Half yearly Newsletter of

Krishi Vigyan Kendra, Wokha

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NEWSLETTER

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Editorial

Dear Reader

It gives me great pleasure to introduce to you the first newsletter of KVK, Wokha. Let me start by mentioning that the centre was established in the month of October, 2006, however, the recruitment of the staff was done in the month of March-May 2007. Upon establishment of the centre survey programme was undertaken so as to identify the problems and to find solution to that problems. The problems includes Low production in Jhum, Soil Declining Health, Severe deforestation leading to land degradation, Lack of quality planting materials of important Agri-Horti Crops, Low Productive performance of indigenous livestock and poultry, Insect-pest incidence in important Agri-Horti Crops, Lack of farm Mechanization, Lack of Awareness for improved Agri. and allied activities. Thus, basing on the problems identified, the centre has undertaken numerous trials, demonstrations and training programmes to address to the felt needs of the farming community.

The centre has also undertaken wasteland development project funded by the Ministry of Rural Development, Department of Land Resources, Government of India in which an area of 100 ha have already been covered under the project. An Integrated Farming System model have also been developed under the same project. The centre has also undertaken a Project on Water Harvesting(Jalkund) funded by NABARD. 5 Nos. of Jalkund was sanctioned for the district and it has been successfully completed.

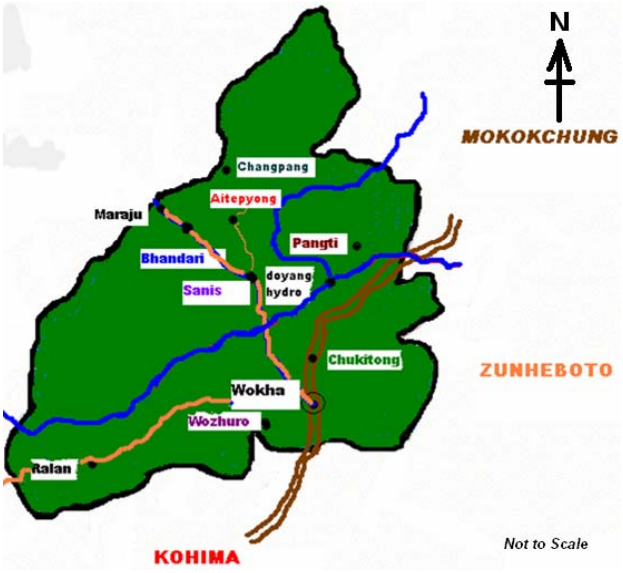
Efforts are also being made to document the various indigenous technologies, indigenous farm implements, feeds and fodder fed to the animals and indigenous leafy vegetables and fruits. It was found necessary in order to keep in record the rich biodiversity of the district.

The centre feels that much of the works is yet to be done in order to achieve the purpose for which the centre has been set up. The centre will be working very hard in every possible way it can so that the farming community will be benefited.

Mr. Khumdemo Ezung

Agricultural Production System in Wokha District

Nagaland is one of north eastern states of the country with 11 (eleven) districts situated between 25º 60´ to 27º 40´ North latitude and 93º 20´ to 95º 15´ East longitude. According to 1991 - 2001 census, population of Nagaland is 19 88636 and having an area of 16579 sq. km. with a literacy rate of 67.11 %. The state falls under one agro-climatic zone of mild tropical hill zone and receives south west monsoon rain in summer and north east monsoon rain in winter with an average rainfall of 1500-2000 mm.



Map of Wokha District

Wokha district is one of the districts, out of 11 districts of Nagaland, it became separate district in December 1973 and earlier to this it was one of the sub-division under Mokokchung District. Wokha district has population of 161098 (2001 census) with geographical area of 1628 sq. km. Wokha town, the district head quarter is situated 80 kms east of Kohima at an altitude of 1313.69 MSL; the district shares its borders with Zunheboto on the East, Kohima on the South, Assam on the West and Mokokchung on the North. Out of the total population 76.6% of the population live in rural areas consisting of 135 villages and rest 23.4% live in towns. The district has literacy rate of 81.28% and it is second only to Mokokchung district. The district is divided into five blocks namely, Wokha Sadar, Chukitong, Sanis, Wozhuro-Ralan and Bhandari blocks.

The main occupation of the people in the district is cultivation. People in the district mainly depend on shifting cultivation or jhum but horticulture plantation and other non-agricultural resources are also being practiced at minor scale. Jhum cultivation has been devised over generations through the innate experience and knowledge gained by the rural people over the land, labour, environment resources available and the cropping requirements. The main crop is rice and various other crops like maize, millets and pulses are grown in the same field with the rice. Vegetables like cabbage, chilies, okra are grown along with rice. The people practice backyard poultry farming and

some of the people practice piggery and dairy farming in a small scale. Peach, plums, pineapple and citrus also do well in this district and the productions of these are sold to local market. The other vegetables such as chow-chow, colocasia, tapioca, radish, leafy vegetables are commonly planted near homestead and ridge boundary of the jhum field. Till date agriculture continues to be the main source of livelihood however, the district is not self sufficient in production of food grains.

Major farming systems existing in the district

S. No	Farming systems identified
1	Agriculture + Horticulture
2	Agriculture + Fishery
3	Agriculture + Horticulture +Fishery
4	Agriculture + Horticulture +Animal Husbandry
5	Agriculture + Animal Husbandry

There are five farming system exist in the district, which either of farmer practices as Agriculture + Horticulture or Agriculture + Fishery or Agriculture + Horticulture +Fishery or Agriculture + Horticulture +Animal Husbandry or Agriculture + Animal Husbandry.

Agriculturally the district is divided into two sub divisions; Baghty sub division comprising of about 75 villages under its establishment and Wokha Sadar comprising of 45 villages. The traditional form of shifting cultivation, known as jhum is widely practiced across Wokha district. This practice has threatened the very existence of the tribal themselves by causing degradation of land and its environment and ecological imbalance affecting even the flora and fauna of the region to such an extent that the tribal have progressively become economically poorer with the passage of time. Because of heavy pressure on land due to the population reaching a saturation point, the jhum cycle (the period after which the tribal families return to the same plot for cultivation) 20 – 30 years has reduced to 4 – 6 years disturbing the whole ecosystem creating a vicious cycle of more area being jhummed leading to shortening more area under jhumming. The average annual area under jhum and TRC/WRC cultivation are 13900 ha and 9590 ha respectively. The area under TRC/WRC is located in the plain areas of Wokha district bordering Assam under the Baghty sub-division.

Typical hut in the *Jhum* field

KVK WOKHA AT A GLANCE

The Krishi Vigyan Kendra, Wokha was established in the month of October, 2006. The recruitment of the staff was completed in the month of March-May, 2007. It is situated approximately 9 kms from the main town. Following are the staff of KVK, Wokha.

Name	Designation	Discipline
N. Khumdemo Ezung	Incharge & SMS	Agronomy
Dr. Moaakum Sangtam	SMS	A.Sc.
Ms. Megokhono Meyase	SMS	Horticulture
Er. L. K.Singh	SMS	SWCE
Dr.Janak Kumar Singh	SMS	Plant Breeding
Ms. Lireni Kikon	P.Asst.	Plant Protection
Ms. Jessica Dohtdong	P.Asst.	Home Science
Mr. Abemo Ezung	Farm manager	Farm Management
Ms. Nyanbeni Yanthan	Jr.Steno	-
Mr. Longshithung Lotha	Driver cum Mechanic	-
Mr. Mhabemo Ezung	Driver cum Mechanic	-
Mr. Kilumo Ezung	Supporting Staff	-
Mrs. Maluti Devi	Supporting Staff	-

THRUST AREAS OF KVK WOKHA

Sl No.	Thrust Areas	Rank
1.	Jhum Improvement for sustained Production in Wokha district	I
2.	Identification and validation of promising indigenous farming systems of Wokha district	II
3.	Improvement of productive performance in pig and poultry birds	III
4.	Post harvest processing and value addition in important agri-horti commodities	IV
5.	Farm mechanization to reduce drudgery in hill agriculture	V

OUR VISION

In Wokha district, 80% of the population resides in villages who are economically very poor who are unable to meet their daily household requirements. The district as a whole is insufficient in meeting the food requirement to the ever increasing population. Thus, the vision of the Krishi Vigyan Kendra Wokha is to uplift the overall socio economic condition of the rural poor and to play a major role in achieving self sufficiency in food production. For this to come to reality, the centre will conduct full scale location specific trials and research, trainings, demonstration and other extension activities in agri and allied sectors so as to strengthened the hands of the farming community with the latest technologies in agriculture and thereby contribute in increasing the agriculture productivity of the district.

Farmers' Hostel

Staff Quarter

Meeting of Scientific Advisory Committee (SAC)

Dr.B.P.Bhatt, ICAR, Nagaland Centre, Chairing the SAC meeting

The Scientific Advisory Committee meeting of KVK, Wokha was held on 23rd of July, 2009. The meeting was chaired by Dr.B.P.Bhatt, Joint Director, ICAR, Nagaland Centre. The members who participated in the meeting includes, Mr.Joseph Humtsoe, Joint Director, Department of Horticulture, Dr.Elithung Humtsoe, DHO, Wokha, Dr.Sahoo, Scientist, ICAR, Mr.Vanchamo Ngullie, DPO, Land Resources, Dr.Mhonjan Shitiri, Manager, Base Pig Breeding Farm and coordinator ATMA, Mr Tsenyimo Kikon, Sericulture, Mr.Chibo Yanthan, SDO(Soil), Mr. Ketusielie Angami, District Fishery Officer, Progressive farmers and staff of KVK, Wokha.

After the formal welcome address, Incharge, KVK Wokha presented the action taken report on silent achievements of KVK for the year 2008-09 and also the action plan for the year 2009-10. After thorough discussion, following recommendations were made.

- Regarding OFT in "comparative study on local cucumber of Mokokchung and Wokha district", it was suggested to produce sufficient quantity of Mokokchung cucumber seeds for further popularization of the variety among the farmers.
- Regarding Mushroom cultivation, OFT on Shetaki mushroom need to be conducted. The spawn of shetaki shall be provided by Horticulture Department, Govt. of Nagaland.
- Comparative study between improved Echo and Echo without improvement need to be conducted in order to conserve soil and water in jhum fields. The ZECC data has to be supported with humidity pattern in the areas.
- OFT on TPS needs to be taken up in order to popularize potato cultivation.
- Regarding FLD in Animal Science, egg laying efficiency of Vanaraja and Giriraja be recorded.
- Regarding FLD on kharif oilseed, ICGS-76 variety of groundnut be taken up in place of JL-24
- Disease management in passion fruit and mandarin be recorded.
- It was also suggested to visit the nursery of orange sapling at Humtso and Elumyo village and work out the control measures of disease at nursery stage.
- Natural preservatives be preferred in case of food processing.
- It was suggested to conduct programme to combat the problem of drought in the district and accordingly contingency plan be prepared.
- It was suggested to popularize rice bean cultivation under FLD programme.
- Keeping in vie the importance of floriculture, it was proposed to popularize the production of Lilium and Anthurium.
- It was suggested to avoid duplication of work and to give due acknowledgement and references if the information is being collected form other sources

Members interacting in the meeting

SHG MOBILIZATION



SHG mobilization was organized at Chukitong block with 30nos. of participants on 17th June 2009. The participants from 10 different villages were trained on different enterprises like, Mushroom cultivation, Value addition, Vegetable cultivation, Poultry etc. Two groups were formed that day namely Senthang SHG for farm women and one CIG (Commodity Interest Group) called as Poultry Interest Group for farm men. Seed money of Rs.10, 000/- each was also given to them (sponsored by ATMA) so as to let them start their various income generating activities. Two SHGs were also mobilized at Wokha block (United SHG of pongitong and Evatera SHG of Wokha village). The main activity of this SHG is mushroom cultivation and vegetable cultivation.

ON FARM TRIAL

DISCIPLINE: SOIL & WATER CONSERVATION ENGINEERING/AGRIC. ENGINEERING

OFT-1: Water Harvesting Structure

No. of farmers involved	:	5
Technology demonstrated	:	Low cost rain water harvesting for crop production
Variety	:	Jalkund
Water requirement	:	250lt/day
Crop production		500 kg(cabbage)
Fish fingerlings (nos)		2000
Poly nursery (nos)		5000
Net return (Rs.)	:	26000

OFT-2: Zero Energy Cool Chamber

No. of farmers involved	:	15
Technology demonstrated	:	Low cost storage of fruits and vegetables
Variety	:	Zero Energy Cool Chamber (ZECC)
Wt. loss (ZECC)	:	C-33.3%,PF-6.7%
Wt. loss (Room Condition)	:	C-33.5%,PF-8.3%
Shelf life (ZECC)	:	C-18 days, PF-9 days
Shelf life (Room Condition)	:	C-13 days, PF-5 days

C-cucumber, PF-Passion fruit

DISCIPLINE: AGRONOMY

OFT-3: Application of biofertilizer on paddy under TRC

No. of farmers involved	:	3
Technology demonstrated	:	Application of biofertilizer on paddy under TRC
Variety	:	Local variety
OFT yield (q/ha)	:	53.91
Yield of local check (q/ha)	:	21.89
Increase in yield (%)	:	146.28
Cost of cultivation (Rs.)	:	9733
Gross return(Rs.)	:	37861
Net return (Rs./ha)	:	28128
BC ratio	:	2.89

OFT-4: Comparative study on local cucumber cv. of Mokokchung and Wokha

No. of farmers involved	:	3
Technology demonstrated	:	Comparative study on local cucumber
Variety	:	Local variety of Mokokchung and Wokha
OFT yield (q/ha)	:	717.47
Yield of local check (q/ha)	:	479.14
Increase in yield (%)	:	49.74
Cost of cultivation (Rs.)	:	66357
Gross return(Rs.)	:	337092
Net return (Rs./ha)	:	270735
BC ratio	:	4.08

ON FARM TRIAL

DISCIPLINE: PLANT PROTECTION
OFT- 5: To test the paddy variety Bhalum-1 against blast disease in Wokha district

No. of farmers involved	:	3
Technology demonstrated	:	To test the paddy variety Bhalum-1 against blast disease in Wokha district
Variety	:	Bhalum-1
OFT yield (q/ha)	:	30.60
Yield of local check (q/ha)	:	14.00
Increase in yield (%)	:	118.57
Cost of cultivation (Rs.)	:	6118
Gross return(Rs.)	:	18598
Net return (Rs./ha)	:	12480
BC ratio	:	2.04

ON-GOING FARM TRIAL

Title	Discipline
System of rice intensification	Agronomy
Performance trial on Shasarang	Agronomy
Performance trial on SARS-2 and SARS-4	Agronomy
Performance of three different genetic groups of Rabbit under low input production system	Animal Science
Performance trial on Naga King chilly	Horticulture
Performance trial on RCMBHL-1	Horticulture
Performance trial on cauliflower Pusa Kartek Sankar	Horticulture
Water use efficiency using drip irrigation for agricultural production	SWCE

FRONTLINE DEMONSTRATION

FLDS ON PULSES

Pea

Area (ha)	:	1 ha
No. of farmers involved	:	3
Technology demonstrated	:	Pea
Variety	:	Arkel
yield (kg/unit)	:	10.00
Yield of local check (kg/unit)	:	6.50
Increase in yield (%)	:	54.00
Cost of cultivation (Rs.)	:	21200
Gross return(Rs.)	:	40080
Net return (Rs.)	:	18800
BC ratio	:	1.89

Rajma

Area (ha)	:	1 ha
No. of farmers involved	:	3
Technology demonstrated	:	Rajma
Variety	:	Tuensang Local
yield (kg/unit)	:	13.10
Yield of local check (kg/unit)	:	9.25
Increase in yield (%)	:	54.00
Cost of cultivation (Rs.)	:	22400
Gross return(Rs.)	:	65500
Net return (Rs.)	:	44300
BC ratio	:	3.09

DISCIPLINE: ANIMAL SCIENCE

Kuroiler farming

No. of farmers involved	:	8
Technology demonstrated	:	Kuroiler farming
Variety	:	Kuroiler
yield (kg/unit)	:	3.6
Yield of local check (kg/unit)	:	1.7
Increase in yield (%)	:	112
Cost of cultivation (Rs.)	:	3850
Gross return(Rs.)	:	32760
Net return (Rs.)	:	28910
BC ratio	:	7.50

DISCIPLINE: HORTICULTURE

Tomato

Area (ha)	:	0.5 ha
No. of farmers involved	:	3
Technology demonstrated	:	Tomato
Variety	:	Manikhamnu
yield (q/ha)	:	300
Yield of local check (q/ha)	:	253
Increase in yield (%)	:	18
Cost of cultivation (Rs.)	:	80500
Gross return(Rs.)	:	300000
Net return (Rs.)	:	219500
BC ratio	:	3.73

FRONTLINE DEMONSTRATION

DISCIPLINE: PLANT PROTECTION
Mushroom

No. of farmers involved	:	30
Technology demonstrated	:	Mushroom
Variety	:	Oyster (*Pleurotus sajor caju)*
yield (kg/unit)	:	150
Yield of local check (kg/unit)	:	NA
Increase in yield (%)	:	NA
Cost of cultivation (Rs.)	:	4550
Gross return(Rs.)	:	18000
Net return (Rs.)	:	13450
BC ratio	:	3.95

Mustard and Rapeseed

Area (ha)	:	1 ha
No. of farmers involved	:	3
Technology demonstrated	:	Mustard and Rapeseed
Variety	:	TS- 38
yield (kg/unit)	:	3.75
Yield of local check (kg/unit)	:	2.85
Increase in yield (%)	:	31
Cost of cultivation (Rs.)	:	11000
Gross return(Rs.)	:	15000
Net return (Rs.)	:	4000
BC ratio	:	1.36

ONGOING FRONTLINE DEMONSTRATION

Title	Discipline
Popularization of soybean variety JS -335	Agronomy
Popularization of groundnut variety JL - 24	Agronomy
Popularization of Bhalum – 1 & Bhalum - 2	Agronomy
Contour bunding for soil and water conservation in hill agriculture	SWCE
Paddy thresher for reducing drudgery	Agric. Engg

Demonstration on seed treatment with biofertilizer

Demonstration on contour for construction of contour bund using A frame

TRAINING PROGRAMMES AND EXTENSION ACTIVITIES

TRAINING PROGRAMME FOR PROGRESSIVE FARMERS

Discipline	No of course	Farmers (Nos.)		
		Off	Spon.	Total
Agronomy	3	113	-	113
Horticulture	4	39	109	148
SWCE	5	75	85	160
Animal Science	3	113	-	113
Plant Breeding	-	-	-	-
Plant Protection	7	54	225	279
Home Science	6	55	147	202
Total	28	449	566	1015

TRAINING PROGRAMME FOR RURAL YOUTH

Discipline	No of course	Farmers (Nos.)		
		Off	Spon.	Total
Agronomy	3	147	-	147
Horticulture	-	-	-	-
SWCE	-	-	-	-
Animal Science	1	62	-	62
Plant Breeding	-	-	-	-
Plant Protection	-	-	-	-
Home Science	5	208	-	208
Total	9	417	-	417

EXTENSION ACTIVITIES CONDUCTED

Sponsored Programmes	Number of Programmes	Sponsoring Agency
Exposure trip for farmers	3	ATMA
Demonstrations programme	3	ATMA
Training programme	2	ATMA
Training programme	2	IGNOU
Training programme	6	HTM
Demonstration programme	1	Wasteland Project

Extension Activity	No. of Activities	No. of Participants
Field day	1	58
Clinical visit	4	4
Animal health camp,Clinic day	1	102
Radio talk	21	-
Newspaper Coverage	11	-
Popular Articles	1	
Diagnostic visit to farmers field	10	33
Folders (Translated)	11	
Farmers' exposure trip	3	53
Celebration of important days	1	-
Film show	11	388
Total	63	668

TRAININGS, SEMINARS, WORKSHOPS ATTENDED

S. No.	Name & Designation	Seminar/Training/Workshop	Date
1.	Mr. Khumdemo Ezung, Incharge	Meeting cum interaction with new DDG (AE) at AAU	16th May, 2009
2.	Mr. Khumdemo Ezung, Incharge	Annual Zonal Workshop of KVK, Zone III at AAU Jorhat	5th - 7th September, 2009
3.	Mr. Khumdemo Ezung, Incharge	Training cum awareness for protection of plant varieties and farmers right act at ICAR, Nagaland Centre	14th September, 2009
4.	Miss Megokhono Meyase	Post harvest handling of fresh fruits and vegetables at CIH, Medziphema	16th – 17th October, 2008
5.	Miss Megokhono Meyase	National Conference on floriculture for livelihood and profitability at IARI, New Delhi	16th – 19th March , 2009
6.	Miss Megokhono Meyase	Designing and management of training at AAU	18th – 23rd May, 2009
7.	Miss Megokhono Meyase	Citrus rejuvenation at CIH, Medziphema	3rd - 4th April, 2009
8.	Er.L.K.Singh	Worshop cum training programme on Agricultural Farm mechanization and post harvest technology at ICAR, Barpanai	22nd – 24th October, 2008

SUCCESS STORY

'ECHO' THE TRADITIONAL SOIL CONSERVATION PRACTICES IN WOKHA DISTRICT

***'Echo'* the traditional soil conservation system**

Echo is the traditional soil conservation system practiced by farmers of Wokha district as well as other districts of Nagaland. It is age old practice and *echo* is the local name used by *Lotha* community. *Echo* is constructed by using locally available materials like bamboo or wood etc. It is constructed by placing randomly across the slope in *jhum* field. It generally last up to 3 years (**Fig. 1**). This method results into high rate of soil erosion since the logs are placed only in the steep slope areas. However, this method was modified as farmers were adviced to place the logs across the slope at a vertical interval of 3.00 m throughout the area, irrespective of slope. The results reveals that the soil loss was minimized to a great extent.

***Echo* with Scientific Method**

When farmers' are already familiar with *echo* the traditional soil conservation practices, it can be supplemented with the scientific method or modern soil conservation technique like contour bunding. With the same input, *echo* was constructed by placing the wood log or bamboo along the contour line. In this respect, intensive training on improvement of echo system of soil conservation was conducted with the incorporation of the contour bunding and it was found to be very successful in terms of soil conservation. *Echo* with scientific method was adopted in Longsachung village of Wokha district and also were adopted in other nearby villages. Many farmers had already started constructing *echo* with contour bunding system.

MUSHROOM CULTIVATION

In Wokha District, two SHGs namely Evathera SHG Wokha Village and United SHG Pongidong Village under Wokha District, Nagaland had a deposit money of Rs.500/- in each SHg's which was collected as their membership.

Oyster Mushroom Cultivation

Evathera SHG was formed in the year 2006 with ten members. Then in 2007, KVK Wokha gave training on Oyster Mushroom Cultivation to this group and have made arrangement for the spawn supply since availability of the spawn was the major constraint to establish mushroom production unit at Wokha. At first they started with 10 packets of spawn by which they generated an income of Rs. 6000/- within one and half month. Encouraged by their success in the first instance, they had taken up the project in larger scale and now they considered it as their primary activity. This group had even participated at Republic day for exhibition cum sale. They are very much satisfied with the outcome and are now a happy SHG who are growing in a bigger way. All these are made possible with the help of KVK, Wokha.

Likewise, for United SHG Pongidong Village comprising of ten members all male have also started to experience a similar result with the intervention of KVK, Wokha. Training was also imparted to them for spawn production and mushroom production.

PHOTO GALLERY

Diagnostic visit at farmers' field

Demonstrations on farm implements

Demonstration on contour bunding

Demonstration on Bordeaux mixture application

Demonstration on farm implements

Farmers'Exposure trip to SARS, Mokokchung