



KOHIMA DISTRICT

Inventory of Agriculture 2015



ICAR - Agricultural Technology Application Research Institute, Umiam (Barapani)
Ri-Bhoi District, Meghalaya - 793103



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Inventory of Agriculture
2015



Correct Citation: Bhalerao A.K., Kumar B., Singha A. K., Jat P.C.,
Bordoloi, R., Deka Bidyut C., 2015, Kohima district inventory of
Agriculture, ICAR-Agricultural Technology Application
Research Institute, Umiam, Meghalaya, India

Published by: The Director,
ICAR-Agricultural Technology Application Research
Institute, Umiam (Barapani), Meghalaya-793103
Email: icarzcu3@gmail.com
Website: <http://icarzcu3.gov.in>
Phone no. 0364-2570081

Compiled by: Dr. V. Akashe Zhimomi (programme coordinator)
Longma Yanger Pongen, Sms (Agriculture Extension)
Kerukuolie michael pienyu, sms (plant protection)
Imtisenla, sms (agronomy)
Khekali sema, sms (horticulture)
Zhiete, sms (soil & water conservation)
Temjennungsang, sms (animal science)
Sesenlo Kath, (Farm Manager)

Edited by: Amol K. Bhalaraao, Scientist (AE)
Bagish Kumar, Scientist (AE)
A. K. Singha, Pr. Scientist (AE)
P. C. Jat, Sr. Scientist (Agro)
R. Bordoloi, Pr. Scientist (AE)\
Bidyut C. Deka, Director, ATARI Umiam

Contact: Dr. V. Akashe Zhimomi
Office of the programme coordinator
Krishi vigyan kendra, tesophenyu kohima
Nagaland, 797019.
Mobile Number:+919436073135(M), +918974855039(M)
Website of KVKK:kvkkohima.com

Word Processing: Synshai Jana
Cover Design: Johannes Wahlang
Layout and Printing: Technical Cell, ICAR-ATARI, Umiam

FOREWORD

The ICAR-Agricultural Technology Application Research institute, Zone-III with its headquarters at Umiam, Meghalaya is primarily responsible for monitoring and reviewing of technology assessment, refinement, demonstrations, training programmes and other extension activities conducted by the *Krishi Vigyan Kendras* (KVKs) in North East Region, which comprises of eight states, namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The directorate also serves as feedback mechanism to research and extension systems while maintaining a very close liaison with ICAR headquarters and has made significant progress in research, capacity building and other extension activities which ultimately contributes for the planned growth and development of North Eastern Region of India.

Through this District Agriculture Inventory publication, an attempt has been made to compile and publish information about KVK district and agriculture in district, in a meaningful and comprehensive manner. It will be very useful for all stakeholders of agriculture in district. The inventory encompasses the information regarding geography of district; basic data about agriculture and district population, crops, institutional resources, agriculture relates schemes in district which also covers agriculture, fishery and livestock sector. The district inventory in the form of e-publication will surely increase the digital presence and penetration of KVKs. The inventory will also serve the communication needs of farmers and youth in district as it contains contact numbers and address related information to access various developmental agencies in district.

I congratulate the efforts of staff of KVK for collecting and compiling such a large volume of information in systematic manner. I also acknowledge the efforts of editors and other staff members of this institute for publishing this document on our website.

Umiam
18-03-2016

(Dr. Bidyut C. Deka)
Director,
ICAR-ATARI-Umiam,
Meghalaya-793103

PREFACE

The synthesized compilation in the form of informative publication is of much value for decision making. The compiled information in this publication will immensely help farmers and other stakeholders of agriculture and allied sector of a district such as line departments, research organizations, planners, policy makers, input providers etc. Through this document, we are trying to provide entire gamut of information related to district and its agriculture setting for the benefit of farming community of the North Eastern Region. The connectivity related issues in the North Eastern region makes the information inaccessible to most of stakeholders. Therefore, the *Krishi Vigyan Kendras* in each district of North East region undertook this cumbersome task to compile the district Agricultural Inventory. This publication provides the latest information about district, agriculture and other essential constituents.

We, the editors of this publication, earnestly thank and acknowledge the contribution of all compilers i.e. Programme coordinator, Subject Matter Specialists and Programme Assistants of KVK Kohima for taking part in compiling the huge information to shape up Kohima District Inventory of Agriculture-2015. We also thank all officers of ICAR H.Q. for guiding us time to time and motivating us to complete this publication.

We, the editors, dedicate this publication to the farming community of Kohima District and we look forward to contribute more for the betterment of farming community in entire North East Region. We also welcome the suggestions for further improvement.

Umiam
18-03-2016

Editors

From the Desk of Programme Coordinator, KVK Kohima



Kohima district inventory of Agriculture 2015 is being prepared to provide information to all stakeholders of agri and allied sectors, as the agricultural operations are still traditional in the district. Non adoption of scientific technologies in the field condition remains a major hindrance of the district.

The farming community needs to adopt/introduce new technology that is available in Research Institutions, Universities as well as state owned laboratories and farms. However, many farmers as well as even extension personnel have limited knowledge which is available in the district. Moreover, they are unaware of various schemes/projects of state Government and Government of India to assist and improve agricultural economy.

To overcome the traditional way of agriculture, this publication of information compiled with a vision to attract young minds and progressive farmers to let them move forward with modern technologies in the district.

The district inventory on agriculture contains important Institutions, Research and Centres that is accessible within and outside the district in the states which are provided with detail address and contact information. We express our sincere thanks to the Director, ICAR-ATARI, Zone-III, Umiam, Barapani, Director of Agriculture, Nagaland Kohima for the constant support and encouragement for enabling us to bring out this publication.

This inventory is dedicated to the farmers of Kohima district.

(V. Akashe Zhimomi)

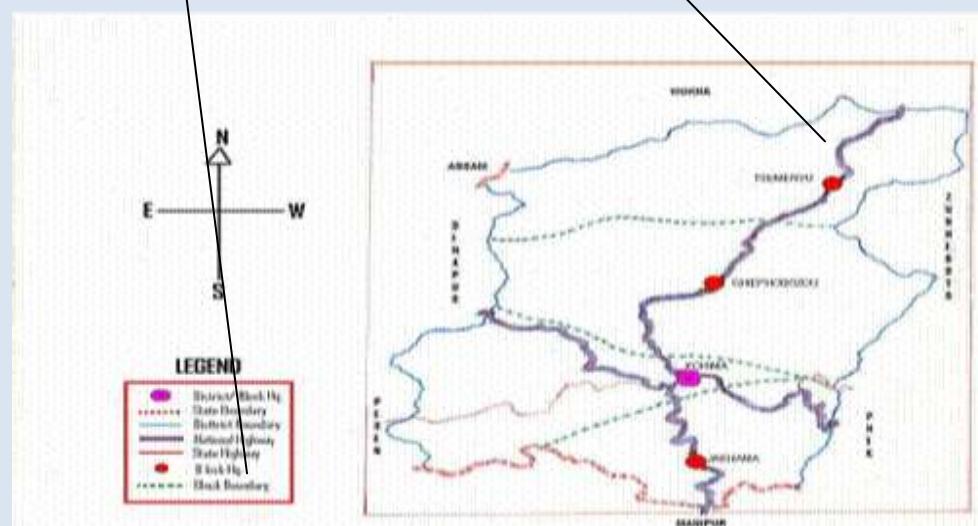
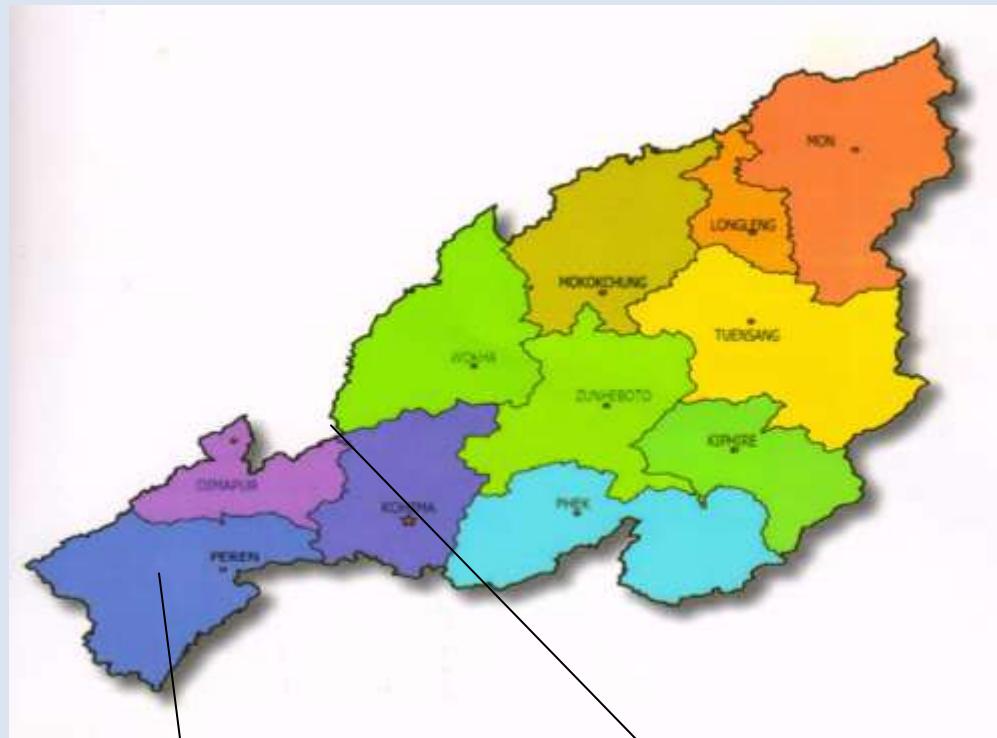
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CHAPTER-I. DISTRICT IN GENERAL

Kohima, is a hilly district of Nagaland state. It is surrounded by Dimapur District in the West, Phek District in the East, Manipur State and Peren District in the South and Wokha District in the North. The oldest among the eleven districts of the state, Kohima is the first seat of modern administration as the Headquarters of Naga Hills District (then under Assam) with the appointment of G.H. Damant as Political Officer in 1879. When Nagaland became a full fledged state on 1st December, 1963, Kohima was christened as the capital of the state. Since then, parts of Kohima district have been carved out thrice - the first in 1973 when Phek District was created, then in 1998 Dimapur was carved out and declared as a separate district and it was in 2004 for the third time that Kohima district once again gave birth to one of the youngest districts in the state called Peren District.

The name Kohima is so called because the Britishers could not pronounce its original name "KEWHIRA" which is the name of the village where Kohima town is located. Kohima village , also called 'Bara Basti' which is the second largest village in Asia forms the North-Eastern part of Kohima Urban area today. Kohima district headquarter have been identified by the central Government for upgradation into a smart city capital. The location of the KVK district is depicted in figure 1a & 1b.



CLIMATE

The district has a moderate version of a *humid subtropical climate*. Kohima has a pleasant and moderate climate - not too cold in winters and pleasant summers. December and January are the coldest months when frost occurs and in the higher altitudes, snowfall occurs occasionally. The district receives rains in three spells-pre monsoon, south-west monsoon and north-east monsoon. Pre monsoon during last week of April to May last part, The south-west monsoon sets normally in the first week of June and extends up to September. The north-east monsoon extends from the second half of October through November. The major share of the showers received during April to September is around 1600mm. The average annual rainfall is around 1500-2000 mm.

During December normally no rainfall is received, however during January to March the rainfall is very low and from October onwards, the temperature gradually decreases . The minimum temperature is generally around 8 °C. The details of kohima KVK district climate are given in Table.

Table: Climate of Kohima KVK District.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Max. Temperature (°C)	19.0 7	22.5 5	26.8 7	28.3 7	28.85	28.6	29	29.7	28.8 2	28.2	24.9	22.2 7	26.4 3
Average Min. temperature (°c)	1.67	4.25	4.82	9.27	11.32	14.3	14.9 2	14.7	13.7	9.05	5.42	3.2	8.88
Precipitation (mm)	10.6 2	9.3	45.7 5	309. 4	218.6 2	241.0 5	354	279.4 2	229. 4	81.5 7	12.4 7	-	1,79 1

Source: Meteorological centre, Directorate of soil and water conservation, Nagaland, Kohima

TOPOGRAPHY

Kohima is located at 25°40'N 94°07'E 25.67°N 94.12°E. It has an average elevation of 1261 metres (4137 feet). Kohima town is located on the top of a high ridge and the town serpentes all along the top of the surrounding mountain ranges as is typical of most Naga settlements. The total area of the district is 1,595 sq.Kms.

Topographically the district have three distinct region based on the agro-ecological situation of the district viz. AES-I (Below 1000 m), AES-II (between 1000-1500 m) and AES-III (Above 1500 m). The Figure2 shows the Agro-ecological situation (AES) of the KVK district.

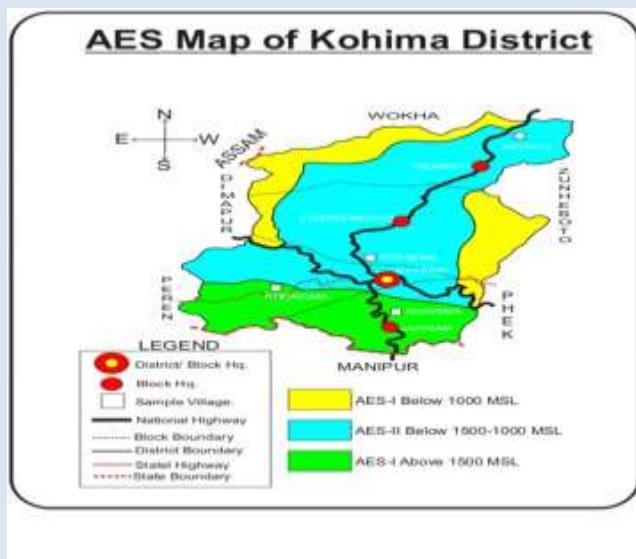


Figure: Agro-ecological Situation (AES) of kohima district

FOREST

Forest and agriculture go hand in hand as they are inter dependent. By practicing shifting cultivation(Jhum) the farmers practice agroforestry, which is the primary agricultural land use system. A total geographical area of 810.29 sq.km (81,029 ha) are under forest. The forest falls under three categories-purchased forest (3,926 ha),

protected forest (923 ha) and degraded forest (76180 ha) respectively. The forest area coverage in Kohima district is given in table 2.

Table:Details of forest area in Kohima KVK district.

Forest Types	Area (ha)	Total
Purchased forest	3,926.01	81,029.01 ha
Protected forest	923.00	
Degraded forest	76,180.00	

Source: Principal chief conservator of forest.

WATER RESOURCES: Nil

a. Rivers: Nil

b. Streams: Nil

c. Beels / lakes: Nil

PORTS: Nil

DEMOGRAPHY

The population of the district as per 2011 is 2, 67,988 with a higher male population. The population density per sq.km. is 183 which is higher than the state (119/sq. Km). The distribution of the population and details of literates in the district are given in Table. .The overall literacy rate is 85.23% with higher literacy in males(88.69%) and lower(81.48%) in females.

Table: Population and literacy figures in Kohima KVK District as per 2011 census

District	Total/Rural/ Urban	Population			Literates		
		Total	Male	Female	Total	Male	Female
Kohima district	Total	2,67,988	1,38,966	1,29,022	1,97,489	1,07,038	90,451
	Rural	1,46,900	76,369	70,531			
	Urban	1,21,088	62,597	58,491			

Source: Directorate of census operation, 2011.

d. Location of Blocks under Kohima KVK district:

The district is divided into 4 (four) Agricultural Blocks namely: Kohima, Jakhama, Chiephobozou and Tsemminyu Blocks. Kohima block occupies an area of 309000 ha and have 14 recognized Villages, likewise Jakhama block have 13 Villages and an area of 21700 ha, Chiephobozou block have 13 recognized villages and an area of 50500 ha whereas Tsemminyu block occupies an area of 56400 ha and have 33 recognized villages. The figure 3 represents the location of different Agricultural blocks under kohima KVK district.



Figure: Agricultural blocks under KVK Kohima District.

CHAPTER-II AGRICULTURAL SCENARIO OF THE DISTRICT

Agriculture is the way of life that is deeply interwoven with Naga cultures and traditions; Dependency on agricultural is the main occupation of the people and is the main economic activity of the district.

CROPS

According to 2011 census, agriculture provides full time employment to 9.04 per cent of total workers. There are about 38,017 cultivators and 911 agricultural labourers in the district. The details of land use pattern of the district other than forests are given in Table 4. Fig 4 depicts the per cent land area under different categories.

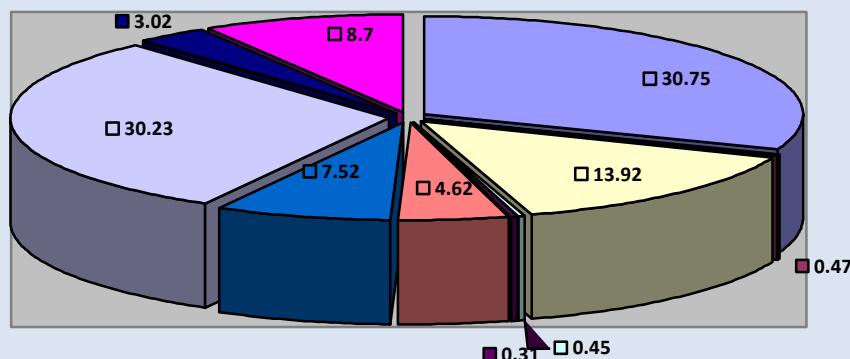
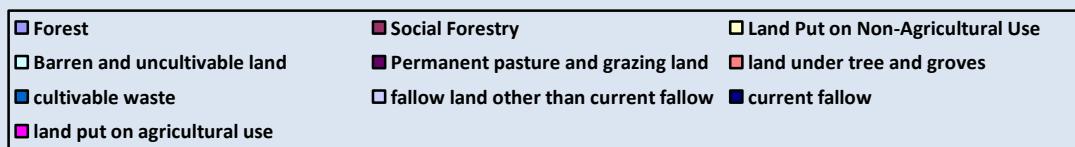
Table:Land use pattern of Kohima KVK district:

Sl.No	Classification	Hectare
I	Geographical area	159500
II	Reporting area for land utilization statistics (1-5)	159500
1	Forest	49050
2	Not available for cultivation (a+b)	23662
(A)	Land put to non agricultural uses	22962
a	Social forestry	750
b	Other land	22212
B	Baren and uncultivable land	700
3	Other uncultivated land excluding fallow land (a+b+c)	19865
a	Permanent pasture and other grazing land	500
b	Land under miscellaneous tree crops and grooves not included in net area sown	7365
c	Cultivable waste	12000
4	Fallow land(a+b)	53035
a	Fallow land other than current fallow	48215
b	Current fallow	4820
5	Net area sown (5-7)	13888

6	Total cropped area (5+7)	14438
7	Area sown more than once	550
III	Net irrigated area	7500
IV	Gross irrigated area	7540

Source: District Agriculture office, Kohima, 2014.

Fig: Percent of land area under different categories in Kohima district.



The soils of the district have been categorized into different groups based on the fertility status. Major part of the district have strongly acidic soils(42.6%) due to high degree of weathering of acidic parent material under humid climate with intense and heavy rainfall, followed by moderately (30.7%) and very strongly acidic soils (20.9%) The details are furnished in table.

Table: Details of soil fertility status of kohima district.

Sl. No	Range of concentration	Kohima Block (ha)	Jakhama Block (ha)	Chiephebozou Block (ha)	Tseminyu Block (ha)	Area (ha)	% of TGA
1	Extremely acidic (pH < 4.5)	39	231	509	742	1522	1.1
2	Very strongly acidic (pH 4.5- 5.0)	5687	3076	12101	8674	29538	20.9
3	Strongly acidic (pH 5.0-5.5)	15028	8995	22497	13705	60224	42.6
4	Moderately acidic (pH 5.5-6.0)	11959	5718	15177	10472	43326	30.7
5	Slightly acidic (pH 6.0-6.5)	2071	1058	1389	1157	5675	4.0
6	Neutral (pH 6.5-7.0)	184	170	312	299	965	0.7

Source: Soil nutrient mapping of Nagaland, 2014.

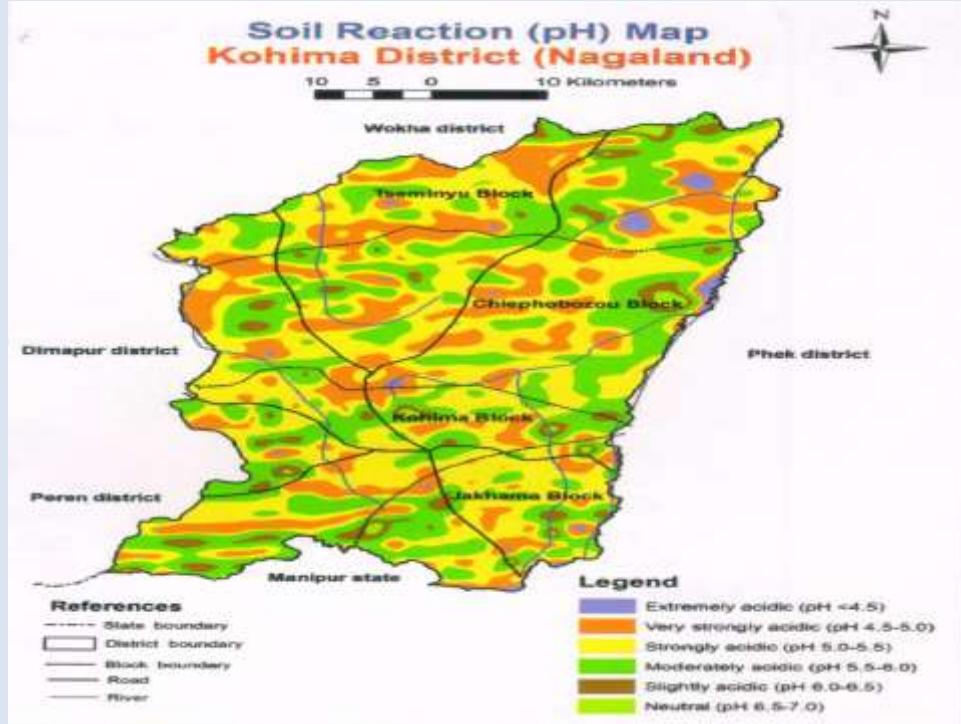


Figure: Spatial distribution of soil reaction (pH)

Topographically the district have three distinct region based on the agro-ecological situation of the district viz. AES-I (Below 1000m), AES-II (between 1000m-1500 m) and AES-III (Above 1500 m). The main occupation of the people is agriculture and most of the villagers are cultivator and medium farmers. The most prevailing practice of agriculture is terrace paddy field and jhum cultivation. The Table 7 shows the details of Agro-ecological situations (AES) of the KVK district and crops grown.

Table: Details of soil series and crops grown in kohima district

Physiographic division*	Soil sub group series	Crops grown
Mid up land(< 1000m)	Typic Udorthents, Typic Paleudults, Typic Dystrochrepts.	Paddy, vegetables, oranges, maize, banana, sugar cane, Tea, pineapple
Upland(1000m-1500m)	Umbric dystrochrepts, Typic Paleudults, Typic Dystrochrepts, Typic Hapludults, Typic dystrochrepts, Fluventic Haplonumults	Paddy(TRC+Jhum), yam, Maize, fruits, vegetables, ginger, spring onions, Naga King chilly, Cardamoms, coffee,pineapple
High Land (>1500 m)	Typic Paleudults, Humic Hapludults, Umbric dystrochrepts	Potato, paddy-cum fish culture, vegetables, temperate fruits.

*Figures in parenthesis denotes altitude above MSL

The farmers are mostly paddy cultivators. The indigenous cultivation system have been past down from generation to generation but in time modern technologies and techniques have creped into the system of cultivation. The area, production and productivity of crops in the district are given in Table 8.

Table :Area, production and productivity of major crops in kohima district.

Sl. No	Crops	Area (ha)	Production (Tonnes)	Productivity (Kg/ha)
1	Paddy TRC/WRC	8950	23440	2619
2	Jhum paddy	5420	10580	1952
3	Maize	4610	9080	1970
4	Small millet	1770	1990	1124
5	Jobstear	210	220	1047
6	Jowar	50	50	NA

7	Bajra	80	90	1125
8	Wheat	340	620	1823
9	Barley	50	50	NA
10	Oats	30	NA	NA
11	Arhar	290	260	896
12	Mong/Urd	20	NA	NA
13	Naga dal (Rice bean)	810	900	1111
14	Beans	340	460	1352
15	Rajma /Kholar	580	710	1224
16	Pea	650	700	1077
17	Lentil	180	150	833
18	Ground nut	80	80	1000
19	Soybean	2040	2610	1279
20	Perilla	400	250	625
21	Sesamum	370	240	648
22	Rape seed/Mustard	2010	2030	1009
23	Linseed	470	370	787
24	Sugar cane	210	9160	43619
25	Jute	550	1050	1909
26	Potato	1510	15250	10099
27	Tea(Green)	340	1510	4441
28	Mesta	110	120	1090
29	Tapioca	160	6370	39812
30	Yam	180	1330	7388
31	Pear	42	380	9047
32	Plum	65	500	7692
33	Peach	45	310	6888
34	Orange	880	7885	8960
35	Lemon	152	1390	9145
36	Pomelo	123	684	5561
37	Papaya	196	1939	9893

38	Pomegranate	20	113	5650
39	Banana	1089	13318	12229
40	Guava	68	490	7206
41	Mango	39	269	6897
42	Pineapple	883	12744	14433
43	Passion fruit	1240	3015	2431
44	Kiwi	41	543	13244
45	Sweet potato	158	2284	14456
46	Cabbage	778	15137	19456
47	Cauliflower	67	505	7537
48	Brinjal	46	381	8283
49	Chilly	685	4911	7169
50	Pea	125	980	7840
51	Bean	210	1980	9429
52	Bhindi	16	170	10625
53	Tomato	432	2106	4875
54	Ginger	275	4792	17425
55	Colocassia	525	6300	12000
56	Tapioca	578	9780	16920
57	Chow chow	420	5040	12000
58	Naga cucumber	53	420	7924
59	Pumkin	70	697	9957
60	Leafy vegetables	525	4200	8000
61	Water melon	18	180	18000
62	Coffee	255	37	145
63	Cashew nut	59	43	728
64	Coconut	25	70	2800
65	Cardamon	546	230	421
66	Turmeric	23	352	15304
67	Naga chilly	120	873	7275

Source: Directorate of Agriculture and Horticulture, 2013-14.

LIVESTOCK

District farmers mainly practice mixed crop livestock farming system where livestock rearing is integrated with food crop production. The people being tribal dominated there is no religious taboo for any kind of meat. Inspite the popularity, the livestock and poultry production is growing in a very slow rate due to indigenous and nondescript constituting majority of animals and birds population whose productivity are very low. The details of the livestock in the district are furnished in Table 9.

Table: Production and productivity of livestock including poultry in kohima district.

Category	Population	Production	Productivity
Cattle			
<i>Crossbred</i>	63652	NA	NA
<i>Indigenous</i>		NA	NA
Buffalo	2314	NA	NA
Sheep			
<i>Crossbred</i>	1091	NA	NA
<i>Indigenous</i>		NA	NA
Goats	9082	NA	NA
Pigs			
<i>Crossbred</i>	359831	NA	NA
<i>Indigenous</i>		NA	NA
Rabbits	3924	NA	NA
Poultry			
Hens			
<i>Desi</i>	392243	NA	NA
<i>Improved</i>		NA	NA
Ducks	11475	NA	NA
Turkey and others	NA	NA	NA

Source: Directorate of Vety & animal science, Nagaland.

FISHERIES

The district is bestowed with a pleasant and moderate climate with heavy rain fall from the month of May to September. There are many rivers, streams, rivulets etc making it ideal for riverine fisheries. The main aquaculture practices of the district are pond/tank culture and paddy cum fish culture. Table 10 provides a brief outlook of production and productivity of the district.

Table: Area, production and productivity of fisheries in kohima district.

Fish			
Category	Area	Production	Productivity
<i>Marine</i>	NA	NA	NA
<i>Inland</i>			
<i>Ponds and Tanks</i>	108	102.6	950 kg/ha/yr
<i>Paddy cum fish culture</i>	NA 30.6	56.2 16.2	300 kg/ha/yr 529.41 Kg/ha/yr
<i>Others (riverine etc)</i>			

Source:-Directorate of fisheries, Nagaland.

CHAPTER-III. CONSTRAINTS IN AGRICULTURAL PRODUCTION

CROPS

The high production cost is one of the major constraints in crop cultivation. The farmers are forced to go for single cropping as they depend purely on monsoon rain for cultivation. The deteriorating condition of natural fertility due to soil erosion and large practice of jhum cultivation is factors for large scale production as soil are found to be highly acidic. The knowledge on water management practices, fertility management and methods of scientific cultivation of crops is lacking among the farmers. Availability of quality seeds and other planting materials in time is also a major constraint. The agricultural produce being organic by default has immense potential of being exported however lack of proper marketing channels to get maximum profit is a limiting factor in this direction. To compete in the national and international market, technology based small scale agro-industries, cold storage; transportation facilities are to be encouraged.

Global warming and climate change have resulted in non-availability of water for drinking and irrigation purposes. Natural springs and water sources needs to be identified followed by popularizing water harvesting technologies and structures. Pest and diseases are also major bottlenecks in maximizing agricultural production. Development and popularization of suitable IPM strategies need to be given top priority. Crop wise major production constraints are given in Table 11.

Table: Factors affecting productivity of major crops in kohima district.

Sl.No	Crop	Constraints
1	Paddy	Use of low yielding local varieties, attack of stem borer, brown plant hopper, rice bug, crab problem and improper management.
2	Maize	Unscientific management, low yielding local varieties, rodent problems
3.	Banana	Unscientific management, cultivation of low production capacity, diseases like bunchy top, rhizome rot, panama wilt

		and pest like rhizome weevil and pseudostem weevil.
4.	Ginger	Rhizome rot, storage pest of seeds, marketing problems
5.	Papaya	Mosaic disease, attack of white fly and mealy bug, improper field management.
6.	Potato	Lack of resistant varieties, disease like late blight, early blight, tuber rot, grub problems and unscientific management
7.	Tapioca	Use of local varieties, mosaic disease
8.	Orange	Unhealthy planting material, unscientific system of planting and management, fruit dropping, fruit flies, pest and diseases
9.	Vegetables	Unscientific management, aphid, caterpillars, termites and grubs
10	Beans	Low yielding varieties, storage pest and unscientific management.

LIVESTOCK

In livestock enterprises, low productivity of indigenous cattle minimizes the profit margin of the farmers. Lack of knowledge on scientific methods of rearing followed by improper housing system, no proper records on reproductive and production traits, non availability of improved breeds, non availability of vaccines, unhygienic husbandry practices severely affects their economy. Availability of improved chicks, high cost of concentrate feeds, lack of knowledge and awareness is a constraints and affecting poultry production and widespread adoption of poultry related enterprises.

FISHERIES

Fisheries are a major sector for economic development. There are many potential water sources viz. ponds, tanks, paddy cum fish culture, Swamps Rivers etc which are yet to be tapped to its full potential and offer scopes in augmentation of fish production. However lack of knowledge in fish culture, non availability of good quality fingerlings, insecurity in public ponds are the major constraints of the district.

CHAPTER-IV. INSTITUTIONAL SUPPORT FOR AGRICULTURAL DEVELOPMENT OF THE DISTRICT

There are several institutions in the district devoted for the development of agriculture and related fields. State government departments, government undertakings, national institute and many voluntary organizations are very active and contribute substantially towards the overall agricultural development of the district.

CROPS

1. Department of agriculture

The State department of agriculture has a network of establishment in the district to cater to the needs of the farming community. The department has the following offices in the district:

i. District Agricultural Office

This is the apex office to supervise and monitor agricultural development activities in the district. The office is located at Agri colony, Below Minister Hill higher secondary school, Kohima. District Agricultural officer is the head. He is assisted by subject matter specialist (SMS), Assistant plant protection officer (APPO), Agricultural officer, Agricultural inspector and several Agricultural field assistant (AFA) in performing the day to day activities of the department.

Address for communication

District Agricultural officer(DAO)

Kohima, Nagaland

797001.

ii. Sub-divisional Agriculture office

Tseminyu block under Kohima district is the oldest sub-division in the state. It is headed by an independent Sub-divisional agricultural officer (SDAO). The office is located at Tseminyu town, which is 54 Km away from the District head-quarter. He is assisted by Agricultural Officer, Agricultural Inspector and several Agricultural Field Assistant (AFA).

Address for communication

Sub-divisional Agricultural officer (SDAO)
Tseminyu, Kohima
Nagaland
797112.

2. Krishi Vigyan Kendra (KVK), Kohima

The Kendra started functioning on February 2007, under the administrative control of the Directorate of Agriculture, Nagaland. The Kendra is situated at Tesophenju under Tseminyu sub-division which is 58 km away from the district headquarters, towards Kohima-Wokha highway. The operational area of KVK is the entire district and its location is depicted.

a) Mandates

- i. To conduct On Farm Testing trials for identifying technologies in terms of location specific sustainable land use systems.
- ii. To organize Front Line Demonstration on various crops to generate production data and feedback information in farmers' fields.
- iii. To organize trainings to update the extension personnel with emerging advances in agricultural research on regular basis.
- iv. To organize short and long term vocational training programmes in agriculture and allied fields for the farmers and rural youth with emphasis on learning by doing for higher farm production and generating self-employment opportunities to the youth.

b) Programmes

i. Training programmes

The Kendra is imparting regular training programmes of various duration in agriculture and allied fields for farmers, farm women and rural youth. There are two types of training programmes: scheduled training programmes for which training topics and dates are fixed by the Kendra and applications are invited from the farming community and youth for the programmes through publicity. The second type of training programmes are organized to meet the specific demands from individual farmer, farmers' groups, voluntary organizations, development departments, etc.

The major topics of the training programmes conducted at KVK are as follows:

Agronomy

- 1) Integrated Nutrient Management
- 2) Multiplication and use of azolla
- 3) System of Rice Intensification (SRI)
- 4) Cultivation Practices of Oilseeds, Pulses and cereals crops
- 5) Intercropping in Jhum fields
- 6) Efficient irrigation system for different crops

Horticulture

- 1) Planning a nutrition garden in a homestead
- 2) Propagation techniques in horticultural crops
- 3) Basic of plant propagation
- 4) Winter vegetables production
- 5) Rejuvenation of old orchards
- 6) Cultivation of Banana, oranges
- 7) Seed production in vegetables

Plant Protection

- 1) Integrated Pest and disease management in crops
- 2) Pest and disease management of vegetables
- 3) Integrated disease and pest management in Paddy
- 4) Management of pest and diseases in Orange, Potato, mustard.
- 5) Preparation of botanical pesticides
- 6) Use of biocontrol agents and biopesticides

Animal Husbandry

- 1) Backyard poultry rearing
- 2) Broiler production
- 3) Goatery management
- 4) Pig farming
- 5) low cost scientific housing system of poultry, piggery and goatery
- 6) Rabbit management

Fisheries

- 1) Integrated fish farming
- 2) Paddy cum fish culture
- 3) Management of fishery pond and tanks
- 4) Production and management of Eel

Soil and water conservation

- 1) Vermicomposting and compost pit
- 2) Preparation of low cost organic manures
- 3) Low cost water harvesting structures
- 4) Inoculation of bio-control agents- rhizobium
- 5) Organic fertilizers- azotobacter, azospirallium
- 6) Soil testing procedures

Agricultural extension

- 1) Formation and management of Self Help Groups(SHG), Farmers Club and Joint Liability Groups(JLG)
- 2) Sustainability of groups and group dynamics
- 3) Market led extension
- 4) Agri-prenurship development
- 5) Awareness creation activities
- 6) Gender mainstreaming through SHGs

Home Science

- 1) Value addition in fruits and vegetables
- 2) Designing and development of low cost high nutrient efficiency diet
- 3) Minimize post harvest losses of fruit and vegetables
- 4) Value addition of locally available fruits
- 5) Preparation of squash, pickle, jelly and Jams
- 6) Preparation of biscuit through locally available items.

ii. Front Line Demonstration

Organizing Front Line Demonstrations on newly released technologies in horticulture, field crops and animal sciences under farms' field condition to gererate production data and feedback information is one of the mandates of the Kendra.

iii. On Farm Testing

On Farm Testing programmes aim at testing the new technologies developed at research centres in the fields of crops, horticulture, animal husbandry to ensure their suitability and sustainability to specific locations and to suggest or modify or refine the technology in real farm situations with the active participations of the farmers.

iv. Plant and Animal clinic

The Krishi Vigyan Kendra operates a plant and animal clinic to cater to the various needs of the farming community. Vaccination camps to combat communicable diseases in animals and poultry birds are organized depending upon the local demand through

animal health camp in association with the Animal Husbandry Department and Local NGO's. The clinic also offers consultation services.

v. Farm Advisory Services

The Kendra organizes field visits as per the requirements of farmers to solve specific field problems. The Kendra also encourages the farmers in remote and distant locations to use communication media to contact the centre to solve their immediate field problems. The kendra has also started SMSing short messages through mobile-to mobile network regarding agriculture management, outbreak of pest and diseases, rainfall forecast etc.

vi. Farmers Study Tours

The Kendra organizes study tours for farmers to various research centres and fields of progressive farmers for “seeing is believing”

vii. Farmer's visit to the Kendra

Farmers are encouraged to visit the Kendra in person to discuss and solve their specific field problems and to get hands-on knowledge on the latest technologies available in agriculture and allied fields.

viii. Exhibitions, Kisan Melas, etc.

The Kendra regularly participates in exhibitions organized by local and statutory bodies, depicting its various activities and providing on the spot consultancies to the visitors. Farmers and others visit the pavilions of the KVK and avail the facilities offered there.

ix. Production and supply of planting materials, breeds of animals and other technologies inputs.

The Kendra produces and distributes planting materials of vegetables, fruits etc in small quantity. Improved breed of piglets, poultry etc are also sold to the farmers.

X. Other extension activities

The Kendra also organizes the following programmes:

- a) Field days
- b) Farmers day
- c) Film shows
- d) Seminars
- e) World Food day
- f) Women in Agriculture day
- g) Publication of popular articles and news letter(annual)
- h) Radio talk
- i) Documentation of Indigenous Technical Knowledge (ITK)

Address for communication

Programme coordinator

Krishi vigyan Kendra

Tesophenyu, Kohima

Nagaland

797112.

e-mail: kvkkohimanaga@gmail.com



Fig:location of krishiv vigyan Kendra, kohima from district head quarter

3. Agricultural Technology Management Agency (ATMA)

Agricultural Technology Management Agency (ATMA) is a registered society of key stakeholders involved in agricultural activities for sustainable agricultural development in the district. It aims at integrating research and extension activities and decentralizing day-to-day management of the Public Agricultural Technology System (ATS). At State level, it operates under the guidance of a governing board that determines programmes priorities and assesses impact of programmes. The ATMA is constituted by drawing members from all research and extension units within the district such as Research station, Krishi vigyan Kendra and the key line departments of agriculture, animal husbandry, fisheries, sericulture, horticulture, local NGOs etc. The State Agricultural Management Extension and Training Institute (SAMETI) is the agency formed at the state level to provide human resources development support for the effective functioning of the ATMA at district level. The Kohima District ATMA office is headed by the District Agriculture officer and the Deputy commissioner of kohima is the chairman.

a) Aim and Objectives.

1. To identify location specific needs of farming community for farming system based agricultural development;
2. To set up priorities for sustainable agricultural development with a Farming Systems Approach;
3. To draw plans for production based system activities to be undertaken by farmers/ultimate users;
4. To execute plans through line departments, training institutions, NGOs, farmers organizations and allied institutions;
5. To coordinate efforts being made by various line departments, NGOs, farmers organizations and allied institutions to strengthen research extension-farmers linkages in the district and to promote collaboration and coordination between various State funded technical departments;
6. To facilitate the empowerment of farmers/producers through assistance for mobilization, organization into associations, cooperatives etc. for their increased

participation in planning, marketing, technology dissemination and agro-processing etc.

7. To facilitate market interventions for value addition to farm produce;
8. To attain these objective, the society may:
9. Take steps to ensure that problems, constraints and needs to the farming system based agriculture development are identified and diagnosed periodically.
10. Draw up plans for an integrated research-extension linkage approach for farming systems based agriculture development.
11. Ensure that line departments/institutions draw up integrated development plan based upon resources available with them and incremental/supplementary resources mobilized by the ATMA.
12. Forge or develop systematic linkages between national/state/district institutions of excellence in the field of agriculture and marketing.
13. Ensure capacity building of manpower engaged in overall agricultural development and strengthen infrastructural support for the benefit of the farmer/producer.
14. Create suitable mechanism to ensure location specific adaptive, indigenous knowledge based research.
15. Ensure adequate linkages and frequent interaction between scientists, extension functionaries and technicians & farmers, in order to prepare an integrated plan to effectuate their linkage, support each other, better understanding and appreciation of their problems, means adopted to sort out problems and plans etc., and to develop a mechanism of feed back;
16. Ensure capacity building of the ultimate users- the farmers in terms of physical, financial and skill resources base by way of adequate financial support channelised through credit institutions, private investments and training for skill upgradation.
17. Facilitate farmers' organization to take lead role on mobilizing support services and resources.

18. Facilitate private investments for infrastructure development, private institutions have to take lead in the delivery of goods and services to ultimate users (farmers).
19. Facilitate the processing and marketing activities of the agricultural, livestock, dairy, poultry, silk and allied produce of the farmers with the help of private sector institutions.
20. Receive and expend project funds, maintain revolving accounts, enter into contracts and agreements, receive donations and provide services & deliver goods to beneficiaries.
21. Accept grants of money, securities or property of any kind and undertake and accept the management of any endowment, trust funds or donations not inconsistent with the objectives of the ATMA, on such terms and conditions as may be fitted with the objectives of the ATMA and be prescribed by the Government of India from time to time.
22. Generate resource in order to bring financial sustainability through charging for selected services rendered to beneficiaries by ATMA.
23. Create administrative, technical, ministerial and other posts in the ATMA and make appointments thereto in accordance with the rules and regulations of the State Government.
24. Make rules and bye-laws for the conduct of the affairs of the ATMA and add to amend vary or rescind them from time to time.
25. Do all such other lawful acts and things either alone or in conjunction with other organizations or persons as the ATMA may consider necessary, incidental or conducive to the attainment of the above objectives.
26. To do all such lawful acts and things whether incidental to objectives in force or not as may be requisite in order to furtherance of the objectives of the ATMA.
27. Sell, lease, exchange and otherwise transfer of any portion and the properties of the society (ATMA).
28. Do all other such things as may be considered by the society (ATMA) and may be incidental or conducive to the attainment of its objectives.

b. Functions

1. Strategic planning
2. Networking and coordination
3. Integrated extension delivery
4. Information management
5. Farmer facilitation and empowerment
6. Training and capacity building
7. Fund management
8. Participatory technology development
9. Monitoring

Address for communication

Project Director, ATMA

Office of the District Agriculture Officer

Department of Agriculture

Kohima, Nagaland

797001

4. Lead Bank

The Lead Bank Scheme provides leadership in initiating, streamlining and accelerating the process of development of the respective district by enlisting the co-operation of other banks and by maintaining continuous liaison with Government and quasi Government agencies. The State Bank of India (SBI) functions as the lead bank in the district.

Address for communication

General Manager

SBI (Lead bank office)

Near Kohima Ao church,

797001.

5. Other banking institutions

All nationalized banks and other financial sectors such as Nagaland state co-operative bank (NStCB), Nagaland Rural bank in the district have special schemes for the promotion of agriculture and allied fields in the district.

6. Farmers club and voluntary organizations

There are several voluntary organizations and farmers groups very active in the district with the aim of overall development of the farming community.

i) Entrepreneurs Associates (EA)

An NGO set up for imparting entrepreneurial skill to fresh graduates, drop-outs, unemployed youth and aspiring entrepreneurs to help start own business by disseminating market knowledge, branding, networking, essentials of good customer service, communication skill, confidence building, selling skill etc. in the district

Address for communication

EA Head Office, Kohima
PWD traffic point
Nagaland-797001.
Ph# 8131091105(M)

ii) Youth Net (YN)

Youth Net is registered under the Registration of Societies Act 1895. It was launched on the 1st of February 2006 by a group of young Naga professionals.

Youth Net is a non-profit organization with a mission to help youth acquire knowledge, develop life skills and form attitudes to enable them to become self directing, positive, productive, responsible and contributing members of society through active participation and involvement. The main objective was to create a platform where young people can address any issue that affects them.

Address for communication

Youth Net
Below Telegraph Office,
Minister Hill
Kohima, Nagaland.

LIVESTOCK

The veterinary and Animal Husbandry Department is vested with animal health programmes in the district by making available timely veterinary assistance. At present the district has 1 District veterinary centre, 1 veterinary hospitals, 5 dispensaries, 21 veterinary health centre, 1 quarantine checkpost. The district has the 1 unit of State poultry farm/H.U/CRC located at kohima district, 1 Regional Broiler chick production sub-institution, 1 poultry upgrading centre, 1 State cattle breeding farm located at Ierie colony kohima, 1 feed manufacturing centre, 1 artificial insemination centre, 12 stockman centre. There is a 1 disease diagnostic lab and 1 Elisa Laboratory. In addition to above, Intensive Cattle Development Programme (ICDP) are also functioning. The overall control of above offices is under the District Veterinary Office located at tinpatti, Don-Bosco junction.

Address for communication

District Veterinary officer
District Veterinary centre
Tin-Patti Near Don-Bosco Junction
Kohima-797001

FISHERIES

Department of Fisheries is an important productive sector under the Government of Nagaland. The department implements all the development and management programmes envisaged by the Government in the fisheries sectors. In addition, the department carries out a number of programmes and projects for the welfare of fish farmers.

Address for communication

District Fishery officer

Upper agri colony

Kohima, Nagaland

797001.

CHAPTER-V. RESEARCH AND DEVELOPMENT ORGANIZATION RELEVANT TO DISTRICT'S AGRICULTURE

Nil

CHAPTER-VI. PLAN AND SCHEMES FOR PROMOTION OF AGRICULTURE

Several organizations are responsible for promotion of agriculture and allied fields through development and implementation of specific plans and schemes. The major plans and schemes of various institutions are briefly described below.

CROPS

1. National Bank for Agriculture and Rural Development (NABARD)

a) Micro credit Innovations-Kisan Credit Card (KCC)

NABARD formulated a Model Kisan Credit card Scheme in consultation with major banks. As a pioneering credit delivery innovation, kisan credit Card scheme aims at provision of adequate and timely support from the banking system to the farmers for their cultivation needs including purchase of inputs in a flexible and cost effective manner. Beneficiaries covered under the scheme are issued with a credit card and a pass book or a credit card cum pass book incorporating the name, address, particulars of land holding, borrowing limit, validity period, a passport size photograph of holder etc., which serve both as an identity card and facilitate recording of transactions on an ongoing basis.

b) Farmers' club Programme

NABARD promotes the formation of farmers' club enabling them adoption of newer farm technologies and empowereing them for collective bargaining both for procuring inputs and selling their produce. The clubs are orienting them to establish better relationship with banks for suitable financial support in time of need.

c) Joint Liability Groups (JLG)

NABARD has launched the scheme for JLG financing in order to develop effective services credit products. Informal group comprising of 4-10 individuals coming together for the purpose of availing bank loan on individual basis or through group mechanism against mutual guarantee. Generally, the members of a JLG would

engage in a similar type of economic activity in the Agriculture and Allied Sector. The members would offer a joint undertaking to the bank that enables them to avail loans. JLG members are expected to provide support to each other in carrying out occupational and social activities.

Objective of the scheme

- 1) To augment flow of credit to farmers, especially small, marginal, tenant farmers, oral lessees, share croppers/individuals taking up farm activities.
- 2) To serve as collateral substitute for loans to be provided to the target group
- 3) To build mutual trust and confidence between bank and target group.
- 4) To minimize the risks in the loan portfolio for the bank through group approach, cluster approach, peer education and credit discipline.
- 5) To provide food security to vulnerable section by enhanced agriculture production, productivity and livelihood promotion through JLG mechanism.

d) Agricultural Commodity Futures' markets

Agriculture commodity futures are market-based instruments for managing risks and they help in orderly establishment of efficient agricultural markets. Future markets are used to hedge commodity price risks. They also serve as a low cost, highly efficient and transparent mechanism for discovering prices in the future by providing a forum for exchanging information about supply and demand conditions. The hedging and price discovery functions of future markets promote more efficient production, storage, marketing and agro-processing operations and help in improvement in overall agricultural marketing performance.

e) Scheme for setting up of agri-clinic and agribusiness centres

With the diversification and modernization of agricultural practices, there is a need to augment support and extension services for agriculture. For this purpose, a scheme for setting up agri-clinic and agribusiness centres by agriculture graduates has been launched by Government of India with the support of NABARD. These centres will provide a package of input facilities, consultancy and other services. They will strengthen transfer of technologies and extension services and also provide self employment opportunities to technically trained persons. MANAGE in Hyderabad is the

nodal agency for imparting training under the scheme. List of trained graduates is sent to various banks in the region for financial assistance.

f) Scheme for “Capacity building for Adoption of Technology (CAT)”

Technological upgradation and innovation have been the hall mark of Indian Agriculture. NABARD has been in the forefront in facilitating and adoption of new technology by farmers/entrepreneurs through various institutions/ agencies like banks, corporate, NGOs, SHG and Farmers Clubs. With a view to widen the horizon of new agro-technology, it was felt that traditional farmers may be motivated to adopt new technology by exposing them to innovative projects being implemented by various agencies in different parts of the country. Accordingly, it has been decided that NABARD would extend 100% support towards the cost of such exposure visit of the farmers to enable them to adopt new technology.

Address for communication

NABARD Regional Office

4th floor, NSCB H.O Administrative Building

Kher Mahal, circular road

Dimapur, Nagaland-797112

Ph#91 3862 253600

Fax-91 3862 227040

Or.

Deputy District Manager (DDM)

Upper Bayavu

Kohima, Nagaland

2. Rubber Board

Schemes in operation There is a well structured field establishment set up under the Rubber Production Department which renders free advisory and extension services to rubber growers on all aspects of rubber cultivation, production, processing and marketing and simultaneously attends to implementation of various development

schemes as well. Field offices located at all important rubber growing centres play important roles in extension activities.

1. Rubber Plantation development scheme Phase IV
2. Rubber Plantation development scheme Phase V
3. Rubber Plantation development scheme Phase VI
4. Rubber Plantation development scheme in North East
5. Schemes for assisting planting and upkeep
6. Scheme for popularizing use of low volume sprayers
7. Scheme for Improving Tapping
8. Scheme for Assisting Rubber Growers' Cooperatives
9. Scheme for Promoting rubber producers societies(RPSs)
10. Schemes for assisting companies in the RPS sectors
11. Schemes for assisting large growers
12. Schemes of general nature.

Address for communication

Director

Rubber Research Institute of India

Rubber board

Kottayam-686009

Ph: 30481-2353311-20

Fax: 0481-2353327,2353324

e-mail:rrii@rubberboard.org.in

Website: www.rubberboard.org.in

or.

3rd floor, NSCB H.O Administrative Building

Kher Mahal, circular road, Dimapur, Nagaland-797112.

3. Spice Board

Promotional programmes

- i) Production development schemes
 - a. small cardamom
 - b. large cardamom
 - c. development of exotic and high value spices
 - d. organic farming of spices
 - e. Integrated Pest Management
 - f. Development of spices in North East
 - g. Post harvest improvements in spices
 - h. Extension advisory service

ii) Post harvest improvement of spice schemes

- a. Scheme for improved cardamom curing devices for small cardamom(description/working procedure)
- b. subsidy for constructing drying yards
- c. Supply of polythene sheets and bamboo mats at subsidized cost
- d. procurement of pepper threshers at subsidized cost
- e. availability of solar driers for chilies.

Address for communication

Director (Development)

Spice Board

Sugandha Bhavan NH Bye Pass

Palarivattom Post

Kochi-682 025

Ph: 0484-2333610

Fax: 0484-2334429,2331429

e-mail: spicesboard@vsnl.com

website: www.Indianspices.com

4. National Horticulture Board

1) Technology development and transfer for promotion of horticulture

i) Objectives

- a) Popularization of new technologies/tools/techniques for commercialization/adoption
- b) Introduction of new concepts to improve farming systems
- c) up gradation of skills by exchanging of technical know-how
- d) Consolidating research efforts for specific problems
- e) Identification/collection, rapid multiplication & popularization of indigenous crops and other flora of horticultural importance with emphasis on domestic and export promotion.
- f) Familiarization and exposure towards the newer scientific concepts, temper and research & development from hitherto unknown, unexplored and traditional status of farming and post harvest management on to the modern lines.

ii) Eligible components

- a) Introduction of new technologies
- b) Visit of progressive farmers
- c) Promotional and extension activities
- d) Expert services from india/abroad
- e) Technology awareness
- f) Organization/participation in seminars/symposia/exhibitions
- g) Publicity and films
- h) Observation-cum-study tour abroad
- i) Honorarium to scientist for effective transfer of technology

Address for communication

Deputy Director
NHB
Ministry of Agriculture, Government of India
85, Institutional Area, Sector- 18
Gurgoan-122015, Haryana
Ph: 0124-2342992
Fax: 0124-2342991
e-mail: dd2nhb@gmail.com
website: www.nhb.gov.in

5. Centrally sponsored schemes

i) National Food Security Mission (NFSM)

National food security mission has been launched as a centrally sponsored scheme funded by central Government. It envisages to focus on districts which have high potential but relatively low level of productivity performance at present.

Address for communication

Joint Secretary
National food security Mission
Dept. of Agriculture & cooperation, Ministry of Agriculture
Krishi Bhawan, New Delhi-110001
Ph: 011-23381176
e-mail: khullar.m@nic.in
wesbiste:www.nfsm.gov.in

ii) Rashtriya Krishi Vikas Yojana (RKVY)

Concerned by the slow growth in agriculture and allied sectors, the national development council resolved to launch the special additional central assistance scheme RKVY. The main objective of the scheme is to achieve 4% annual growth in agricultural sector during the XIth plan by ensuring holistic development of agriculture and allied sectors. The basic features of this scheme are:

- 1) Incentives to States so as to increase public investment in agriculture and allied sectors.
- 2) Provide flexibility and autonomy to the state in the process of planning and executing schemes.
- 3) Ensure preparation of schemes based on agro climatic conditions, availability of technology and natural resources.
- 4) Ensure that local needs crops priorities are better reflected in the schemes
- 5) Reduce yield gap in important crops, through focused interventions
- 6) Maximize returns to farmers
- 7) Bring about quantifiable changes in production and productivity.

LIVESTOCK

Assistance to States for Control of Animal Diseases (ASCAD)

The scheme envisages for control of major animal diseases by providing strategic immunization cover strengthening of important diagnostic laboratories and biological production centres, take up disease surveillance, monitoring and forecasting information and communication campaigns and equipping of technicians.

FISHERIES

Some plan and schemes offered under the fisheries sector are presented below:

1. Construction of new ponds/tanks in fresh water area.
2. Reclamation /Renovation of old ponds
3. Renovation of brackish water pond for fish culture.





Staff Information

Sr. No.	Name of Staff	Designation	Area & Discipline of Work	CORRECT & Valid Contact Number	Email address
1.	Dr. V. Akashe zhimomi	Programme coordinator	Plant protection	9436073135	
2.	K. Michael Pienyu	Subject matter specialist	Plant protection	9436830123	
3.	Longma yanger pongen	Subject matter specialist	Agri. Extension	9436816539	
4.	Dr. Temjennungsang	Subject matter specialist	Animal science	9436436193	
5.	Zhiete	Subject matter specialist	Soil and water conservation	7085550054	
6.	Imtisenla	Subject matter specialist	Agronomy	9436604193	
7.	Khekali sema	Subject matter specialist	Horticulture	8974298559	
8.	Keviyieno Zhasa	Programme Assistant	-	8794710155	
9.	Vevozo Nyekha	Computer programmer	-	8575473975	
10.	Sesenlo Kath	Farm Manager	-	8257914510	
11.	Moatemsu	Acct cum Supdt	-	8575498901	
12.	Senali Magh	Stenographer	-	8575470076	
13.	Shweny	Driver cum Mechanic	-	-	
14.	Hankhan	Driver	-	9862942558	
15.	Medzonkhe Sep	Supporting staff	-	9615088470	
16.	Kehose Mesung	Supporting staff	-	9436810346	



Group photo of staffs,kvk Kohima

DISCLAIMER:

Information in this e-publication is compiled from various secondary sources by subject experts i.e. KVK professionals in district and compiled by editors. The information in this book is meant to supplement the working knowledge of development stakeholders in North Eastern Districts. The e-publication contains information about [district information], the information is not advice, and should not be treated as such. Editors are not responsible for any mistake or lacuna or plagiarism in this e-publication as information is compiled by KVKS from secondary sources. This e-publication is only for academic/developmental purposes, and not for commercial use. The main idea behind this e-publication is creating awareness and sharing information. Although the editors and publisher have made every effort to ensure that the information in this book was correct at publishing time, the editors and publisher do not assume and hereby disclaim any liability to any party for any loss, damage, or disruption caused by errors or omissions, whether such errors or omissions result from negligence, accident, or any other cause. This is pre-publication copy, uploaded to be reviewed by authors and peers.

