

Brief agricultural profile including the major production systems, socio-economic and technological problems and technological options available in agriculture and allied sectors in the area of responsibility of the KVK

Features and characteristics of Korea District:

Koriya District lies between 22°56' and 23°48' North and 81°56' and 82°47' East. It is bounded on the north by Sidhi District of Madhya Pradesh, on the south by Korba District, on the east by Surguja District, and on the west by Anuppur District of Madhya Pradesh. The area of the district is 5977 km², of which 59.9% is forest area. The district is a vast mass of hill ranges. The general height of the lower tableland is 550 m (1800 feet) above sea level. The Sonhat Plateau has a maximum elevation of 755 m (2477 feet). The highest peak in the district is Deogarh, which is 1027 m (3370 feet) high. The climate is mild with a bountiful monsoon, a mild summer and a bearable winter. District Korea Situated in Northern Hilly agro-climatic zone of Chhattisgarh state, is *predominated by tribal's (64.4%)*, forest wealth (17.03%).

Major cropping pattern in the district:

S.N.	Rain fed	Partially Irrigated	Irrigated
1.	Rice-Fallow	1. Rice-Chickpea	1.Rice-Maize
2.	Rice-Linseed	2.Rice-Mustard	2.Rice-Wheat
3.	Rice-Chickpea	3. Rice-Field pea	3.Rice-Chickpea
4.	Black gram-Fallow	-	4.Rice-Vegetables

The area under cultivation is 133015 hectares, which is 54% of total geographical area. There is 23% total irrigated area during kharif and 32% total irrigated area during Rabi. The Rice is main crop of Kharif season which occupies 48% area. The cereal crops rice, maize, wheat etc. are cultivated in 85270 hectare areas constituting 64% of net sown area. The pulses and oilseeds are cultivated in 42475 and 39975 ha constituting 32% and 30% respectively. The total area of intercropping in kharif and Rabi is 9110 and 3650 ha respectively.

Agriculture: The productivity of Rice, Maize and Wheat is 20.25, 22.10 and 13.35 q/ha and Pigeon pea, Black gram, Horse gram, Chick pea and Field pea is 10.61, 4.10, 3.65, 5.70 and 5.65 q/ha while Niger, Sesame, Mustard and Linseed is 3.50, 2.80, 4.95 and 3.65 q/ha respectively. The productivity of cereal, pulses and oilseeds of district is far below the national average. Oilseeds and pulses like Pigeon Pea, Black Gram, Niger, Sesame also occupies substantial area in upland. The cropping intensity of the district is 153% need to be increase through Sprinkler/Drip/Utera /Rain fed cultivation.

Horticulture: The major area under vegetable crops comprising by Potato (2230 ha), Tomato (1360 ha), Okra (1160 ha), Brinjal (660 ha), Colocasia (600 ha) which yield 154, 170, 103, 216, 142 q/ha respectively while Mango (2700 ha), Banana (850 ha), Papaya (580 ha), Guava (780 ha), Lemon (620), Jackfruits (425 ha) Litchi (530 ha), Aonla (580 ha) Cashew (160 ha) custard apple (750 ha), which yield 17550, 19975, 13050, 6474, 4340, 6375, 4390, 3180, 992 and 7946 MT respectively.

Animal husbandry: The Korea district has vast animal population. Milch cattle 303635 which produced approximate 455452.5 liter of milk and having 15564 of goat which contribute approximate 1400499 kg meat and poultry population for egg production is 113108 apart from total poultry population 264247.

- The upland rice is not remunerative because of poor soil fertility, erratic rain fall and tradition management practice which is cultivated in an area of *around 18482 ha* in the district. This rice cropping be substituted with oilseed, pulses, vegetables or intercrops with fruit by adopting scientific management and after care will go an long way for improving

- **Area of 45433 ha** under huge wastelands, plantation/fodder Tress production may be encouraged in selected areas for year round availability of nutritional food to milch animal
- The heavy soils of the district **around 19410 ha** have a vast scope of expansion of zero tillage system is payee under minimum cost involvement for cultivation of Linseed, Lentil, Field pea and Lathyrus to manifold the agriculture growth rate from 4%
- The irrigation management of undulating hilly and mountainous regions, growth in cereals, oilseed and pulses production in the larger rain fed area **around 102422 ha** in the district
- There **is 22% water use efficiency** by the Micro irrigation system in the district which may be increased up to 90% by use of drip and sprinkler irrigation system
- In Rabi season irrigation supplied from existing water resources is **10684 ha** against available of **16947 ha** while in Kharif season irrigation supplied from existing water resources is **15744 ha** against available of **33090 ha**.
- Majority of the soil is light in texture having <6.5 pH that required attention. Despite of heavy rainfall (1061.30) only 27% areas is irrigated in Rabi that indicates wide scope of Soil and water conservation.

The physical and chemical properties of Soil of district are as follows:-

SN	Status	Area (%)	Properties	Value
1.	PH	96	Acidic	<6.5
2.	EC	100	Normal	<1.0
3.	N	100	Low	<280.0
4.	P	100	Low	<12.5
5.	K	84	Medium	135-335

S. No	Particular	Unit	Base line value	Assessment value
1.	Geographical area	ha.	244896	244896
2.	Forest area	ha.	44010	43250
3.	Net cropped area	ha.	132105	133015
4.	Double cropped area	ha.	61651	71000
5.	Total Irrigated area	ha.	35210	53625
6.	Cropping Intensity	%	147%	153%
7.	Total Area of Kharif crops	ha.	132105	133015
	Area of major Kharif crops			
	1. Rice	ha.	69940	60330
	2. Maize	ha.	14770	15230
	3. Pigeon pea	ha.	12400	13250
	4. Black Gram	ha.	9200	9680
	5. Horse Gram	ha.	5650	5950
	6. Niger	ha.	6200	6710
8.	Total Area of Rabi Crop	ha	61651	71000
	Area of major Rabi crops			
	1. Mustard	ha.	17800	18725
	2. Wheat	ha.	10125	9000
	3. Linseed	ha.	5720	6000

	4. Chick Pea	ha.	4460	5300
	5. Field Pea	ha.	3750	4200
	Total Area of Intercropping in Kharif	ha.	8950	9070
9.	Area of Intercropping in Kharif			
	1. Pigeon pea + Ground nut	ha.	1200	1240
	2. Pigeon pea + Maize	ha.	2830	3010
	3. Pigeon pea + Sesame	ha.	1550	1680
	4. Pigeon pea + Black Gram	ha.	1400	1495
	Total area of intercropping in Rabi	ha.	2840	3625
10.	Area of Intercropping in Rabi			
	1. Wheat + Mustard	ha.	990	1500
	2. Gram+ Linseed	ha.	600	725
	3. Wheat + Gram	ha.	500	700
	4. Gram+ Mustard	ha.	480	650
	Area of horticultural crops	ha.	28574	32667
11.	1. Fruit crops	ha.	8174	9145
	2. Vegetable crops	ha.	14150	16170
	3. Spices	ha.	4825	5832
	4. Floriculture	ha.	335	430
	5. Medicinal & Aromatics	ha.	1090	1090
	Animal Husbandry			
12.	1.No.of cows	No.	42896	44233
	2.No.of Buffaloes	No.	6293	6623
	3. Goat	No.	26744	32930
	4. Poultry Birds	No.	413184	358256
13.	Consumption of N:P:K in Kharif	Kg/Ha	2.4:1.3:1	6:4.4:1
	Consumption of N:P:K in Rabi	Kg/Ha	3:2.4:1	5:3.1:4
14.	Seed Replacement rate			
	Kharif			
	1.Rice	%	28.57	52.44
	2.Maize	%	15.67	33.51
	3.Moong	%	13.80	31.67
	4.Pigeon pea	%	5.18	16.05
	5.Black Gram	%	10.58	12.83
	Rabi			
	1.Wheat	%	29.82	37.81
	2. Chick Pea	%	8.96	18.71
3. Mustard	%	8.00	19.22	
15	Annual rainfall	Mm	1136.66	1099.07
16.	Farmers Population	No.	72895	99696
	ST	No.	40932	60991
	SC	No.	3415	4398
	Others	No.	28548	34307
17.	Farmer Category			

	Marginal	No.	31756	40258
	Small	No.	81903	24642
	Large	No.	22236	23065

Socio-economic and technological constraints:

Natural Resource Management	<ul style="list-style-type: none"> ➤ A continues degradation of natural resources, soil erosion, low wage rate, sub optional land utilization, lack of technical knowledge are the source of serious emerging issues. ➤ Fluctuating trend of rainfall is major challenge in production of agriculture crop. The problem is further aggravated by undulating, porous, lateritic soil with poor sub soil moisture.
Crop Diversification	<ul style="list-style-type: none"> ➤ Diversification and intensification of upland and mid land should be developed in orchard, agro forestry, inter cropping of vegetables in fruit orchards while pulses and oilseed in between cereal crops ➤ The upland rice is not remunerative because of poor soil fertility, erratic rainfall and tradition management practice which is cultivated in an area of around 18482 ha in the district. This rice cropping be substituted with oilseed, pulses, vegetables or intercrops with fruit by adopting scientific management and after care will go an long way for improving. ➤ Pomegranate, sapota and fig is are delicious commercial fruit and a wide scope of commercial cultivation exist owing to suitable agro climatic situation of the region prove better diversification and intensification in the production system
Double Cropping	<ul style="list-style-type: none"> ➤ The heavy soils of the district around 19410 ha have a vast scope of expansion of zero tillage system is payee under minimum cost involvement for cultivation of Chickpea, Linseed, Field pea and Lythirus to manifold the agriculture growth rate from 4%
Irrigation Management	<ul style="list-style-type: none"> ➤ The irrigation management of undulating hilly and mountainous regions, growth in cereals, oilseed and pulses production in the larger rain fed area around 102422 ha in the district ➤ There is 22% water use efficiency by the Micro irrigation system in the district which may be increased up to 90% by use of drip and sprinkler irrigation system
Dry Land Fruit Crops	<ul style="list-style-type: none"> ➤ The prolong dry period of 8 months from November to June exist in the district which seasonal dry climate condition hence vast waste land area can be brought under the cultivation of dry land fruit crops, medicinal and flower.
Integrated Crop Management	<ul style="list-style-type: none"> ➤ The concentrates is required distinctly to facilitate and manage optimal production technology for productivity and growth of rain fed areas
Pastureland Development	<ul style="list-style-type: none"> ➤ Area of 45433 ha under huge wastelands, green fodder production may be encouraged in selected areas for year round availability of nutritional food to milch animal.
Post Harvest	<ul style="list-style-type: none"> ➤ There is need to improve marketing infrastructure in the

Management	<p>district. The harvests losses of perishable produces are as high as more than 42 % which has minimize with concerted efforts by way of improving processing, preservation and transport facilities particularly in for interior pockets of the districts.</p> <ul style="list-style-type: none"> ➤ The solar energy chambers may be introduced in the farmland for the poor marginal vegetable growers to enhance the self-life of perishable produce. ➤ Introduction of fruit and vegetable processing with the specific quality parameters of fruit and vegetables produces for agro-based industries may open tremendous lucrative market for the local farmers.
Finance and Marketing	<ul style="list-style-type: none"> ➤ There is limited asses to finance of short term seasonal credits which is a hindrance for many poor marginal farmers ➤ The poor purchasing capacity of tribal farmers hinders the technology adoption in the terms of seed, fertilizer inputs and plant protection chemical as the prices of inputs are rising day by day.
Soil Health Management	<ul style="list-style-type: none"> ➤ The soil is devoid of organic matter less than 0.50% and that area rarely supplemented with any organic product. Hence introduction of organic manure like bio fertilizer, enrich compost of Vermi tank NADEP, Bio Gas and FYM for improving the soil fertility and productivity.

Technological Options:

- Capacity Building and skill enhancement through training, exposures facilitate technical support on regular basis, Linkages for the farmers to build the appropriate technology product with options in a single window.
- Facilitate with quality inputs in sufficient quantity, Extending the activities along the well designed market platform for procuring the farmers commodity at local level
- Incorporation of fodder, Legumes and oilseed in cropping pattern for Facilitating specialized and efficient technological back stopping, The oil seed production may go high in more than **1000 ha** area, Year Round green fodder/Hydroponic fodder
- Pulse production may occupied on increased **2000 ha** area in the district, Promotion of green manure in 10% area of uplands with sunhemp, dhaincha, cowpeas etc to improve soil fertility
- Supporting mechanism for financial support, Strengthen Farm system productivity enhancement and Formation of community group for catalyzing the farm activities.
- Technological interventions in agriculture, allied and existing production system for major job opportunity for land less farmers.
- Fruit and vegetable market yard, the important earn crops as onion, garlic, potato, ginger, turmeric, chili, tomato, etc. would get a boost in expansion and marketing
- Approximate **12000 ha** areas of the waste land to be converted into orchard of fruit crops, Out of total area converted in to fruit orchard about **3500 ha** area with subject to intercropping of vegetables, oilseed and pulses, Promotion of Kharif Potato, Kharif Onion, spices and aromatics crops.
- Development of soil moisture conservation structures for drip and sprinkler irrigation system, ridge & furrow/BBF cultivation.

- All the farm families will be supported with scientific farming on sustainable basis expected to achieve an increased income from Rs. 15000 to Rs. 20000 as resource income of marginal and small farmers
- Direct seeded rice technology, SRI/SMI, Pigeon pea + Maize Intercropping, Improved Package of Practices of Niger & Horse Gram in Mid Kharif as well as Kharif Oilseed & Pulses
- Utilization of residual soil moisture in lowland rice to increase the double crop area of rabi cereals, pulses & Oilseed by Zero tillage/line sowing.
- Semi Intensive Poultry/Duck farming/Quail farming of indigenous improved breed
- Dissemination of Indigenous Improved breed of Cattle/Goat
- Production and Dissemination of Bio agent/Bio-Fertilizers/Bio-Gas Slurry/Vermi composting/Enrich FYM
- Execution of Allied Enterprises *i.e.* Mushroom/Lac/Honey Bee/Fruit & Vegetable Nursery/Sindoor for strengthening livelihood.
- Custom hiring mechanism in Farm Mechanization for promotion of Transplanting/Planting/Intercultural Operation/ harvesting & threshing operations.

Krishi Vigyan Kendra, Korea disseminated advanced and innovative techniques to the tribal farmers of the district through technical interventions in mode of frontline demonstrations, field trials and skill development training for up scaling traditional practices in agriculture, horticulture, animal husbandry and income generating activities. Available technological resources options were created and developed with the financial grant received from various convergence linkages from state and central government schemes in the operational villages of tribal farmers fields as a pilot project.

Outreach of KVK:

The villages where the KVK has focused its activities during the last year are predominantly tribal villages situated in the different blocks of Korea district. These villages are tribal dominated and traditionally rain fed rice production system. The interventions in terms of improved package and practices, crop diversification, livestock production and natural resource management by adopting proven principles of integrated farming system models in location specific conditions paid big dividends in terms of sustainable livelihood. Adopted/operational villages spread over diverse region in 5 blocks of Korea district and tribal farm families is approach directly or indirectly for intervention.

Present & Future Strategies for Diversification:

Crop	Present Area (ha)	Proposed Area (ha)	Diversification(ha)
Paddy	61288	41374	-19914
Pulses	29747	34084	4337
Oilseed	16416	20916	4500
Maize	14902	19000	4098
Minor Millets	2271	5000	2729
Fruits	7458	8500	1042
Spices	4931	6500	1569
Vegetables	13905	15000	1095
Flowers	331	400	69
Medicinal & Aromatics	1025	1500	475
TOTAL	152274	152274	19914