



PAPUM PARE DISTRICT

Inventory of Agriculture 2015



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



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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,
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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 Papumpare for taking part in compiling the huge information to shape up Papumpare 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 Papumpare 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 Papumpare



With warm Happy New Year Greeting 2016, I am immensely please to bring out this inventory of Papum Pare district as a mirror for the agri-allied sector in Arunachal Pradesh.

Exploring the vast potential in field crops of this district, this Kendra has left no stone unturned to reached the unreached country side equipped with various capacity building and technology demonstrations programmes to augment their crop productivity of our farming community.

My young and energetic subject matter specialists with their supporting team believes in principle-“ Seeing is believing and learning by doing” conducts the field trials and front line demonstrations of the proven technologies in the farmers field for their adoption.

This publication of inventory book for agri-allied sector of Papum Pare district is a step forward to document the various institutions, infrastructure, farmer organization and others etc which shall serve as a ready source of reference for the inquisitive fellows.

Last but not the least the whole gemots credit goes to my KVK Team and Thanks are due to Director (ATARI) for all the support in this publication.

(Thaba Heli)

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CHAPTER- I. DISTRICT IN GENERAL

Papum Pare is one of the major and capital district of Arunachal Pradesh situated between 26.55⁰N- 28.40⁰N latitude and longitude between 92.40⁰E- 94.21⁰E with an altitudinal range of 459-1250 msl covering geographical area of 2875 sq.km. On 22nd September 1992, Papum Pare district was created and inaugurated at Doimukh by the then Chief Minister of Arunachal Pradesh Sri Gegong Apang bifurcating it from Lower Subansiri district it became the 12th district of the state. The name of the district is derived from the two rivers which are flowing in the district viz. Papum river flowing in Balijan circle and Pare river flowing from Sangkum Geko touching Leporiang, Sagalee, Toru and Doimukh circles of the district. These two rivers finally drain into mighty Brahmaputra in Assam.



Fig: Location of Papum Pare District



CLIMATE

a. Agro-ecological zones:

Papum pare district experiences vast topographical and altitudinal variations. It is very difficult to earmark Papum pare district into different agro-ecological zones as even within a circle we could find 2-3 different climatic conditions. However, in broad sense ignoring certain micro-climatic conditions, papum pare district can be broadly divided into following agro-ecological zones.

Table : Agro-ecological zones of papum pare district

Circle	Agro-ecological zones	Altitudes (msl)
Mengio	High hill semi temperate to temperate zone	1250
Leporiang	High to mid hills, sub-tropical to temperate zone	1150
Sagalee and Toru	Mid hills, sub-tropical zone (with micro area of temperate zone)	1079

Kimin	Mid hills, vastly sub-tropical and tropical zone with micro area of temperate zone	462
Balijan, Tarasso, Banderdewa, Itanagar, Naharlagun and doimukh	Foot hills to mid-hills area, sub-tropical to tropical zones	459-800

b. Rainfall, Temperature and humidity:

Papum pare district is one of the heavily rain-fed areas and agricultural system in the district can be broadly termed as Rain-fed Agricultural system. On an average, the district experiences mean annual rainfall of 261.47 mm, 31.99 °C (maximum) and 17.02°C (minimum) temperature with average relative humidity of 78.11%. However, the total annual rainfall recorded during the year 2007 was 3690.20 mm, maximum temperature of 32.52°C and minimum of 18.05°C, average relative humidity of 82% in the district.

TOPOGRAPHY

The Papumpare District is a mountainous tract. The physical features of the district can be divided into two parts –Foothill Region and Hilly Region. On account of the existence of the hill ridges and the valleys its topography assumes typical character. The hill ridges are situated haphazardly. As soon as one ends the other ridge starts either parallel or in opposite direction. At these intervals the wide or narrow valleys get the foothills constituting 20 per cent each to geographical area of the district. The wide and narrow valleys share 35 per cent each to total geographical area. Due to typical topography the rivers are undulated.

There are numerous streams and rivers and are drained by Principal rivers Ganga, Pachin, Poma & Dikrong etc.

These Principle rivers of the district are drained by the westerly flowing Brahmaputra. These rivers possess high hydro-power potential.

FORESTS

Papum Pare district has 1458.389 sq.km of forest cover. The vegetations of the forest in the district can be broadly classified as moist deciduous forest in the foot hills and wet sub-tropical ever green to semi-evergreen at higher altitude or temperate zones. The forest covers especially in the lower altitude (foot hills) are vertically distributed in four different layers or strata-

- ✚ Floor layer: Thickly dense forest cover requiring lesser light, comprising of herb, shrubs, grasses and creepers. e.g. *Seteva palmifolia*, *chrysopan carex*, *cruciata*, etc.
- ✚ Middle layer: Dense forest cover comprising of herb, shrubs, grasses and creepers require less light. e.g. *Hibiscus rosa sinensis*, *citrus species*, etc.
- ✚ Sub-canopy layer: Sparsely distributed forest cover require light for growth. This layer comprised of fruit bearing trees *viz. Mangifera indica*, *Zizyphus jujuva*, etc.
- ✚ Canopy layer: Thinly cover comprising of bamboo species. The layered vegetation or forest cover structures species selection is never static rather pool of replacement species results in production structure which is always dynamic.

Table: Forest type in different circles of Papum Pare district

Circle	Agro-ecological zones	Predominant forest type
Mengio	High hill semi temperate to temperate zone	<ul style="list-style-type: none"> ✓ Rhododendron mixed scrub forest ✓ Temperate broad leaved forest ✓ Temperate evergreen closed forest
Leporiang	High to mid hills, sub-tropical to temperate zone	<ul style="list-style-type: none"> ✓ Temperate broad leaved forest ✓ Sub-tropical evergreen closed forest
Sagalee and Toru	Mid hills, sub-tropical zone (with micro area of temperate zone)	<ul style="list-style-type: none"> ✓ Sub-tropical evergreen forest (open and scrub forest)
Kimin	Mid hills, vastly sub-tropical and tropical zone with micro area of temperate zone	<ul style="list-style-type: none"> ✓ Sub-tropical evergreen forest ✓ Tropical evergreen dense forest ✓ Temperate semi-evergreen forest
Balijan, Tarasso,	Foot hills to mid-hills area, sub-tropical to tropical zones	<ul style="list-style-type: none"> ✓ Tropical evergreen or

Banderdewa, Itanagar, Naharlagun and doimukh		semi-evergreen dense forest ✓ Tropical evergreen or semi- evergreen closed forest
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WATER RESOURCES

A large portion of the area is under rain-fed in the hilly areas as well as in the lowland areas of the district. The state has been blessed with heavy rainfall in almost all the season of the year. However, it is observed that for the terrace paddy cultivation and lowland cultivation channel irrigation is commonly practiced. The farmers' divert channels from perennial streams for their irrigation purpose.

- a. **Rivers:** There are three major rivers flowing through papum pare district viz. Papum river, Pare river and Panyor river. In Panyor river a capacity of 450 MW hydro electric project has been constructed to generate electricity. These rivers have several tributaries which are used by farmers for irrigating their fields.
- b. **Streams:** Natural streams are originates from the foot-hills and are mainly used for irrigating the terrace cultivation.
- c. **Lakes:** The famous Ganga lake popularly known as Gekar sinyi is situated in the poma sub-division of Itanagar circle. The lake is mainly used for tourist destiny.

PORTS

There are no any ports in the hilly states of North Eastern part of Indi

DEMOGRAPHY

The Total Population of Papum pare district is 1,76,573 (census, 2011) comprising of 89,182 and 87,391 male and female respectively. The rural population comprised of 79,610 numbers distributed throughout the 485 villages. The average density of the population is 51 persons sq.km as compared to 17 person's sq.km for Arunachal Pradesh.

Table: Population and literacy figures of Papum Pare District

Sl.no	Particulars	Value
1.	Total Population	176573
2.	Male	89182
3.	Female	87391
4.	Rural Population	79610
5.	Rural Male	39935
6.	Rural Female	39675
7.	Urban Population	96963
8.	Urban Male	49247
9.	Urban Female	47,716
10.	Percentage of Urban Population	54.91 %
11.	Density per sq.km	51
12.	Literacy	82.14 %

Source: District Census Handbook, Papum Pare (Census, 2011)

CULTURE AND EDUCATION

Capital city being situated in the heart of Papum Pare district. The major educational institutes are concentrating in this region and most of the populations are literate. The average literacy percentage is recorded to be 79.95% (Census, 2011) and 86.06% for male and 73.72% female. There are 1 University, 2 Engineering Colleges, 1 Homeopathic College, 3 arts and 1 science colleges, 1 polytechnics, and a total of 353 schools in the secondary and Primary levels in the district. All the villages in the district have adequate number of basic educational institutions.

HEALTH CARE SECTOR

The Papum Pare district has 1 government state hospital, 1 NGOs hospital, 1 homoeopathic hospital, 5 private hospitals, 3 community health centres and 9 primary health centres. A regional ayurvedic research institute is also functioning in the district. There are 3 nursing institutes in the district to promote women's participation to solve their health problems particularly related to maternal and child health and family planning. The district has 1 dispensary and 58 sub health centres for the service of the people of the district.

BANKING AND ALLIED SECTORS

The focal points of all the financial transactions are concentration in capital city located

In Papum Pare district. The lead banks are SBI with its many sub branches, NABARD, Arunachal Pradesh Rural Bank, Arunachal Pradesh Co-operative apex bank and many other Central government undertaking banks are functioning in the district.

LOCAL BODIES AND RURAL DEVELOPMENT

The panchayats are the administrative blocks at the grass root level and enjoys full freedom in planning and developing the area under its jurisdiction. They are also known as the Local Self Government. The municipalities of capital complex take care of the developmental programmes of the district in the urban areas. In rural areas panchayat are the local guardian of all developmental schemes headed by Block development officers.

CD block-wise name of circles and the no. of villages in each circle as existed in 2011 Census are stated below:-

S. No	Name of the taluk	Total area in ha Taluk HQ	Taluk HQ
1	Doimukh	42587	Doimukh
2	Kimin	33089	Kimin
3	Balijan	74825	Balijan
4	Tarasso		Ramghat
5	Sagalee	103907	Sagalee
6	Mengio	5798	Sakiang
7	Toru		Kheel
8	Leporiang		Leporiang
9	Itanagar		Itanagar
10	Naharlagun		Naharlagun
11	Banderdewa		Banderdewa

Block details (provisional population nos.)

S. No.	Name of the block	Total area in ha	No. of Panchayats	No. of Villages	Total population inclusive of SC/ST population			ST population		
					Male	Female	Total	Male	Female	Total
1	Doimukh	42587	55	48	7461	6837	14298	11242	11086	22328
2	Kimin	33089	31	27	5244	3818	9062	3169	2744	5913
3	Sagalee	103907	92		8401	8240	16642	7126	7596	14722
4	Balijan	74825	78		8511	8244	16755	5813	5939	11753
5	Mengi	57986	63		2715	2844	5556	2711	2844	5555

Source: Statistical abstract of Arunachal Pradesh- 2012

CHAPTER- II. AGRICULTURAL SCENARIO OF THE DISTRICT

Papum Pare district is characterized by hilly ridges, mountains and valleys covered with green lush vegetations throughout the year. Agriculture is the main occupation of the people and it is the main economic activity of the district.

CROPS

The agriculture practice though of traditional type is the important means of sustaining livelihood of the tribal communities of the district. Shifting cultivation in the hill slope and wet field cultivation in the foot hills are the two main agricultural practices prevalent in the area. Paddy is found to be dominant crop both under wet and dry cultivation. Other commonly grown crops are Paddy, Maize, Millets, Pulses, Oilseeds, Potatoes, Sugarcane, etc.

Table: The details of land use pattern of the district

S.No	Particulars	Area in ha	% to the Total geographical area
01	Total geographical area	287500	
02	Area under Forest	145838.9	50.7
03	Total Operational areas	10866.00	04
04	Barren and uncultivable land	652.52	0.22
05	Land put into non-agricultural Uses	994.03	0.34

06	Cultivable waste	472.56	0.16
07	Permanent pastures and other grazing lands	1461	0.50
08	Miscellaneous tree crops and grooves not included in the net area sown	NA	NA
09	Current Fallow	918.23	0.31
10	Other Fallow	772.21	0.26
11	Net Area Sown	7056.45	2.45
12	Area sown more than once	NA	NA
13	Gross Cropped Area	11138.21	3.8
14	Net irrigated area	4717.33	1.64

Source: Statistical Abstract of A.P-2012 DSS in Agriculture & Allied sector of Papum Pare District.

The details of the agri and horticultural crops grown in the district are presented in tabular form with area, production and its productivity (census, 2013-14)

Sl.no	Name of Crops	Area (Ha)	Production (MT)	Productivity (Kg/ha)
A. Field Crops				
1.	Paddy	9975	25130	2520
2.	Maize	2196	4557	2075
3.	Millets	641	857	1337

4.	Wheat	179	304	1698
5.	Pulses	316	386	1222
6.	Oilseeds	1837	2021	1100
7.	Potato	271	2540	9373
8.	Sugarcane	197	3723	18898
B. Horticultural Crops				
1.	Khasi Mandarin	514	956.54	1860.97
2.	Pineapple	463	816.74	1764.02
3.	Banana	181.5	235	1294.76
4.	Guava	58	94.85	1635.34
5.	Papaya	48.4	75.91	1568.38
6.	Ginger	112	1109	9902
7.	Turmeric	90	127	1411
8.	Chilli	77	516	6701
9.	Cardamom	65	18.75	288.46
10.	Vegetables	304	1277	4201
11.	Tea	69	212	3072.46

Source: Directorate of Agriculture and Horticulture, Govt. of Arunachal Pradesh (Census, 2013-14)

LIVESTOCK

Livestock play a pivotal role in the livelihood of the native people of the district irrespective of the place of inhabitation. The population of the district is 100% non-vegetarian and animal proteins are the major source of food. The district has 65139 numbers of livestock and 84451 numbers of poultry populations. The livestock and poultry density in the district are 22.66 and 29.37 per sq.km respectively.

Amongst the livestock, cattle population (53945 nos.) predominate the area with 37.80% of total holding followed by goat (44437 nos. i.e. 31.14%), pig (38064 nos. i.e. 17.61%), Mithun (44286 nos. i.e. 31.04%), buffalo (106 nos. i.e. 0.16%) and sheep (11 nos. i.e. 0.2%).

Amongst the poultry fowls (86,157 nos.) are predominantly present in the district which are of basically non-descript type and are reared in semi-intensive scavenging system with zero - input: low- output management. Duck and other poultry (like pigeons) are very less in number (6,722 nos.). Experienced survey shows that duck meat is not much preferred by the native people of the district.

Table: Livestock Population of the district

LIVESTOCK POPULATION	
Livestock	No
Cattle	53945
Buffalo	-
Goats	44437
Sheep	-
Horses & Ponies	-
Mules	-
Donkeys	-
Mithun	44286
Pigs	38064
Fowls	-

	Ducks	8489
	Other Poultryies	149070
	Rabbits	06
	Total	338297
	BREEDABLE CATTLE & BUFFALOES	
	Female Cattle Young stock	11021
	Adults	16290
	Total	27311
	Female Buffalo Young stock	
	Adults	-
	Total	-
	Male Indigenous	16469
	Cross Bred	1021
	Total	17490
	Female Indigenous	22158
	Cross Bred	1457
	Total	23615
	Total Indigenous	38627
	Cross Bred	2488
	Total	41115

Source: 19th Quinquennial livestock census 2012. Deptt. of A.H & Vety. Govt. of Arunachal Pradesh

FISHERIES

Papum Pare district is bestowed with immense potentiality of resource in the shape of capture and culture source. The main capture resources are in the form of rivers, streams, lakes, beels and derelict water bodies. The lakes water bodies can be introduce a cage culture stem special reference to “GANGA LAKE”. There is a huge scope of cage culture Fisheries, beels fisheries is again one most potential zonal auto stocking and regulation of feeder distribution system hydro chemotherapeutics, waters qualities is one of prime factor which could be considered first in any form of fish farming in the resource of lentic and lotic water bodies. A fishery resources are renewable but never the less they are subject to over exploitation, consequently the percentage of catch from fluvial stem has declined considerably.

There are two numbers of Govt. fish farm in the district under the control of D.D.F.O Yupia:

a. Govt. Fish Farm, Emchi:

Emchi Fish Farm was established in the year 1978-79. The total area of the farm is about

4.5 ha. The total effective water area in the form of stocking ponds and nursery ponds is 2.5 ha.

b. Govt. Fish Farm, Gumbo

The farm was established in the year 1974-75. The total farm area is about 2.5 ha effective water spread area of 1.5 ha comprising nursery and rearing of demonstration farm. The farmers are motivated to take up the aquaculture activities on large scale which is a prime motive of said farm.

Fig: Fishery data period from 2010- 11.

Year	Area (Ha)	Production (Tones)	Yield {Tones/Ha}
2001-02	51.04	40.83	0.80
2002-03	66.00	54.78	0.83
2003-04	62.00	52,08	0.84
2004-05	70.00	56.00	0.80
2005-06	78.00	67.08	0.86
2006-07	79.50	63.60	0.80
2007-08	83.50	69.30	0.83
2008-09	85.50	77.28	0.90
2009-10	550.35	440.28	0.80
2010-11	551.85	460.80	0.84

Source: Deptt. of Fisheries, Yupia. 2010-11, Govt. of Arunachal Pradesh

CHAPTER- III. CONSTRAINTS IN AGRICULTURAL PRODUCTION

CROPS

The major constraints that hinder the growth of Agriculture sector of the district are the low productivity of the crop, unfavorable terrain, communication bottlenecks, the non availability of basic preservation, storage and processing facilities, low value addition and unfavorable price of agricultural commodities are severely affecting the economy of tribal people of the district. The Reason behind this constraints could be because of the reason that farmers does not use high yielding varieties, occurrence of disease and pest, least use of manures and fertilizer, lack of technical know how of the improved technology. Major constraints and strategies of the district in circle wise are listed below:

Table: constraints and strategies of the agriculture sector in papumpare district

Circles	Constraints	Strategies
A. Mengio circle	Reduction in fallow period (3-5 Years) for shifting cultivation lead to lower soil fertility.	Introduction of Agro-forestry or terraced cultivation.
	Less area under agriculture and low productivity	Encouraging the farmers to adopt improved package of practices through training and demonstration. Improved planting material, introducing HYV.
	Lack of HYV, fertilizers and manure.	Introduction of HYV through demonstration and traning on INM. Supply of Inputs at free of

		cost and at time
	Lack of knowledge about modern technology.	Awareness campaign and exposure visit of the farmers at village level and Educating farmers through radio talk/pumplets/leaflets etc
	Irrigation source , due to financial problem could not purchase the irrigation equipment like pipe, tube well etc	Provision of Micro irrigation channel with drip irrigation, Flood protection measures. Training on rain water harvesting
	Non-adoption of Recommended package of Practices of the crop	Training & demonstration at Farm level
	Non-adoption of IPM/INM/weed management.	Training and Demonstration.
	Non availability of inputs in time	Supply of Inputs by Govt. Officials at free of cost
	Wrong selection of crop variety, low yielding local variety	Enhance the adoption of recommended package of practices of the crop
	High incidence of pest and disease in crop, rodent attacks	Adoption of INM & IPM
	Steep & rugged terrain of the land surface	
	Poor economic condition of majority of farmers	Credit linkages with financial institution and implementation of Agro based self employment

		programme.
	Reluctant to use HYV seeds/fertilizer and plant protection chemicals	Educating farmers through training and demonstration and encourage farmers for organic farming
	No proper road communication developed due to heavy rainfall	Proper communication and Transportation facilities to be provided by the govt. officials
	No assured market facilities	-do-
B. Doimukh, Naharlagun and Itanagar	Excessive rainfall causing flood, landslide, soil erosion & siltation	
	Unpredictable weather condition	
	Wrong selection of crop variety, low yielding local variety	Introduction of HYV through demonstration and training on INM.
	High incidence of pest and disease in crop, rodent attacks	Adoption of Integrated Pest management and Rat control measures to be introduced in area affected with rat population
	Lack of knowledge about modern technology	Awareness campaign and exposure visit of the farmers at village level and Education farmers through radio

		talk/pumplets/leaflets etc
	Irrigation source , due to financial problem could not purchase the irrigation equipment like pipe, tube-well etc	Provision of Micro irrigation channel with drip irrigation, Flood protection measures. Training on rain water harvesting
	Non-adoption of Recommended package of Practices of the crop	Encouraging the farmers to adopt improved packages of practices through training and demonstration
	Non-adoption of IPM/INM/weed management.	Educating farmers through training and demonstration and radio talk/pumplets/leaflets etc
C. Sagalee, Toru, Lepotiang circle	Irrigation source , due to financial problem could not purchase the irrigation equipment like pipe, tube-well etc	Construction of micro irrigation channel with drip irrigation and training on rain water harvesting
	Non-adoption of Recommended package of Practices of the crop	Training and demonstration on recommended package of practices at farm level.
	Non-adoption of IPM/INM/weed management.	Training and demonstration on IPM/INM at farm level.
	Non availability of inputs in time	Supply of the seeds, fertilizers at time and free of cost by the govt. departments.
	Wrong selection of crop variety, low yielding local variety	Introduction of Hybrid and improved varieties. HYV

		programme to be implement.
	Stray & unattended animal destroy the crops due to the lack of fencing provision	Provision of fencing through department concern
	Reluctant to use HYV seeds/fertilizer and plant protection chemicals	Educating farmers through training and demonstration and radio talk/pumplets/leaflets etc
	Reduction in fallow period for shifting cultivation, thus decrease in of soil fertility.	Agroforestry, increase the fallow period.
	Excessive rainfall causing flood, landslide, soilerosion & siltation	-do-
	Lack of training & Demonstration and awareness programme on technology know how of the modern agriculture.	Posting of Techincal staff by the departments
	High incidence of pest and disease in crop, rodent attacks	Training and demonstration on IPM/INM at farm level.
	No assured market facilities	Proper communication and transportation, creation of APMC
	Lack of knowledge about modern technology	Awareness campaign and exposure visit of the farmers at village level and Educating farmers through radio talk/pumplets/leaflets etc

Balijan & Kimin, circle	Irrigation facilities in the permanent cultivation fields, due to financial problem could not purchase the irrigation equipment like pipe, tube well etc	Construction of micro irrigation channel with drip irrigation and training on rain water harvesting.
	Lack of modern tools and equipments and farm machinery.	Supply of farm equipments at free of cost under Macro management Scheme sponsored by central Govt.
	Excessive rainfall causing flood, landslide, soilerosion & siltation	Agroforestry
	Unpredictable weather condition.	
	Non-adoption of IPM/INM/weed management	Educating farmers through training and demonstration and radio talk/pumplets/leaflets etc
	Non-adoption of Recommended package of Practices of the crop	Training and demonstration on recommended package of practices at farm level.
	Lack of training & Demonstration and awareness programme on technology know how of the modern agriculture.	Posting of Technical staff by the departments

LIVESTOCK

Constraints, Strategies and Action plan of different livestock production system

Production System	Constraints	Strategies	Action Plan
A. Cattle Production System			
1. Indigenous Cattle	Low productivity	Breed up-gradation by Selective breeding	<p>a. Procurement of selected cows & bulls to develop nucleus herd in each circle at phase manner. The heifers produced out of elite animals will be distributed to the progressive farmers. And if bull calf is produced selected one will be reared.</p> <p>b. Semen will be collected from the elite indigenous bulls at bull</p>

			mother farm to prepare frozen or liquid semen for use in A.I. Programme.
2. Cross bred Cattle Production System			
	<ul style="list-style-type: none"> i. Semi-scientific management system ii. High cost of production iii. Crossbred of mixed genome iv. High feed & A.I cost v. Timely Vetty. service 	Total facelift of existing farming system to scientific production system	<ul style="list-style-type: none"> a. Breed characterization of the cows (phenotypically or genomic study), identification markings (Tag) & computerization of essential data of the elite animals. b. Streamlining the housing, breeding, feeding & other management system.

			c. Nucleus herd of elite cattle, bull mother farm & strengthening or installation of feed mills in the strategic locations.
B. Pig Production system			
1. Indigenous non-descript pigs	<ul style="list-style-type: none"> i. Scavenging management system ii. Lower body weight gain & litter size 	Transformation of traditional system to scientific management system to combat food crises & for timely control of any dangerous zoonosis.	<ul style="list-style-type: none"> a. Awareness, motivation & changing the mindset of farmers to shift for scientific management system. b. Training on scientific feeding practices, breed up-gradation & disease prevention techniques
2. Crossbred pigs	<ul style="list-style-type: none"> i. Semi-intensive & intensive system ii. Mixed genome iii. Poor database iv. Informal unhygienic marketing 		

			<p>c. Need to provide micro-credit linkage for the progressive farmers to enable them to shift towards scientific intensive practices as well as to boost up their productions.</p> <p>d. Policy to make ready availability of inputs (feed, piglets, medicine, etc) to take up piggery as a commercial venture.</p>
C. Poultry Production			
1. Non-	Poor productive	Restructurin	a. Improving

<p>descript chicken</p>	<p>performance (weight & egg)</p>	<p>g of traditional system</p>	<p>existing feeding system. b. Educating farmers to utilize the local feed resources as poultry feed. c. Introduction of improved rural indigenous birds on selected areas with strict performance monitoring under joint venture of farmers & scientists of KVK.</p>
<p>2. Commercial broiler birds</p>	<p>i. Non- availability of quality chicks at cheaper rate. ii. High</p>	<p>Govt. policy initiations</p>	<p>a. State policies required to make easy accessibility of the different</p>

	<p>commercial feed cost</p> <p>iii. Periodical market inaccessibility due to higher production cost</p>		<p>inputs to farmers for commercial poultry farming.</p> <p>b. Integration of poultry farming with other agricultural sectors for feed ingredients production to reduce cost of production in the area.</p> <p>c. Training on scientific methods of slaughtering & marketing keeping intact food safety standards.</p>
<p>D. Mithun Production System</p>			
	<p>i. Free range management</p>	<p>Policy initiations for</p>	<p>a. There is an emergent</p>

	<p>system</p> <p>ii. Indiscriminate slaughter</p> <p>iii. Inbreeding (slaughtering of robust strong bulls during festive occasions leading to breeding by inferior bulls)</p>	<p>augmenting mithun production & their conservations.</p>	<p>need to document the natural habitat & multiply the natural fodder species commonly relished by mithuns.</p> <p>b. Identified natural fodder species which are found to be most nutritious should be propagated in the fodder nursery & cultivated in fodder demonstration plots to distribute amongst mithun owner</p>
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			<p>for wider cultivation in mithun grazing areas & restoration of their natural habitat.</p> <p>c. Although mithuns are given traditional identification markings still, mithun theft & ownership dispute is a common problem in Papum Pare district. Installation of microchips on the mithuns for their scientific identification is one of</p>
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			the effective methods to resolve the mithuns theft & ownership dispute.
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FISHERIES

Constraints, Strategies and Action plan of fisheries production system

Sl.no	Constraints	Strategies	Action plan
1.	High siltation of rivers due to catchments area	Land use planning needed	<ul style="list-style-type: none"> a. Awareness & motivation programme for local mass. b. Restriction of forest destruction in catchments area which demands policy decision.
2.	Reduction of spawning ground due to dam/high embankments	<ul style="list-style-type: none"> i. Land use planning ii. Discourage the diversion of 	<ul style="list-style-type: none"> a. Proper planning needed before constructing any big dams/embankments. b. Alternative spawning

	construction	water inter-river	grounds should be identified in the rivers.
3.	Irrational fishing, destruction of breeders & juvenile fish of commercial importance	Ban on use of toxic substance which needs policy decision & implementation	<p>a. Awareness/motivation camps against use of toxic substance in fishing.</p> <p>b. Restriction of irrational fishing during breeding & spawning season.</p>
4.	Inadequate documentation & conservation of fish genetic resources of district	Survey, documentation & conservation programme	<p>a. Bench mark survey & documentation of fish treasures of district.</p> <p>b. Conservation of rare & economic resource of the district.</p>
5.	Lack of preparedness for farmers participation in fish culture activities	Fish farmers participatory approach	<p>a. Motivation camps for farmers.</p> <p>b. Krishi mela/fish culture show.</p>
6.	Financial constraints at both Govt. & private sector	Fund support	<p>a. Funding for the infrastructure creation & awareness programme.</p> <p>b. Subsidy schemes for</p>

			<p>the progressive farmers.</p> <p>c. Financial linkage support for providing credits for fisheries development.</p>
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CHAPTER- IV. INSTITUTIONAL SUPPORT FOR AGRICULTURAL DEVELOPMENT OF THE DISTRICT

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

CROPS

a. Department of Agriculture

The State Department of Agriculture has a network of establishments in the district to cater to the needs of the farming community . The Directorate of Agriculture is located in the heart of Papum Pare district *i.e.* Naharlagun with a motorable distance of 14 Km from KVK site. The agriculture department provides the basic inputs like seed, planting materials, fertilizers and agro-chemicals to the farmers. The department is well equipped with multi-faect facilities of lobaratory like Soil testing, seed testing, pesticides testing and with bio-control equipments. The department also provides (Tractor, Power tiller, Pump Sets, Huller, etc.) subsidies to the genuine farmers under Chief Minister's Agricultural Mechanization Programme.

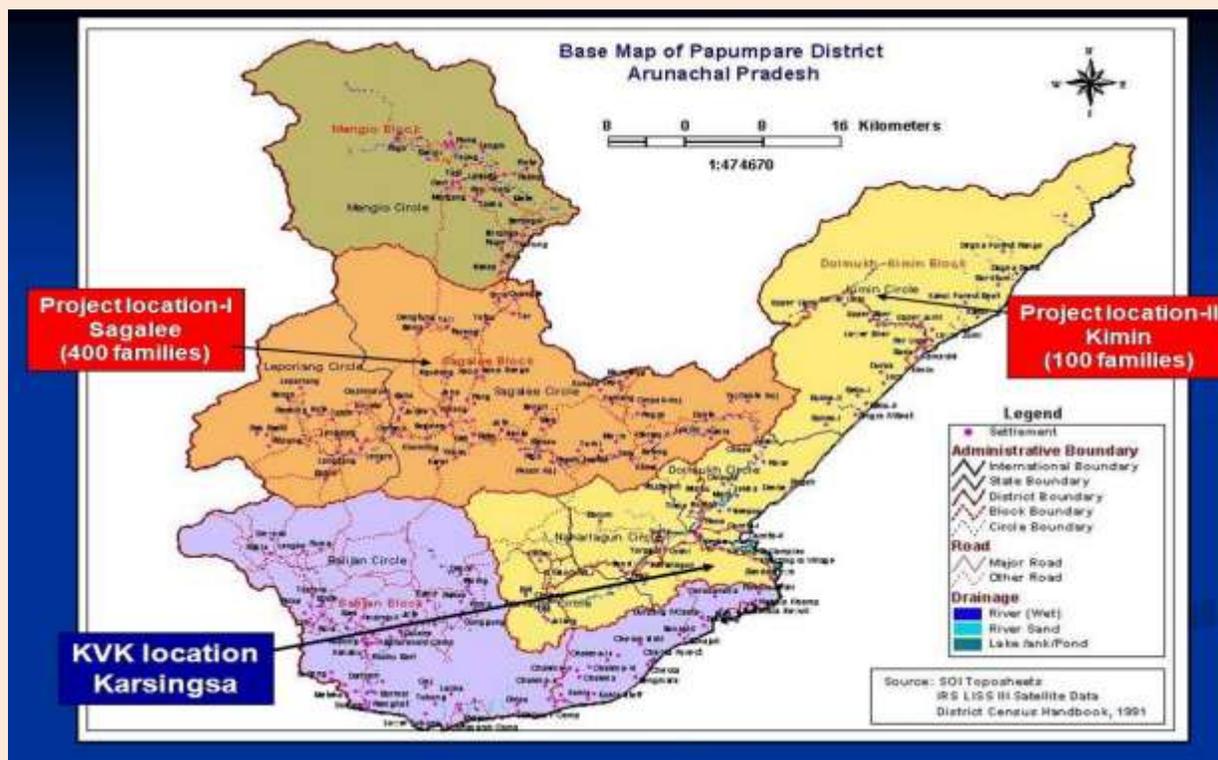
The use of farm machineries in the pre and post harvest operation play a very crucial role not only in increasing cropping intensity but also reducing the cost of cultivations.

b. Krishi Vigyan Kendra

KVK play an important role in assessment and refinement of different technologies for

farmers and assist them to choose the technologies to be adopted in their system. KVK impart training programme to the farmers through work experience by applying the principles of Teaching by doing and learning by doing methods. It organize long term vocational training in agri and allied sector for farming community, rural youth, school drop-out, etc. besides these KVK act as hinge between different developmental agencies or organizations, financial institutions, NGOs, Cooperative and farmers/farmers groups in implementing different developmental activities intended for socio-economic upliftment.

Fig. Location and operational area of KVK Papum Pare



c. Agricultural Technology Management Agency

In Papum Pare district ATMA is functioning as a nodal agencies in linking up with line Departments, NGOs, Private agency, Farmers organizations, etc. it play an important role in strengthening the extension services and dissemination of latest know how technique among the farming community of the district. ATMA provides necessary inputs requirement at grass root level and funding support to KVK for capacity building of the farmers.

d. Lead Bank

NABARD is the important financial institution in the district that support for agriculture and rural development in refinancing the implementing agency.

e. Other banking institutions

Arunachal Pradesh Rural Bank (APRB)- provides credit support to the farmers (Belonging to farmers clubs) through kisan credit card (KCC) refinance by the NABARD. Arunachal Co-apex Bank- conducts financial inclusion programme in the villages. Provide agri loans to the progressive farmers for the purchase of agri-machineries under Chief Minister's Farm machinery Programmes.

f. Farmers clubs and voluntary organizations

All together 89 Farmers clubs and 110 SHGs of sagalee area have been brought under single umbrella under the banner of Farmers Federation Sagalee Sub-division (FFSSD) by this Kendra. The FFSSD has been helping this Kendra in Identifying the Training needs of the Farmers groups.

The Mithuns Farmers clubs, Lora top (Kimin) area help this Kendra in mobilization of Mithun farmers for awareness creation and Mithun Health Camps in Community Mithun Conservation Centre of Klmin area.

LIVESTOCK

a. Department of Animal Husbandry, Veterinary and Dairy Development

The department produces improve breeds of livestock and poultry birds in the district

level for supplying to the progressive farmers at nominal rate. The department provides veterinary medicines and vaccine and services are delivered on free of cost to the farmers.

- a. List of livestock and poultry farm in the district:
 - i. Central Pig breeding farm, Karsingsa.
 - ii. Central Poultry breeding and Hatchery, Nirjuli.
 - iii. Central Cattle breeding farm, Nirjuli.
- b. List of Veterinary Hospital/Dispensary:
 - i. State veterinary Hospital, Naharlagun.
 - ii. Veterinary Dispensary, Doimukh.
 - iii. Veterinary Dispensary, Ganga.
 - iv. Veterinary Dispensary, Kimin.
 - v. Veterinary Dispensary, Balijan.
 - vi. Veterinary Dispensary, sagalee.
- c. Disease Diagnostic Lab.,Nirjuli.
- d. Arun Dairy Plan, Karsingsa.

FISHERIES

1. Department of Fisheries: Nil

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

CROPS

In Papum Pare district there is no any Research Station/ Centre in the field of crop Sciences except Research and Development wing of Horticulture department. R &D wing is functioning under the administrative control of Directorate of Horticulture, Itanagar.

FISHERIES

Rajiv Gandhi University in the department of Zoology, Rono hills, Doimukh, is conducting Research and Extension services in the field of Fish and aquatic ecology. Water testing of fish ponds and other water body has been continuously carried in their Research laboratory.

CHAPTER- VI. PLANS AND SCHEMES FOR PROMOTION OF AGRICULTURE

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

CROPS

a. National Bank for Agriculture and Rural Development

In Sagalee and Kimin block Papum Pare district Tribal development Fund project on cultivation of Khasi mandarin intercropping with Pine apple has been implementing by Krishi Vigyan Kendra, Papum Pare in collaboration with NN Charitable Society, Doimukh. Under this Project 500 farm families has been benefitted and additional area of 500 acre of land has been brought under Khasi mandarin cultivation in this traditional orange belt of the district.

b. HMNEH, NMMI under department of Horticulture

Under this central sponsor scheme the farmers of this district has been benefitted in terms of inputs such as Seeds, Agro-chemicals, farm tools and machinery.

c. NFSM, RKVY under Department of Agriculture.

Under this central sponsor scheme the farmers of this district has been benefitted in terms of inputs such as Seeds, Agro-chemicals, farm tools and machinery.

Demonstration unit has been provided under this scheme.

LIVESTOCK

1. National Livestock Mission
2. RKVY
3. Animal Systemic Control of Diseases
4. Subsidy scheme of State Govt.

FISHERIES

1. NFDB schemes
2. Fishery Cooperative Society Scheme

CHAPTER- VII. FARM MACHINERY SUITABLE TO THE DISTRICT

1. Tractor
2. Power tiller
3. Paddy thrasher
4. Water pump set
5. Paddy Sheller
6. Maize thrasher

CHAPTER- VIII. ANNEXURE

- a. Telephone directory of important agriculture and related departments/offices in Papum Pare district

Sl.No	Name of Departments/office	Telephone No.
1	Department of Agriculture	0360 2244469
2	Department of Horticulture	0360 2203220
3	Department of Animal Husbandry & vety.	0360 2257576
4	Department of Fishery	0360 2212515
5	District Agricultural Officer	8014405220
6	District Horticultural Officer	
7	District Veterinary Officer	9436630699
8	District Fishery Development Officer	9402275191
9	Department of Science & Technology	9436633663
10	Department of Soil & water conservation	0360 2212415
11	State Bio-control laboratory	9436068476
12	State Soil testing laboratory	9436630444
13	State seed testing laboratory	9436259846
14	Department of ICDS, Yupia	9856093128
15	Disease Investigation Laboratory	0360 2257436
16	Central Pig Breeding Farm	9436043952
17	Farmers Federation of Sagalee division	9774977545



Paddy Harvesting



Field preparation for rabi crops



Soil Sample collection



Farmers visiting vermicomposting units



Dignitaries visit

ICAR-ATARI-III, Umiam



Orange seedlings

Staff of KVK Papumpare

Sr. No.	Name of Staff	Designation	Area & Discipline of Work	CORRECT & Valid Contact Number	Email address
1.	Dr. Taba Heli	PC	Livestock management	08730893309, 09436257172	
2.	Mrs. Tadang Meena	SMS	Agronomy	09612539937	
3.	Mr. Vivekanand Safi	SMS	Fishery	09612688445	
4.	Mr. Hemanta Ngangbam	SMS	Horticulture	09856161261	
5.	Mr. Tilling Tabyo	SMS	Plant Protection	09402976735	
6.	Ms. Nane Taga	SMS	Home Science	08131850030	
7.	Dr. Bangkeng Perme	SMS	Animal Science	08731931745	
8.	Dr. Nabam Gama	Farm Manager	Veterinary	09402047973	
9.	Mr. Tayon Darang	Programme Asstt.	Agriculture	09402278636	
10.	Mrs. Hibu Yamung	Assistant		08729901383	
11.	Ms. Takhi Kari	Jr. Steno		09402777107	
12.	Mr. Kenya Ado	Driver		08414816569	
13.	Mr. Likha Abu	Driver		08416093192	
14.	Mr. Taba Nikia	Peon		09856538656	
15.	Mr. Tam Nanu	Peon		08575357356	



Group Photo of Staff, KVK, Papum Pare

DISCLAIMER:

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