eve of World Soil Health Day on 5th December, 2015.

1.0. INTRODUCTION

1.1. Genesis of 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) per 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 considering its revised mandates including undertaking different research projects.

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

The ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III with its headquarter 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 Region, which comprises of eight states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim 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 Directorates of Extension Education of SAUs and CAU in the region to oversee the activities of KVKs. The ICAR-ATARI, Zone-III also takes up need based Human Resource Development programmes for KVK staff with adequate financial support, liaison with different stakeholders and other line departments in the region. In view of overriding responsibilities of the institute for effective monitoring, coordinating and reviewing of increased number of KVKs, the ICAR, New Delhi has approved for setting up of new ATARI at Guwahati with Assam, Arunachal Pradesh and Sikkim under its jurisdiction. The new ATARI with its Headquarter at Guwahati is in the process of functioning with immediate effect.

1.3. Mandates of the Institute

- To formulate, implement, monitor and evaluate the Transfer of Technology projects.
- To coordinate the works relating to TOT projects with various agencies such as Directorate of Agriculture and Animal Husbandry of the States, State Agricultural Universities (SAUs), ICAR institutes, Voluntary Agencies and Development Departments.
- To coordinate with State/ Central Government Agencies, Credit Institutions and any other organization for successful implementation of the programmes.
- To serve as feedback mechanism from the projects to research and extension systems.
- To help in implementation of other projects (Front Line Demonstration) on oilseeds, pulses and food grains, biological control etc. assigned by ICAR headquarter.
- To have a very close liaison with ICAR headquarter particularly Deputy Director General (Agril. Extension) and his staff and prepare reports/ write –up for their use.
- To undertake different location specific and strategic research projects.

1.4. Major achievements at a glance

The ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III during 2015-16 successfully completed 3 (three) institute research projects namely; *Impact Analysis of KVK Activities in*

North East Region, Job Performance of subject Matter Specialists (SMSs) of Krishi Vigyan Kendras: A Case of North eastern Region of India, and *Farmers' perception towards climate changes and their resilient strategies in agriculture*. Two In-house research projects viz., *Cropping intensification and diversification for production enhancement in North East Region* and *Information need of farmers of NE Region for adoption of Agricultural Technologies* are presently under operation**.** The institute is also currently undertaking three externally funded research projects namely, *National Innovation on Climate Resilient Agriculture (NICRA)* for technology demonstration on farmers' fields through 23 selected KVKs, *Attracting and Retaining Youth in Agriculture (ARYA)* through 4 selected KVKs and *Cluster Demonstration on Oilseeds and Pulses under NMOOP/NFSM* through 53 KVKs in the region. In addition, Scientists of the ICAR-Agricultural Technology Application Research Institute, Zone-III during the period published 7 research articles in prestigious national and international research journals, 3 technical/ extension bulletins, 5 popular articles and 8 oral presentation in the national seminars/ conferences, of which 2 presentations were judged for the **Best Oral Presentation Awards.** The institute, through KVKs under its jurisdiction, was successful in promotion of climate resilient agricultural technologies in North East region such as introduction and popularization of moisture stress and flood tolerant varieties of rice, better management of soil moisture, NRM intervention like in-situ moisture conservation, mulching, rain water harvesting and recycling, *jalkund*, agroforestry, effective agro-advisory services etc. As part of various technological backstopping programmes, this institute also organized 18 (eighteen) HRD programmes for KVK staff, farmers, rural youth and other agri-preneurs of the region in partnership with different allied organizations on different disciplines and thematic areas during the period. The institute through its regular monitoring mechanism helped in strengthening the Directorates of Extension Education (DEEs) and Agricultural Technology Information Centres (ATICs) under the zone. During the year, the two Directorates of Assam Agricultural University, Jorhat and Central Agricultural University, Imphal made 126 visits to different KVKs under their jurisdiction and organized 19 HRD programmes benefitting 420 KVK staff besides128 publications including CD materials for the benefit of farmers and other stakeholders in the region.

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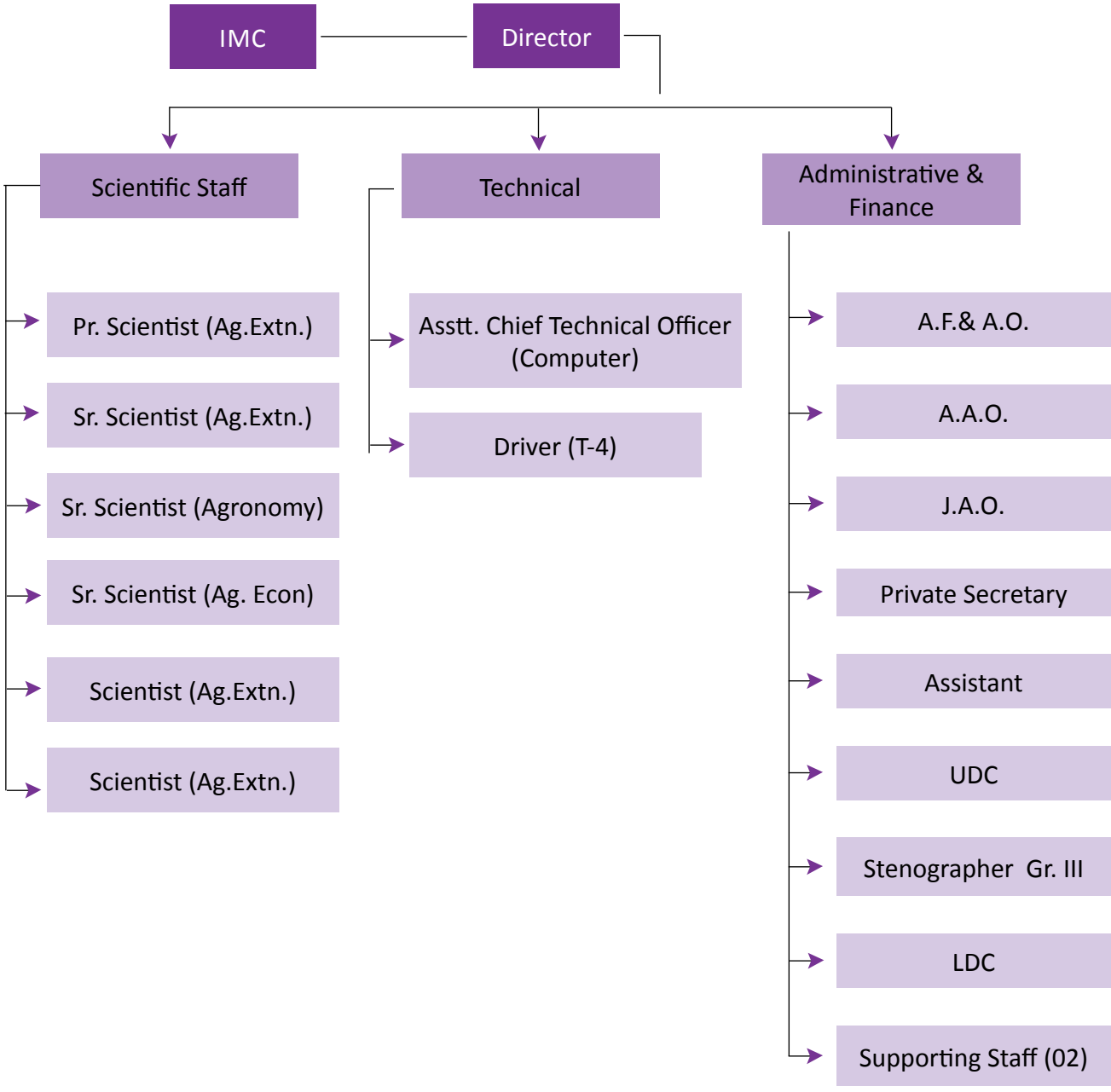
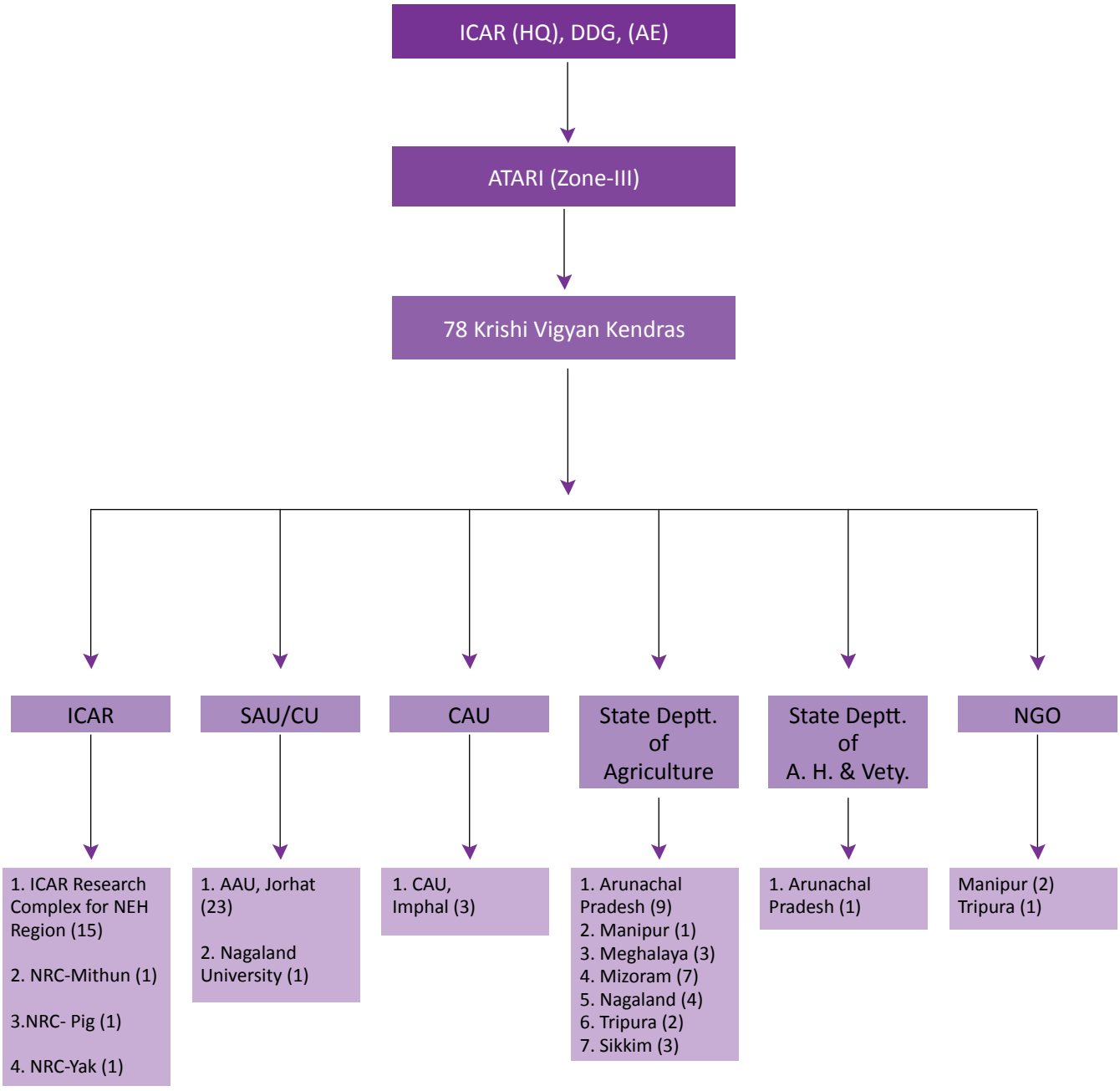
1.5. Profile of the Institute

1.5.1. Organisational Structure of Agricultural Technology Application Research Institute (ATARI)



1.5.2. Organisational Structure of KVKs under Zone-III



Note: Figure in parentheses indiactes number of KVKs

Fig 2: Organizational structure of KVKs under Zone-III

1.6. Operational area

Fig 3: Map of North Eastern Region (Zone-III)

1.7. Staff Position of Agricultural Technology Application Research Institute (ATARI), Zone-III

Out of the sanctioned staff strength of 20, presently the Agricultural Technology Application Research Institute, Zone-III 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-III

Sl. No.	Category	Sanctioned Strength	In Position	Vacant
1.	Director	1	1	0
2.	**Scientific Post**			
	Principal Scientist	1	1	0
	Senior Scientist	3	2	1
	Scientist	2	2	0
	Total	**6**	**5**	**1**
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	0	1
	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**	**3**	**6**
5.	Supporting Staff			
	(SSG-I, II, III, IV)	2	**2**	0
	Total	**20**	**13**	**7**

1.8. Budget provisions

Table 2: Budget (expenditure) in respect of ICAR-ATARI, Umiam & KVKs under Zone-III during 2015-16 **(Rupees in Lakh)**

Sl.No	Name of the Host Institute	Recurring Contingencies					Non Recurring Contingencies					RF	GRAND TOTAL
		Pay & Allow.	TA	HRD	Contig.	TOTAL	Equip./ Fur.	Works	Lib	Vehicle	TOTAL		
I.	**ATARI, Zone-III**	122.61	18.00	5.00	45.00	**190.61**	11.34	0.00	0.00	8.00	**19.34**	0.00	**209.95**
II.	**KVK, Zone-III**												
A.	**ICAR Institutes**												
1	ICAR Research Complex for NEH Region	1453.55	33.10	0.00	230.00	**1716.65**	125.95	0.00	0.00	8.00	**133.95**	0.00	**1850.60**
2	ICAR-NRC Mithun	95.00	2.20	0.00	15.80	**113.00**	10.00	0.00	0.00	0.00	**10.00**	0.00	**123.00**
3	ICAR-NRC Pig	128.00	2.00	0.00	15.10	**145.10**	3.50	0.00	0.00	0.00	**3.50**	0.00	**148.60**
4	ICAR-NRC Yak	102.00	2.20	0.00	15.20	**119.40**	4.00	0.00	0.00	0.00	**4.00**	0.00	**123.40**
	Total ICAR KVKs	**1778.55**	**39.50**	**0.00**	**276.10**	**2094.15**	**143.45**	**0.00**	**0.00**	**8.00**	**151.45**	**0.00**	**2245.60**
B.	**Agricultural University**												
1	Assam Agricultural University	1832.50	52.00	6.00	339.50	**2230.00**	107.76	0.00	0.00	24.00	**131.76**	0.00	**2361.76**
2	Central Agricultural University	333.00	10.40	5.50	52.30	**401.20**	31.50	19.36	0.00	0.00	**50.86**	0.00	**452.06**
3	Nagaland University	125.00	2.20	0.00	15.80	**143.00**	18.00	0.00	0.00	0.00	**18.00**	0.00	**161.00**
	Total SAU/CAUS KVKs	**2290.50**	**64.60**	**11.50**	**407.60**	**2774.20**	**157.26**	**19.36**	**0.00**	**24.00**	**200.62**	**0.00**	**2974.82**
C.	**State Govt.**												

8	Dept. of Agriculture (A.P)	944.87	21.20	0.00	142.60	**1108.67**	91.25	1.64	0.00	0.00	**92.89**	0.00	**1201.56**
9	Dept. of AH&V (A.P)	112.30	2.00	0.00	15.80	**130.10**	8.00	47.00	0.00	0.00	**55.00**	0.00	**185.10**
10	Dept. of Agriculture, Manipur	87.00	2.20	0.00	15.20	**104.40**	4.00	0.00	0.00	0.00	**4.00**	0.00	**108.40**
11	Dept. of Agriculture, Meghalaya	158.22	6.60	0.00	46.80	**211.62**	15.50	0.00	0.00	0.00	**15.50**	0.00	**227.12**
12	Dept. of Agriculture, Mizoram	717.40	17.50	0.00	110.60	**845.50**	66.50	0.00	0.00	0.00	**66.50**	0.00	**912.00**
13	Dept. of Agriculture, Nagaland	400.00	8.80	0.00	63.20	**472.00**	46.70	0.00	0.00	0.00	**46.70**	0.00	**518.70**
14	Dept. of Agriculture, Sikkim	249.25	6.90	0.00	46.20	**302.35**	16.50	0.00	0.00	0.00	**16.50**	0.00	**318.85**
15	Dept. of Agriculture, Tripura	58.00	4.60	0.00	30.70	**93.30**	14.00	0.00	0.00	0.00	**14.00**	0.00	**107.30**
	Total State Govt. KVKs	**2727.04**	**69.80**	**0.00**	**471.10**	**3267.94**	**262.45**	**48.64**	**0.00**	**0.00**	**311.09**	**0.00**	**3579.03**
D.	**NGO**												
16	UTLOU, Bishnupur	115.50	2.20	0.00	15.20	**132.90**	4.00	0.00	0.00	0.00	**4.00**	0.00	**136.90**
17	FEEDS, Senapati	110.30	2.20	0.00	15.80	**128.30**	9.50	0.00	0.00	0.00	**9.50**	0.00	**137.80**
18	SRSK, Kolkata	105.50	2.20	0.00	15.20	**122.90**	4.00	0.00	0.00	0.00	**4.00**	0.00	**126.90**
	Total NGOs	**331.30**	**6.60**	**0.00**	**46.20**	**384.10**	**17.50**	**0.00**	**0.00**	**0.00**	**17.50**	**0.00**	**401.60**
	Total Kvks	**7127.39**	**180.50**	**11.50**	**1201.00**	**8520.39**	**580.66**	**68.00**	**0.00**	**32.00**	**680.66**	**0.00**	**9201.05**
GRANT TOTAL ZONE-III, BARAPANI		**7250.00**	**198.50**	**16.50**	**1246.00**	**8711.00**	**592.00**	**68.00**	**0.00**	**40.00**	**700.00**	**0.00**	**9411.00**

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 **642** KVKs established in the Country and **109** new KVKs are in the process of establishment during the current five year plan. 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 be 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 inthe 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, identification of selected farmer-led innovations and convergence with ongoing schemes and programmes are within the mandate of KVK.

2.1.3. Growth of KVKs under Zone-III

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 plan, the zone had only 13 KVKs with most of them were under ICAR administration. Presently the Zone-III has 78 KVKs spread over eight states of the region and 12 are in the process of their establishment. Out of the total number of KVKs in the region, 23 KVKs are with State Agricultural University, 3 with Central Agricultural University, 1 with Central University, 29 with State Department of Agriculture, one with State Department of Veterinary Science, 15 with ICAR Research Complex, Barapani, 3 with National Research Centres and then 3 with Non-Government Organizations.

Table 3: State-wise distribution of KVKs under Zone-III

State	KVKs (No.)	Host Institutions
Arunachal Pradesh (14)	9	State Dept of Agriculture
	1	CAU Imphal, Manipurw
	1	NRC on Yak
	1	Dept of Vety. & A.H
	2	ICAR RC for NEH Region, Barapani
Assam (25)	23	AAU, Jorhat
	1	NRC on Pig
	1	ICAR RC for NEH Region, Barapani

Manipur (9)	1	JFCPCS Utlou, Manipur (NGO)
	5	ICAR RC for NEH Region, Umiam
	1	CAU Imphal, Manipur
	1	FEEDS, Hengbung (NGO)
	1	State Dept of Agriculture
Meghalaya (5)	3	State Dept of Agriculture
	2	ICAR RC for NEH Region, Umiam
Mizoram (8)	1	CAU Imphal, Manipur
	7	State Dept of Agriculture
Nagaland (9)	3	ICAR RC for NEH Region, Umiam
	4	State Dept of Agriculture
	1	NRC on Mithun
	1	Nagaland University
Sikkim (4)	1	ICAR RC for NEH Region, Umiam
	3	State Dept of Agriculture
Tripura (4)	2	State Dept of Agriculture
	1	ICAR RC for NEH Region, Umiam
	1	Rama Krishna Seva Kendra (NGO), Kolkata
Total	**78**	

2.2. Manpower and infrastructural facilities in KVKs

2.2.1. Brief account of manpower in KVKs

Presently the KVKs under Zone-III have a total of **1071** staff in different positions like Programme Coordinator, Subject Matter Specialist, Programme Assistant, Assistant, Superintendant, Supporting Staff, Driver and Stenographer (Table 4). The remaining vacancies of different cadres are in the process of recruitment by the concerned host institutes.

Table 4: State wise summary of present staff position of KVKs under Zone-III

Sl. No.	State	No. of staff under different categories of posts								
		PC (01)	SMS (06)	PA (02)	Farm Manager (01)	Asst/ Sup. (01)	Steno (1)	Driver (02)	SS (02)	Total (16)
1	Arunachal Pradesh	14	75	23	12	10	10	24	26	194
2.	Assam	24	138	44	23	22	19	39	35	344
3.	Manipur	8	55	14	9	6	9	18	18	137
4.	Meghalaya	5	24	6	5	0	0	7	3	50
5	Mizoram	8	44	15	7	7	8	16	15	120
6.	Nagaland	9	49	15	8	8	8	15	16	128
7.	Sikkim	4	17	9	3	4	4	5	8	54
8.	Tripura	2	17	5	3	1	2	6	8	44
	Total	**74**	**419**	**131**	**70**	**58**	**60**	**130**	**129**	**1071**

PC – Programme Coordinator, SMS – Subject Matter Specialist, PA- Programme Assistant, Asst.- Assistant, Sup. – Superintendant, SS – Supporting Staff

2.2.2. Brief account of infrastructure facilities in KVKs

With regard to infrastructural facilities 63 out of 78 KVKs under Zone-III have completed construction of their administrative building in their proposed sites and 13 have been approved in the XIIth plan. A total of 28 KVKs have completed construction of farmers' hostels, while 47 farmers' hostels have been aproved in the 12th plan EFC. Presently 43 KVKs have staff quarters and 29 are approved. Construction of demonstration units have been completed by 57 KVKs and 20 are approved. In case of fencing, 48 KVKs have completed and 25 are approved in the 12th plan EFC (Table 5). Among the special programmes soil and water testing laboratories have been constructed by 25 KVKs, rain water harvesting structures and portable carp hatcheries by 9 KVKs each and integrated farming systems in 4 KVKs and 5 KVK are equipped with e-connectivity.

Table 5: Summary of present and proposed Infrastructural facilities of KVKs under Zone-III

Sl. No.	Infrastructure	Present Status		
		Existing/ Completed	Ongoing	Approved in 12th Plan
Basic Infrastructure				
1.	Administrative Building	63	0	15
2.	Farmers' Hostel	28	0	47
3.	Staff Quarter	43	0	29
4.	Demonstration Unit	57	0	20
5.	Fencing	48	0	25
Special Programmes				
6.	Soil and Water Testing Lab	25	-	10
7.	E-Connectivity	5	-	20
8.	Rain Water Harvesting Structure	9	-	8
9.	Portable Carp Hatchery	9	-	8
10.	Integrated Farming System	4	-	16
11.	Minimal Processing Facility	-	-	10
12.	Solar Panels	-	-	5
13.	Technology Information Unit	-	-	16
14.	V-KVK & KVK NET	-	-	74
15.	Specialized KVK	-	-	6
16.	Provision of IT Kit to E-Farmers	-	-	25
17.	Micro-Nutrient Analysis	-	-	4
18.	Provision of 25 KVA Silent Genset	-	-	60
19	Mini Seed Processing Facility	-	-	6

2.3. Technology assessment and refinement

In order to assess production potentiality of crops, livestock, fishery and other enterprises, the KVKs under Zone-III accomplished all the mandated activities like technology assessment, refinement, frontline demonstration on oilseeds, pulses & other crops, training to farmers, rural youth & extension personnel, celebration of technology week, various extension programmes and production of seeds & planting materials. The specific achievements made in various fronts during the reporting year are given below.

2.3.1. Technology assessment

During the year 2015-16, a total of 308 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 3009 nos. of trials (Fig. 4). The major thematic areas included for assessment were varietal evaluation with 744 nos. of trials, integrated nutrient management (380), integrated pest management (319), integrated disease management (125),integrated crop management (110), value addition (102),weed management (97), water management (40), resource conservation technology (72), Small scale income generating enterprise (71), farm machineries/mechanization (39), Soil health management/soil amendment/Soil microbes (25), etc. (Table 6).

Table 6: Summary of crop based technologies assessed under different thematic areas during 2015- 16

Sl. No.	Thematic area	No. of Technology Assessed	No. of Trials
1	Varietal Evaluation	45	744
2	Integrated Nutrient Management	22	380
3	Integrated Crop Management	15	110
4	Integrated Pest Management	20	319
5	Integrated Disease Management	12	125
6	Weed Management	12	97
7	Water management	5	40
8	Storage technique	5	19
9	Farm Machineries	12	39
9	Value addition	11	102
10	Small scale income generating enterprise	12	71
11	Seed / Plant production	28	65
12	Drudgery reduction	14	103
13	Post-harvest lost/ technology	4	16
14	Resource Conservation Technology (RCTs)	15	72

15	Mushroom cultivation	6	44
16	Organic manure	7	17
17	Marketing channel	9	90
18	Soil management	16	15
19	Soil amendment	4	10
20	Impact analysis	2	51
21	Any other	32	480
	Total	**308**	**3009**

A total of 79 technologies with 822 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 (380), feed and fodder management (259), Fish production (102), disease management (32), value addition (15), breed introduction (12) and poultry farming (7) etc. (Table 7).

Table 7: Summary of Livestock Technologies assessed under different thematic areas during 2015-16.

Sl No	Thematic area	No. of Technology Assessed	No. of Trials
1	Disease Management	11	32
2	Evaluation of breed	7	380
3	Feed and fodder Management	13	259
4	Breed introduction	3	12
5	Value Addition	3	15
6	Fish production	34	102
7	Poultry Farming	3	7
8	Any other	5	15
	Total	**79**	**822**

2.3.2. Technology refinement

A total of 8 technologies related to cereals, oilseeds, vegetables and fruit crops were taken up for refinement with 32 trials at various locations (Table 8). The major thematic areas were Integrated Nutrient Management with 8 nos. of trials, Integrated Crop Management (5), Integrated pests management (5), canopy management (6), varietal evaluation (5) and Farm Machineries (3).

In livestock sector, only 2 technologies with 6 trials under Fish Production were taken up by the KVKs under zone-III in the year 2015-16 for their refinement (Table 9).

Table 8: Summary of crop based technologies refined under different thematic areas during 2015-16

Sl. No.	Thematic area	No. of technology refined	No. of trials
1	Varietal Evaluation	1	5
2	Integrated Nutrient Management	2	8
3	Integrated Crop Management	2	5
4	Integrated Pest Management	1	5
5	Farm Machineries	1	3
6	Canopy management	1	6
	Total	**8**	**32**

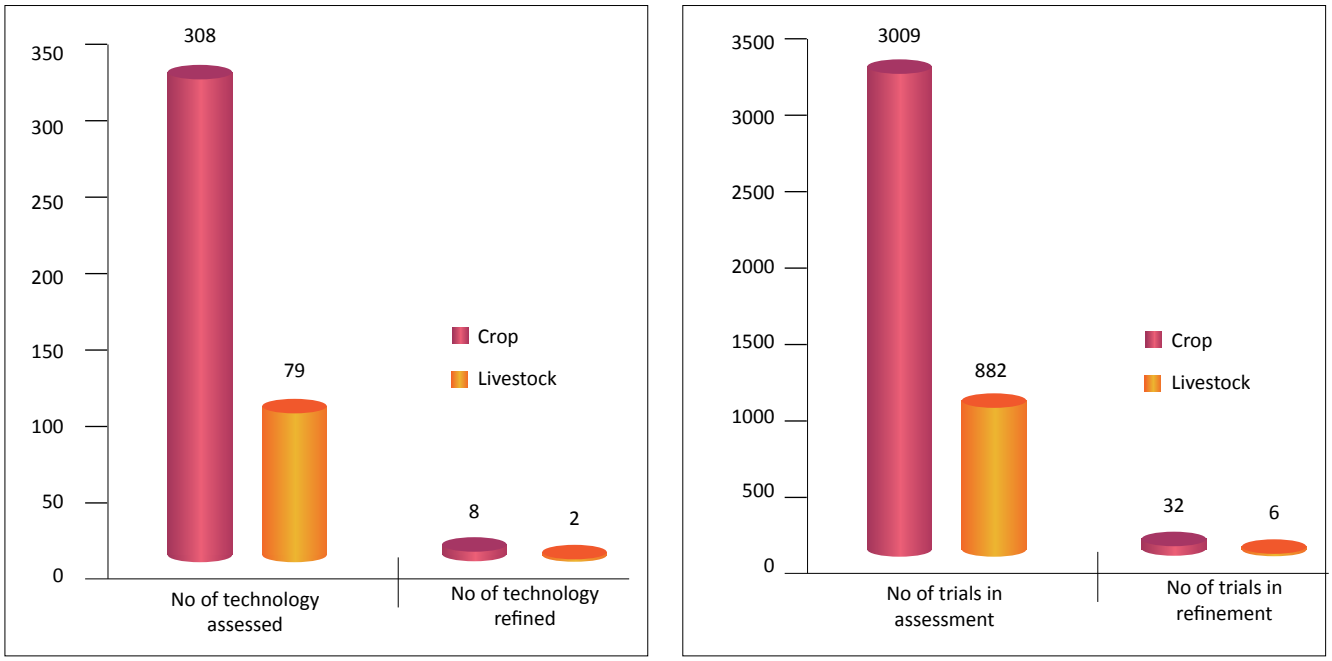


Fig. 4: Distribution of technologies and trials undertaken by the KVKs under Zone-III for assessment and refinement of technologies during 2015-16

Table 9: Summary of Livestock Technologies refined under different thematic areas during 2015-16

Sl No	Thematic area	No. of technology refined	No. of trials
1.	Fish production	2	6
	Total	**2**	**6**

2.4. Frontline demonstrations (FLD)

KVKs under Zone-III 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 farming and extension activities for farmers and extension workers for dissemination of various technologies. A total of 12123 frontline demonstrations with 4,619.11 ha were conducted by the KVKs during 2015-16 in close collaboration with farmers to establish production potential of improved agricultural technologies including oilseeds (2365), pulses (2280), other crops (5361), livestock enterprises (1446), and other enterprises (620).

FLD on oil seed by KVK Churachandpur, Manipur

FLD on oilseeds

During the year 2015-16 a total of 2365 demonstrations were conducted in different oilseed crops like groundnut, rapeseed and mustard, sesamum, soybean, toria and linseed covering 1222.34 ha area (Table 10). Demonstration on different varieties of groundnut like var. ICGS-76, TG-51 produced an average yield of 29.36q/ha compared to 20.49q/ha yields of local check with 43.29% increase over the local check. Similarly, different varieties of rapeseed such as TS-36, RH-30 had shown an average yield of 12.75 q/ha as against only 8.60 q/ ha yield of the local check. Among the oilseed crops, the highest number (1012) of demonstrations was conducted in Toria, covering the largest area (517 ha) (Fig.5). Percentage increase in yield was observed to be the highest in Oil Palm (109.16 %) whereas Linseed produced the highest B:C ratio (2.91).

Table 10: Frontline demonstration on oilseeds crops during 2015-16

Crop	No. of farmers/ demonstrations	Area (ha)	Average yield (q/ha)		% Increase	Average cost of cultivation (Rs./ha)		Av.
			Demo	Check	(Av.)	Demo	Check	Benefit-cost ratio
Groundnut	101	13.48	29.36	20.49	43.29	49192	46387	2.86
Linseed	255	130	7.03	5.75	22.26	16030	14630	2.91
Rapeseed &Mustard	616	295.76	12.75	8.6	48.26	17946	14495	1.83
Sesamum	200	235	6.96	5.23	33.08	15565	15088	1.8
Soybean	126	23.1	23.68	16.97	39.54	35387	33244	2.27
Toria	1012	517	12.84	9.89	29.83	23197	19974	2.74
Niger	3	1.0	6.0	3.5	71.43	10500	9000	2.86
Oil Palm	10	5.0	89.73	42.9	109.16	62258	57200	1.59
Sunflower	42	2.0	16.4	11.2	46.43	24150	19900	2.00
Total	**2365**	**1222.34**						

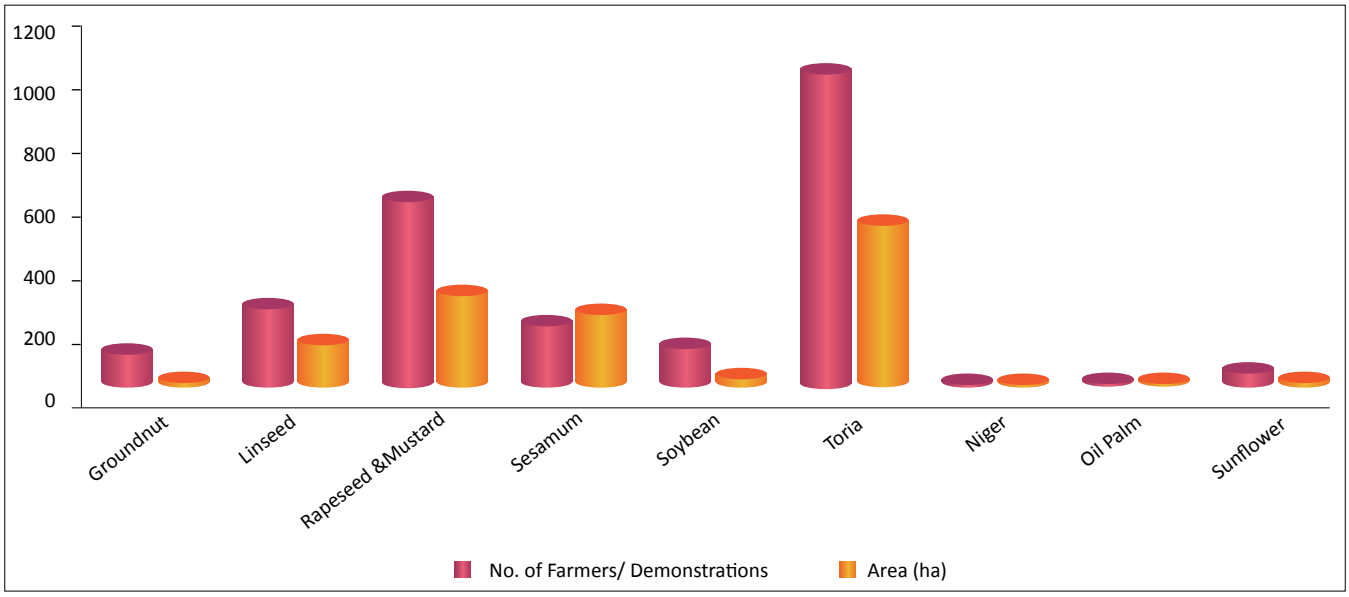


Fig. 5: Number and area under demonstration on different oilseed crops by the KVKs of Zone-III in 2015-16

FLD on pulses

A total of 2280 demonstrations were conducted on various pulse crops like black gram, green gram, lentil, Arhar, rajma, french bean, field pea, cow pea, chick pea and lathyrus etc. covering an area of 675.36 ha (Table 11). Among the pulse crops, the highest number of demonstrations were conducted in field pea (827) while Lentil covered the highest area (252.54 ha) (Fig. 6). The most promising B:C ratio was observed in french bean (3.19), the highest percentage increase in yield (63.50 %) was also observed in french bean during the period.

Cluster FLD on Lentil by KVK Jorhat

Table 11: Frontline demonstration on pulse crops during 2015-16

Crop	No. of farmers/ demos	Area (ha)	Average yield (q/ha)		% Increase	Average cost of cultivation (Rs./ha)		Average
			Demo	Check	(Av.)	Demo	Check	Benefit-cost ratio
Arhar	10	5.0	10.25	7.5	36.67	30000	25000	1.92
Black gram	303	70.76	8.45	6.22	35.85	22934	19710	2.56
Field Pea	827	190.5	19.92	16.25	22.58	31345	28796	2.31
French Beans	93	23.76	103.61	63.37	63.50	74933	81250	3.19
Peas	329	111.55	53.7	42.47	26.44	41878	31637	2.77
Rajmah	10	8.0	35.11	31.34	12.03	29688	29685	3.04
Lathyrus	8	2.0	8.9	7.4	20.27	18340	18340	2.18
Lentil	660	252.54	9.19	6.34	44.95	25258	21529	2.29
Chick Pea	40	11.25	8.68	7	24.00	25375	20584	1.97
Total	**2280**	**675.36**						

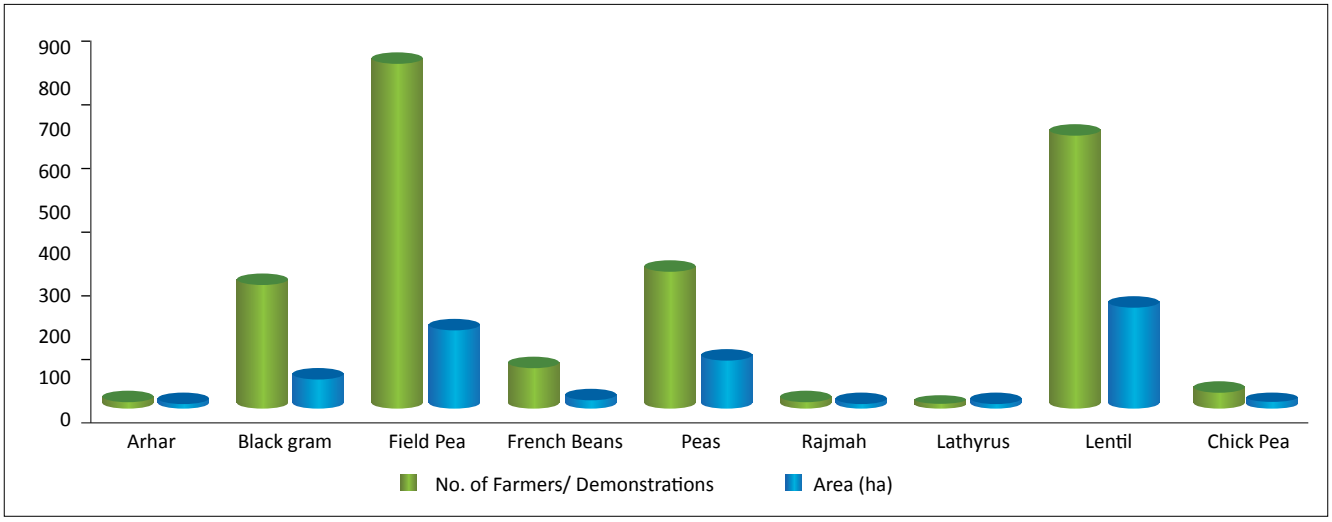


Fig. 6: Number and area under demonstration on different pulse crops by the KVKs of Zone-III in 2015-16

Success story: Organic cultivation of field pea in Arunachal Pradesh

Cluster Front Line Demonstration of rabi pulse under NFSM for 2015-16 with the variety: Prakash in 10 ha areas for the first time was conducted on field pea in the Tirap district of Arunachal Pradesh. The cluster FLD was demonstrated at 32 locations in 5 villages viz. Otongkhoua, Natun Basti, Dadam, Deomali and Bera Basti. The crop was cultivated organically as per recommended packages and practices under rainfed condition. Only dry cow dung was applied @ 1 t/ha. Total 180 mm rainfall was received during the growing period of the crop. Out of 122 q. seeds produced 30 q. was sold in nearby market and the income gained was utilized for day to day home expenditure and especially for education of children and created 80 mandays employment. The net income of the farmers were enhanced by Rs. 29,790/ ha. Farmers were satisfied on the performance of the variety of Prakash, as the variety had increased almost 45.36 % more yield than their local varieties and now they want to increase the area under Prakash if the seed is available on time.

Field day on Cluster FLD of Rabi

FLD on other crops

A total of **5361** demonstrations were conducted on cereal crops, vegetables, fruits, flowers, spices & condiments, cash crops, cole crops, stem & tuber crops and fodder crops covering an area of **2569.53** ha. Among these crops, the highest area (696.19 ha) was covered under rice. The highest number (2085) of demonstration was also conducted under the same crop. The most promising B:C ratio (5.40) was recorded in Tuberose. The highest percentage increase in yield (83.21 %) was observed in case of Pumpkin followed by Okra (79.13%) and Capsicum (56.54%) among the vegetables. The average demonstration yield of rice was observed to be 48.37q/ ha against 37.33q /ha of local check (Table 13). Demonstrations were also conducted in Radish, Pumpkin and Tomato with a promising B:C ratio of 4.80, 4.76 and 4.56 respectively. Significant number of demonstrations was conducted in maize (454), potato (413), Ginger (320), Tomato (230) and Cabbage (183) etc.

FLD on late blight management in potato by KVK Cachar

Table 13: Frontline demonstration in other crops during 2015-16

Crop	No. of farmers/ demos	Area (ha)	Average yield (q/ha)		Av % Increase	Av. cost of cultivation (Rs./ha)		Av.
			Demo	Check		Demo	Check	Benefit-cost ratio
Paddy	2085	696.19	48.37	37.33	29.57	63298	57066	3.98
Wheat	13	4.0	38.75	36	7.64	28547	25480	2.89
Maize (Kharif, Rabi, Summer)	307	33.2	39.56	31.6	25.19	32403	27773	2.23
Maize	454	128.97	36.46	28.4	28.38	10736	9674	2.18
Barley	4	2.0	25	17	47.06	18500	15200	3.00
Buckwheat	5	2.0	12	9	33.33	12500	12300	2.88
Millets	6	3.0	9.43	8.24	14.44	20150	19350	1.64
Brinjal	71	18.06	183.7	141.33	29.98	62339	54166	3.01
Bitter Gourd	5	1.0	42	38.12	10.18	45000	40080	1.27
French Bean	145	12.41	116.69	84.55	38.01	100585	89980	3.35
Potato	413	31.28	194.49	118.78	63.74	73501	58129	3.19
Pumpkin	3	1.0	120	65.5	83.21	33706	27500	4.76
Colocasia	8	0.35	115	110	4.55	153700	-	2.20
Green gram	10	5.0	9.92	8.41	17.95	37200	35250	3.20
Cabbage	183	20.91	215.2	187.32	14.88	113848	106312	2.83
Cauliflower	23	632.08	213.83	193.81	10.33	127711	137536	3.55
Carrot	27	0.06	282	189	49.21	82300	69000	2.70
Tomato	230	31.59	263.16	224.85	17.04	100388	105672	4.56

Radish	14	1.0	182	149	22.15	125000	136250	4.80
Bhindi(Okra)	74	16.55	127.06	70.93	79.13	74246	57440	2.7
Broccoli	189	12.84	132.9	93.98	41.41	60997.9	50766	2.79
Capsicum	11	5.33	152.78	97.6	56.54	74560	95310	3.42
Garden Pea	48	2.5	68.65	56.05	22.48	43255	41825	3.06
Elephant Foot yam	16	0.66	300	-	-	139200	-	2.75
Arecanut	5	1.0	48	30	60.00	11713	7000	3.11
Turmeric	83	10.27	265.98	172.33	54.34	105828	86827	2.63
Ginger	320	19.06	112.61	82.35	36.75	141080	73599	2.96
Chillies	77	18.7	69.99	53.13	31.73	69557	65980	3.08
Onion	29	2.81	157.4	127.2	23.74	89443.6	77973.6	3.51
Garlic	24	1.0	15	12	25.00	33000	27000	4.03
Khasi Mandarin	111	9.16	44.37	36.29	22.27	86345	70464	3.15
Sikkim Mandarin	23	6.0	40.9	34.5	18.55	35750	18000	3.20
Banana	21	1.99	239.7	188.4	27.23	87074	50539	3.46
Pine apple	6	755	87.5	68.8	27.18	81600	-	3.08
Water melon	50	14.41	327.23	207.34	57.82	62781	37780	2.77
Orange	18	3.5	59.5	46.5	27.96	14033	13281	2.33
Sugarcane	9	5.5	623.63	549.85	13.42	41733	31340	3.27
Assam Lemon	7	1.13	114.75	96.8	18.54	9920	7075	3.66
Kachai Lemon	6	6.0	87.5	58	50.86	9500	7000	2.12
Kiwi Fruits	8	2.0	157	132	18.94	150000	120000	4.40
Marigold	10	0.4	127	98	29.59	122000	108000	2.08
Gladiolus	19	0.59	112702no.	61267no.	83.95	141633	132967	2.60
Gerbera	27	1.0	3500 nos. seedlings + 500 suckers	2800 nos. seedlings + 400 suckers	20.00	12380	13858	1.72
Tuberose	18	0.51	27.2/840500 sticks and 614000 bulbs	11.67/500500 sticks and 512000 bulbs	41.78	161257	150588	5.40
Mushroom	60	35	103.67/31.5kg/ 250beds	200/15kg	75.00	8200	1200	2.09
Bee	5	5.0	7.5 kg / box	5 kg/ box	50.00	12000 (10 box)	12000 (10 Box)	2.13
Jute	2	0.52	27	24	12.5	52000	45000	2.08
Others	79	7.25	472.29	35.00	81.45	55130	43630	5.14
Total	**5361**	**2569.53**						

FLD on livestock

In livestock sector, a total of **1446** demonstrations were conducted by the KVKs under Zone-III during 2015-16. The demonstrations under livestock (Table 14) comprised of poultry (659), piggery (257), fisheries (174), duckery (93), goatery (105), and dairy (132) . The percentage change in parameters ranged from 29.26 to 87% in case of poultry, while the Percentage change in selected parameters were recorded as 28.5 -57.51% in piggery, 38-46% in dairy, 25-61.42 % in fisheries, 8.1 - 64% in duckery and 8-31% in goatery.

Table 14: Frontline demonstration on livestock enterprise during 2015-16

Enterprise	No. of farmers/ demos	No. of animals/ fingerlings/ poultry birds etc.	Performance parameters / indicators	% change in the parameter
Dairy	132	148	General health, Milk Production, Growth rate, mortality, resistance to diseases, calving period	38-46%
Poultry	659	7542	Egg production, Egg weight, disease resistance, mortality rate	29.26 -87%
Goatery	105	575	Litter size at birth & weaning, individual body wt at birth, weaning	8-31%
Duckery	93	1140	Body weight, Egg production and Egg weight	8.1 - 64%
Piggery	257	889	Litter size at birth & weaning, individual body wt. at birth, weaning	28.5 -57.51%
Fishery	174	91300	Yield, water quality, Duration maturity, average weight	25-61.42 %
Rabbitry	26	50	Litter size at weaning, Body weight gain and kits production, Litter size at birth, No. of crops/doe/year.	12-14.7%
	1446	**101644**		

FLD on other enterprises

The KVKs under Zone-III had not confined their demonstrations in crops and livestock sectors only. Taking into account the ever increasing importance of secondary agriculture for securing sustainable rural livelihood, the KVKs of the zone had also taken numerous initiatives to popularize several secondary agricultural ventures like bee keeping, mushroom cultivation, utilization of waste materials, production of vermicompost, production and utilization of organic dye etc. During the year 2015-16, a total of 671 demonstrations were conducted in such enterprises like women empowerment (339), mushroom production (101), value addition (56), nutritional gardening (58), vermicompost production (27), natural and chemical dying (39) and drudgery reduction (43), etc. (Table 15).

$KMnO_4$ application in pond by KVK Dhemaji

Table 15: Frontline demonstration on other enterprises during 2015-16

Enterprise	No. of farmers/ demonstration	Performance indicators	% change in parameter
Apiary	8	Average yield of honey	39
Mushroom production	101	No. of days required for pinhead formation, average yield	38
Natural and chemical dying	39	Fastness against sunlight, colour intensity, profitability	62
Value addition	56	Increased self life, marketability, consumer acceptability	78
Vermicompost	27	Decomposition rate, organic matter production	65
Nutritional gardening	58	Percentage increase in consumption of vegetables per day, health status, nutritional Status	50
Drudgery reduction	43	Saved time, reduced back pain, labour requirement	42
Women empowerment	339	Income generation, heart rate, labour requirement, drudgery reduction	57
Total	**671**		

2.5. Training programmes

With a view to providing up to date knowledge and upgradation of skill 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, a number of training programmes had been organized by the KVKs of the zone. 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 2015-16, a total of **6060** training programmes were conducted by the KVKs under Zone-III in different areas of agriculture and allied activities (Fig. 7 a) benefitting a total of **1,79,013** farmers and farm women, rural youth and in-service extension personnel (Fig. 7 b).

2.5.1. Training programmes for farmers and farm women

A total of **3846** training courses benefitting a total of **116738** farmers and farm women were conducted during the period under report on various agricultural technologies. Among the participants **68217** were male and remaining **48521** were female (Table 16).The thrust areas under which these programmes had been conducted included productivity enhancement of field crops (472), horticultural crops (515), Plant protection (417), Livestock production and management (390), Soil health and fertility management (325), Home Science/Women empowerment (78), Capacity building and group dynamics (158) etc. Given the increasing importance and necessity of natural resource management, bio-diversity conservation and thereby ensuring sustainability of environmental protection training programmes had been conducted in different areas of Agro forestry (24). As fisheries sector is having immense scope in the region training programmes had also been conducted under different areas of fish production and management (206).

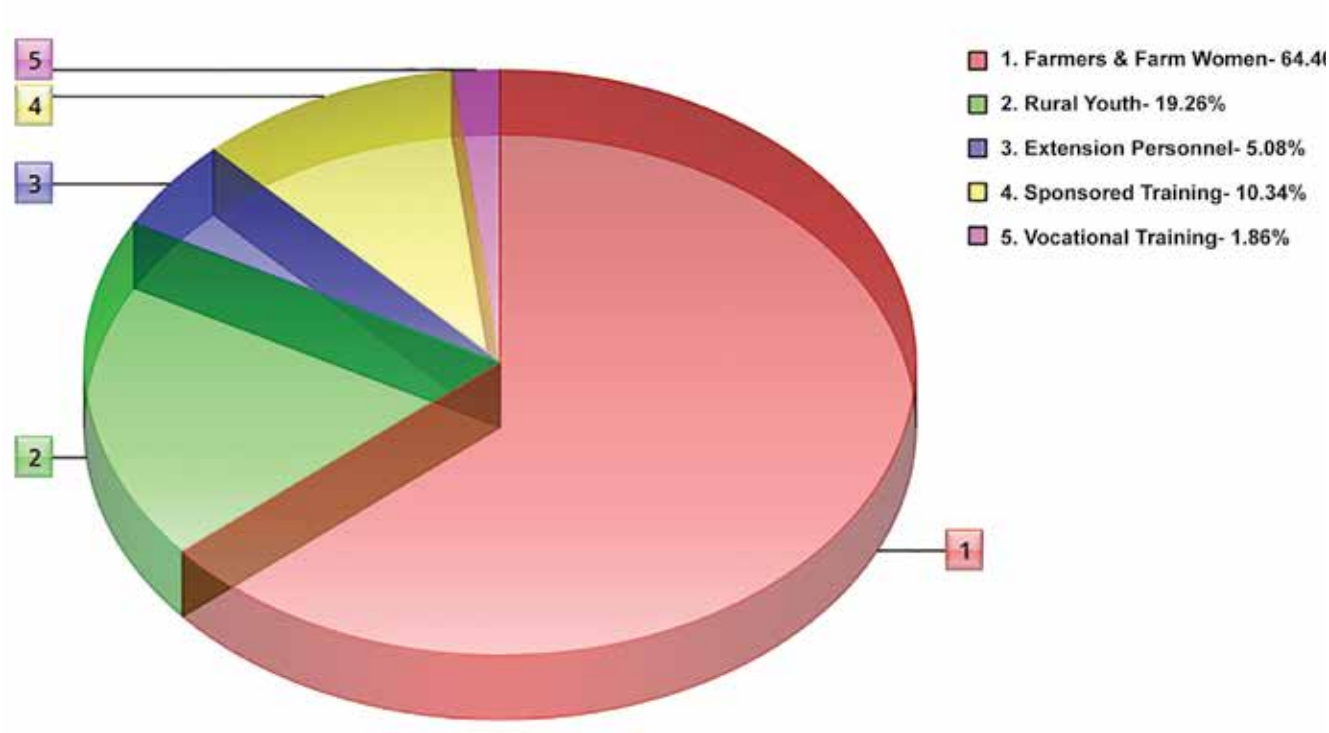


Fig. 7 (a): Distribution of training courses offered by the KVKs of Zone-III during 2015-16

Fig. 7 (b): Distribution of beneficiaries trained by the KVKs of Zone-III during 2015-16

Table 16: Summary of training programmes conducted for farmers and farm women during 2015-16

Sl.No.	Thematic area	No. of course	No. of participants		
			Male	Female	Total
1.	Crop production	472	8154	4837	12991
2.	Horticulture	515	9422	6876	16298
	a) Vegetable crops	253	4358	3268	7626
	b) Fruits	107	2009	1409	3418
	c) Layout & management of orchard	5	57	30	87
	e) Ornamental plants	10	73	144	217
	f) Protective Cultivation	0	115	40	155
	g) Plantation crops	28	742	398	1140
2.	h) Tuber crops	29	572	603	1175
	i) Spices	48	996	689	1685
	j) Medicinal and Aromatic Plants	4	35	54	89
	k) Production of organic input	20	329	164	493
	l) Floriculture	3	73	0	73
	m) Preservation	8	63	77	140
3.	Soil Health and Fertility Management/ INM	325	6105	3314	9419
4.	Livestock Production and management	390	6442	4580	11022
	a) Dairy	73	1335	524	1859
	b) Piggery	109	1836	1342	3178
	c) Poultry	135	2238	1803	4041
	d) Duckery	9	79	179	258
	e) Rabbitry	18	224	234	458
	f) Disease management	23	355	239	594
	g) Feed management	8	123	85	208
	h) Fodder	2	52	19	71
	i) Goatery	12	163	155	318
	j) Mithun husbandry	1	37	0	37
5.	Fisheries	206	3816	2942	6758
6.	Home science /Women empowerment	78	970	1156	2126
7.	Agri. Engineering	74	1891	1500	3391
8.	Integrated Pests Management	299	6491	4049	10540
9.	Integrated Disease Management	118	2556	1921	4477
10.	Integrated Crop Management	27	522	232	754
11.	Integrated Farming System	34	509	318	827
12.	Production of seeds/ planting materials	51	892	407	1299

13.	Capacity Building and Group Dynamics	158	2608	2520	5128
14.	Agro forestry	24	606	395	1001
15.	Post harvest Technology	12	54	168	222
16.	Resource Conservation Technology	8	75	91	166
17.	Value addition	74	410	1228	1638
18.	Integrated Water management	2	30	19	49
19.	Mushroom cultivation	27	408	317	725
20.	Bee keeping	10	186	82	268
22.	Any other (Pl. specify)	37	206	113	319
	Total	**3846**	**68217**	**48521**	**116738**

2.5.2. Training programmes for rural youth

During 2015-16 as many as **1167** skill oriented training programmes were organized by the KVKs of Zone-III for **28250** rural youths, which included **15394** male and **12856** female participants. The major thematic areas of the training programmes included Livestock Production and management with 138 courses benefitting 3648 participants, 129 courses in different horticultural technologies with 3026 participants, 100 courses of Soil Health and Fertility Management/ INM benefitting 1396 participants, 49 courses of mushroom production, Post harvest technology (31) and 30 courses on value addition which could benefit for 1306, 712 and 766 participants respectively. Besides, special care was also taken for women empowerment through different homestead activities, hence a total of 55 courses in Home science/ women empowerment benefitting 1133 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 17.

Table 17: Summary of training programmes conducted for rural youth during 2015-16

Sl.No.	Thematic area	No. of course	No. of participants		
			Male	Female	Total
1.	Crop production	82	1357	940	2297
2.	Horticulture	129	1939	1087	3026
	a) Vegetable crops	70	1068	580	1648
	b) Fruits	31	536	207	743
	c) Ornamental plants	8	39	125	164
	d) Plantation crops	5	116	9	125
	e) flowers	1	27	1	28
	f) Tuber crops	1	12	11	23
	g) Spices	4	77	16	93
	h) Protected Cultivation of vegetable crops	3	53	18	71
	i) Preservation	5	10	109	119
	j) Production of organic input	1	1	11	12

3.	Soil Health and Fertility Management/ INM	100	322	1074	1396
4.	Livestock Production and management	138	2112	1536	3648
	a) Dairy	18	251	195	446
	b) Piggery	35	639	321	960
	c) Poultry	59	801	708	1509
	d) Duckery	3	87	42	129
	e) Goatery	10	171	165	336
	f) Rabbitry	8	69	62	131
	g) Mithun husbandry	1	0	0	0
	h) Feed management and fodder	4	94	43	137
5	Fisheries	48	823	454	1277
6	Home science/Women empowerment	55	213	920	1133
7	Agri. Engineering	14	309	150	459
8	Integrated Pests Management	45	604	587	1191
9	Integrated Disease Management	15	151	230	381
10	Integrated Crop Management	21	58	106	164
11	Integrated Farming System	11	240	101	341
12	Production of seeds/ planting materials	25	316	134	450
13	Capacity Building and Group Dynamics	47	818	630	1448
14	Agro forestry	5	73	83	156
15	Post harvest Technology	31	462	250	712
16	Resource Conservation Technology	3	34	33	67
17	Value addition	30	172	594	766
18	Integrated Water management	6	45	102	147
19	Nutrition garden	1	20	10	30
20	Mushroom cultivation	49	676	630	1306
21	Bee keeping	13	215	78	293
22	Sericulture	13	154	178	332
23	Soil and water testing	2	24	26	50
24	Any other (Pl. specify)	17	206	300	506
	Total	**1167**	**15394**	**12856**	**28250**

2.5.3. Training programmes for extension personnel

During the year 2015-16 different training programmes for the extension personnel in the region were organized to upgrade their knowledge and skills in the frontier areas of agricultural technology development. A total of **308** courses benefiting **6727** in-service extension personnel had been arranged in the region during the period under report (Table 18). A total of 37 courses benefitting 1002 extension personnel were conducted

on different areas of horticulture, while 20 courses benefitting 466 extension personnel were organized in crop production by the KVKs during the year. In plant protection, 43 courses were arranged for 745 extension personnel. The other important thrust areas covered were Soil Health and Fertility Management/ INM (24 courses, 576 participants), Livestock Production and management (21 courses, 525 participants), Home Science/Women empowerment (20 courses, 441 participants) etc.

Table 18: Summary of training programmes conducted for extension personnel during 2015-16

Sl.No.	Thematic area	No. of course	No. of participants		
			Total	Total	Total
1.	Crop production	20	341	125	466
2.	Horticulture	37	667	335	1002
	a) Vegetable crops	22	359	253	612
	b) Fruits	11	248	65	313
	c) Plantation crops	1	19	0	19
	d) Tuber crops	2	22	17	39
	e) Preservation	1	19	0	19
3.	Soil Health and Fertility Management/ INM	24	424	152	576
4.	Livestock Production and management	21	359	166	525
	a) Dairy	4	69	29	98
	b) Piggery	6	82	54	136
	c) Poultry	6	88	38	126
	d) Feed management	1	25	0	25
	g) Climate Change	1	11	4	15
	h) Goatery	3	84	41	125
5.	Fisheries	9	114	97	211
6.	Home science/Women empowerment	20	47	394	441
7.	Agri. Engineering	1	0	25	25
8.	Integrated Pests Management	40	493	172	665
9.	Integrated Diseases Management	3	50	30	80
10	Integrated Crops Management	3	22	40	62

11	Integrated Farming System	2	42	0	42
12	Production of seeds/ planting materials	6	74	13	87
13.	Agro forestry	1	13	14	27
14.	Post harvest Technology	2	38	10	48
15.	Resource Conservation Technology	5	42	75	117
16.	Value addition	2	0	55	55
17	Mushroom cultivation	1	0	30	30
18	Crop Insurance	1	17	8	25
19	Any other (Pl. specify)	52	344	372	716
	Total	**308**	**4113**	**2614**	**6727**

2.5.4. Sponsored training programmes

The KVKs in the region conducted **626** training courses during the period sponsored by different agencies/organizations which benefitted a total of **24408** participants. Out of the total number of participants, **15028** were male and **9380** were female (Table 19). 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 Agronomy(36 courses, 1614 participants), Horticulture (164 courses, 6483 participants), Agri. Extension (16 courses, 597 participants), Fisheries (40 courses, 1498 participants), Plant Protection (98 courses, 4196 participants), Home Science (38 courses, 1454 participants) etc.

Table 19: Summary of sponsored training programmes conducted by KVKs during 2015-16

Sl.No.	Thematic area	No. of course	No. of participants		
			Male	Female	Total
1.	Agri. Engineering	5	232	95	327
2.	Agri. Extension	16	332	265	597
3.	Agronomy	36	1324	290	1614
4.	Animal Science	67	1286	917	2203
5.	Capacity building	2	87	92	179
6.	Crop Production	17	340	79	419
7.	Entomology	5	200	146	346
8.	Fisheries	40	476	1022	1498
9.	Home Science	38	459	995	1454

10.	Horticulture	164	4156	2327	6483
11.	Inter Disciplinary	26	498	363	861
12.	Plant Breeding	23	710	409	1119
13.	Plant Pathology	6	109	83	192
14.	Plant Protection	98	2833	1363	4196
15.	Soil Science	40	962	273	1235
16.	Plantation Crops	1	0	25	25
17.	Any other (Pl. Specify)	21	512	318	830
	1. IFS	1	7	14	21
	2. Contingency Crop planning	1	22	1	23
	3. Protection of plant variety	1	60	52	112
	4. Any other Interdisciplinary	1	22	0	22
	5. IPW	1	81	41	122
	6. Mushroom and Value addition	2	0	75	75
	7. Agro forestry	4	141	20	161
	8. PPV&FRA	4	64	78	142
	9. Seed certification	1	40	2	42
	10. Any other (Pl. Specify)	5	75	35	110
	Total	**626**	**15028**	**9380**	**24408**

2.5.5. Vocational training programmes

The KVKs in the region conducted **113** vocational training courses during the period which benefitted a total of **2890** participants. Out of the total number of participants 1354 were male and 1536 were female (Table 20). 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 (43 courses, 856 participants), post harvest technology and value addition (12 courses, 382 participants), livestock and fisheries (16 courses, 313 participants), small scale income generating activities (40 courses, 798 participants) and Agricultural Extension (2 courses, 36 participants).

Vocational training on scientific mushroom cultivation

Table 20: Summary of vocational training programmes conducted by KVKs during 2015-16

Sl. No.	Thematic area	No. of courses	No. of participants		
			Male	Female	Total
	Crop production and management	43	576	292	856
	Post harvest technology and value addition	12	91	291	382
	Livestock and fisheries	16	249	64	313
	Small scale income generating activities	40	429	862	798
	Agricultural Extension	2	9	27	36
	Total	**113**	**1354**	**1536**	**2890**

Training on Azolla cultivation, KVK Changlang

2.6. Extension Activities

The KVKs in the region were involved in a number of extension 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 under Zone-III during 2015-16 to disseminate the improved farming technologies by exploiting over thirty types of possible extension

Sponsored Training

approaches suitable for North Eastern region, is noteworthy. The KVKs in the region organized 44655 nos. of extension programmes/ activities, reaching over **302016** 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 21). 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 (**21902)** of activities was conducted under the group field trips and visits (Fig. 8) while the highest number (**112688**) of beneficiaries had been served through different mass outreach programmes of KVKs. A detail of the extension activities including number of beneficiaries is given in Table 21.

Table 21: Summary of extension activities organized by KVKs under Zone-III during 2015-16

Category	Extension activities	No. of programme	No. of participants		
			Male	Female	Grand Total
			Total	Total	
Field trips and visits	Diagnostic visits	5342	9699	5071	14770
	Scientists visit to farmers field	7327	10979	6531	17510
	Exposure visits	159	2871	2069	4940
	Field Day	376	8494	4526	13020
	Farmers Visit to KVK	8698	15453	9378	24831
	Total	**21902**	**47496**	**27575**	**75071**
Group activities	Farmers Scientist Interaction	91	3749	1655	5404
	Group meetings/ Discussion	1113	8523	8426	16949
	KisanGosthi	57	2277	1616	3893
	Mahila Mandal Conveners' meetings	16	170	249	419
	Self Help Group Conveners meetings	40	418	387	805
	Method Demonstrations	1055	8585	7075	15660
	Farm Science Club Conveners meet	43	310	287	597
	Literature delivered to resource person	895	7385	6848	14233
	Lecture Delivered as resource person	314	3343	2554	5897
	Ex-trainees meet	13	1030	1858	2888
	Total	**3637**	**35790**	**30955**	**66745**
Mass outreach programmes	Advisory Services	12943	15194	8876	24070
	Kisan Mela	77	8291	4860	13151
	Film show	309	4787	5577	10364
	Exhibition	165	18443	14569	33012
	Farmers Seminar/ workshop	50	2608	2788	5396
	PRA	55	1328	662	1990
	Celebration of important days	246	9660	7105	16765
	TV Talks	139	1843	1862	3705
	Radio talks	177	0	0	0
	News paper coverage	809	2223	2012	4235
	Total	**14970**	**64377**	**48311**	**112688**

Camps and campaigns	Animal Health Camp	172	4331	2200	6531
	Plant health camp	104	1480	950	2430
	Awareness Camp	173	5315	4325	9640
	Soil health/ testing Campaigns	1291	5562	3234	8796
	Soil Health distribution programme	4	1573	68	1641
	Jai Kisan Jai Vigyan	20	769	210	979
	Celebration of World Soil day	4	436	178	614
	Total	**1768**	**19466**	**11165**	**30631**
Publications	Training/ practical manual	58	2487	1411	3898
	Extension literature	1158	1324	2026	3350
	News letter	29	236	247	483
	Research papers	65	1843	1862	3705
	Technical report/ article	150	1026	2140	3166
	Electronic media	53	50	5	55
	CD publication	20	0	0	0
	Technical bulletins	30	236	247	483
	Leaflets/folders	806	976	663	1639
	Formation of Farmers clubs	3	78	24	102
	Books	6	0	0	0
	Total	**2378**	**8256**	**8625**	**16881**
	Grand Total	**44655**	**175385**	**126631**	**302016**

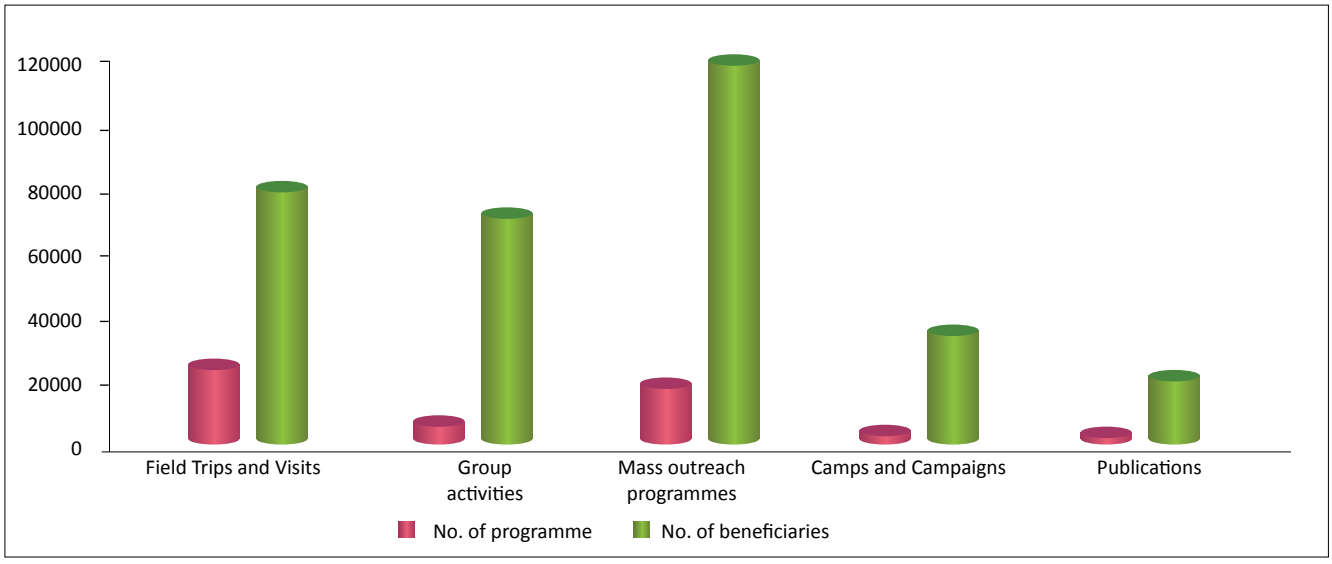


Fig. 8: Distribution of major group of extension activities conducted by the KVKs of Zone-III during 2015-16

2.7. Women empowerment through technological interventions

In a bid to empower the farm women, female rural youth and female extension personnel different activitiessuchascapacitybuilding,skillimprovement, drudgery reduction, formation of SHGs, resource mobilization etc. were arranged by the KVKs in the region during 2015-16. A total of 74907 women representing 41.84 percent of the total beneficiaries were imparted skill oriented trainings in different areas of crop and livestock enterprises/ farming. A total of 12856 female rural youth representing 45.51 percent of the total beneficiaries (male and female rural youth) were trained for skill improvement and entrepreneurship development. Out of a total of 6727 extension personnel trained during 2015-16, 2614 were female extension personnel (38.86 %). Women empowerment was thoroughly taken care into while conducting the sponsored and vocational training programmes also. A total of 9380, accounting 38.43 percent of the total number of beneficiaries (24408) participating in the sponsored training programmes was female. About 53.15 percent of the total number of beneficiaries (2890) participating in the vocational training programmes was female. The training programmes mainly included the specific aspects like nursery raising, post harvest processing and value addition, vermincompost production, drudgery reduction through use of farm implements and tools, duckery, tailoring, mushroom cultivation, bee keeping, goatery, piggery, poultry, dairying and floriculture.

2.8. Production of seeds, planting materials and bio-products

Production of quality seeds and planting materials by the KVKs and their supply to the farmers were among the important activities undertaken by the KVKs in the region. During the period, KVKs of the Zone produced **167.48 tonnes** of quality seeds, **24.62 lakh** of planting materials, **2310.13** qt. & **1500** l of bio-products and **449136** nos. of livestock offspring including fish fingerlings. A total of **124.44** tonne seeds of cereals, **25.05** tonne seeds of oilseeds, **9.98** tonne seeds of pulses, **1.10** tonne seeds of vegetables, **2.54** tonne seeds of spices and **4.35** tonne seeds of other crops were produced by the KVKs in the region. Planting materials of fruits (65259 nos.), plantation crops (42484 nos.), vegetables (1879540 nos.), flowers (42590 nos.) and spices (51910 nos.) etc. were produced for supply and distribution to farmers. The KVKs of the region also produced a total of 22.21 quintal of bio-agents, 2259.89 quintal of bio-fertilizers and 28.03 quintal & 1500 l of biopesticides. Among the livestock products produced by the KVKs during the reporting period were 3070 nos. of livestock, 18544 nos. of livestock strains and 292800 nos. of fish fingerlings (Table 22).

Table 22: Production of seeds, planting materials and bio-products during 2015-16

Sl. No.	Major Group/ Class	Quantity
A.	**Seeds (in tonne)**	
1	Cereals	124.44
2	Pulses	9.98
3	Oilseeds	25.05
4	Vegetables	1.10
5	Spices	2.54
6	Other	4.35
	Total	**167.48**

B.	**Planting materials(No.)**	
1	Fruits	65259
2	Plantation crops	42484
3	Vegetables	1879540
4	Flowers/Cutting	42590
5	Spices	51910
6	Other	380800
	Total	**2462583**
C.	**Bio-products(in quintal)**	
1	Bio-agents	22.21
2	Bio-Fertilizers	2259.89
3	Bio-Pesticides	28.03 and 1500 ltr.
	Total	**2310.13 and 1500 ltr.**
D.	**Livestock component(No.)**	
1	Livestock	3070
2	Livestock strains	18544
3	Fingerlings	292800
4	Other	134722
	Total	**449136**

2.9. Scientific Advisory Committee (SAC) meetings

A total of **76** Scientific Advisory Committee (SAC) meetings were conducted during the year 2015-16 by the KVKs under Zone-III (Table 23). In the SAC meetings, a detailed review of the progress of activities and future plan of actions were discussed and finalised for the concerned districts. Members from various line departments including input agencies, mass media, farmer representatives as well as financial institutions had participated in the meetings and suggestions were made accordingly for taking up future plan of activities for further improvement and well functioning of the KVKs in their respective districts. Table-23 shows the details of the SAC conducted by the KVKs under Zone-III during 2015-16.

Harvesting of Toria Var TS-38 by KVK Barpeta

Success story: Use of High yield variety and scientific cultivation in Rapeseed and Mustard

The paddy farmers of village Kanimara in Barpeta district used to keep large cultivated area fallow for 4-5 months after harvesting of winter paddy. However, fraction of cultivated area was used for growing some non-descript and old variety of Toria like M-27. Though the district is endowed with suitable edapho-climatic condition for growing toria, most of the farmers of these villages were not aware of the benefits of HYV toria cultivation.

Field day on Toria, KVK Barpeta

In view of the above circumstances, a comprehensive programme "Cluster Front Line Demonstration" was implemented at above mentioned villages by KVK, Barpeta with financial assistance from NMOOP, ICAR. Foundation seed of toria var. TS-38 along with other inputs like organic manure, micronutrient and other plant protection like bio chemicals were provided to the selected farmers. The KVK scientists regularly monitored the field and provided expert guidance in each step of field preparation, weeding, application of manures and fertilizers, pests and disease management and harvesting. About 396 q. seeds were produced and out of which 51.5 q. was sold in nearby market @ Rs. 35 per kg. The net income of the farmers was increased up to Rs. 31700/ ha. The employment generation was 4 man days per household.

Table 23: Scientific Advisory Committee (SAC) meetings of KVKs held during 2015-16

Sl.No.	State	No. of SAC conducted
1	Arunachal Pradesh	**14**
2	Assam	**25**
3	Manipur	**8**
4	Meghalaya	**5**
5	Mizoram	**8**
6	Nagaland	**8**
7	Sikkim	**4**
8	Tripura	4
	Total	**76**

2.10. Revolving fund

A total of Rs. **94,92,867** was reported by KVKs under Zone-III as the opening balance as on 1st April, 2015 and generated income of Rs. 1,19,42,108 during the year 2015-16. 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 24).

Table 24: Status of revolving fund of KVKs during 2015-16

Sl. No	States	No of KVKs	Opening balance (Rs. as on April, 2015)	Income generated during the year (Rs)	R. Fund status/ Closing balance (Rs) (as on March, 2016)
1	Arunachal Pradesh	14	662269	541398	1098872
2	Assam	25	4448102	4551895	4359341
3	Manipur	9	478664	335084	658441
4	Meghalaya	5	419717	454981	687397
5	Mizoram	8	731575	736347	902459
6	Nagaland	9	1106784	778243	1103435
7	Sikkim	4	810815	996750	1398297
8	Tripura	4	834941	3547410	1680321
	Total	**78**	**94,92,867**	**1,19,42,108**	**1,18,88,563**

2.11. Special programmes

2.11.1 Cluster FLDs under National Mission on Oilseed and Oil Palm (NMOOP) and National Food Security Mission (NFSM) during 2015-16

During 2015-16, a new initiative of Cluster FLD on oilseeds and pulses was taken up by the selected KVKs under National Mission on Oilseed and Oil Palm (NMOOP) and National Food Security Mission (NFSM). A total of 1470 hectare of area was allocated for cluster FLD on oilseeds, of which 1249 hectare area was covered for the purpose for 2847 nos. of demonstrations. The cluster demonstration on oilseeds included rapeseeds and mustard (var. TS-36, TS-38, TS-46, TS-67, JT-90-1) and linseeds (var. T-397, Padmini, NL 165 and Ruchi). While a total of 1144 hectare area were covered for cluster demonstration on pulse crops out of allocated area of 1254 hectares. Thus a total of 3511 nos. of demonstrations on pulses were conducted by the selected KVKs in the region. These included Pea (var. Prakash, HUP-2, Rachna, Anupam), blackgram (var. IPU-94-1, Tripura Maskolai), Chick pea (var. AP-1, V), Rajmah (var. Jwala, Anupam). The details are given in Table-25

Table 25: State wise area and demonstrations on rabi oilseeds and pulses under NMOOP & NFSM during 2015-16

State	Area (ha) allocated		Demo allocated (No.)		Area (ha) conducted		Demo conducted (No.)	
	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses	Oilseeds	Pulses
Arunachal Pradesh	-	70	-	175	-	70	-	188
Assam	1020	754	2550	1885	987	725	2381	1835
Manipur	-	100	-	250	-	100	-	188
Meghalaya	-	120	-	300	-	74	-	814
Mizoram	-	60	-	150	-	60	-	150
Nagaland	370	60	925	150	192	38	275	67
Sikkim	-	20	-	50	-	7	-	23
Tripura	80	70	200	175	70	70	191	246
Total	**1470**	**1254**	**3675**	**3135**	**1249**	**1144**	**2847**	**3511**

2.11.2. Rain water harvesting structure

During 2015-16 a total of 8 KVKs under Zone-III conducted several kinds of activities related to rain water harvesting and its management including training, demonstration, production of planting materials and other extension activities like field visits, farmers-scientists interactions etc. for enhancing knowledge and skills of farmers on construction and use of rain water harvesting structures. Some of the KVKs under the zone are also putting concerted efforts on awareness generation in rain water harvesting for timely utilization during lean season in fields. A details of the achievements of rain water harvesting structure and its management by the KVKs is given in Table-26.

Table 26: Achievement of rain water harvesting structures under Zone-III during 2015-16

KVK	No. of Training programme	No. of demonstration	No. of planting materials produced	No. of Visit by farmers	No. of Visit by KVK staff
East Siang	**2**	**2**	**200**	**1034**	25
Chandel	8	7	2100	36	8
Senapati	**3**	**3**	**51500**	**225**	**35**
Aizawl	5	17	10000	56	**16**
Dimapur	**4**	**5**	**1315**	**116**	**45**
Longleng	**5**	6		10	**7**
Mon	5	5	-	3	2
Total	32	45	65115	1480	138

During the period under report, as many as 32 training programmes and 45 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 **65115** numbers of planting materials. During the same period, a total of **1480** farmers visited to the KVKs for the said purpose and **138** visits were made by the KVK scientists to the farmers' fields to guide efficient construction of the structures.

2.11.3. Soil and water testing labs

Along with their mandated activities, the KVKs under zone-III during 2015-16 rendered special assistance to the farmers in terms of laboratory based analysis of soil, water and plant samples. During the period under report, the KVKs analyzed a total of 62344 samples comprising of soil samples (62023), water samples (71) and plant samples (250). In the process, a total of 1479 villages had been covered and as many as 70806 farmers were benefitted (Table 27).

Table 27: Status of soil & water testing labs in KVKs under Zone-III during 2015-16

Sl. No.	Samples tested/ analyzed	Nos.	Farmer beneficiaries	Villages covered
1.	Soil sample	62023	70485	1440
2.	Water sample	71	71	29
3.	Plant sample	250	250	10
	Total	**62344**	**70806**	**1479**

2.11.4. Kisan Mobile Advisory rendered by KVKs

During 2015-16, KVKs under Zone-III had rendered Kisan Mobile Advisory 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. As many as 18023 number of text messages had been

sent benefitting 526729 no. of farmers in remote districts of the region. The messages (Table 28) included crops (8616), livestock (3985), weather (999), marketing (445), awareness generation (2655) and other enterprises (1973) .

Table-28: Kisan Mobile Advisory rendered by KVKs during 2015-16

	MSG type sent	No. of MSG	No. of BNF
Crop	Text only	4164	269038
	Voice only	4202	9216
	Voice and Text both	250	430
	Total	8616	278684
Livestock	Text only	1350	86692
	Voice only	2463	7003
	Voice and Text both	172	282
	Total	3985	93977
Weather	Text only	612	89883
	Voice only	315	593
	Voice and Text both	72	72
	Total	999	90548
Marketing	Text only	189	8806
	Voice only	207	272
	Voice and Text both	49	49
	Total	445	9127
Awareness	Text only	1141	34602
	Voice only	1370	5492
	Voice and Text both	144	499
	Total	2655	40593
Other enterprise	Text only	832	40496
	Voice only	1073	4511
	Voice and Text both	68	140
	Total	1973	45147
Grand Total		**18023**	**526729**

MSG-Message, BNF-Beneficiary

2.11.5. Mera Gaon Mera Gaurav (MGMG)

The flagship programme of the Prime Minister of India, "Mera Gaon Mera Gaurav" has been under implementation by the KVKs in the region by adopting villages for promoting best farming practices and government's policies among the farmers. During the period, a total of 56 KVKs involved in the programme by adopting 203 no. of villages. The notable activities under the programme included 925 nos. of field demonstrations on various agriculture and allied technologies as well as 375 nos. of training programmes for farmers and farm women (Table-29).

Table-29: Achievements under Mera Gaon Mera Gaurav (MGMG) under Zone-III

Sl. No.	Name of State	No. of KVKs	No. of villages selected	No. of Demo.	No. of training
1.	Arunachal Pradesh	9	40	52	55
2.	Assam	17	66	355	122
3.	Manipur	8	40	37	15
4.	Mizoram	6	10	70	66
5.	Meghalaya	4	13	10	12
6.	Nagaland	4	7	19	20
7.	Sikkim	4	15	26	40
8.	Tripura	4	12	356	45
Total		**56**	**203**	**925**	**375**

2.11.6. Kisan Sanmelan/Awareness programmes during 2015-16

With a view to creating awareness and sensitizing towards various improved, cost effective , location specific agricultural and allied technologies for both kharif and rabi seasons among the farming communities in the region, KVKs under Zone-III could organise as many as 80 awareness programmes with 40 each for pre-kharif and pre-rabi programmes (Table-30).

Table-30: State-wise details of the Awareness programme during 2015-16

State	No. of KVK's	No. of programmes organised		Total
		Pre-Kharif	Pre-Rabi	
Arunachal Pradesh	14	3	4	7
Assam	25	13	15	28
Manipur	9	3	4	7
Meghalaya	5	3	2	5
Mizoram	8	7	7	14
Nagaland	9	5	2	7
Sikkim	4	3	3	6
Tripura	4	3	3	6
Total	**78**	**40**	**40**	**80**

2.11.7. 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 fertilisers required for the individual farms to help farmers to improve productivity through judicious use of inputs. KVKs in the region tested soil samples in various soil testing labs and analysed the strength and weaknesses (micro-nutrients deficiency) of the soil and suggested measures to deal with it. The result and suggestion are displayed in the soil health cards (SHCs). As many as **19500** numbers of Soil Health Cards (SHCs) were distributed to the farmers on the eve of World Soil Health Day on **5th December, 2015.**

Table-31: State-wise details of Soil Health Cards (SHCs) distributed to the farmers on the eve of World Soil Health Day on 5th December, 2015

Sl. No.	State	No. of SHC distributed
1.	Arunachal Pradesh	3500
2.	Assam	6250
3.	Manipur	2250
4.	Meghalaya	1250
5.	Mizoram	2000
6.	Nagaland	2250
7.	Sikkim	1000
8.	Tripura	1000
	Total	**19500**

2.11.8. National Innovation on Climate Resilient Agriculture (NICRA)

National Innovation on Climate Resilient Agriculture (NICRA) is a network project of the Indian Council of Agricultural Research (ICAR) and was launched during February, 2011. Upto 2015, there were 17 Numbers of KVKs representing different agro-climatic conditions in the 8 North East States and in the year 2015-16, Six new NICRA KVKs were included in the Seven districts of North East viz., KVK Karbi-anglong in Assam, KVK Ukhrul in Manipur, KVK Jaintia Hills in Meghalaya, KVK Serchipp in Mizoram, KVK Mon in Nagaland and KVK Dhalai in Tripura and altogether a total numbers of 23 KVKs are under NICRA Project in the region (Table-32).

Table-32: State wise details of NICRA KVKs along with their climate vulnerability

State	District	Village name	Agro-climate	Vulnerability
Arunachal Pradesh	Tirap, West Siang	Sipini Dali, chisi and Padi	Humid Sub Tropical Zone Sub Tropical Zone	Drought/ water stress
	West Kameng	Sangti	Temperate Zone	Cold stress
Assam	Dibrugarh Cachar Sonitpur	Panimirigaon Salchapra Part-I Punioni- Baghchung	Upper Brahmaputra Valley Zone Barak Valley Zone North Bank Plain Zone	Flood
	Dhubri	Udmari part IV & V	Lower Brahmaputra Valley Zone	Drought
	Karbi Anglong	Hambong Enghee	Hill Zone	Drought

Manipur	Senapati Imphal East	Hengbung & Hengbung-I Chingtha	Sub Trop Plain Zone Mild Tropical Hill Zone	Drought/ water stress
	Ukhrul	Ramva	Sub Tropical Hill Zone	Frost /Soil Erosion
Mizoram	Lunglei	Hnathial	Sub Tropical Hill Zone	Water stress
	Serchipp	N.Vanlaiphai	Mid Tropical Plain Zone	Drought
Meghalaya	Ri-bhoi West Garo Hills	Kyrdem Marapara, Sananggre, Rongbokgre	Mid Tropical Hill Zone Sub Tropical Hill Zone	Drought/ water stress
	Jaintia Hills	Umjalasiaw	Sub Tropical Hill Zone	Drought/ Flood
Nagaland	Phek Dimapur Mokokchung	Thipuzumi Dhansiripar Aliba	High hill Zone Mid Tropical Plain Zone Mild Hill Zone	Drought/ water stress
	Mon	Ngangching	Upper Brahmaputra Valley Zone	Drought/ Soil erosion
Sikkim	East Sikkim	Nandok	Humid Sub Tropical Zone	Soil erosion & Water stress
Tripura	Dhalai	Methirmia	Mid Tropical Plain Zone	Flood/ Soil erosion
	West Tripura	North Pulinpur ADC village	Mid Tropical Plain Zone	Drought

Table-33: Summary of NICRA interventions during 2015-16

Interventions	No. of farmers benefitted	Area (ha)	Units	Nos	Animal	Fingerlings
Natural Resource Management	1108	234.82	142	-	-	-
Crop production	2220	396.57	49	-	-	-
Livestock & Fisheries	1256	12.39	138	-	4066	40000
Institutional interventions	2471	366.64	22	828	-	-
Total	**7055**	**1012.42**	**351**	**828**	**4066**	**40000**

Interventions	No. of Courses	No. of beneficiaries		
		Male	Female	Total
Capacity building	246	3464	2394	5858
Extension activities	613	4133	2241	6374
Total	**859**	**7597**	**4635**	**12232**

Module I: Natural Resource Management

Under Natural resource management, the KVKs conducted various interventions such as In-situ moisture conservation, Water harvesting and recycling for supplemental irrigation, Construction of drainage channel in flood prone areas, Conservation tillage, Water saving irrigation method, Installation of Vermicompost units, Soil Health Management, Construction of polyhouse for growing vegetables crops etc. which benefitted 1108 Numbers of farmers and covered 234.82 ha of area with 142 no.s of demonstration units. In situ Moisture Conservation, different technologies such as Zero tillage practices, Minimum tillage, Straw mulching, Polythene mulching and Raised bed planters were demonstrated in Pulses crops (Lentil & Pea), Oilseeds (Rapeseed), Spices (Ginger) and Vegetable crops (Bitter gourd, Cabbage, Colocasia, Potato & Tomato).These activities had given direct benefit to 301 numbers of farmers that covered 65.27 ha area.

Straw mulching in Field Pea under NICRA

Module II: Crop production

Short duration varieties/ drought tolerant Varieties/ flood tolerant varieties/ temperature tolerant varieties/ Late duration Varieties/ Medium duration Varieties, Advancement of planting dates of rabi crops in areas with terminal heat stress, Water saving paddy cultivation methods, Community nurseries for delayed monsoon, Custom hiring centres for timely planting, Location specific intercropping systems with high sustainable yield index, Acid Soil Management, Crop diversification, Crop intensification, Mushroom cultivation , Protected cultivation, Pest and diseases management, Integrated Nutrient management, Integrated crop management, Integrated farming system, Nutritional garden were demonstrated, which covered 396.57 ha area and benefitted 2220 numbers of farmers.

Staggered planting (rice variety 'Gitesh)

Module III: Livestock & Fisheries interventions

Intervention such as community lands for fodder production during droughts / floods, Improved fodder/ feed storage methods, Preventive vaccination, Deworming, Animal health check-up, Improved shelters for reducing heat stress in livestock, Management of fish ponds / tanks during water scarcity and excess water, Piggery farming, Backyard Poultry & Duckery Farming were demonstrated and these had benefitted 1256 numbers of farmer and covered 12.39 ha of area. 4066 number of animals and 40000 numbers of fingerlings were also distributed to the farmers under different technology demonstration component.

Chara chemballi duck under semi-intensive system

Module IV: Institutional interventions

Demonstrations on Seed Bank, Fodder Bank, Commodity groups, Custom hiring centre, Climate literacy through a village level weather station and Others interventions like Survey and Participatory Rural Appraisal, Diagnostic visit, Rabi vegetables seed distribution programme, Community nurseries & Community irrigation etc. conducted, which benefited 2471 numbers of farmers and covered **366.64** ha area. Seed bank like Rice, Variety-Gitesh, Swarna sub 1 & Sahabhagidhan were created which benefited 44 numbers of farmers and covered 6.16 ha area. Fodder Bank by introducing fodder crops like Berseem, Combo Napier, Hybrid Napier, Oats & Tapioca benefitted 59 numbers of farmers

Fodder Bank of Hybrid Napier grass (Var: CO-3)

Table No 34: Institutional intervention in farmers field

Sl. No	Interventions	No. of KVK	No. of farmers	Area (ha)
1	Seed Bank	3	44	6.16
2	Fodder Bank	6	59	8.3
3	Commodity groups	1	25	10.5
4	Custom hiring centre	17	1845	332.18
5	Climate literacy through a village level weather station	4	187	-
6	Others	5	311	9.5
	Total	36	**2471**	**366.64**

and covered 8.3 ha area.Use of Power Tiller, Water Pump set (5 HP),Sprayer, Japanese Paddy Weeder, Cono Weeder, Rack, Spade, Balsa, Wheel Hoe, Sickle, Wheel Harrow, Tarpaulin, Spring balance etc through Custom hiring centre benefitted 1845 numbers of farmers by covering 332.18 ha area. In Climate literacy through a village level weather station such as Dry and wet thermometer, Raingauge Hygrometer, Digital thermohygrometer, Global positioning system, Anemometer benefitted 187 numbers of farmer. (Table 34)

Module V: Capacity building:

Under Capacity Building, 246 Number of courses were conducted by all the 23 NICRA KVKs under different title of training which benefitted 5858 numbers of farmers with 3464 numbers of Male and & 2394 numbers of Female.

Module VI: Extension activities:

Different extension activities were conducted by 23 KVKs with 613 Number of programmes which benefitted 6374 numbers of farmers with 4133 numbers of Male and 2241 numbers of female.

2.12. Awards and recognitions

The KVKs and Scientists of ATARI, Zone-III received a number of awards and recognitions during 2015-16 for their outstanding achievements in different areas. Among those, the most significant ones were- the **'Best Zonal KVK of Zone-III 2014-15'** award to KVK, Nalbari, Assam and KVK Lunglei, Mizoram was awarded **3rd Prize for Best Exhibition Stall** during the event organised by Protection of Plant Variety & Farmers Right Authority (PPV&FRA), New Delhi. Indian Association of Hill Farming (IAHF) conferred the **Best Extension Personnel Award 2015'** to the Programme Coordinator, KVK West Garo Hills, Meghalaya. Mr. Amol K. Bhalerao, Scientist, ICAR-ATARI, Zone III, Umiam was presented with the **Best Oral Presentation award** during the National Seminar on Sustaining hill agriculture in changing climate, organized by Indian Association of Hill Farming and ICAR Research Complex for NEH Region, Umiam at Agartala, Tripura. Mr. Bagish Kumar, Scientist, ICAR-ATARI, Zone III, Umiam also received the **Best Oral Presentation award** during National Seminar on Integrating Agri-Horticultural and Allied Research for food and nutritional security in the era of global climate disruption organized by ICAR Research Complex for NEH Region, Umiam at Imphal, Manipur.

Receiving best Zonal award from Union Minister

2.13. Linkages and collaboration

The KVKs in North East (Zone-III) are maintaining strong functional linkages with their host institutes and ATARI, Zone-III besides all line departments of their respective state governments and other stakeholders in matters related to implementation of their mandated and other collaborative programmes. KVKs have close coordination with other agencies including NGOs and other public and private sectors. KVKs are directly involved in preparation of SREP under ATMA district and in implementation of various schemes like MIDH, NREGS, SGSY, RKVY etc. Programme Coordinators and Subject Matter Specialists of KVKs also acted as resource persons for different collaborative HRD programmes sponsored by different organizations such as Assam Agricultural University, ICAR Research Complex for NEH Region, DRDA, DRDO, NABARD, ATMA including HRD programmes organized by ATARI, Zone-III.

2.14. Performance of Agricultural Technology Information Centres (ATICs)

There are two ATICs in the region, one at Assam Agricultural University, Jorhat and the other at ICAR Research Complex for NEH Region, Barapani. Both were sanctioned in 1999 by Indian Council of Agricultural Research.

Salient achievements of ATIC, ICAR Research Complex for NEH Region, Umiam

- A total of 358.7 quintals of cereal and vegetable seeds, 8000 no. of planting material, 1100 of breeds/piglets, 470 no. of rabbit and 13000 no.

of poultry birds/ fingerlings were sold and distributed through ATIC, which benefited a total of 7665 farmers during 2015-16.

- A total of 150 farmers were benefitted through soil and water diagnostic services, 36 farmers through plant diagnostic services.
- A total of 4108 copies of books & technical bulletins and 795 no. of technology inventory were distributed to the farmers in the region.
- A total of 1882 and 1600 no. of farmers visited the ATIC during the year for technological information and technological products related to crop and livestock farming respectively.

Salient Achievements of ATIC, Assam Agricultural University, Jorhat

- A total of 39 kg of black pepper seeds, 2204 kg of Tea (CTC) and 2 kg of Tea (Orthodox) were sold to 5442 farmers, 164 Kg. of bio-products to 322 farmers were also sold/distributed.
- A total of 432 farmers were benefitted through plant diagnostic services during the year.
- A total of 302 no. of books/ technical bulletins were published for the benefit of farmers in the region.
- A total of 7032 and 3565 no.s of farmers visited the ATIC during the year for technological information and technological products related to crop and livestock farming, respectively.

2.15. Technology backstopping through Directorates of Extension Education

The Directorates of Extension Education (DEEs) of Assam Agricultural University, Jorhat and Central Agricultural University, Imphal are providing technological backstopping to the KVKs through different activities at university level. During 2015-16, a total of 126 visits were made by Directors of Extension Education (DEEs) and his other scientists in KVKs under their jurisdiction. The Directorates also held 13 nos. of review meetings of the performance of activities of KVKs and organised 19 HRD Programmes for knowledge empowerment and technology backstopping to the KVKs benefitting 420 KVK participants/ staff. As many as 128 publications including extension bulletins (31), leaflets (34), farm magazine (28), and 9 CD materials were brought out by the two directorates during the period (Table 35).

Table 35: Summary of Monitoring and Review of KVK activities by Directorates of Extension Education under Zone-III during 2015-16

Sl No	Particulars	DEE AAU	DEE CAU
1	No of Visits by DEE to KVKs	53	20
2	No of visits of other scientists to KVKs	45	8
3	No of Review meetings held	3	4
4	Any other monitoring and review meeting held	3	3
5	HRD Programme conducted for knowledge empowerment and technology backstopping to the KVKs		
	a) No of programme	12	7
	b) No of participants	239	181

6	Other Extension Activities conducted for knowledge empowerment and technology backstopping to the KVKs (SMS) a) No of programme b) No of participants	 2 40	 3 54
7	Technology inventory developed(No)	1	-
8	Other publications, bulletins, CDs etc. brought out (No)	106	22
9	Extension bulletin (in various topics)	30	1
10	CD materials	5	4
11	Technical bulletins	5	1
12	Technology inventory	2	-
13	Leaflets	30	4
14	News letters	2	3
15	Farm magazine	24	4
16	Kisan diary	-	1
17	Books (including proceedings of workshops)	2	-
18	Training Manuals	5	3
19	Calendar	1	1

3. RESEARCH AND DEVELOPMENT PROJECTS FOR HUMAN RESOURCE DEVELOPMENT

3.1. Institutional research projects of the institute

3.1.1. Impact analysis of KVK activities in North East region

PI : Dr. A.K. Singha
Co-PI: Dr. A.K. Gogoi and Dr. A.K. Tripathi

The ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III through its established mechanism has been monitoring, evaluating and reviewing the activities of KVKs in the region as one of its important mandates since its inception in 1979. The Directorate with its built-in mechanism is facilitating planning, monitoring, reviewing and providing financial as well as infra-structural support to KVKs. Lot of changes have been taken place in the adoption pattern of agricultural practices by farmers, farm production and productivity, income and employment generation etc. Over the years, lot of emphasis has been given for impact analysis of the mandated activities of different KVKs as these activities require enormous amount of investment in terms of human, financial and other resources. Therefore, the present study is planned with the aim at assessing the impact of major KVK activities in achieving the outcomes of the agricultural and rural development in the region.

Objectives of the study

1. To study the demographic profile of farmers of adopted villages and non-adopted villages in KVK districts
2. To determine the performance level of selected enterprises by farmers of two village categories in North East
3. To assess the impact of activities such as front line demonstrations (FLDs), training programmes and extension activities conducted by KVKs on the socio-economic and livelihood improvement of the farmers
4. To explore the relationship and contributory influence of personality traits of respondents on their performance level of selected enterprises
5. To study the problems faced by farmers in adoption of improved technologies and their suggestive measures.

Salient findings of the project

[i] Impact of KVKs activities on the socio-economic and livelihood improvement of the farmers

a. Impact on knowledge
The highest impact of 34.05% was found among the farmers of adopted villages over the farmers of non-adopted villages in rice technology. This was followed by vegetables cultivation (32.85%), dairy farming practices (31.35%), fisheries (29.17%), poultry (28.85%) and piggery (25.38%) respectively.

b. Impact on Skill development
The study also revealed that farmers in adopted villages had maximum level of skill development in adoption of fisheries practices as evident by its highest impact level of 22.78% gain over the farmers of non-adopted villages with the technical guidance and assistance from the concerned KVK in the districts compared to other enterprises. This was followed by dairy (15.40%), piggery (13.30%), rice (10.93%), vegetable (9.91%) and poultry (8.02%) respectively.

c. ***Impact on attitudes of farmers***
In regard to attitude of farmers, the study showed that the front line demonstrations (FLDs) undertaken by the KVKs had 51.55% gains in attitude of the farmers of adopted villages over the farmers of non-adopted villages. The other activities in order of importance of gain in favourable attitudes were on-farm testing (OFTs), different training programmes, extension activities and production of quality seeds and planting materials with 46.39% 44.21%, 36.75% and 30.64% respectively.

d. ***Socio-economic impact of KVK activities***
Fifteen major social and economic impact indicators were studied to arrive at the socio-economic impact of KVK activities among the respondents. It was found that the highest impact due to KVK interventions was observed in cropping intensity

with 58.00% increase in case of beneficiary farmers over non-beneficiary farmers. Other selected impact indicators according to their significance with over 50% increase /change were employment gained (53.23%), increase in yield of crops (53.19%), increase in yield of livestock/ fisheries (51.58%) and increase materials possession (51.26%) . Study on the impact on increase in social participation due to KVK activities did not indicate any change among the beneficiary farmers over non-beneficiary farmers as evident by negligible percentage of 0.75% change only.

Thus, the study revealed that the most significant impact on knowledge of technology application due to KVKs activities was observed in rice cultivation,while skill development in fisheries sector was seen with highest level of impact compared to other enterprises. So far attitude of the farmers towards different mandated activities of KVKs was concerned, the frontline demonstration (FLD) was reported as the most favourable attitude with highest level of effectiveness and credibility on the part of the farmers. The project results also indicated the highest impact on socio-economic parameter namely, increase in cropping intensity followed by enhancing employment generation and increase in crops and livestock yields among the farmers. Hence, strategy should be chalked out for intensive and extensive extension programmes including location and farming systems specific technology demonstrations to improve other parameters of socio-economic development among the farmers in the region.

[ii] Relationship and contributory influence of personality traits of respondents on their performance level of selected enterprises

The Correlation analysis indicates that out of 13 independent variables under study namely; age, education, caste, family type, family size, primary occupation, annual income, size of operational land holding, type of primary farming activities, farming experience, trainings received, mass media exposure and extension contact, four variables viz. education, trainings received, mass media exposure and training received were found to have positive and significant correlation with the extent of adoption in **rice cultivation practices** as evident from their corresponding 'r' values having significant at 0.01 and 0.05 levels of probability in case of beneficiary respondents. While only two variables- education and extension contact had positive and significant relationship with the extent of adoption in rice cultivation practices in case of non-beneficiary respondents.

In case of **vegetable cultivation practices**, education, caste and type of primary farming activities of the beneficiary respondents had positive and significant correlation with their extent of adoption of vegetable cultivation practices. While caste, family type, type of primary farming activities, training received and extension contact of the non-beneficiary respondents were found to have significant relationship with their extent of adoption of improved vegetable cultivation practices as evident by their corresponding 'r' values.

With regard to **dairy farming**, primary occupation and farming experience of beneficiary respondents and caste and farming experience of non-beneficiary respondents as shown by their 'r' values, had positive and significant relationship with their extent of adoption of dairy farming practices.

The study also revealed that four variables viz. primary occupation, farming experience, trainings received and extension contact in case of beneficiary farmers and caste and extension contact in case of non-beneficiary farmers were found to have positive and significant correlation with the extent of adoption of **piggery farming practices** as evident from their corresponding 'r' values having significant at 0.01 and 0.05 levels of probability.

While three variables namely; primary occupation, training received and mass media exposure of beneficiary respondents and two variables-primary occupation and extension contact of non-beneficiary respondents as shown by their corresponding 'r' values, had positive and significant relationship with their extent of adoption of **poultry farming practices.** It was interesting to note that four variables namely; education, family size, training received and extension contact of the respondents in both adopted and non-adopted villages had positively significant correlation with their extent of adoption of **fisheries practices** as evident by their significant 'r' values. This indicateed that higher the level of those positive and significant variables of the respondents higher would be their extent of adoption towards improved crops and livestock practices by the farmers in adopted and non-adopted villages.

The M**ultiple Regression Analysis** showed that

3 (three) out of 13 (thirteen) independent variables viz; type of primary farming activities, training received and extension contact of the beneficiary respondents, as shown by their significant 't' values, had significant contribution to their extent of adoption of **rice cultivation practices**. While education, training received and extension contact of the beneficiary farmers had significant contribution towards adoption of **vegetable cultivation practices**. In case of **dairy farming**, three variables such as education, type of primary farming activities and mass media exposure of the respondents had significant influence towards adoption of dairy practices.

The study also revealed that 3 (three) out of 13 (thirteen) independent variables viz; family type, family size and farming experience of the beneficiary respondents, as shown by their significant't' values, had significant contribution to their extent of adoption of **piggery farming practices** and were considered as the most dominant factors affecting the extent of adoption of improved piggery farming practices. The large family size of the farmers played important role in adoption of such piggery practices which might be attributed due to the fact that sufficient availability of family labour facilitated the livestock rearing including piggery. It is interesting to note that the variablei.e., size of operational land holding of the respondents had negatively significant contribution towards adoption of improved piggery farming practices, indicating that the respondents' level of size of operational land holding showed negative impact on their level of adoption of the practices. While only two personality traits of the beneficiary farmers such as family type and operational land holding as shown by their't' values had significant contribution towards their adoption level **of poultry farming practices**. In case of **fisheries,** education and annual income level of the beneficiary farmers were found significant contribution towards their adoption of improved fisheries farming practices.

The analysis on relative contribution of personality traits of non-beneficiary respondents on dependent variables indicated that out of selected 13 independent variables namely; age, education, caste, family type, family size, primary occupation, annual income, size of operational land holding, type of primary farming activities, farming experience, trainings received, mass media exposure and extension contact, 2 variables-training received and mass media exposure in case of **rice cultivation practices**, 2 variables such as caste and extension contact in case of **vegetable cultivation practices,** 2 variables- annual income and farming experience in **dairy farming**, 2 variables-castes and training received in case of **piggery farming**, 3 variables such primary occupation, training received and extension contact in case of **poultry farming** and 2 variables namely; education and mass media exposure in case of **fisheries** were found significant contribution towards adoption of rice, vegetables, dairy, piggery, poultry and fisheries farming practices respectively as shown by their corresponding significant 't' values. These variables were considered as the dominant personality traits of the respondents in no-adopted villages.

[iii] Major Problems

The study also revealed that extension problem was perceived as the most important problem faced by the farmers in adoption of agricultural and livestock technologies followed by economic problem, communication and information problem and socio-personal problem. Lack of hand holding capacity building programmes and its follow-up actions in time, non-availability of quality seeds and planting materials in time, problems of road connectivity and transport facility due to geographical disadvantage in hilly areas and reluctance to take up new enterprises due to poor risk taking capacity of the farmers were the most important specific problems faced by the farmers in the region. Efforts should be taken by the concerned stakeholders to minimize such specific problems in farming in the region.

[iv] Suggestive Measures

Focus on income generation activities specially for rural youth and farm women emerged as the most significant suggestion made by the respondents in solving transfer of technology problem, regular technological and methodological backstopping coupled with input supply by SAU/CAU, KVKs and other line departments to farmers. More priority on diversified agriculture to minimise risk of crops failure and regular and timely training and demonstration programmes to the farmers were some other important suggestive measures made by majority farmers in the region. These important suggestions may be taken care and further strengthened as part of agricultural development programmes and policies for the farmers in North eastern Region.

3.1.2. Job Performance of subject Matter Specialists (SMSs) of Krishi Vigyan Kendras: A Case of North eastern Region of India

PI:	**Dr. Sudipta Paul**
CO-PI:	**Dr. A.K. Gogoi**
	Dr. A.K. Singha
	Shri A.K. Bhalerao

Objectives

i)To assess job performance of Subject Matter Specialists.

ii) To investigate into the factors influencing job performance of Subject Matter Specialists as perceived by them.

Salient findings of the project

I. Job Performance of SMSs

Job performance of the sampled SMSs was measured through two techniques (1) assessment based on self reported data on job performance and (2) assessment based on rating given by superior (supervising PCs).

i. State-wise job Performance

This is not quite encouraging to note that as high as 35.06 percent of the SMSs in the region had poor level of performance and 12.55 percent were very poor performers. Only 18.18 percent of the respondents had shown higher level of performance in their assigned and undertaken activities in KVKs. Proportion of respondents in the region falling in the average performer category was 34.20 percent.

As state wise analysis reveals that the proportion of poor performers was the higher in the state of Nagaland (60.53 per cent) followed by Mizoram (58.07 per cent) and Arunachal Pradesh (56.52 per cent). On the other hand, the proportion of SMSs showing higher level of performance was comparatively higher in the state of Assam (31.88 percent) was followed by Home Science (20.00 percent), Crop Protection (16.13 percent), Natural Resources Management (15.15 percent) , Horticulture (14.64 percent), Livestock and Fisheries (13.96 percent) and Social Sciences (9.09 percent).

The highest proportion (68.18 percent) of SMS belonging to Social Sciences had low to very low level of performance. The Proportion of SMSs falling in the poor performer categories was alarmingly high in some other subject groups also- Natural Resources Management (51.51 percent) and Livestock and Fisheries (51.16 percent). The remaining subject groups also comprised of quite high proportion of underperformers: Crop Improvement and Production (43.91 percent), Crop Protection (41.94 percent), Horticulture (41.47 percent), Home Science (40.00 Percent).

ii. State wise job Performance (Superior rating)

The supervising programme coordinators of the SMS rated their performance under 21 categories. According to superior rating, only 23.81 percent of SMSs in the entire North Eastern region were high performers and as high as 38.52 percent of the SMSs were poor performers. Remaining 37.66 percent of the SMS were mediocre in terms of the performance as rated by the PCs. Majority (54.84 percent) of the SMSs were rated as poor performers by the supervising PCs of Mizoram state. As high as 42.86 percent in Tripura and 42.11 percent in Nagaland were poor performers according to the supervising PCs.

iii. Discipline wise job performance (Superior rating)

According to PCs of KVKs in Northeast region the highest proportion (31.71%) of SMSs showed higher level of performance belonging to the disciplines of crop improvement and production. The highest proportion of SMSs showing poor performance belonged to the discipline of home science(50%)

F-I: Organizational climate

The first factor Organizational climate comprised of 13 variables, namely transparency and impartiality maintained in the KVK, efficiency of resources management in the KVK job related support from the peers, work culture in the KVK, mutual trust in the KVK job related support from the superior, job related support from the subordinates, leadership in the KVK, recognition to honesty, efficiency and hard work, job satisfaction, job autonomy, freedom from involvement in other than mandated activities and competitive atmosphere in the KVK. The factor contributed 19.43 percent in the total variance of job performance.

F-II: Adequacy of technology application and dissemination aids
The primary task carried out by the SMSs of KVKs is application of technologies to the farmers' fields for their adoption and wider dissemination. Technological tools aiding to application and dissemination of improved farming technologies is the prerequisite for effective performance of the SMSs. The second factors, quite naturally adequacy of technology application and dissemination aids' emerged as an important determinant of job performance of KVK having a variance contribution of 9.13 percent. Based upon factor loadings and communality values, five variables namely adequacy of modern technological tools, public address system, research laboratory in KVK, audio visual aids and farm equipment significantly contributed to explain the factor.

F-III: Physical Infrastructure
Three variables, namely working space in the office, status of office building and training hall had quite high loading in the third factor which was named as physical infrastructure. The factor had a variance contribution of 7.02 percent in job performance of SMSs.

F-IV: Communication facilities
Five variables based upon their factor loadings and communality values were chosen to explain the fourth factor communication facilities. The five variables were mobile connectivity, internet connectivity, geographical location of the KVK, freedom from external influence exerted by ethnic groups in day to day activities and basic amenities for living in the locality. The factor had a contribution of 6.79 percent in the total variance.

F-V: Road and transport
The fifth factor was road and transport which consisted of three variables, namely means of transportation, fund for carrying out mandated activities and road connectivity. This factor contributed 6.08 percent to total variance.

II. Factor of job performance
In order to find out the factors influencing job performance of SMSs in North Eastern region, a Principal Component Analysis was carried out. The result of the factor analysis has been summed up in . At the outset it should be mentioned that Kaiser (1958) criterion was followed to retain only those factor Eigen value> 1.00. Hence, 9factors all having Eigen value>1.00 have been reported. Following Harman (1967) Comrey (1973) and Gorsuch (1974) only those factor loadings of 0.3 or more have been considered significant and taken into account for reporting.

F-VI: Professional Mentoring
The sixth factor professional mentoring could be explained by two variables administrative support and professional guidance received from the host institute. The factor was named as professional mentoring and it contributed 5.77 percent in the total variances.

F-VII: Farm for Experimentation and Demonstration
The seventh factor was farm for experimentation and demonstration and it comprised of only two variables namely KVK farm and experimental unit and KVK demonstration unit/ experimental unit. The factor contributed 5.37 percent to total variability of data.

F-VIII: Freedom from damage
The eight factor emerged in course of the study was freedom from damage which consisted of two variables, namely freedom from damage caused by wild animals and freedom from damaged caused by harsh climate. The factor contributed 5.02 percent to the total variance.

F-IX: Task remuneration balance
The ninth factor extracted was named as taks remuneration balance which consisted of salary, housing and freedom from task overload, the factor had 4.98 percent variance contribution.

3.1.3. Farmers' perception towards climate changes and their resilient strategies in agriculture

PI:	**Shri. A.K. Bhalerao**
CO-PI:	**Dr. A.K. Gogoi**
	Dr. A.K. Singha
	Dr. S. Paul

Objectives

I. To explore farmer's perception about changing climate
I. To identify different climate resilient strategies

in agriculture

II. To expore the factors responsible for climate changes as perceived by farmers.

Salient findings

I. To explore farmer's perception about changing climate

i. Perceived awareness of respondents about climate change

The perception of respondents was explored using like five point rating scale. Responses were recorded in five categories as replies given by respondents to statements. Before this survey around 42 percent respondents frequently heard about the term climate change whereas majority of them (31.73%) shown a little amount of concern to it. In general, 37.64 percent respondents also replied that they could feel association with climate changes, may be negatively or positively. Out of 457 respondents around 197 i.e. (43.11%) respondents have ranked in majority that they feel "A little" responsible for climate change. Moreover, approx 37 percent respondents on majority perceived that climate changes are affecting health, food and environment in North east region as well as they are experiencing notable changes in monsoon cycle.

ii. The perceived rate of climate change

The 14.22 percent i.e. 65 of respondents out of 457 also reported that they perceived speed of climate change at very fast which is alarming. Surprisingly, not a single respondent rated that they were not able to perceive no change in climate pattern. It means, 100 percent respondents agree that climate is changing and speed of change was medium to very fast.

The study also reveals that tribal people are able to feel it from medium to very fast speed of change. The respondents, who are relatively less affected by impacts of climate change coupled with good coping ability, are perceiving climate change at very slow speed.

iii. Who will suffer the most

In order to know respondents perception about 'who will get affected more due to rapidly changing climate, the data were collected using ranking technique. The collected rank data for six factors namely "Humans", "Agriculture", "Environment" ,"Wildlife", "Ecosystem", "Forest" were analyzed using garrets ranking technique.

The analysis of the above precisely conveyed that, according to majority of respondents the "Agriculture" in the North Eastern region will get affected more due to continuously accelerated climate changes. The tribal population of NE region is finding it difficult to make Agriculture profession profitable. The third rank was given to "Humans", which was logical connecting link of factor I and II. If Agriculture and Environment are adversely affected by climate changes, than ultimately it will negatively affect humans.

iv. Perceived impacts on water resource

The highly rated top three agreed components conclude that ground water quality is declining considerably ("Agree" Rank-I) followed by declining surface water quality ("Agree" Rank-II) and on third position shows that variability of precipitation is significantly increased ("Agree Rank-III"). The "Agree" rank number IV and V and IV evidently confirm that Risk of droughts increased, amount of ground water is decreased and variability of runoff is also noticeably increased. These ranks show relation with statements with positive manner. The negatively related disagreement is seen with categories like 'decrease in variability of runoff' ("disagree" Rank-I) and increase in ground water recharge ("disagree" Rank-II) which support earlier observations.

v. Perception of respondents about climate change on agriculture

The majority of respondents perceived that on "frequent" basis they are observing reduced health standards and less life expectancy (46%). Respondents are forced to make changes in agricultural practices (40%) and they also perceive that there is frequent increase in soil erosion degradation (40%). Moreover, on little quantity around 46 percent respondents perceive that they are experiencing disturbances in food chain and almost all of them are ready to contribute to minimize those impacts of climate changes. Secondly, around 34 percent believe that there is much loss of biodiversity in North eastern region. Around 28 percent of respondents significantly perceive that there is urgent need to conserve forest as well as natural resources in NE region.

Due to severity and regular occurrence of adverse impacts of climate changes agriculture is turning in to non- remunerative business. Out of 457 respondents, 15 percent have no will to continue agriculture whereas; around 29 percent

show "a little" will to continue agriculture than earlier. Respondents also observe on "little" scale that flowering time is changing (42.23%) and winter are becoming milder (33.47%).Subsequently, on frequency basis respondents perceives changes in pattern of seasons (43%), weather is becoming more violent than earlier (36.54), frequent freshwater shortages (32%). Besides this, on "Much" scale, respondents perceive too hotter summer (48.35%), more violent weather (35.66%) and much fresh water shortage (34%).

vi. Ranking of impacts of climate changes in NE region: Top three ranks

It reveals that "Impact on Agricultural production" are top ranked (Rank I and II) by majority of respondents. Secondly, the next ranked impact is "increased food cost" (Rank III and IV) followed by "increased number of severe weather events" (Rank V and VI). The ranking given by respondents are very pertinent with respect to country's present situation.

As food prices are constantly fluctuating, respondents were asked to record their future food preference in response to climate change impacts. It clearly shows that people prefer to choose a combination of vegetarian as well as non vegetarian food. Only nine (9%) people stick to either only vegetarian or non vegetarian food whereas eight 8% respondents couldn't decide about food preferences. Due to rapid increase in vegetables' prices, some respondent feel it is convenient to eat non vegetarian food in the same budget. North eastern people have more access to fresh meat like chicken, Mutton, fishes, pork, eggs etc., than vegetables.

II. To identify different climate resilient strategies in agriculture

Analysis of data indicates that respondents perceive climate change from little to medium extent. Then to tackle this situation they might have got some information from their ancestors to combat the adverse impacts of climate change.

i. Perceived predictions and control measure suggested by ancestors of respondents

The study reveals that more than half (50%) of ancestors of respondents didn't predicted any such changes with respect to climate. The 20 percent ancestors predicted about "hot weather and temperature rise" will take place, which is true. Nine (9%) respondents ancestors predicted about "scarcity of water and moisture" and six percent (6%) forecasted about gradual decrease in crop production. Subsequently, four (4%) ancestors predicted about "drought and famines" as well as "more occurrence of disease and deformities in human animals".

The study further shows that; 67 percent of respondents could not suggest any control measure and this figure is close to data of respondents who could not predict any future change (54%). Out of those who suggested the control measures are "Planting more trees (8%), "Judicious use of water" (7%), "Biodiversity conservation" (6%), " reduce pollution" (5%), "Use of organic fertilizers" (4%) and "afforestation" (3%) are the most practical and implementable suggestive control measures for the North Eastern region.

ii. Strategies adapted by farmers to enhance climate change resilience

The data analysis shows that almost 45 percent of respondents are not following any strategy or control measures to enhance the resilience caused by climate changes. These are the most vulnerable farmers to the adverse impacts of climate change. The farmers who don't have access to information and knowledge about climate change are mainly the one who don't follow any practice to combat the negative impacts of climate change. On the other hand, around 19% respondents have made "changes in cropping pattern" to enhance resilience against climate change followed by 15% farmers who use advanced crop cultivation practices like use of poly house shed nets, protected cultivation, artificial irrigation, use of improved seeds and IPM measures etc.

The 12% respondents also adopted "moisture conservation technologies" to save crop and mitigate the losses whereas nine percent (9%) respondents followed "Crop Diversification" strategy to ensure successful crop production and enhance their climate change resilience. The amount of respondents who have adopted scientifically correct and reliable resilient strategies is very less. The KVKs need to target them more frequently for mass awareness and active participation.

iii. Reasons for adopting climate resilient strategies

The analysis reveals that around 46 percent of respondents have made changes in their farming style with objective to "maintain present yield level and sustaining the environment". This category of respondents is very well experienced in farming and could correlate the profitability of farm with sustainability of environment, which should go

hand in hand. Next to them, there are respondents (37%) who made changes in their prevailing farming style to "increase the yield".

iv. Predictions and management of future impacts of climate change

The results clearly expresses that, majority of respondents (38%) perceives that there will be more "Insect pest attacks, diseases which will result into famine". On second rank around 32% respondents feel that there will be "rise in temperature and climate will be hotter" whereas on third position almost 28% respondents could not forecast any change in future. On the fourth and fifth rank most of the respondents said that there will be "less rainfall" (27%) and it will result into "drought" (23.85%). Some respondents, at the lower side predicted that "climate will be unreliable for agriculture" (18.16%), the Quality of crop yield will be reduced (14%) as well as in some pockets there will be "Hailstorms and devastating floods" (8.75%). There are some respondents (2.62%) in sample who believe that this trend will trigger more earthquakes and landslides.

v. Remedies to control the perceived future impacts of climate change

The analyzed data on remedial control show that, surprisingly around 50% farmers/ respondents don't have any idea about control measures. This is a challenge for the KVK network in North Eastern Region to organize awareness campaigns about climate change and its management. Subsequently, some respondents reported that they need to go for "forest conservation-planting more trees" (29%) and water conservation (17.28%). Around 10% respondents feel that "awareness creation" needs to be done on priority before introducing any other intervention. Subsequently, almost 10% respondents also reported that farmer should opt for "judicious use of fertilizers". Some respondents feel that "soil conservation" (6.9%) and "wild life conservation" (6.30%) are equally important to maintain the balance of environment constituents. Almost 6.5% respondents fell that it's a time to stop *jhum cultivation* i.e. slash and burn agriculture to minimize the impacts of climate changes.

In some cases it is true that *jhum cultivation* i.e. slash and burn agriculture causes more damage to the flora and fauna. As forest land in shrinking day by day it's time to take proactive measures to stop the *jhum cultivation.*

III. To explore the factors responsible for climate changes as perceived by farmers

"Natural variations in the climate" and "ever increasing population" followed by "changes in land use" and "methane emission in paddy fields" are rated as the most impacting factors.

In the north eastern region of India, third ranked group of factors accelerating the climate changes as perceived respondents are agriculture practices, increased tourism, carbon dioxide (CO_2) emissions, use of non vegetarian products etc.

Wind movement, transportation of agricultural inputs & outputs, use of genetically modified crops, cattle rearing, too much fishing, loss of biodiversity in NE region and deforestation are ranked in next line of factors which are triggering negative impacts of climate changes.

Destruction of the upper ozone layer, comfortable and fashionable lifestyle, increasing car & automobiles use, use of electricity, use of air conditioners, land filling of wastes, movement of tectonic plates, forest fires and desertification are the middle ranged group of factors which respondents feel can adversely impact the climate changes.

The following are some of the ongoing Institute projects

3.1.3. Cropping intensification and diversification for production enhancement in North East Region

PI	**: Dr. P.C. Jat**
Co PI	**: Dr. A.K. Gogoi**
	Dr. A.K. Singha
	Dr. S. Paul and
	Shri A.K. Bhalerao

Objectives

1. To identify the suitable cropping system for different states as well as agro-climatic conditions of NE Region.
2. To study the impact of crop Intensification and Diversification on livelihood of the farmers.
3. To evaluate the economics of promising cropping system.

3.1.4. Information need of farmers of NE Region for adoption of Agricultural

Technologies

PI :	**Dr. R Bordoloi**
Co-PI:	**Dr A.K. Singha**
	Dr S. Paul
	Dr. A.K. Gogoi
	U K Singh

Objectives

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

3.2. Externally funded Projects

3.2.1. National Innovation on Climate Resilient Agriculture (NICRA) - Demonstration component

The project on National Innovation on Climate Resilient Agriculture (NICRA) is being implemented through 23 selected KVKs of NE Region. The project attempts to develop and popularize climate resilient technologies in vulnerable areas of the region. The outputs of the project have been helping the districts and regions prone to extreme weather conditions like droughts, floods, frost, heat waves, etc. to cope with climate variability.

Objectives

1. To enhance the resilience of Indian agriculture covering crops, livestock and fisheries to climatic variability and climate change through development and application of improved production and risk management technologies.
2. To demonstrate site specific technology packages on farmers' fields for adapting to current climate risks.
1. To enhance the capacity of scientists and otherstakeholders in climate resilient agricultural research and its application.

Achievements of the project

- **272 numbers** of farmers covering an area of **48.4 ha of land were benefited through the** interventions on Natural resource management module like in-situ moisture conservation by using mulching either with polymulch or biological waste etc and use of raised bed planters..
- Supplemental irrigation with Jalkund, rain water harvesting ponds, Farm ponds, Open well, Check dam etc in areas having drought had benefited **412 numbers** of farmers covering an area of **99.75 ha of land.**
- Improved drainage in flood prone areas with drainage channel& ring bund had benefited **1203 numbers of farmers** covering an area of **512.75ha of land**
- Conservation tillage with Zero tillage in Maize, Rapeseed/ Mustard & Lentil had benefited **34 numbers of farmers** covering an area of **22.13 ha** of land.
- Demonstration on water saving irrigation methods with raised bed furrow irrigation, sprinkler irrigation and drip irrigation had given direct benefit to **54 numbers of farmers** with an area of **11.5 ha of land.**
- Water saving paddy cultivation method, i.e SRI with rice varieties like Dishang, Kapilee, CAU R1 & KRH-2 had benefited **169 numbers** of farmers covering an area of **79.26 ha of land**.
- Intervention with Community nurseries for delayed monsoon benefited **148 numbers** of farmers by covering**11.25 ha of land**.
- Intervention of Custom hiring centres with power tillers, water pump, sprinkler devices etc had helped for timely planting of crops, thereby benefiting **1832 numbers** of farmers covering an area of 314.68 **ha** of land.
- Interventions through location specific intercropping systems with Maize (Nath Samrat-1144) + Blackgram (Pant U 19) and Maize (RCM-76) + Soybean (JS-335) benefited **157 numbers** of farmers by covering an area of **16.7 ha of land**.
- Intervention on use of community lands for

Raised bed planter for sowing of Groundnut (KVK Sonitpur)

Rabi Vegetable Cultivation with jalkund water (KVK West Garo Hills)

fodder production during droughts / floods with high yielding fodder crops like like Oat (HJ 114 & Kent) Green fodder Berseem (Meseavi) & Maize (African Tall) had benefited **35 numbers** of farmers .

- Improved fodder/feed storage methods with Azolla culture and Silage making by using Hybrid napier grass (CO-3) benefited **24 numbers** of farmers**.**

- Vaccination of cattle against FMD and duck against Duck Plague & swine fever in pigs benefited **269 numbers of farmers.**

- Demonstration on climate resilient improved shelters for reducing heat stress in livestock (Piggery, Poultry, Goat, Duck & cattle) benefited **104 numbers** of farmers with **52 such units**.

- Introduction of improved breeds of Pig, Duck, Goat & Poultry which benefited **226 numbers** of farmers

- 242 nos. of capacity Building programmes were conducted with the participation of **5702 nos of farmers** (Male- 3408 & Female-2294)

3.2.2. Attracting and Retaining of Youth in Agriculture (ARYA)

Youth have been playing vital role in transforming agriculture in India. According to National Youth Policy, youth in the age group of 15-35 years are defined as young. The youth population is estimated to be 57 crores by 2016. At present, 35% of the total population is in the age group of 15-35 years, out of which 75% live in rural areas. In order to create interest and confidence among rural youth in agriculture, there is a need to make agriculture more profitable. Retaining youth in agriculture and making agriculture more profitable are thus, big challenges. There is a continuous increase in migration of rural youth to urban areas. On the other hand, small holdings are on the rise which posses challenge to food security for increasing population. Hence, it was felt to bring out a comprehensive model for the development of rural youth in general and agricultural youth in particular.

Therefore, realising the importance of rural youth in agricultural development especially from the point of view of food security of the country, ICAR has initiated a programme on "**Attracting and Retaining of Youth in Agriculture (ARYA)".**

Project objectives

i. To attract and empower the Youth in Rural Areas to take up various agriculture & allied and service sector enterprises for sustainable income and gainful employment in selected districts.
ii. To enable the farm youth to establish network groups to take up resource and capital intensive activities like processing, value addition and marketing and
iii. To demonstrate functional linkage with different institutions and stakeholders for convergence of opportunities available under various schemes / programmes for sustainable development of youth.

Present project status:

Under Zone-III, 4 KVKs namely; Senapati in Manipur, Karbi Anglong in Assam, Wokha in Nagaland and Lunglei in Mizoram were finally selected for implementation of the ICAR funded project. ICAR-ATARI, Zone-III organised 3 nos. of Interactive Programme for Preparation and Finalization of ARYA Project in the prescribed format by each of the identified KVKs during March, 2015 and September, 2015 at ATARI, Zone-III, Meghalaya. Implementation of various activities as per the approved plan of work of the concerned KVKs has been initiated in their identified project areas with the selected rural/ tribal youth under different agricultural and allied enterprises.. The review and monitoring of the activities of the implementing KVKs are under process for first hand information.

3.3. Field Visit, Meeting, Workshop and Human Resource Development activities

The Director and the scientists of the ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III made a number of monitoring visits to the KVKs of different North Eastern states during 2015-16. Different officials from the council, agricultural universities, research institutes and other developmental agencies also made visit to the KVKs to ensure progress in mandated activities of KVKs. The ATARI, Zone-III during 2015-16 organized 18 HRD programmes for KVK staff, Rural Youth, Agri-preneurs, NGOs member, farmers etc. of the region in collaboration with KVKs and other institutions/organizations like CVSc, AAU, Khanapara, AAU, Jorhat, ICAR Research Complex for NEH Region, Barapani, NIRD, Guwahati, CIFRI, Guwahati etc. The HRD programs had been conducted by the institute in different thematic areas like organic farming, livestock production & management, fisheries & aquaculture management, climate resilient agriculture, home science, group dynamics etc. Besides extension and research prioritization, review of progress of KVK activities and action plan formulation programs were also organized by this institute during the year.

4.0. PUBLICATIONS

4.1. Papers in Research Journals (National International)

Singha, A. K., Tripathi, A. K. , Jat, P.C., Bordoloi, R., Singha, J.K. and Devi, M. (2016). Extent of Adoption of Improved Pig Farming Practices by the Farmers and their Effective Determinants in North Eastern States of India, *Indian Journal of Hill Farming*, Vol. 29(1):10-17.

Sudipta Paul, Anil Tripathi, Arun Singha, Amol Bhalerao, Bagish Kumar, Rajumoni Bordoloi and Phool Jat (2015). Performance of the Public Agricultural Extension System in Disadvantageous Settings: Evidences from *Krishi Vigyan Kendras* in North Eastern Region of India, *Economic Affairs*, 60(4): 821-826.

Singha, A.K., Bordoloi, R., Jat, P.C., Singha, J.K. and Devi, Merina (2016). Socio-Economic Profile of the Common Adopters of Improved Practices of Crops and Livestock Enterprises and their Problems and Suggestive Measures-A case study in Adopted and Non-adopted villages in North Eastern India, *Economic Affairs, vol. 61(2),*

Singha, A.K., Tripathi, A.K, Jat, P.C., Bordoloi, R., Singha, J. K. and Devi, M. (2016). Comparative Analysis of Socio-economic and Psychological Behaviour of Adopted and Non-Adopted Farmers in Scientific Rice (*Oryza sativa* L.) Cultivation Practices in North Eastern Region, *Journal of Agril. Sciences. (Accepted).*

Bhalerao A. K., Meena M. S., Singha A. K., Paul S. (2015) Mobile phone use patterns of Employees of Farm Science Centers (KVKs). *Journal of Community Mobilization and Sustainable Development.* (Accepted).

4.2. Book

जाट, फुलचंद., सिंघा, ए, के., पॉल, एस., भालेराव, अमोल., बोरदोलोई, आर., गोगोई, ए, के., त्रिपाठी, अनिल कुमार., बागीश, कुमार., (सम्पादित), 2015, कृ.वि.कें. के प्रयासों से किसानो की सफलता पूर्वोतर में सफल कहानियाँ : एक दस्तावेज, भा. कृ. अनु.प.- कृ.प्रौ.अनुप्रयोग अनु. सं., अंचल – III, उमिअम – 793103, मेघालय. Bhatnagar, S. and Jat, P. C. (2015). General Agriculture Guide, College Book Center, Jaipur

4.3. Technical bulletin/ Book Chapter

Singha, A.K. (2015). Agri-Clinics and its Role in Agri-business Development: Problems and Prospects.

Tripathi, A.K., Kumar, B., Paul, S., Bhalerao, A.K., Singha, A.K., Jat, P.C., Bordoloi, R., (2015). Extension strategies to mitigate climate change impacts in agriculture: successful KVK interventions in North Eastern part of India.

Paul, S., Tripathi, A.K., Debnath, A., Shil, S., Barman, D., Chakraborti, M., 2015. Bringing prosperity to potato growers through True Potato Seed (TPS) cultivation: Exhilarating success of KVK Intervention in Tripura state. ICAR-Agricultural Technology Application Research Institute, Zone III, Umiam, Meghalaya, India

4.4. Presentation in Conference/ Symposia/Seminar/ Other fora

Tripathi A.K., S. Paul, B. Kumar, A.K. Bhalerao, A.K. Singha, P.C. Jat and R. Bordoloi (2015). Poverty to Prosperity: Successful Skill Development Interventions through Krishi Vigyan Kendras in North Eastern Region of India. ISEE Golden Jubilee **National Seminar**-2015 on Strategy to Drive Skill Based Agriculture Development Forward for Sustainability and Rural Employability, November 5-7, 2015, Institute of Agril Sciences, BHU, Varanasi (U.P.).

Tripathi A.K. , B. Kumar, S. Paul, A.K. Singha, P.C. Jat, A.K. Bhalerao and R. Bordoloi (2015). Transmission of Skill Based Technical Knowledge for Enhanced Technology Internalization: The Future Role of KVKs in North Eastern Region of India, Souvenir, **National Seminar** on "Sustainable Hill Agriculture in Changing Climate" 5-7 December, 2015, Agartala.

P.C Jat, A.K. Tripathi, A.K. Singha, R. Bordoloi, B. Kumar and A.K. Bhalerao (2016). Global Warming and Crop Production, Souvenir, **National Seminar** and Assam Krishi Unnayan Mela-2016, 13-14 February, 2016, Guwahati, Souvenir, National Seminar and Assam Krishi Unnayan Mela-2016, 13-14 February, 2016, Guwahati.

Bhalerao, A.K., Tripathi, A.K., Singha, A.K., Paul, S., Jat, P.C., Bordoloi, R., Kumar, B., (2015). How farmers perceive climate change and need for climate smart farming interventions: A case of farmers of North eastern region of India, Extended summary in Compendium of Seminar papers in **National Seminar** on Sustaining Hill Agriculture in climate change, pp 327-329, 5-7 December 2015, Agartala, Tripura.

Kumar, B., Tripathi, A.K., Bhalerao, A.K., Paul, S., Singha, A.K., Jat, P.C., Bordoloi, R., (2016). Agribusiness opportunities through KVKs for mobilizing the potential skilled youth in North East India, Book of abstracts of **National Seminar** on Integrating Agri-Horticultural and Allied Research for Food and Nutritional Security in the Era of Global Climate Disruption, pp 145, 4-6 March 2016, Imphal, Manipur, India.

Bhalerao, A.K., Tripathi, A.K., Singha, A.K., Paul, S., Jat, P.C., Bordoloi, R., Kumar, B., Kalita, S.K., Mamtaz, A., Kumar, D., Ralte, Z., Saikia, P., Singh, J.K., Nath, D., Theluo, P., Rai, S., Nongtdu, G., (2016). Interventions perceived by the farmers of North Eastern India to combat climatic disruption and ensuring socio-economic upliftment, Book of abstracts of **National Seminar** on Integrating Agri-Horticultural and Allied Research for Food and Nutritional Security in the Era of Global Climate Disruption, pp 155, 4-6 March 2016, Imphal, Manipur, India.

Bhalerao, A.K., Tripathi, A.K., Singha, A.K., Paul, S., Kumar, B., Jat, P.C., Bordoloi, R., (2016). Strategies for empowering and retaining youth in agriculture with special reference to North Eastern India. Souvenir of National Youth Conference on Attracting and Retaining Youth in Agriculture (ARYA), pp 77, 27 January, 2016, New Delhi.

Kumar Bagish, A.K. Tripathi, A.K. Bhalerao, S. Paul, A.K. Singha, P.C. Jat and R. Bordoloi (2016).**Best Oral Presentation Award,** on "Agribusiness Opportunities through KVKs for Mobilizing the Potential Skill Youth in North East India", **National Seminar** on Integrating Agri-Horticultural and Allied research for Food and Nutritional Security in the Era of Global Climate Disruption, 4-6 March, 2016 at ICAR Research Complex for NEH Region, Manipur Centre, Imphal.

4.5. Others

- Annual Report, ICAR- Zonal Project Directorate, Zone - III, 2014-15
- Annual Report of KVKs, ICAR-Agricultural Technology Application Research Institute (ATARI), Zone – III, 2015-16 (In Progress)
- Monthly Reports of KVKs, Zone-III
- Quarterly Reports of KVKs under Zone-III
- Quarterly Monitorable Target Reports of KVKs under Zone-III
- Half yearly Reports of KVKs under Zone-III
- FLD Report on Maize of KVKs, Zone-III
- Proceedings of Zonal Workshop of KVKs under Zone-III, 2015-16.
- RFD monthly report of the ICAR-ATARI, Zone-III
- Monthly report on Skill Development for Farmers and Rural Youth under Zone-III

5.0. PARTICIPATION IN MEETINGS/WORKSHOPS

Dr. A.K. Tripathi, Director

- Attended the International Symposium on "Combating Climate Change in C40 Mega Cities" held at Guwahati on the 22md April 2015.
- Attended NICRA Action Plan Formulation Workshop for newly selected KVK under NICRA Project 28.04.2015 to 30.4.2015
- Attended 22nd RCM held on 23rd and 24th May 2015 at Agartala.
- Attended the District Contingency Plan and vetting workshop at ICAR Basar on 2.6.2015-5.6.2015
- Attended the meeting of all the ZPDs along with the F&AO held from 29th June – 1st July 2015.
- Attended National Seminar on "Take it to Farmer-The Farmers Rights through Awareness" organized by PPV & FRA at New Delhi during 6th to 7th July 2015
- Attended the 3rd Annual Workshop of NICRA at CMFRI, Kochi held on 13th & 14th August 2015.
- Attended meeting at NEDFi Guwahati on 24.08.2015.
- Attended the meeting on preparation of RE 2015-16 and XIIth Plan EFC at Agril. Extn. Division, ICAR KAB-I, Pusa New Delhi on 11.09.15
- Reviewed the progress of KVK West Imphal and deliver lecture in Summer School on 21.09.2015.
- Attended the group meeting of Scientist organized for promoting of pulses in NEH Region on 28.09.2015.
- Attended the meeting on Soil Testing initiative of GOI and contribution of ICAR/KVK on 30.10.15 at New Delhi
- Organized meeting on Soil Health Card to farmers and review of KVK activities along with Host Institutes and KVKs of Arunachal Pradesh on 2nd November 2015 at Itanagar (Arunachal Pradesh).
- Organized the meeting on Soil Health Card to farmers and review of KVK activities along with Host Institutes and KVK Mizoram on 6th November 2015
- Attended SAC meeting of 5 ICAR KVKs and NICRA launching Programme at Ukhrul KVK Manipur on 25.11.2015
- Attended AERA Conference & presented a paper on Food Security of North Eastern Region : A state wise Analysis on 2 .12.2015
- Presented Lead paper in the Conference Indian Association of Farmer of Tripura: "Poverty to prosperity successful Skill Development Intervention through KVK in North Eastern Region of India during 04-06th December, 2015.
- Attended the National Dialogue on "Innovative Extension Systems for Farmers' Empowerment and Welfare" at National Agricultural Science Centre Complex, New Delhi during December 17-19, 2015.
- Organized the ICAR ATARI, opening programme & Assam Krishi Unnayan Mela & National Seminar on 13-14th Feb.2016

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

- Visited KVK Dimapur on 1-04-2015 to review KVK activities along with Dr. P.C. Jat, Sr. Scientist
- Attended 9th National Conference of KVK-2015 at Patna, Bihar from 25-26 July, 2015.
- Visited KVK Bishnupur on 4th August, 2015 to review KVK activities and interaction staff of the KVK.
- Visited KVK Kamrup on 13-6-2015 to review KVK activities and interaction with staff of the KVK.
- SAC meeting of KVK Senapati on 5-10-2015 followed by field visits.
- Attended SAC meeting of KVK Bishnupur on 6-10-2015.
- Attended SAC meeting of KVK Nalbari on 11-3-2016 as a representative of Director, ATARI, Zone-III.
- Attended SAC meeting of KVK Kamrup on 11-3-2016 as a representative of Director, ATARI, Zone-III.
- Visited KVK Thoubal on 31-3-2015 to review KVK activities and interaction with staff of the KVK.
- Attended PMFBY programme of KVK Imphal West on 31-3-2015 followed by field visits.
- Attended PMFBY programme of KVK Bishnupur on 31-3-2015 followed by field visits.
- Attended World Soil Health Day of KVK Ribhoi on 5-12-2015 at ICAR RC for NEH Region, Barapani.
- Attended Zonal Workshop on Cluster Front line Demonstration on Rabi Oilseeds and Pulses on 14-15 December, 2015 at ICAR RC for NEH Region, Barapani.
- Attended International Agri-Horti Show, 2016 at AAU, Khanapara campus held from 6-9 January, 2016.

Dr. R. Bordoloi, Pr. Scientist (Agricultural Extension)

- Attended the "Review meeting of NICRA TD Component " held at KVK Ri Bhoi, ICAR Complex Barapani on 20/04/15
- Attended the inaugural Programme of the training program on "Adaptation and Mitigation Strategies for climate resilient Agriculture" at ICAR Complex Barapani on 21/04/15
- Attended the Review meeting on District Contingency Plan of NE States in the Committee Room of ICAR Complex on 21/04/15.
- Attended the "Project Evaluation meeting of DBTs Project on :Biotech led organic farming for NEH Region" , held at Conference room of DBT New Delhi on 26/05/15 .Presented the report jointly with Dr N C Talukdar, Director, IASST, Guwahati Assam.
- Attended Inaugural function of the training programme on "Organic farming for sustainable Hill Agriculture." at ICAR Complex Barapani from 17th-23rd September 2015.
- Attended "Hindi Week "Celebrated in the ATARI during 20th-25th September, 2015.
- Also participated in Antakshari Competition and received first prize (Group).
- Attended the final review meeting of the project on "Socioeconomic analysis of Climate Change Project" (PI: Dr S Firoz, Asstt Prof, Ag Economics CPGS CAU) held at CPGS Barapani on 14th September, 2015(as a member of the Project).
- Attended Coordination meeting for Soil Health Card held at Directorate of Agriculture, Govt. Of Meghalaya on 02/11/15.All KVK PCs of Meghalaya, Director MAMETI, PD ATMA Ri Bhoi, Officers from State Soil testing Lab from Shillong participated. Explained the procedure to complete the drive for soil health Card by 5th December, 2015 along with I/c Soil Science Principal Scientist Dr S Hazarika.
- Attended Coordination meeting for Soil Health Card held at ICAR Nagaland Centre on 09/11/15. All KVK PCs of Nagaland, Joint Director ICAR Nagaland Dy Director State Dept of Agril, Nagaland, Professors from SASRD Nagaland, Officers from State Soil testing Lab from Nagaland participated. Explained the procedure to complete the drive for soil health Card by 5th Dec, 2015.
- Attended ICAR-Vigilance Officers Meet for Eastern and North Eastern Zone held in Agartala, Tripura on 27/11/15 for the Vigilance Officers of ICAR Institutes of NE and Eastern Zone.
- Attended "1st Zonal Workshop on Cluster Demonstration on Rabi Oilseeds and Pulses" held at ICAR Barapani during 14th-15th Dec, 2015.
- Attended inaugural session of six days orientation training programme for the newly recruited staff of KVKs under Zone III.
- Attended Workshop on "Developing roadmap for Agricultural Development in Eastern Himalayan Region (Sept 29th, 2015) held at D.N Borthakur conference Hall of ICAR Research Complex for NEH Region.
- Attended Workshop on "Planning and implementation of Farm Mechanization & Agro Processing in NEH Region" (7th Aug 2015) held at D.N Borthakur conference Hall of ICAR Research Complex for NEH Region.
- Attended "World Soil Health Day cum Rabi Kissan Sammelan "organised jointly by KVK Ri Bhoi and Soil Science Division, ICAR Complex Barapani on 5th December, 2015 held ICAR Complex Barapani.
- Attended Vidyalaya Management Committee (VMC) meeting of Kendriya Vidyalaya, Umroi Cantt. as a member of VMC on 11.12.15
- Attended "Technology Week" celebrated at KVK Dimapur on 15/10/15.

Dr. P.C. Jat, Sr. Scientist (Agronomy)

- Attended NICRA Review and Action Plan Workshop of KVKs, Zone-III on 20th -21st April, 2015 at KVK Ri-Bhoi, Barapani.
- Attended Special Review and Action Plan Formulation programme of KVKs on 29th April, 2015 at KVK Ri-Bhoi, Barapani.
- Attended Orientation programme for newly recruited KVK staff in North East on 2nd-7th May, 2015 at ICAR RC for NEH Region, Barapani.
- Attended 5-Days Training Programme for Newly Recruited Programme Coordinators of KVKs under Zone-III on 8th -12th June, 2015 at ZPD-III, Barapani.
- Attended Video Production and Scientific Documentation on 17th -21st June, 2015 at ICAR RC for NEH Region, Barapani.
- Attended the National Seminar on "Take it to Farmer-The Farmers Rights through Awareness on 7th July 2015 at NASC, New Delhi.
- Attended the 87th ICAR Foundation day and 9th National Conference of KVKs on 25th -26th July,

2015 at Patna.

- Attended 4th Annual workshop of NICRA on 13th-14th August, 2015 at CMFRI, Kochi.
- Attended One Day review meeting on Progress NIFTD programme in North East on 5th September, 2015 at KVK Ri-Bhoi, Meghalaya.
- Attended the 6th PRSG meeting notice (m4AgriNEI) Phase-2 on 11th September, 2015 at Tura (West Garo Hills).
- Attended Training programme on Organic Farming for improving Hill Agriculture on 17th -23rd September, 2015 at ICAR RC for NEH Region, Barapani.
- Attended Interactive Programme for Preparation and Finalization of ARYA Project on 23rd September, 2015 at ICAR-ATARI, Zone-III
- Attended Interface cum Review on Soil Analysis and Preparation of Soil Health Cards for KVKs in Arunachal Pradesh on 2nd November, 2015 at Directorate of Agriculture, Govt. of A.P., Naharlagun.
- Attended Training cum Awareness programme on PPV&FRA on 21st November, 2015 at Conference Hall, ICAR Research Complex for NEH Region, Umiam.
- Attended Zonal Workshop on Cluster Frontline Demonstration on Rabi Oilseeds and Pulses, 2015-16 on 14th - 15th December, 2015 at Conference Hall, ICAR Research Complex for NEH Region, Umiam.
- Attended the National Dialogue on "Innovative Extension Systems for Farmers' Empowerment and Welfare" on 17th -19th December, 2015 at National Agricultural Science centre Complex (NASC), New Delhi.
- Attended 5-Days Training Programme for newly recruited PCs of KVKs under Zone-III on 18th-22nd January, 2016 at ICAR-ATARI, Zone-III.
- Attended Review meeting on Cluster FLDs under NMOOP/NFSM for KVKs in Assam on 3rd February, 2016 at HRS, AAU, Kahikuchi.
- Attended National seminar on Technological Options for bringing 2nd Green revolution in North East India on 13th-14th February, 2016 at HRS, AAU, Kahikuchi.
- Attended the Assam Krishi Unnayan Mela and National Seminar during 13-14 February 2016 at CPCRI, Regonal Center, Kahikuchi Guwahati.
- Attended the 4th National Seminar "Transforming Indian Agriculture Towards Food and Nutritional Security on 20th-21st February, 2016 at ICAR-IGFRI, Jhansi.
- Attended the Krishi Unnati Mela 2016, ICAR-IARI New Delhi on 19th -21st March 2016 at ICAR-IARI New Delhi.
- Visited the KVK Jaintia Hills on 23rd June, 2015, for regular monitoring of their mandated activities.
- Visited the KVK West Garo Hills on 11th September, 2015, for regular monitoring of their mandated activities.
- Visited the KVK Sonitpur on 3rd November, 2015 for regular monitoring of their mandated activities.
- Visited the KVK Kamrup, on 3rd February, 2016 for regular monitoring of their mandated activities.

Dr. Bagish Kumar

- Attended one day seminar on "Soil Health Governance to Promote Sustainable Agriculture – Need for reforms in Fertilizer Policy" at on organized by Fertilizer Association of India. On 11th February, 2016 at Guwahati.
- Attended the "Assam Krishi Unnayan Mela" and National Seminar during 13-14 February 2016 at CPCRI, Regonal Center, Kahikuchi Guwahati.
- Attended the meeting on Soil Health Card to farmers and review of KVK activities along with Host Institutes and KVK Mizoram on 6th November 2015
- Participated in three days National Seminar on "Integrating Agri-Horticultural and Allied Research for Food and Nutritional Security in the Era of Global Climate Disruption" from 4-6 March 2016 at Imphal, Manipur.

6.0. WORKSHOPS/ TRAINING AND CAPACITY BUILDING PROGRAMMES

The Agricultural Technology Application Research Institute (ATARI), Zone-III during 2015-16 organized **18 HRD** programmes for KVK staff, Rural Youth and Agri-preneurs of the region in collaboration with KVKs and other institutions/organizations like C. V. Sc, AAU, Khanapara, Guwahati, AAU, Jorhat, Assam, CIFRI, Guwahati, ICAR Research Complex for NEH Region, Umiam, Dept. of Agriculture, Govt. of Meghalaya, Arunachal Pradesh, Manipur, Mizoram etc (Table 36). The HRD programs had been conducted by the institute in different thematic areas like organic farming, livestock production & management, fisheries & aquaculture management, climate resilient agriculture, home science, group dynamics etc. Besides extension and research prioritization, review of progress of KVK activities and action plan formulation programs were also organized by this institute during the year.

Table 36: Meetings/workshops/ HRD programmes conducted during 2015-16

Sl. No.	Title/ Topic of the programme	Date	Venue	No. of participants
1	NICRA Review and Action Plan Workshop of KVKs, Zone-III	20-21 April, 2015	KVK Ribhoi, Barapani	23 NICRA KVKs
2	Special Review and Action Plan Formulation programme of KVKs	29th April, 2015	KVK Ribhoi, Barapani	41
3	Orientation programme for newly recruited KVK staff in North East	2-7 May, 2015	ICAR RC for NEH Region, Barapani	42
4	5-Day Training Programme for Newly Recruited Programme Coordinators of KVKs under Zone-III	8th -12th June, 2015	ZPD-III, Barapani	6 PCs of KVKs
5	Video Production and Scientific Documentation	17-21 June, 2015	ICAR RC for NEH Region, Barapani	16 SMSs
6	One Day review meeting on Progress NIFTD programme in North East	5th September, 2015	KVK Ribhoi, Meghalaya	22 PCs/SMSs of KVKs
7	Training programme on Organic Farming for improving Hill Agriculture	17-23 September, 2015	ICAR RC for NEH Region, Barapani	25
8	Interactive Programme for Preparation and Finalization of ARYA Project	23rd September, 2015	ICAR-ATARI, Zone-III	4 (from 2 KVKs)
9	Interface cum Review on Soil Analysis and Preparation of Soil Health Cards for KVKs in Meghalaya	1st November, 2015	Directorate of Agriculture, Govt. of Meghalaya	24

10	Interface cum Review on Soil Analysis and Preparation of Soil Health Cards for KVKs in Arunachal Pradesh	2nd November, 2015	Directorate of Agriculture, Govt. of A.P., Nahalagun	31 (KVK/State Dept.)
11	Interface cum Review on Soil Analysis and Preparation of Soil Health Cards for KVKs in Manipur	5th November, 2015	ICAR, Manipur Centre, Imphal	25 (KVK/State Dept./ CAU)
12	Interface cum Review on Soil Analysis and Preparation of Soil Health Cards for the KVKs in Mizoram	6th Nov, 2015	Directorate of Agriculture, Govt. of Mizoram, Aizawl	24
13	Interface cum Review on Soil Analysis and Preparation of Soil Health Cards for the KVKs in Nagaland	9th Nov, 2015	ICAR, Nagaland Centre, Dimapur	21
14	Training cum Awareness programme on PPV&FRA	21st November, 2015	Conference Hall, ICAR Research Complex for NEH Region, Umiam	100 (State Officials +farmers)
15	Zonal Workshop on Cluster Frontline Demonstration on Rabi Oilseeds and Pulses, 2015-16	14th and 15th December, 2015	Conference Hall, ICAR Research Complex for NEH Region, Umiam	53 (KVK PC/SMSs)
16	5-Day Training Programme for newly recruited PCs of KVKs under Zone-III	18-22 January, 2016	ICAR-ATARI, Zone-III	3PCs
17	Review meeting on Cluster FLDs under NMOOP/NFSM for KVKs in Assam	3-2-2016	HRS, AAU, Kahikuchi	59
18	National seminar on Technological Options for bringing 2nd Green revolution in North East India	13-14 February, 2016	HRS, AAU, Kahikuchi	200

7.0. PROMOTIONS/TRANSFERS

APPOINTMENT

1. Dr. Bidyut C. Deka took over the charge of Director, ICAR-Agricultural Technology Application Research Institute (ATARI), Zone-III on 16th February, 2016

TRANSFER

1. Dr. A.K. Tripathi, In-charge, Director, ICAR-ATARI, Zone-III was released from the institute on 15th February, 2016
2. Dr. Sudipta Paul, Scientist was transferred to ICAR-IAARI, New Delhi on 1st February, 2016
3. Shri Amol K. Bhalerao, Scientist was granted study leave for pursuing doctoral degree at the University of Hamburg, Germany

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)
Dr. P. C. Jat	Senior Scientist (Agronomy)
Shri. A. K. Bhalerao	Scientist (Agricultural Extension)
Dr. Bagish Kumar	Scientist (Agricultural Extension)

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
Mrs. A. Pyrtuh	Upper Division Clerk

IV Supporting

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

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