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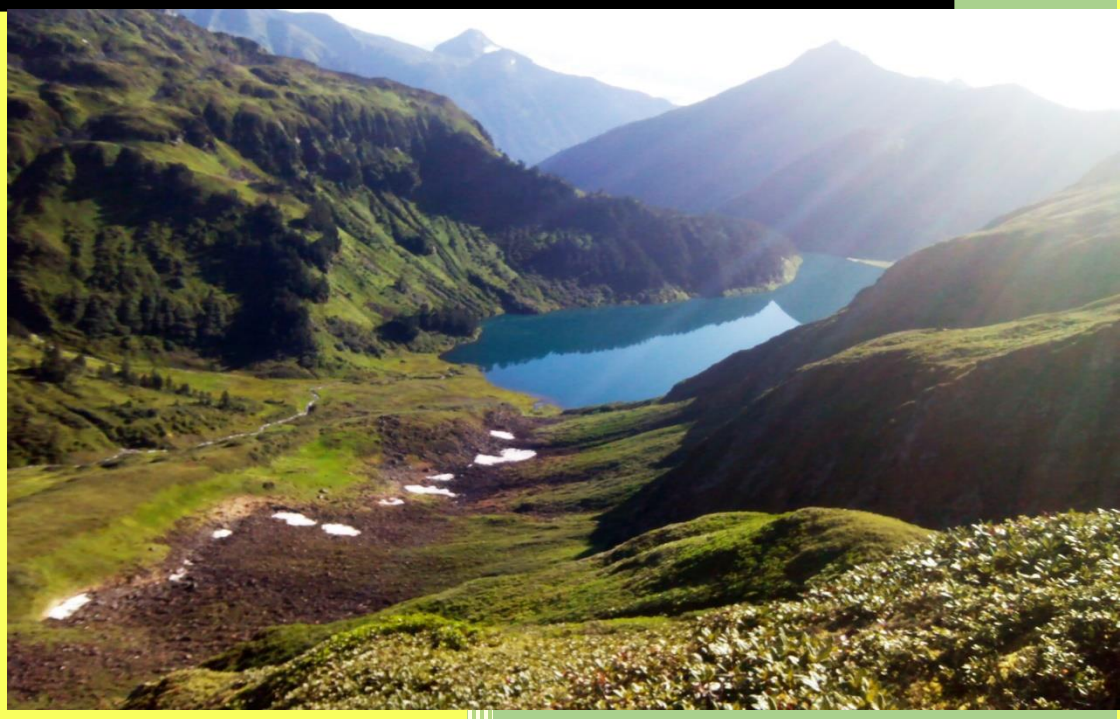

KRISHI VIGYAN KENDRA ANJAW

ICAR-RC for NEH Region, Arunachal Pradesh Centre, Basar

First Edition of **KVK Anjaw at Glance**
Published in August, 2017

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Foreword Message

Farmers should be our first care and he must be brought forward to the center of the stage. NEH region should fully leverage new low cost technologies that have wider benefits for agriculture. In context with Arunachal Pradesh has wealth of indigenous knowledge and unexplored resources which can be blended with new improved farm technologies keeping in view the local problems and also the resources with the farmers. KVKs should be problem solving device rather than supply driven mechanism. They will succeed only if they address local problems of the farmers.

Extension services and need based programme would create awareness among farmers and help addressing these issues and transforming hill agriculture and so the rural lives. ICT would play great role in transfer of technology to the doorstep of farmers particularly in the less populous area where farmers' mobilization also a leading problem due to their topographic situation. Its matter of indeed pleasure that KVK Anjaw has made many good attempts in the field of ICT led interventions. like development of "Smart NE Kisan" offline android application and also create the "Cybernetic Cell" offered the ICT based services to farmers as well as local personal.

In this context, I believe that the present publication entitled "**KVK Anjaw at Glance**" will be very useful and extend the necessary help to the wide range of the stakeholders. I wish him Dr. Manish Kanwat and his team for bringing out this fruitful publication.

(Dr. S.V. Ngachan)
Director

Place: Umiam, Meghalaya
Date: 1/6/2017

Foreword Message

Sustainable development cannot be achieved without a major contribution from agriculture and allied sectors. The issue of growth in agriculture has assumed global concern in view of meeting the Millennium Development Goal of producing enough food for a rapidly growing world population whilst maintain the fragile resources. Here comes the role of such agricultural technologies which could be integrated into the existing farming system under different agro-ecological situations for boosting production of various commodities.

The recent initiatives of the concerned people and agencies are expected to pay dividends by turning the Krishi Vigyan Kendras into mini rural agricultural universities to serve the cause of the farmers at their doorsteps. Now the present government have realized that the true wealth is the combination of intellectual and physical strength of the 1.28 billion strong population of the country, out of which approximately more than 60 percent are engaged in agriculture. This vivacious agrarian population is in need of professional competence of the extension agent. Therefore, with more than 648 KVKs in India, it is only natural that harnessing and mobilizing the human resources for agricultural development is bound with high expectation.

I am also happy to note that the KVK Anjaw has documented their journey in the form of **"KVK Anjaw at Glance"** and published. I believe that Dr. Manish Kanwat and his young, enthusiastic team will defiantly serve the farmers in better way in the process off technology adaptation and adoption.

I earnestly hope that the present document would be a good and useful guide for all the stakeholders of Anjaw district of Arunachal Pradesh.

(Dr. A. K. Tripathi)
Director

Place: Guwahati
Date: 14/07/2017

PREFACE

KVKs acts as an important linkage between research systems and farmers, providing crucial role in empowering farmers with latest, need-based and appropriate technologies. As India is moving from agriculture-based economy to knowledge-based economy, there is growing importance for transition in farming from subsistence to agri-business, different approach for technology application and strengthening the value chain, especially transforming farmers to food processors.

With the objective to provide the transformation of traditional farming to scientific farming and to motivate the farming community to adopt settled farming for better and prosperous life, the Krishi Vigyan Kendra (KVK) in Anjaw was initiated and approved in 2014 under the flagship of India Council of Agricultural Research (ICAR) for NEH Region, Umiam, Meghalaya. It started functioning *w.e.f.* 7th April, 2015. Anjaw district spreads over 9,936 sq. km and by geographical area, it account for 7.39 per cent of the total state area. The first morning sun ray of India kisses the Mountains of Dong village, under Walong circle of Anjaw District of Arunachal Pradesh. *Anjaw district share two international boarder and three intra state district of Arunachal Pradesh, the district shares its border with China (Tibet) on the North, Lohit and Lower Dibang valley on the West, Myanmar on the East and Changlang on the South, globally positioned between* ***22°****-29' to 23°-30' North Latitude and* ***95°-15'*** *to 97°-24'East Longitude. District Administration allocated the land for establishment of KVK Administration Building including staff quarters and KVK Instructional farm* at Metengliang, which is around 78 km away from the district headquarters and 22.5 Km away from Hayuliang town, on the Hayuliang-Chaglagam road, in the North-West tracts of the district.

In the face of all the topographical disadvantageous and dearth of basic infrastructural facilities, KVK Anjaw team has been putting their constant efforts wholeheartedly, working round the clock and actively performing their duties all over the district to attain the faith of the farming community. It's very early to

judge the KVK Anjaw exertions, but in a very short span of time, the team of KVK Anjaw has received the overwhelming response from the corners of public as well as the district administration. Henceforth, different departments and institutes has shown faith and collaboratively worked with us. In recent times, District Administration of Anjaw district offered the responsibility to implemented the Border Area Development Programme in the District as lead implementing agency, likewise NRCB Tiruchirmpali, NRC on Seed Spices for demonstration and training programme, NABARD funded for establishment of Mushroom Spawn Production Lab, NABCON also entrusted the responsibility for conducting the monitoring and evolution study of TDF project at Anjaw, ATMA funded for organizing the Farmers Scientist Interactions & Exposure Visit at Barapani (Meghalaya), Regional Fodder Institute, Kalyani (W.B) provided demonstrations for farmers and College of Horticulture & Forestry, CAU, Pasighat also conducted the demonstration under MIDH scheme at Anjaw are some examples of positive association of KVK Anjaw with different stakeholders (Line Departments, Research Institute, Central Agricultural Universities etc.,) for the welfare of farming community and community of Anjaw.

Since 2015 onwards, KVK organized 100 training courses covered almost 4,250 farmers and 12 sponsored & 09 extension functionaries training programme with the participants of 356 and 233 respectively. Hence, it has emerged as a leading training centre in the district. In transfer of technology process, a large number of extension activities such as Method Demonstrations (80), Kisan Mela (2), Animal Health Camp (6), Awareness programme (2), Diagnostic visits (38) Kisan sammelan (2), Farmers Scientist Interaction programme (2) Interstate Exposure Visit (1) OFTs (17) and FLDs (17) were successfully conducted in the district, encompassed 5,925 farmers from all the corners of the district.

KVK Anjaw is known for ICT led interventions in Zone III to reach out to a larger base to extend extension based services and offered the ICT enabled services (Cybernetic Amenity Solution Centre) for school children, farmers and community personnel. KVK Anjaw has also been recognized as the first (1st) KVK

among the entire NEH Region for developing Android supported offline mobile application named ***"Smart NE Kisan"*** as well as its ICT led services by the ICAR-ATARI Zone III during Annual Zonal Workshop 2017.

I express my sincere gratitude to Dr. S.V. Ngachan, Director, ICAR RC for NEH Region Umiam, whose untiring efforts and ignited leadership have brought vibrancy in my KVK team, for your valuable guidance, conceptualization, planning and execution of activities at ground level effectively.

I would like to place on record my heartiest thanks to Dr B.C. Deka, Director, ICAR –ATARI Zone III, Umiam for his timely help, encouragement, inspiration and valuable suggestion for implementing our activities successfully.

My heartiest gratitude is extended to Dr A.K. Tripathi Director ICAR-ATARI-Zone VI for his kind cooperation, guidance and all type of support for bringing out this publication. I also extend my sincere thanks to Dr H. Kalita, Joint Director, ICAR AP Centre Basar, Arunachal Pradesh for his timely suggestions and constant support for bringing out this publication.

Last but not least, I also acknowledge hard work, efforts and contribution made by SMSs S. Peter. Singh (Social Sciences), Mr. Kh. Naveen (Agronomy), Dr. Senpon Ngomle (Plant Protection), Ms. Rebecca Eko (Horticulture), Dr. Tilling Tayo (Animal Science), Shri P. Mohanta (Farm Manager) and Keshab Chandra Gogoi (Computer Programmer) of this KVK in bringing out this publication within a stipulated period of time period.

(Manish Kanwat)

Chapter 1

- Introduction
- Vision
- Mission
- Objectives
- Mandates
- Unique features of KVKs
- Role of KVK in changing Agriculture scenario

INTRODUCTION

Agriculture continues to be the backbone of Indian economy. A vast majority of India's population depends on agriculture for subsistence. However, ever increasing population and decreasing resource base are posing severe challenge for enhancing agricultural production and productivity. This calls for adoption of better production practices and resource conservation technologies by large number of farmers. In order to achieve this, the Indian Council of Agricultural Research (ICAR) initiated the Krishi Vigyan Kendras (KVK) or Farm Science Centers in the early Seventies as innovative institutions for educating farm families. KVK is conceived as a Knowledge Centre for imparting need-based skill oriented training programmes to farmers. It works on the principles of **'learning by doing**' and **'teaching by doing'** through training programmes involving experiential learning. The KVK Anjaw works under the flagship of ICAR Research Complex for NEH Region Umiam, Meghalaya started functioning from 7th of April, 2015 to cater the farmers' needs and promote the sustainable ways to improve the livelihood of farming community in the Anjaw district of Arunachal Pradesh. The major objective of the KVK is to extend need-based and skill oriented training to practicing farmers, rural youth and extension functionaries of the district. The other important objectives are laying out frontline demonstrations, on-farm trials and extension education activities for popularizing improved farm technologies. Livelihood programmes were initiated subsequently for improving the quality of rural life. This publication gives an overview of the progress and achievements of the KVK during last two years.

Vision

1. Ensuring transfer of feasible technology as per the need based of location specific of the district
2. To achieve the preferences of the farmers for the welfare of the farming community as per their need based
3. To increase the income and creation of employment through development of high value low volume crops/ products and through livestock rearing
4. To achieve self- sufficiency in food grains productivity as per the population requirement.
5. To identify indigenous medicinal and aromatic crops available in the district and to preserve its genes for large scale multiplication
6. Validating the ITKs agriculture and allied sectors in the district

7. Strengthening different capacity building programme among farm women and rural youths
8. Collection of local indigenous germplasm to identify different local landraces of crops available in the district for conservation in the gene bank

Mission

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

Objectives of KVK

- To identify location specific problems of the farming community and prioritization of the identified problems as per the weight age.
- To demonstrate the new improved technology to the farmers as well as to the extension workers directly in the farmers field with their active participation.
- To impart training to the farmers, rural youths, farm women and extension functionaries for capacity building.
- To collect feedback from the farmer's field and extension functionaries and collaborate these information for modification or refinement of a particular technology.
- To provide latest information on agriculture and allied sectors to the extension agencies, NGOs, SHGs, CIGs etc. for wider circulation to improve economic condition.
- To prepare different extension models and verify those models in the farmers field with their participation and to create confidence among them.
- To work as a change agency aiming towards bringing in overall improvement in the lives of the poor in economic, social and personal sphere.

Mandates

- Conducting "On farm trials for technologies in terms of location specific sustainable land use system.
- Organize training to update the extension personal with emerging advances in agricultural research on regular basis.

- Organize short and long term vocational training courses in agriculture and allied vocations for the farmers and rural youths with emphasis on “learning by doing” for higher production on farmers and generating self-employment.
- Organize front line demonstrations on various crops to generate production data and feedback information.

Unique features of KVKs

- KVK acts as a knowledge resource center in the rural areas in every facets i.e. addressing/disseminating knowledge on agriculture, environment, natural resource conservation, climate and ecological changes, food and nutrition, health, disease prevention, social wellbeing and impact analysis of all technologies.
- KVK act as light house for the community people
- KVK act as bridge between the lab and farmers’, propagate the new technologies fed into the main extension system after refinement and assessment process.
- KVK works as a team or group with a system approach towards problems solving having a core team of multidisciplinary scientist which is unique in respect to other institute.
- KVK has a strong technology support system from different ICAR/SAUs and other research institution.
- KVK acts as a linkage between different development organizations, financial institution, NGOs, SHGs, CIGs, co-operatives on one side and farmers/framers group on other side for implementing different developmental activities meant for socio-economic development.

Role of KVK in today’s changing world agricultural scenario

- In the post WTO regime, changing nature and globalization of agriculture systems, KVK has the greater role to play than ever in assessing and refining different technologies for farmers and assist them to choose technologies for adoption in their systems successfully and profitably.
- Proper management of new technologies at the farmer’s level and providing feed back to the research systems for refinement.
- Creating awareness and helping farmers for proper utilization of manmade and scare natural resources.
- Diversification of agricultural systems suited to the changing world scenario.

- Adoption of need and market based farming system.
- Lowering the risk component in agriculture by group or collaborative approach, integrated farming system with diverse enterprises, introducing forward contract or future trading.
- Creating better and effective forward and backward linkages.
- Creating farmer's awareness about their rights.
- Educating farmers about WTO, intellectual property rights, different trade treaties and prepare them for changes happening in global scenario.

Chapter 2

- Profile of Anjaw District
- Agricultural scenario in the district
- Crops
- Land share of major crops under irrigation
- Livestock

PROFILE OF ANJAW DISTRICT

Anjaw District was bifurcated from Lohit District on 16th February 2004, under the Arunachal Pradesh Re-organization of Districts Amendment Bill, with its Headquarter at Hawai. Anjaw district comprises of eight administrative circle, namely Hayuliang, Hawai, Manchal, Goiliang, Walong, Kibithoo, Chaglogam and Metengliang, spread over 9936 Sq. Km, sharing 7.39 per cent of the total area of the state, with a total population of 21,167 according to 2011census.

The territory of the Anjaw district is spread over 9936 sq. km and by geographical area, it account for 7.39 per cent of the total state area. The first morning sun ray of India kisses the Mountains of Dong village, under Walong circle. Mighty mountains with snow caped, many rivulets flowing swiftly join the roaring river and many glittering water falls from mountains touching the feet of fast flowing rivers. The district shares two international borders and three interstate district of Arunachal Pradesh. Anjaw share its border with China (Tibet) on the North, Lohit and Lower Dibang valley on the West, Myanmar on the East and Changlang on the South (Map. No.1). globally it is position between 22°-29' to 23°-30' North Latitude and 95°-15' to 97°-24' East Longitude.

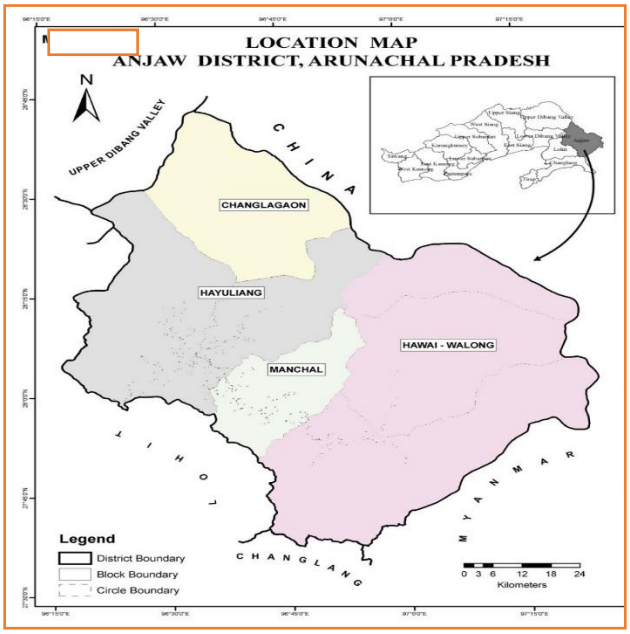


Fig.1: Map of Anjaw District, Arunachal Pradesh

Agricultural scenario in the district

Agriculture and allied sector are panacea for rural people as it cater the rural needs and it the cornerstone of economic sources of the district. Anjaw District can be called as a "Large Cardamom District" of the state. Large cardamom(*AmomumsubulatumRoxb*.) is the most important cash crop of Anjaw District. It is the lifeline of the people since it constitutes major share of the economy of the district. As per statistics, the district had a highest production of 150.8 (MT) in the year 2011-12 and in 2014-15, the large Cardamom farmer

altogether earns 20 Cores, despite all the geo-physical hurdles. The district is scattered over high undulating topography, steep slopes, turbulent rives and deep valleys. Life isn't easy in mountainous region, so the farmers follow only mix type of cultivation by growing maize, millets, cucurbits, beans, yams etc. in same plot. In some parts of the district such as Chaglagam and Hawai the farmers grow off seasonal vegetables such as potato, cabbage and cauliflower due to its favourable climate. The district has a tremendous potential for horticultural crops, however, not even 25% of the district's total areas have been brought under economic cultivation and thus, the potentialities of the land in the district remains untapped.

Crops

Majority of the district's income is from agriculture and allied fields. By occupation, cultivators are the most dominant with over two third (66.75%) of the total population of District. The details of land use pattern of the district are given in Table (1) and Figure (2,3& 4)

The soils of the district are classified into 4 major soil such as Sandy coarse loamy black soil, Sandy Fine loamy black soil, Black loamy soil and Black loamy fine soil. The details are furnished in Table.

The major crops of the district are paddy, maize, millets, beans, cardamom, orange, pears, plum and apple. Out of the net cultivated area of the district, maize covered the highest area accounting for 49.44% followed by paddy which is about 44.01%. Large cardamom which is the promising spices crop of the district covered about 28.46% out of the net cultivated area.

Table 1: Land use pattern of Anjaw District

Classification of land	Area(ha)
Total geographical area	973600
Net areas sown	8080
Areas own more than once	1700
Gross cropped area	9780
Cultivable area	30719
Forest area	380969
Land under non-agricultural use	25000
Permanent pasture	13600

Land under miscellaneous tree crops	5490
Cultivable wasteland	35005
Fallow other than current fallow	12165
Current fallow	14850
Barren and uncultivable area	101202

Source: C-DAP of Anjaw, Dept. of Agriculture 2012-13.

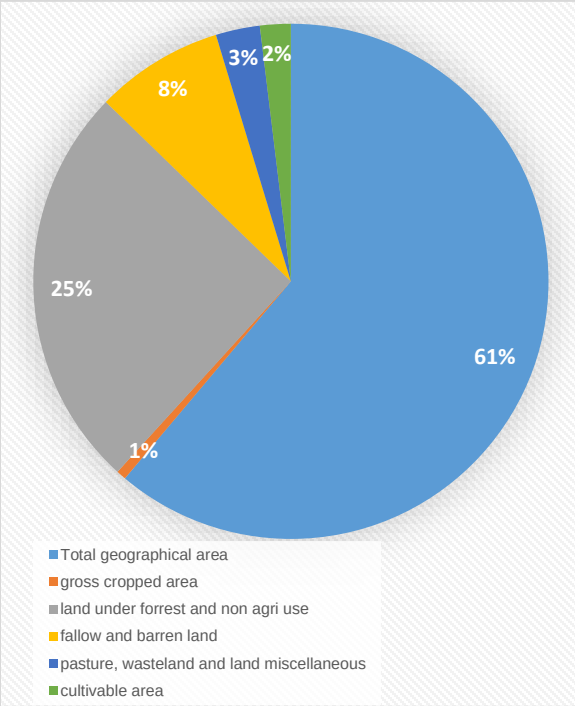


Fig.2: Graphical presentation of Gross Crop Area

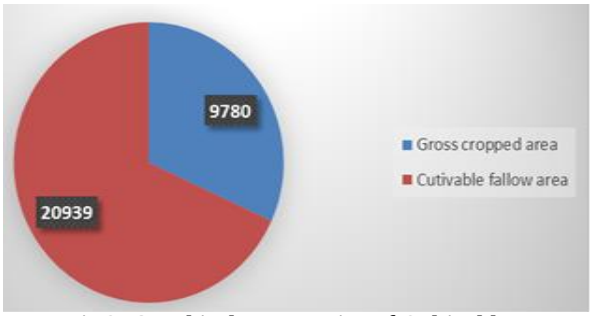


Fig.3: Graphical presentation of Cultivable area

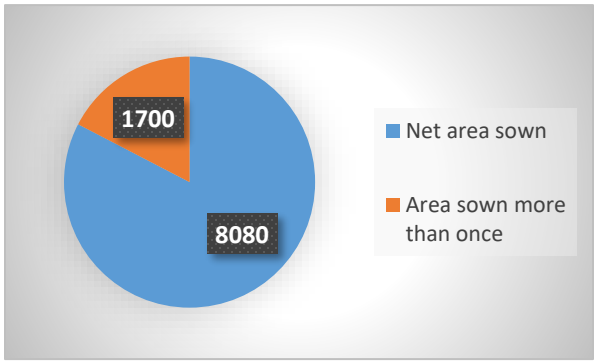


Fig.4: Graphical presentation of Gross Crop Area

Land share of major crops under irrigation in Anjaw District

Table 2: Area covers under irrigation

Sl No.	Crop	Land under irrigation in Anjaw (ha)	% of total
1.	Paddy	30	77%
2.	Others	9	23%

Source: C-DAP of Anjaw, Dept. of Agriculture 2012-13.

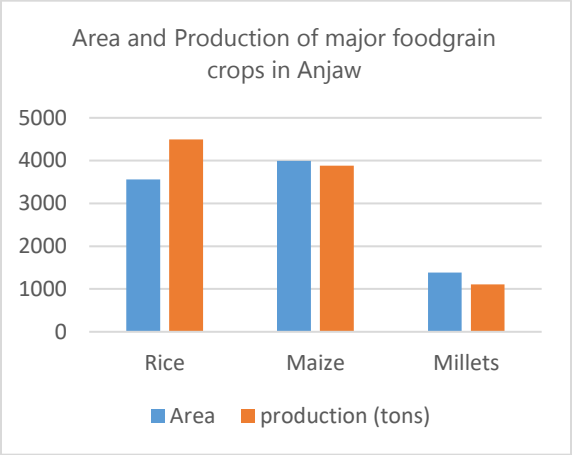
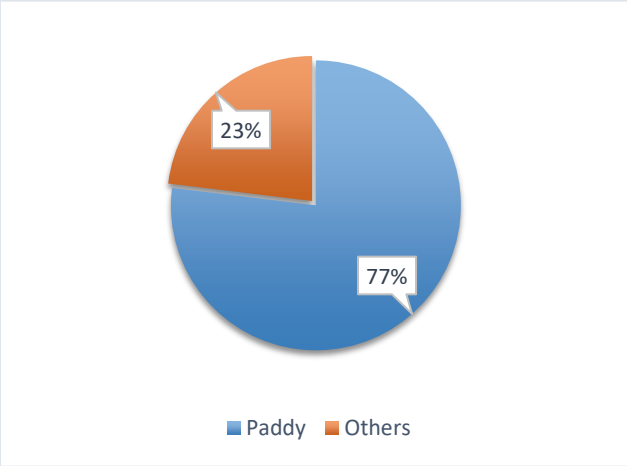


Fig.5 Area and Prod. of Major food grains crops in Anjaw



Irrigation is the nerves and veins of any agriculture practices of the district. But in spite of having lots of scope to develop irrigation facilities, the district is lagging under irrigation shown in Table 2 and Fig.5.

Fig.6 Land Share of major crops under irrigation

Table 3: Area, Production and Productivity of different Agriculture & Horticulture crops of Anjaw District

Sl. No.	Crop	Area(ha)	Production (tons)	Productivity (kg/ha)
1.	Rice	3561	4494	1262.01
2.	Maize	3995	3885	972.47
3.	Millets	1381	1105	800.14
4.	Potato	120	1022	8516.67
5.	Pulses	103	155	1504.85
6.	Oilseeds	139	139	1000.00
7.	Orange	334.4	155.30	608.73

8.	Kiwi	17.0	NA	NA
9.	Apple	14.7	NA	NA
10.	Banana	5.7	29.4	5598.10
11.	Guava	2.7	4.38	1665.24
12.	Pineapple	2.0	4.3	1850
13.	Pear	1.4	3.63	2740.29
14.	Walnut	0.4	0.17	550
15.	Large cardamom	2300.0	121.93	60.00
16.	Bitter gourd	38	2.31	637.98
17.	Pumpkin	10.1	16.10	1527.79
18.	Radish	8.3	13.85	1806.50
19.	Beans	8.0	2.49	380.87
20.	Sweet potato	7.4	8.85	1307.93
21.	Potato	7.2	24.3	3486.85
22.	Chillies	5.4	3.13	532.74
23.	Ginger	5.4	15.45	1212.62
24.	Tomato	4.5	2.86	798.03
25.	Muskmelon	3.1	1.9	580.21
26.	Cucumber	2.7	1.89	580.21
27.	Brinjal	2.5	0.7	286.41
28.	Arecanut	NA	NA	NA
29.	Coconut	NA	NA	NA
30.	Tea	NA	NA	NA

Source: Statistical abstract of Arunachal Pradesh (2013-14) & Dept. of Horticulture, Govt. of AP, 2011-14.

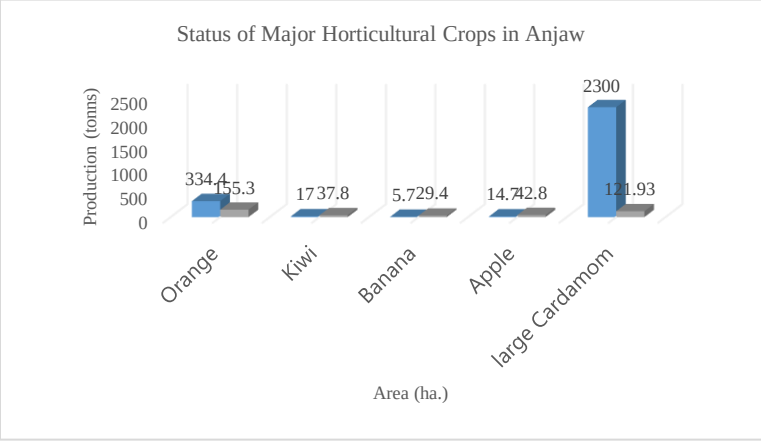


Fig.7. Status of major horticultural crops in Anjaw

Livestock

Livestock's are the mainstay of tribal society in rural area of Anjaw district, Arunachal Pradesh. The animals that form the bulk of the livestock are Pigs, Mithun, Cattle, Goats and Poultry. Unlike main land India cattle are not used for ploughing of agriculture field except in Walong block. Cattle are mainly reared for beef purpose; milk is given least important by tribal society in rural area. The livestock's have a deep rooted socio-culture and economy relation with the tribe's men. Animals are reared in free range system until used either for food on festive occasions, victory celebration, marriage feasts, barters purpose and rituals scarification or sell at the time of adversity condition. Mithun (*Bosfrontalis*) is consider as a most important livestock domesticated animal, they are considered as yardstick of wealth calibration and instrument of peace and settlement in tribal community. A pig is the second most important animals which are reared in every house hold and maintained in kitchen waste and other locally available feed resources. The details of the livestock in the district are furnished in Table 4.

Table 4: Production and productivity of livestock including poultry in Anjaw District

Sl. No	Livestock	Population	Production	Productivity
01	Cattle	5747		
	a). Beef cattle	5737	1147.40 tones	200 kg
	b). Milch cattle	10	18,000 liter	5 liter
02	Goat	5745	63.12 tones	11 kg
03	Sheep	Nil	-	-
04	Pig	15211	836.61 tones	55 kg
05	Mithun	9758	3415.30 tones	350 kg
06	Dog	2922	-	-
	Poultry			
07	Local (Desi)	35969	2266040 eggs	70 eggs
08	Duck	83	290.5 kg	3.5 kg

Source: 18th Quinquiennial Livestock Census, 2007, Dept. of AH & Vety. Govt. of Arunachal Pradesh

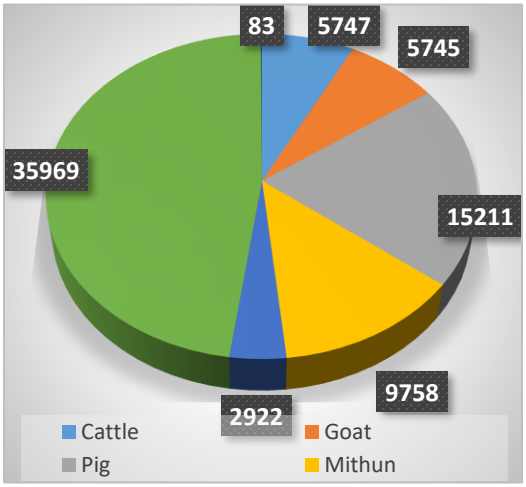


Fig 8: Livestock Populations

Chapter 3

- About KVK Anjaw
- Staff Position
- Planning for development programmes - problem diagnosis
- Methodology and operation
- Thrust Area
- SWOT & SNAC Analysis

ABOUT KVK ANJAW

Krishi Vigyan Kendra Anjaw is only two-year-old institute established under the umbrella of ICAR Research Complex for NEH Region, Umiam, Barapani, Meghalaya coordinated by the ICAR-Agricultural Technology Application Research Institute (ATARI) Zone-III, Umiam. It was sanctioned by the council on Oct, 2014 and started functioning since 7th of April, 2015. Krishi Vigyan Kendra, Anjaw was allotted a land area of 20.0 ha for establishment of permanent Office, Instructional farm and Residential campus at Metengliang which is again 22.5 Km away from the Hayuliang town. Since its inception, Krishi Vigyan Kendra, Anjaw has been trying sincerely for overall agricultural development in the district with his young and dynamic team of KVK.

Krishi Vigyan Kendra Anjaw has been disseminating various agriculture and allied sectors technologies at grass root level through identification of location specific needs in the district. Different activities related to agriculture, horticulture, engineering and animal sciences have also been executed at Instructional Farm at Metengliang.

Staff position

Table 5: Current status of KVK strength till Aug, 2017

Sl. No	Name	Designation	Discipline	Date of Joining
1.	Dr. Manish Kanwat	Sr. Scientist & Head	Agriculture Extension	19/10/2015
2.	Mr. Soibam Peter Singh	SMS (Social Sciences)	Agriculture	12/01/2015
3.	Mr. Khoisnam Naveen	SMS (Agronomy)	Agronomy	20/01/2015
4.	Dr. Senpon Ngomle	SMS (Plant Protection)	Plant Pathology	23/02/2015
5.	Miss Rebecca Eko	SMS (Horticulture)	Horticulture	03/03/2015
6.	Dr. Tilling Tayo	SMS (Animal Science)	Animal Nutrition	5/03/2015

7.	Vacate	SMS (Soil & Water Conservation Engg.)	Soil & Water Conservation Engg.	-
8.	Vacate	Farm Manager/T-4	-	-
9.	Mr. Keshab Ch. Gogoi	Computer Programmer, T-4	MCA	31/01/2015
10.	Vacate	Laboratory Assistant/T-4	-	-
11.	Vacate	Assistant/T-4	-	-
12.	Vacate	Stenographer Grade-III	-	-
13.	Vacate	Driver/T-1	-	-
14.	Vacate	Driver/T-1	-	-
15.	Vacate	Supporting Staff Grade-I	-	-
16.	Vacate	Supporting Staff Grade-I	-	-

Planning for development programmes - problem diagnosis

The problems faced by the farming community are identified and analyzed by understanding the local situation and prospects through Participatory Rural Appraisal (PRA), Rapid Rural Appraisal (RRA) and surveys.

Information generated through farmer participatory surveys is used to identify the technology gaps and related training needs and develop proposal for on-farm testing trials. The problems identified through PRA survey and analysis are mentioned below:

• The district receives more than 2170mm rainfall which is bit low than highest rainfall. Most often its distribution is erratic. Late onset, intermittent long dry spells and early withdrawal of monsoon often result in low and unstable crop yields

Soils are degraded due to severe soil erosion and poor water retention capacity. Improved crop production practices and soil and water conservation techniques are not followed due to poor risk bearing capacity of farmers

• Inadequate and improper nutrition and heavy incidence of pests and diseases result in low and unstable crop yields

• Shortage of labour resources due to high out-migration has resulted in high wages and scarcity of labour.

• Most of the farming operations are carried out by women and only hard jobs are carried out by men

• Unavailability of plain terrain rice cultivation has not been done by the majority of farmers.

• Small ruminants are also suffering from malnutrition and nutrition related diseases.

• Lack of availability of appropriate farm implements also hinders farm operations and adds to cost of cultivation.

• Lack of off-season employment avenues for women especially during winter leading to low family income.

Table 6: Constraints for production

Crops	
Paddy	Use of low yielding local varieties, traditional method of cultivation, attack of stem borer brown plant hopper, rice bug and incidence of sheath blight bacterial blight and improper management
Maize	Unscientific management, cultivation of varieties with low production capacity, lack of improved varieties. Attack of Spotted/striped stem borer, bird attack, incidence of Turcicum leaf blight and improper management
Finger millet	Mixed cropping in Jhum field, low yield, infestation of Seedling blight stem borer and improper management
Potato	Use of local varieties non availability of quality planting materials, early and late blight of potato
Horticultural crops	
Large Cardamom	Undulating topography, soil erosion, unscientific crop management, use of local varieties, no shade regulations followed, appearance of diseases like Chirkey, Foorkey and leaf blight, lack of curing techniques, no storage facilities ant practices followed viz., grading and polishing
Orange	Poor orchard, senile and unproductive orchards, unscientific crop management, lack of training and pruning, lack of manures and fertilizers, soil erosion, infestation of parasitic plants, high incidence of pest such as stem borer and fruit fly, diseases like flower drop, fruit drop, collar rot and citrus decline, post-harvest losses.
Apple	Use of local varieties, no budded or grafted planting materials used, unscientific crop management, lack of training and pruning, soil erosion, no application of manures and fertilizers, fruit drop and alternate bearing

	also observed, incidence of pests and diseases, confined to home scale production only.
Kiwi	Recently introduced fruit crop, lack of training and pruning, lack of manures and fertilizers and unscientific management.
Pineapple	Lack of quality planting materials, no proper spacing maintained, randomized plantation, no mulching technique used, incidence of pest and diseases
Banana	Unscientific management, cultivation of varieties with low production capacity, confinement to home scale production only, lack of introduction of any high yielding variety, diseases like bunchy top, rhizome rot, panama wilt and pests like mealy bug, rhizome weevil and pseudo stem weevil.
Vegetables	Unscientific management, vegetables grown only under Jhum cultivation, lack of availability of quality seeds, sowing by broadcasting, randomized plantation observed, lack of cultural operations such as ridge and furrow method, no irrigation facilities provided, lack of manures and fertilizers, incidence of various pest and diseases, no winter vegetables cultivated.
Animal Science	
Mithun	Unscientific rearing method, Wild beast, Foot and mouth disease (FMD), lack of vaccine and its storages facilities
Cattle	Lack of awareness on dairy cattle, lack of fodder availability, Frequent outbreak of FMD
Piggery	Lack of source of Improved piglet supply, concentrate feeds & vaccination against swine fever.
Poultry	Lack of quality chick's source, concentrate feeds and vaccine. Frequent outbreak of Ranikhet disease and IBD
Goattery	Lack of improved breeds of goat. Vaccine availability
Fishery	
Non-availability of cold water fish seed, slow growth rate due to low temperature. Lack of knowledge on cold water fishery and inland fish culture, Non-availability of good quality fingerlings	

Methodology and operation

The problems faced by the farmers are more or less the same in the majority of the villages of the district. However, degree and intensity vary from village to village or farmer to farmer. Based on this, the KVK has identified suitable technologies and skills required to address the problems. Based on the information gathered through PRA / benchmark survey and consultations with the subject matter experts and extension specialists, various thrust areas for the district have been identified (Table-2). These are divided into several sub-areas for designing and implementing major programmes of the KVK.

Appropriate extension methods, viz., trainings, demonstrations, frontline demonstrations of major crops, group meetings, field visits are employed in addition to on-farm trials. The KVK is expected to cover the entire district over a period of time. Therefore, it has adopted a cluster approach. In this, 35 revenue villages are selected as focal points with 2-3 surrounding villages as satellite villages in

A cluster of 10-15 villages. Thus at any point of time KVK activities will have a bearing on a cluster of 10-15 linkages in a contiguous area. As a result of this, a significant number of mandals and villages have been covered in the district during the last thirty years. After acquainting itself with the needs of its clientele, the process of participatory technology dissemination is initiated through activities, such as

- Training programmes
- Frontline demonstrations
- On-farm trials
- Extension education
- Livelihood activities

Thrust area

Table 7: Thrust Area of the KVK Anjaw

Crop Production	• Testing of improved varieties of seeds for suitability under different micro-location. • Soil testing for to identify the soil P^H and the quality of soil • Seed treatment to protect from soil borne diseases and improve the germination percentage.

	• Intercultural operations to increase the production efficiency of crop • Irrigation management to provide water to crops round the year • Practicing conservation agriculture to make more efficient use of natural resources through integrated management of available soil, water and biological resources combined with external inputs. • Collection and conservation of local germplasm and registered under PPV&FR • Develop the location specific farming system module.
Horticulture	• Introduction of improved and high yielding varieties of fruits and vegetables crops. • Popularize vegetable farming through provision of good quality seeds. • Protected cultivation to produce off-season vegetable crops and high value crops • Nursery management of fruits and vegetable crops • Introduction of new and exotic vegetables. • Introduce improved varieties of large cardamom. • Post-Harvest Technology of fruit and plantation crops. • Exploration, identification, documentation and germplasm collection of horticultural crops

Social Science	• Bench Mark Survey, Participatory Rural Appraisal (PRA) to identify the various problems in different locations of the district • Popularization of ICT led farming among the farmers • Develop the e- market portal for the district • Leadership and Capacity building of farmers, farm women and rural youths • Group dynamics and their Management • Group formation (SHGs, FCs, FIGs, CIGs) for providing self-employment and generate income. • Identification of proper marketing channel for disposal of agriculture and horticulture crops • Creation of awareness among the farmers about the govt. schemes for rural development
Animal Production	• Introduction of improved variety of chicks like vanaraja, gramapriya to check the adaptability and performance under different locations • Introduction of improved variety of pig like New Hampshire, Gunguroo and Large Black to check the adaptability and performance under different locations • Goattery farming for providing employment and enhance the income

	• Dairy farming for ensuring availability of milk • Promotion of Mithun Husbandry for improving income • Production of fodder for sustainable availability of feeds and fodder for livestock round the year • Organizing Animal Health Camp to make aware about the different livestock diseases and their management
Plant protection	• Focus on IPM and IDM of different diseases and pest • Cultivation of oyster mushroom, paddy straw mushroom and button mushroom • Production and distribution of spawn and mother spawns to farmers • Collection and documentation of wild edible mushroom • Diagnosis of viral diseases • Basic and applied research related to field problems. • Diseases and pest oriented survey on Large cardamom, Citrus, Rice.
Soil and water conservation engineering	• Water management through construction of Jalkund, contour bunds and other rainwater harvesting structures • Importance of protected cultivation technology (poly tunnels, net houses, greenhouses)

	• Drudgery reduction technologies (Maize Sheller, Winnower, etc.) • Resource conservation technologies (drip irrigation, zero tillage, leveller etc.) • Introduction of farm tools and implements feasible with the land topography of the district

SWOT ANALYSIS

Keeping in view of the potential of this KVK to help the farming community of the district through dissemination of knowledge, skill and adoption of agriculture and allied activities, SWOT analysis has been done.

Strength

1. Diversified agro-climatic condition which provide a suitable climate for growing of temperate, tropical, sub-tropical and alpine
2. Availability of rich natural resources in terms of flora and fauna, water, aromatic and medicinal plants
3. Tremendous scope for expansion of area under L. cardamom which is the major income earning sources
4. Scope for expansion of area and production of field and pulse crops
5. Building of Research & Extension linkages with state line department and other organization
6. Scope for increasing the employment and income through group approaches
7. Fertile virgin soils suitable for growing of agriculture and horticulture crops
8. Availability of vast virgin cultivable land which can be assessable for growing of fruits and vegetables crops
9. Availability of varied livestock species both exotic and indigenous like pig, cattle, cow, sheep, goat, Mithun, ducks etc.
10. Ample scope for increasing the livestock productivity

Weakness

11. Not fully equipped with new IT equipment's since the district is highly remotely located

12. Highly undulating and steep slopes creates cumbersome for cultivation of agriculture and horticulture crops
13. Difficult for establishing demonstration unit because of highly sloppy and undulating land
14. Traditional cultivation practices leading to low productivity
15. Improper land utilization leading to loss of top soils
16. Non availability of quality seeds and other inputs
17. Absence of govt. extension intervention to increase the area and production of crops
18. Reluctant to adopt new scientific technology
19. Lack of infrastructure facilities like road transport, communication, storage facilities, post-harvest management and marketing facilities
20. Lack of scientific knowledge on livestock and poultry farming and health care management.
21. Maximum of the livestock population are non-descript indigenous with very poor performance
22. High cost and availability of quality feeds
23. Less involvement of farmers in commercialization of livestock and poultry

Opportunities

1. Increase productivity through following of improved agronomic practices
2. Opportunities for adoption of intensive organic farming
3. Scope for popularizing of agribusiness among the farm women and rural youths
4. Employment generation through formation of Farmers Club and Self Help Group
5. Beneficial for adoption of organic farming due to its availability of large virgin cultivable land less use of chemical fertilizer
6. Advantages for collection and conservation of locally available aromatic and medicinal plants
7. Opportunities for expansion of area under high value and low volume crops
8. Opportunities for expansion of area under L. Cardamom, kiwi and apple
9. Scope for establishment of L. Cardamom processing unit which is one of the major producer among the district
10. Opportunities for extensive livestock based farming system.
11. Increasing the meat production since there is no restriction among the tribal people
12. Increasing the livestock and poultry productivity through technological interventions

Threat

1. Lack of strengthening linkage between the KVK and research institute and other line department due to lack of communication facilities
2. Lack of expansion of indigenous technical know-how, gender issues, demand driven agriculture extension and income generating activities
3. Difficult to grow winter crops due to chilling effect
4. Land degradation due to extensive practicing of Jhum land
5. Danger of exploitation of valuable flora and fauna
6. Non-availability of regulated market due to which farmers are not getting remunerative price
7. Declining the productivity of L. Cardamom due to charley and Foorkey diseases
8. Declining the productivity of citrus due to poor orchard management
9. No government intervention to promote horticulture sector to increase production and productivity
10. No post-harvest structure due to which maximum of the produce are being wasted
11. Extensive exploitation of locally available resources like jungle katchu, wild edible mushroom and caterpillar mushroom etc.
12. Diseases like swine fever in pig, FMD in cattle and ranikhet diseases in poultry are the major threats for the livestock
13. Unavailability of vaccines during the period when it is needed
14. High price of feeds ingredients and other inputs
15. Transmission of infectious diseases from neighboring states

SNAC ANALYSIS

SNAC Analysis (Stakeholder, Needs, Alterable and Constraints) is a revised version of SWOT analysis (Strength, Weakness, Opportunity and Threat) analysis. The basic assumption of SNAC analysis acknowledges that the development or research and development (R&D) programme does not have

opportunities and threats. It assumes that there are stakeholders who have different and varying needs constraints and therefore the organization has to alter its strategies form planning and implementation from time to time.

Stake holder analysis

- Since the KVKs Anjaw is newly initiated there are certain task which needs to be taken up and identified for sponsoring project through technical and financial support which includes institution, organization and other line departments.
- Research scientist under the host institution implementing KVK need to be identified and generate the location specific agricultural technologies which is best suited for that particular location
- Farming community of the district and other specialized interest groups and line departments of state government are directly or indirectly related in agricultural development.
- Promotion and formation Self Help Group's, Farmers Clubs, Commodity Interest Group etc. should be encouraged as they took a pivotal role for upliftment the sustainable development through their agricultural income generating activities in rural areas.
- State Marketing Board, APMCs and other related marketing organizations can also formulate the plan and strategy for providing the better place for delivery of their produces through proper channel and fetch better remunerative price.

Needs analysis

The needs of the major stakeholder i.e. farmers and farm women and rural youth in agricultural production could be identified as under:

- Production technology
- Production Management
- Efficient input use management
- Better Natural Resource Management
- Post-Harvest Technology and management
- Packaging and transportation
- Market outlets for marketing
- Capacity building of farmers, Farm women and rural youth for better co-operation and leadership development
- Enrichment of social and economic status and better quality of life
- Conservation of natural and human resources

- Sustainability, stability and social equity
- Integrated pest management (IPM)
- Integrated plant nutrient management (IPNM)
- Use of organic and bio-fertilizers and bio pesticides
- Starts new income generating activities like mushroom, nursery raising, backyard poultry, fishery, silkworm rearing and lac cultivation.

Similarly, the needs of different stake holders could be identified. For instance for institution/ organization sponsoring the project financially and technically, the needs lies in better management coordination, timely guidance and rigorous monitoring to ensure better results. The understanding, flexibility, proper orientation better organization environment and harmony of the objectives are the needs for different implementing organizations.

Constraints analysis

Similarly, the implementing organizations, the sponsoring institution and the major stakeholder operate in a given environment which is characterized by many constraint of varied nature. Some of these constraints have been identified as under.

- Inadequate financial contingent requirement
- Poor and weak technical linkage with Research Institutes/State Agriculture university/NGOs
- Absence of single window delivery system of technological products, service and inputs in KVK's
- Technical inadequacy of the KVK staff and lack of opportunities to update their knowledge and skills in subject matter areas and extension methodologies
- Lack of practical experience and insights among Extension Scientist
- Lack of competency and capacity building among the Research Scientist
- Poor contacts and rapport with the clients
- Lack of needs based activities
- Unreliable supply of quality inputs
- Excessively cumbersome reporting and paper work
- Limited area of operation and span of attention
- Lack of inter and intra coordination between NGOs, KVK's and ICAR institute
- Dependency of the host institution on the funding agencies
- Lack of team work and leadership

Alterable analysis

The analysis of stake holders, their needs and constraints provide a base to the KVK in determining, designing, and redesigning the objectives, programme content, the programme methodology, the use of resources and the overall strategy in planning and implementing of their mandated activities. It is inferred that the KVK should strive constantly to be flexible and alterable and resilient in shaping its overall strategic management but tackle a field problem for effective and efficient dissemination and transfer of agricultural technology.

Chapter 4

- TECHNOLOGY VERIFICATION / ON-FARM TRIALS (2015-17)
- DEMONSTRATIONS FOR ACHIEVING FULL YIELD POTENTIAL OF CROPS

TECHNOLOGY VERIFICATION / ON-FARM TRIALS (2015-17)

Table 7: Status of OFTs conducted during 2015-17

Technology assessed/ Refined			Area (ha.)			No. of trials conducted		
2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
07	10	10	04	5.52	14.5	27	72	82

One of the major tasks of the KVK is to search for suitable solutions for solving the problems faced by the farmers in managing crops, etc. The problem may be either non-suitability of technology or in compatibility with a farming situation. The researcher has to find a way out to reduce the level of risk in the adoption of new techniques and make it a part of the existing farming environment. The solution should satisfy the farmer and improve his decision making ability for adopting a new technology / practice. KVK has organized several on-farm research activities for assessing and refining technologies suitable to a given micro-farming situation. The following steps are usually followed.

- Problem identification
- Present situation / assessment
- Problem analysis
- Solution / refinement
- Experimentation
- Assessment of results
- Recommendation and diffusion of technologies in right prospective

On-farm trials (OFTs) are conducted on the following aspects for finding out optimum technical interventions.

On-farm trials have been successfully providing satisfactory solutions to the problems faced by the farming community and helping farmers' find place for new practice in their farming system.

Glimpses of OFTs

DEMONSTRATIONS FOR ACHIEVING FULL YIELD POTENTIAL OF CROPS

Technologies			No. of Demonstration			Area (ha)			Beneficiaries		
2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
05	12	13	35	45	31	02	05	9.05	110	550	517

Table 8: Demonstrations conducted during 2015-17

Laying out field demonstrations on farmers' fields is an important tool for technology dissemination based on the philosophy of 'seeing is believing' and 'learning by doing'. A field demonstration offers farmers and extension functionaries a complete learning opportunity. Frontline demonstration (FLD) is concept evolved by the ICAR during mid-eighties in which field demonstrations are conducted under the close supervision of the scientists.

Here the technologies are demonstrated for the first time by the scientists and KVK staff before being fed into the main extension system of the State Department of Agriculture. The main objective of FLDs are to demonstrate newly evolved crop production technologies and management practices at the farmers' fields under different agro-climatic regions and farming situations. The FLDs differ from routine demonstrations conducted by the extension functionaries.

In order to introduce new crops, varieties, cropping systems with improved production practices such as crop geometry balanced fertilizer application, soil enrichment, improved production technologies and IPM, measures are considered under FLDs. Improved varieties / hybrids, viz.,RCM-76(Maize), JS-335 (Soyabean), Vivek Matar-10 (Pea),horticultural high value crop crops viz., Broccoli (Green Magic) and Chilli (Capsicum annum) and in vegetables Tomato (Megha tomato), Cabbage (Green Express) introduced and particularly in fruit crops Apple (Mollies delicious), Kiwi (Grafted allusion)by the KVK in different villages of Anjaw district of Arunachal Pradesh. Yield and income advantages obtained by adopting the new varieties of different crops are detailed in the following tables (Table 8 and Fig). Efforts are made by the KVK to train the farmers in production of their own in order to ensure the availability of good quality produce in the village. Capacity of village with introduction of improved crop varieties was encouraged by the KVK by supplying required quantities of planting materials to farmers either from its own KVK instructional farm or by procuring from different government agencies.

Glimpses of

Chapter 6

- Training Programmes

Trainings	No. of Course	No. of participants
Farmers	58	2541
Rural Youths	42	1709
Extension Personals	09	233
Sponsored	12	356
Total	121	4839

TRAINING PROGRAMME

Table 9: Status of Training programme during 2015-17

Training is regarded as one of the integral components of the capacity building process as part of any development programmes. Conducting need based and skill oriented training to farmers and farmwomen is one of major activities of the KVK. Since its inception, the KVK has conducted several training programmes on various aspects of improved technologies related to agriculture and allied activities (Table 5 & 6) to different clientele including practicing farmers, farmwomen, rural youth and extension functionaries. Training programmes for the farmers / farmwomen are organized as both on-campus as well as off-campus. Short duration training courses on vocational aspects are also conducted. The duration of such courses varies from 2, 3 to 5 days. Courses on piggery, fishery and preparation of fruit and vegetable preserves, are conducted for rural youth, school dropouts and women.

The emphasis of training programmes is on imparting skills required to practice profitable farming. However, required information is also passed on to the trainees through interactive lectures where opportunities are given to learners to interact with trainers / experts. The trainees are exposed to skills through different methods of demonstrations for better comprehension. Audio-visual aids, handouts, field visits, exposure visits, are usually employed to increase the effectiveness of training. Emphasis is also on imparting skills required for the new practices, improving the knowledge base to help better decision-making by trainees.

Evaluation is also a vital part of KVK training programme. The knowledge gain of trainees as a result of training is usually assessed through pre and post evaluation techniques. The learning opportunities are provided to the clientele for easy adoption of technologies on their farms. KVK regularly takes up the follow-up evaluation of training for identifying the gaps in adoption and tries to improve the performance of trainees by providing handholding whenever required. Self-Help Groups, Farmers Clubs have been playing significant role in spreading technologies vertically and horizontally to covers all the corners of farming community.

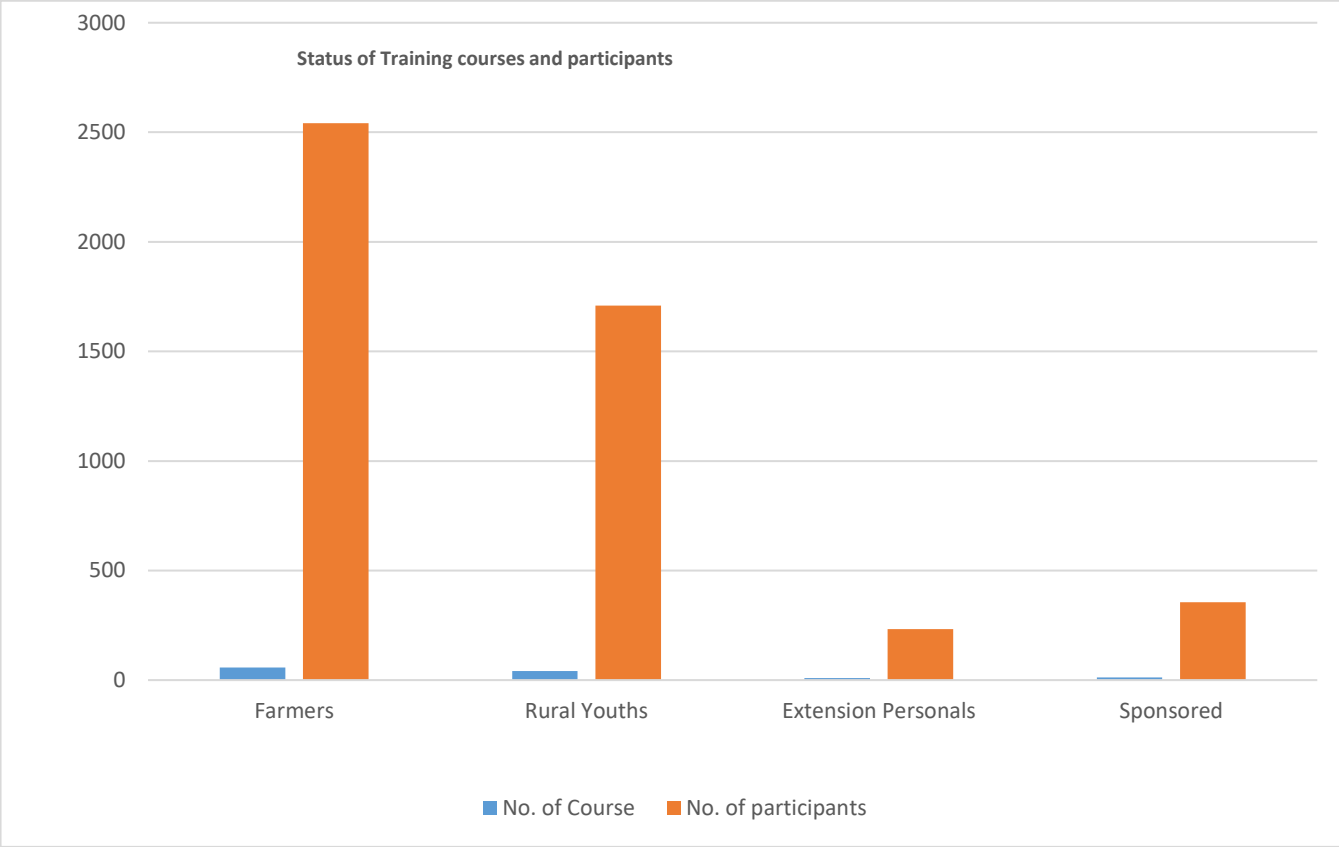


Fig. 9: Trainings conducted during 2015-2017

Chapter 7

Project undertaken during the year 2015-17

- Institutional Funded Project
- External Funded Project

PROJECT UNDERTAKEN DURING THE YEAR 2015-16

Table 12: Institutional Funded Project

Sl. no	Title	Funding Agency	PI	Co-PI	Amount Sanctioned	Remarks
1	Livelihood development of Tribal farmers through distribution of quality planting material kiwi.	TSP	Dr. Manish Kanwat	Ms. Rebecca Eko	6	Under this project more than 5000 kiwi planting materials were

Distribution of Kiwi Planting Material

Scientist visited Kiwi orchard at Kongra

Scientist visited Kiwi orchard at Kongra

Sl. no	Title	Funding Agency	PI	Co-PI	Amount Sanctioned	Remarks
2	Livelihood improvement of rural women and unemployed rural youth	TSP	Dr. Manish Kanwat	Dr. Tilling Tayo	3.00	Under this project 250 vanaraja chicks were distributed in Metengliang

Photo with the **Distribution of chicks**

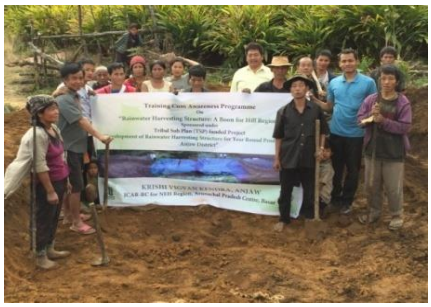
Sl. no	Title	Funding Agency	PI	Co-PI	Amount Sanctioned (lakhs)	Remarks
3	Nutritional security & livelihood improvement of	TSP	Dr. Manish Kanwat	Dr. Tilling Tayo	4.75	Under the Training on Scientific Poultry Production piglets were distributed to 10

Training on Scientific Piggery Farming

1 month old piglets

Monitoring of newly

Digging of pond in



Group photo with the villagers

Construction of Jalkund

Sl. no	Title	Funding	PI	Co-PI	Amount Sanction	Remarks
4	Development of rain water harvesting structure for year round production in	TSP	Dr. Manish Kanwat	S. Peter Singh	6	Under the Project 3 nos. of Jalkund were constructed and 30 nos. of

Sl. no	Title	Funding	PI	Co-PI	Amount Sanctione	Remarks
5	Cybernetic amenities solution center	TSP	Dr. Manish Kanwat	S. Peter Singh	6	Smart Kisan mobile based Android application has developed and released for farmers on 2nd of Aug, 2016. Advisory services have been

Inauguration of "SmartNEKisan" at Guwahati

Broacher on "SmartNEKisan"

Establishment of Cybernetic Amenities Solution Centre for community

Table 13: External Funded Project

Title	Funding Agency	PI	Co-PI	Amount Sanctioned	Remarks
1. Establishment of spawn production unit	NABARD, Itanagar	Dr. Manish Kanwat	Senpon Ngomle	6	1. Tender floated at CPP Portal for procurement of items required for establishment of spawn production unit. 2. Training cum method demonstration conducted at different villages. 3. Established Mushroom demonstration unit at Metengliang. 4. Distributed Mushroom
2. Rearing of goat, poultry and piggery	BADP	Dr. Manish Kanwat	Dr. Tilling Tayo	50 lakhs	Under the livestock section of the project a total of 168 goats, 150 piglets and 1200 chicks were distributed to 56, 50 and 12 beneficiaries from different blocks of the

3. Plantation of L. Cardamom, kiwi and oranges	BADP	Dr. Manish Kanwat	Ms. Rebecca Eko	20 lakhs	A total no. of 27,000 suckers of L. Cardamom were distributed to 15 beneficiaries, 1400 planting materials of








Glimpses of Activities carried out under BADP and Mushroom

Chapter 8

KVK Instructional Farm

- Polyhouse
- Mushroom Unit
- Poultry Unit
- Rain Water Harvesting Structure
- Vermicomposting Unit
- Shade Unit
- NEC Sponsored Polyhouse
- Indigenous Block
- Kiwi Block

Polyhouse

One Polyhouse unit of size (5m X 10m) made of bamboo has been constructed at Metengliang farm for growing of off-season vegetable such as tomato, brinjal, cabbage, capsicum, cauliflower, chilly and radish etc. The purpose of constructing the Polyhouse is to produce vegetables and other fruit crops under controlled atmosphere and environment condition on year round basis.

Mushroom unit

A low cost mushroom production unit of size (4m X 8m) size having a capacity of 50-60 bags has been established for demonstration purposes at Metengliang. Species of Oyster mushroom like *Plurotus florida*, *Pleurous sajor caju* have been gown successfully under the demonstration unit. The unit was established with the objectives to aware among the farm women and rural youths for generating income and self-employment through distribution of mushroom spawn.


Low cost Polyhouse


Poultry housing model


Mushroom Unit

Poultry unit

A low cost poultry demonstration unit has been established under the TSP Project at KVK farm, Metengliang to showcase the poultry housing model made of locally available bamboo and wood except for roofing material and wire mesh. The unit was established with the objectives to blend scientific method of poultry rearing with traditional method of housing system which incurred minimum cost and for purpose of rearing poultry chicks atleast for one week prior to the distribution to the farmers. The unit will be having a capacity of 1000 chicks for one week and 150 chicks for 4-5 months old chicks.

Rain water harvesting structure

A rain water harvesting structure Jalkund (6m X 4m X 1.5m) with a capacity of 30,000 litres of water has been constructed at Metengliang farm for life saving irrigation during the off-rainy season. Different field and horticulture crop such as tomato, cabbage, cauliflower, broccoli, field peas have been have been utilizing the water from the Jalkund.

Vermicomposting unit

A vermicomposting unit of size (12x4x2) feet has been established in the KVK farm, Metengliang in the month of September, 2015. The main aim of the vermicomposting unit was to demonstrate the organic manure preparation using earthworm (*Eisinia foetida*) to the farmers for sustaining the nutrients status of the field and improving the quality of food. The earthworms were released @ 100 per sq. feet area in the bed. Till now 70 kg of vermicompost have been harvested from the unit.

Construction of Jalkund

Vermi-compost unit

Shade net

A shade net house of sizes 10m X 4m made of bamboo was constructed at the Metengliang farm during the month of March, 2016. The basic idea for constructing the house was to make a shade percentage of 35% and to grow offseason vegetables to make available on year round basis under controlled atmosphere and environment by reducing the light intensity and effective heat during day time. Vegetable crops of cabbage, cauliflower, broccoli, tomatoes and capsicum were grown under the shade house.

Shade net unit

NEC sponsored Polyhouse

KVK Anjaw has constructed NEC sponsored Polyhouse for growing of high value low volume crops. This Polyhouse will also serve the purpose for providing the quality planting materials to the farming community of the district.

Hi-tech Polyhouse constructed by NEC

Indigenous block

An Indigenous block of 0.25 acre of land has been development recently for collection and conservation of germplasm at experimental farm Metengliang. Seeds of various local germplasm were grown such as tapioca, garlic, faba beans, and popcorn maize to test their adaptability and feasibility.


Faba bean plot

Kiwi block

A kiwi orchard in the Horticulture block has been established in the KVK farm, Metengliang. A total no. of 80 (eighty) kiwi have been planted during the month of March, 2016 at a spacing of 4 m x 4 m. Kiwi being a deciduous vine fruit plant, requires both female and male plants to be planted in ratio of 8:1. Hence a total of three (3) female varieties were planted i.e. Monty, Allison and Hayward along with male variety Allison.

Chapter 9

Extension Programme

- International Years of Soils, 2015
- Kisan Sammelan
- Scientific Advisory Committee
- State Hood Day
- Farmers Fair on PMFBY
- Celebration of "Agriculture Education Day"
- Celebration of Swachhta campaign
- World Soil Day celebration, 2016
- Farmers Club BLOTP Programme
- Glimpses of Swachhta Pakhwada
- PPV&FRA

EXTENSION PROGRAMME

The farmers need to have knowledge not only about the improved farming techniques, but also need to be well informed about markets, institutions, policies, government schemes, etc. In order to create awareness about all these aspects, KVK has been conducting various extension activities like Group Meeting, Awareness Programme Field visits, world soil heath year, Swachhta Programme, Farmers Days, film shows, study tours, farmers club meeting, exhibitions, etc. for the benefit of farming community of the district . The details of some events are mentioned below separately.

International Years of Soils, 2015

KVK Anjaw was successfully celebrated the **"International Years of Soils"** on 5th December, 2015. On this occasion 310 farmers were participated and 277 soil health cards from eleven villages were distributed among different farmers of the district. This programme was chaired by the Additional Deputy Commissioner, B. Tawsik. During this programme KVK Anjaw was also distributed 5000 seedlings of cabbage and turnip to the participants at free of cost.

Distribution of Soil Health card to

Kisan Sammelan

Krishi Vigyan Kendra Anjaw celebrated the Kisan Sammelan on 16th March, 2016 at Community Hall, Hayuliang. The programme was graced by Smt. M. Riba, Deputy Commissioner, Anjaw, as the Chairman. Shri. B. Tawsik, Additional Deputy Commissioner also graced as the Chief Guest of the function including all state line

KVK Stall visited by DC & ADC Officials

Input distribution by dignitaries

Group photos with all the farmers

number of beneficiaries from different part of the district under Tribal Sub Plan. 20 kg Mushroom spawn were also distributed among different farmers and Self Help Groups.

Scientific Advisory Committee

1st Scientific Advisory Committee Meeting of Krishi Vigyan Kendra was organized on 26th March, 2016 at DC Conference Hall, Tezu, Arunachal Pradesh. The meeting was held under the chairmanship of Joint Director, ICAR AP Centre, Basar and graced by the Smt. Mamta Riba Deputy Commissioner, Anjaw and Guest of Honour Sh. B. Tawsik ADC, Hayuliang, and all other state line department official and progressive farmers of the District were present and actively participated in the meeting and appreciated the activities performed by the KVK Scientists and also give valuable suggestions to extend their expertise in all the corners of the district.

Presence of DC, ADC &JD during the

Presentation by PC regarding the status of KVK, Anjaw

State Hood day

KVK Anjaw celebrated the Statehood day on 20th February, 2016 at Hayuliang Ground. The occasion was graced by Colonel Vijay Rathi as Chief Guest and Shri. B. Tawsik, ADC Hayuliang as Guest of Honour, ZPM, Hayuliang. During the event, KVK Anjaw launched his first Training Calendar and KVK Half Yearly Newsletter in the presence of VIPs and all the state line department officials. Different agriculture related scientific technology, publications, local germplasms were also showcased on this day.

Launching of Training calendar & KVK Newsletter

Showcasing of technology to Colonel Vijay Rathi

Group photos with all the State Line Department officials

Farmers Fair on PMFBY

KVK Anjaw was successfully organized the Pradhan Mantri Fasal Bima Yojana at Chief Minster's constituency at Community Hall, Hayuliang, Anjaw, Arunachal Pradesh on 18th June, 2016. The mega event was graced by the DC, Anjaw District, as Chairman. The programme was also attended by Smt. M. Riba, Smti. Toggul Pertin, District Agricultural Officer, District Horticulture Officer, Learned Professors of College of Horticulture & Forestry Dr. M.M. Kumawat, (Entomologist) and Dr. Sanjeev Kumar (Agroforestry), Shri. Taylo ZPM Chaglagam, Shri Chonulum Tindiya, Metengliang, ASM-Chair-person, Mr. S. Basanta, principal VKV, Amliang, District Fishery Development Officer, ADOs', Army Officials from 8th J&K Rifles Farmers, Farm Women, School Dropout, Rural Youth and Students. On this occasion a booklet on PMFBY schemes was released by Hon'ble Deputy Commissioner Smti. M. Riba for the propose of providing clear picture about the Pradhan Mantri Fasal Bima Yojana.

During the programme, a small session of Farmers Scientist Interaction was also done with Dr. M.M. Kumawat and Dr. Sanjeev Kumar, resources

Distribution of momento to the successful SHG

person from CAU, Pasighat suggested several tips regarding pest and diseases management of Large Cardamom crop and their control measures. In the meantime, a momento of PMSBY was given as prize to the most progressive farmers. In the last session of the programme, a set of farm tools and implements (khurpi, fork and knife) were

Group photos with the participants

distributed to 160 farmers.

Celebration of "Agriculture Education Day"

KVK Anjaw celebrates the **"Agriculture Education Day"** 3rd December, 2016 for promoting the field of Agriculture and allied sciences among the students and public. The

Quiz competition conducted at Hr. Sec, Hayuliang

special day was marked with participation of 110 students from the classes of X, XI ad XII along with teachers of Govt. Higher Secondary School, Hayuliang. The programme was started with welcome address from Dr Manish Kanwat, Programme Coordinator, KVK, Anjaw. He specifically mentioned about the spirit behind celebrating the Agricultural Education Day and spoke about the green revolution which was marked as one of the most important revolution for minimizing the starvation in the country. The Principal of the school also gave a short speech on the special day and expressed his satisfaction to the KVK Anjaw for celebrating such a motivated programme especially for the students. The programme was followed by quiz and essay writing competition where 35 students were participated. The Programme was concluded with distribution of prizes to the successful students in the competition from the hand of Programme Coordinator and

Principal.

Prize distribution to successful students in quiz competition

Celebration of Swachhta Campaign

Krishi Vigyan Kendra, Anjaw celebrated Swachhta Campaign on 2nd of October, 2016 on the memorable day of Gandhi Jayanti with the commitment towards clean and green

environment around the KVK campus and nearby premises. During the campaign, team of KVK personals also motivated and shared the ideas and theme of the campaign to the localities and other people of the areas as a part of the drives. In this context, KVK Anjaw

T-Shirt distributions to "*Swachh Workers*" by Administration

and other officials of Additional Deputy Commissioner, Hayuliang staffs also take oath for maintaining a healthy and clean environment and always promote for plantation around their campus. In

Participants of Cleaning drive conducted on Swachhta Campaign

the closing ceremony of the programme District administration has also distributed the T- Shirt to "Swachh Workers" of Hayuliang constituency.

World Soil Day celebration, 2016

KVK Anjaw celebrated the World Soil Day on 5th December, 2016 at Metengliang and Chamengliang village. During the Programme Coordinator KVK Anjaw Dr. Manish Kanwat also stressed the need and uses of this Soil Health Card for formulation of better production strategy. Sh. Khoisnam Naveen, SMS (Agronomy)

Demonstration of Soil Sample collection at Metengliang

delivered a brief lecture on the importance of Soil Health, Soil Health Card and its importance and role in agricultural production system. He further informed the farmers that retesting of soil will be done at every

three years of interval to update the current status of soils. On the occasion, 82 farmers and KVK scientists witnessed the successful of the programme. Later, a field demonstration at farmer field on soil sample collection was shown to the farmers at Metengliang. Almost 819 soil samples were also collected from the different corners of the district and

World Soil Day programme conducted at Chamengliang

analysis is under process.

Farmers Club BLOTP Programme Organized at Nilang, Anjaw

An Awareness cum Orientation Training Programme of Nilang Farmers Club was conducted on 22nd of August, 2016 at Nilang Residential School, Nilang Village at Goiliang. The Programme was successfully conducted under the technical guidance of Shri. S. Peter Singh, SMS, Social Sciences Krishi Vigyan Kendra, Anjaw. Altogether 30 participants (20 club members, 10 farm women) were attended in the Orientation Training Programme. The Club was sponsored by NABARD, Itanagar and implemented under the

BLOTP programme of Nilang & Challang Farmers Club

flagship of KVK, Anjaw through effective support from General Administration and SBI Bank Officials. The key objective for opening the club was to promote for self-employment and income generation through group approach. During the said programme, certain discussions were made among the group members in the presence of KVK officials for undertaking different activities which can fetch revenue within short period. Shri. Keshab Chandra Gogoi, Computer Programmer, KVK, Anjaw also distributed

the Android Mobile Apps to the farmers phone for getting instant information and advisories services related to agriculture and allied sciences.

Glimpses of Swachhta Pakhwada

KVK Anjaw organized "Swachhta Pakhwada" at three different villages on 17th, 18th and 19th October, 2016 at Metengliang, Amliang and Supliang village of the district. Altogether 125 local public including teacher, students from VKV, Amliang, Metengliang and Supliang were participated in the said programme. During the programme, KVK staff highlighted the importance of organizing such programme and explained them various ways of waste disposal and also acquainted them the benefits of clean and green environment. An "Extempore of speech" was also conducted as an encouragement among the school students where the students were also facilitated with certificates and prizes. T-shirts were also distributed to the 20 participants as an encouragement from district administration side.

Glimpses of Activities conducted during Swachhta

Awareness Programme on PPV& FR Act.

KVK Anjaw has successfully organized awareness programme on "Protection of Plant Varieties and Farmers Right Act, 2001" on 16th March, 2017 at Community Hall, Hayuliang. The Mega event was witnessed the gathering of 122 farmers including farm women, practicing farmers and rural youths from different corners of the district. The programme was graced and chaired by Deputy Commissioner Anjaw, Deputy Director,

Spices Board, Namsai, ZPM, Hayuliang, ZPM Chaglagam, Local Leader, ASM Chairperson, Metengliang. The programme was marked with the welcome address by Manish Kanwat, Senior Scientist and Head, KVK Anjaw. During his speech, he emphasized that since the district is endowed and praised by nature with availability of ample amount of medicinal plant, pulses, spices and other tuber crops, its collection and conservation is of prime importance for each and every farmer in the district. He also aware to all the farmers regarding the importance and scope of the PPV&FR Act which is the right were given to the grower of any local germplasm and plant varieties to register in their own name under the Act. In the technical session, Shri. Naveen Khoisnam, SMS, Agronomy gave power-point presentation regarding the importance and aspects of the PPV& FR Act, 2001 to all the attending farmers of the event. Sri. Banim Kri, All India Handloom Board Member, expressed the importance and uses about the different medicinal plant, their scope and their availability in the district. He also further remarked that the

district is praised by nature and known for the availability of different valuable local germplasm like Jungle Katchu (Paris Polyphylla), Mishmi Dal, varieties of millets (Kodo), maize, sweet potato, Caterpillar mushroom (Cordicep Sinensis) etc. But inspite of availability of these resources, majority of the farmers of the district unaware about the collection and conservation for future generation rather burning of jungle and harvesting blindly. Shri Anjoy Ama, Youth leader & PA to MLA, expressed regarding the

declaration of organic land in 500 ha which include three location of the district (Dorenko, Mithumna and Ruiliang) which was done in collaboration with the Sheel Biotech, New Delhi. He also highlighted the benefits for the declaration of organic area as it would support in pushing up the price of L. Cardamom through opening of auction centre at Namsai. During this programme KVK Anjaw has also bestowed the awards of best exhibition stall and best exhibits and Progressive Farmers for taking actively participation in the exhibition conducted on different local germplasm, medicinal, indigenous products showcased by different SHGs and individual farmers and farm women. Smt. Mamta Riba, Hon'ble Deputy Commissioner, Anjaw also expressed that importance of valued and endangered natural resources are being available in the district in terms of water, flora and fauna, spices crops, medicinal plants which are our own assets for the district and so every farmers should know the importance of conservation and registration of local germplasm under the PPV&FR Act and patenting of their germplasm/seeds under the Seed Corporation Act. She also requested to all the farmers in respect to procure only quality planting materials for enhancing production and fetching handsome return among the farmers. Lastly, the programme was ended with the vote of thanks from Shri. S. Peter Singh, SMS, Social Sciences

Chapter 10

Significant Achievements

- Smart NE Kisan
- NFDB, Hyderabad
- MIDH Programme
- NRCB, Triruchirapalli
- Farmer Scientist Interaction
- Exposure Visit cum Training Programme
- Animal Health Camp

KVK Anjaw developed and inaugurated the Android-app "Smart Kisan"

KVK Anjaw has developed the first android based mobile application named ***"Smart Kisan"*** among the entire 79 KVKs under the ATARI Zone-III of the NEH Region under the Tribal Sub Plan funded project **"Cybernetic Amenities Solution Centre"**. As the Anjaw District is one of the remotest District where there is no internet connectivity and surrounded with mountains, valleys and deep terrains which make it difficult area where accessibility is very limited. With the prime objectives to bridge this gap KVK Anjaw developed such mobile applications for providing both instant offline and online advisories by providing relevant information regarding field crops, livestocks, aquatic, govt. schemes, marketing, plant protection and advisory services etc. in a digitalized mode with just a click of button. It provides information about the best agricultural practices and increases their productivity and maximizes their revenue.

The inauguration programme of the Android based app was also done from the gracious hand of Dr. B.P Bhatt, Director, ICAR RC for Eastern Region, Patna, Dr. B.C. Deka, Director, ATARI, Zone-III, ICAR and Dr. H.C Bhattacharrjee, Director, Extension Education, Assam Agriculture University, Jorhat on 2nd August, 2016 at KVK Kamrup, Guwahati. During the event Dr. Manish Kanwat, Sr. Scientist & Head, KVK Anjaw briefed about the features and their characteristics of the technology. Presently, this M-app is available in English but very shortly it will be translated into local dialects also.

NFDB Sponsored Programme on Fish Based Farming System on Sustainable Development in Hill Areas

KVK Anjaw has successfully organized 3 days and 5 days training programme on cold water fish culture and integrated fish based farming system from 6th - 8th Feb and 25th - 29th, 2017 respectively under the financial support of NFDB, Hyderabad. Altogether, 55 farmers including farmers, farm women and rural youths were actively participated in this said programmes. This programme was leaded by Sh. Prashanta Mahanta

(Programme Assistant) as Course Director. During this programme, highlighted the Role of Fish in Human Nutrition, Fish Farming for Income Generation and Self Employment, Site Selection, Construction/Preparation of Ponds in Hill Area. Resource persons from different discipline of KVK Anjaw, State Department Official, Scientist and Technical Officer, Division of Agril. Engg., ICAR Umiam also covered the various relevant issues on adoption and integration of various agricultural enterprises like Agri, Horti, Selvi cultural crop along with fish and livestock farming for enhance farm productivity, profitability and quality life farmer and vermicomposting production, Integrated fish based livestock farming and scientific cultivation of L. Cardamom along with fish farming. In the end of the programme Shri. Kego Jilen, ADC, Hayuliang in his speech encouraged to all the participants to

help and support each other to bring positive development in agriculture as it is the major occupation that are being attached with all the people of the district since time immemorial especially L. Cardamom, maize, millets, medicinal plants etc. Moreover, he also spoke on role of farm women and rural

youths in development of agriculture and allied sectors. Lastly, as a part of encouragement, khurpi and hand-hoe were distributed to all the participants.

MIDH Sponsored Training Programme On Spices held at Chaglagam

Krishi Vigyan Kendra Anjaw and College of Horticulture & Forestry, Passighat has successfully organized MIDH sponsored 2 days district level training programme on 27th -28th Jan, 2017 for increasing the area and under spices production in Anjaw district of Arunachal Pradesh. During the technical session of the training programme different lecture were delivered on L. Cardamom, plant protection measures ginger cultivation and marketing aspects. A Farmers Scientist interaction session was also conducted to exchange farmer's problem and strategies regarding the L. Cardamom and other major crops of the area. Lastly, spade were also distributed to each and farmers attending the training programme. As a part of encouragement of the farmers spade were also distributed to all the participants. Altogether, 60 farmers were successfully participated in the training programme. The programme was graced by the Sh. Aniyang Ratan, Circle Officer, Chaglagam and the Guest of honour and facilitator Dr. Manish Kanwat, Sr. Scientist & Head and the training programme was headed by Dr. Bhanu Mishra, Associate Professor including other resources person Dr. Chandra Deb, Associate Professor, Dr. Varun Singh, Asst. Professor and Dr. Sanjeev Kumar, Asst. Professor including KVK Scientists.

NRC for Banana Scientists organized Training cum Workshop on Hi-tech Production and Processing Technologies in Banana at Namsai, Arunachal Pradesh

KVK Anjaw was successfully organized one-day Training cum workshop on Hi-tech production and processing technologies in Banana at Naputia village, Namsai in joint collaboration with KVK, Namsai which is sponsored by ICAR-NRC for Banana, Trichurapalli on 25th March, 2017. During this programme NRCB scientists covered various issues such as scientific production technologies, eradicate the pest and diseases of banana, farmers were also actively participate during the discussion about the extraction of banana fiber and processing of pickle, candy and other processed products made from banana plant. Subject Matter Specialist (Horticulture) KVK Namsai

were also focused on location specific Banana production technologies in the area. NRCB scientist were also given demonstration at farmers banana orchard and also demonstrate the basic management practices for receiving better production. Altogether 120 trainees including WSHG, GB, ASM of 3 different villages- Alubari, Naputia, Nepali basti along with officials- Dr. B. Padmanavan, Pr. Scientist, Dr. P. Suresh Kumar, Sr. Scientist, Dr. Thiru, Scientist, Dr. M. Kanwat, Sr. Scientist, KVK, Anjaw, Dr. D. Sasmal, I/C Sr. Scientist, KVK Lohit and KVK Scientists were attended the programme.

Farmer Scientist Interaction

KVK Anjaw organized Farmers Scientist Interaction under the PD-ATMA, Anjaw District.

The Programme was conducted at Walong village and Hayuliang town. The occasion was grace by Additional Deputy Commissioner, Hayuliang as the Chief Guest in the presence of other dignitaries from line department. 105 farmers including farm

women and rural youths from different village of the district were attended in the interaction programme. The session was started with welcome address by Dr Manish Kanwat, Programme coordinator, KVK Anjaw. The interaction programme was attended by Dr. K. Pradheep, Senior Scientist and Dr. G. D. Harish from National Bureau of Plant Genetic Resource (NPBGR) as the key resource person. During the said programme, certain discussions were made on conservation of local germplasm, mushroom cultivation, scientific rearing of chicks, cultivation of L. Cardamom etc. On the last session of the programme, checks of Rs. 10,000 were given to the Women Food Security Group of Tafraliang and Nilang village under the PD-ATMA Project. Potato seeds were also distributed to 38 farmers attended in the programme.

Exposure Visit cum Training Programme

A six days interstate exposure visit cum training programme was organized by KVK Anjaw under PD-ATMA, Anjaw, in collaboration with KVK Ri-Bhoi at ICAR Research Complex for NEH Region, Umiam during 17th to 22nd October, 2016. A total of 20 farmers from different villages of Anjaw district of Arunachal Pradesh were participated in the exposure visit. The visit was lead by Shri S. Peter Singh, SMS (Social Sciences) & Shri Prasanta Mahanta, Farm Manager, KVK Anjaw. During the inauguration session, Dr. Mokidul Islam, Programme Coordinator, KVK, Ri-Bhoi in his speech welcomed all the farmers and gave a brief introduction regarding the importance of agriculture and allied sciences. During the 6 days programme, the farmers were visited to ICAR Poultry

Input distribution during FSI at Walong

Certificate distribution to the participants

farm, Piggery farm, Goattery farm, Rabbit farm, Agronomy farm and Horticulture farm and mushroom spawn production unit for getting exposure on different scientific farming technologies. Lectures on vermicomposting, Integrated Farming System, livestock management, mushroom production

were also delivered. A visit to Rural Resource & Training Centre (RRTCNGO), Umiam was also made to showcase the activities undertaken by them for entrepreneurship development for farmers, farm women and rural youth. A farmer's scientist's interaction programme was also conducted to identify various problems of farmers and to provide specific solution related to agriculture and allied sciences. During the valedictory function certificate were distributed to participated farmers, coordinators, experts, and resource persons by Dr. S.V. Ngachan, Director, ICAR Research Complex for NEH Region, Umiam, Meghalaya in presence of HODs & Scientist of ICAR Umiam.

Participants of Exposure Visit at ATIC, Umiam, ICAR complex Barapani

Animal health camp

The Krishi Vigyan Kendra, Anjaw organized Animal Health Camp cum Awareness Programme under the aegis of Tribal Sub Plan Sponsored project on "Nutritional security and Livelihood of Tribal Farmers through Improved Piggery" with focus on healthcare and treatment for animals. A total number of 220 livestocks were treated and vaccinated at the camp organized in different villages of the district with this objective to aware and boost their knowledge related to livestock diseases infestation and their control measures. During the camp, de-worming and vaccination were done for pig, dogs, goats and cows. Multivitamins and minerals were also distributed to the farmers. An awareness programme on the importance of mineral mixture supplement for the health of animals was also conducted. KVK Veterinary Scientist interacted with the owners of the animals and also provided them tips on livestock health.

Table 10: Animal Health Camp

Sl. no.	Village	Date	No. of animal treated
1	Amliang	29th April,2016	57
2	Tafraliang	4th May, 2016	73
3	Metengliang	4th June, 2016	43
4	Paya	10th June, 2016	47

Treatment given for ecto-parasite infectation of pigs

Distribution of vaccines, vitamins and minerals during the animal health camp at Tafraliang

Large Black breed of piglets brought for distribution to farmers

Distribution of livestock vitamins and minerals to the farmers

Monitoring of newly distributed piglets to the farmers

Large Black breed of piglets brought for distribution to farmers

Contact Details: Krishi Vigyan Kendra, Anjaw,
ICAR-RC for NEH Region, Arunachal Pradesh Centre, Basar