2017

Doubling Farmer's Income by Technological Interventions

Krishi Vigyan Kendra, Ganjam-II

(Odisha University of Agriculture & Technology)

Summary of the Five Modules

District	Module	Name of the Farming System	Block	GP	Village	Name of the Existing Farming System	Present Income 2016-17	Proposed income 2017-18	Proposed income 2018-19	Risk / uncertainty	Remarks	
											Most Representative module for the district	(Linkage)
Ganjam	**I**	Irrigated Ecosystem (AES-I)	Chhatrapur	Bipilingi	Rajanapalli	Rice-Fallow, Rice-Groundnut+ Dairy+Poultry	221530	288950	356850	Wild Bore, Drought prone and erratic rainfall	Module III	Credit and market linkage
	II	Rain fed Eco system (AES-III)	Rangeilunda	Dura	Putipadar	Rice-Fallow, Rice-Pulses +Dairy	67197	82300	106530	Cyclone, Drought, Soil salinity and erratic rainfall		Credit, Irrigation and market linkage
	III	Rain fed Eco system (AES-VI)	Ganjam	Kainchapur	Jharapadar	Rice-Fallow, Cashew-Fallow Rice-pulses +Chilli +Dairy	172000	239900	298130	Wild Bore, Dear, Cyclone, Drought prone and erratic rainfall		Credit, Irrigation and market linkage
	IV	Rain fed Eco system (AES-V)	Kukudakhandi	Ankuspur	Padripali	Rice/Off-season vegetable Rice-Pulses+ Dairy+ Goatery, +Pisciculture	201589	278451	339730	Wild Bore, Dear, Cyclone, Drought prone and erratic rainfall		Credit, Irrigation and market linkage

	V	Rain fed Eco system (AES-IV)	Hinjilikatu	Kharida	Giria	Rice/ vegetable-Fallow Rice-Pulses/Oil seeds+Dairy, +Pisciculture	211750	277920	364690	Wild Bore, Dear, Cyclone, Drought prone and erratic rainfall		Credit, Irrigation and market linkage

Blocks Covered under Different Agro-ecological Situation

ACZ	AES	Blocks	Area (in ha.)	% of the Geographical Area of ACZ	Soil Type	AES Feature
East & South Eastern Coastal Plain Zone	Coastal irrigated Alluvium	Chhatrapur **(Module-I)**	14425 ha	59.6	Soil type- Sandy loam to clay loam Rainfall -1202 mm	Gross Cropped Area - 27318 Cropping intensity -189% Major crops - Rice, Green gram, Veg., Groundnut , Sesamum
	Coastal Alluvial Saline	Rangeilunda **(Module-II)**	14729 ha	48.0	Soil type- Sandy loam to clayee Rainfall -1323 mm	Gross Cropped Area-25765ha Cropping intensity -175% Major crops - Rice, Black gram, Veg.
	Mixed Black & alluvium	Ganjam **(Module-III)**	12553 ha	53.7	Soil type- Mixed Black to alluvium Rainfall -1284.26 mm	Cropping intensity -190%, Gross Cropped Area-23886 ha Major crops - Rice, Green gram, Black gram, Veg., Groundnut
	Rainfed Red and Laterite	Kukudakhandi **(Module-IV)**	15639 ha	62.6	Soil type- Sandy loam to clay loam Rainfall -1350mm	Gross Cropped Area 28345 ha Cropping intensity-181% Major crops - Rice, Green gram, Black gram, Veg., Groundnut, Mustard

	Rainfed Laterite	Hinjilikatu **(Module-V)**	14428 ha	86.2	Soil type- Loamy sand to sandy loam Rainfall -1276.2 mm	Gross Cropped Area– 31135 ha, Cropping intensity -216% Major crops - Rice, Black gram, Horse gram Groundnut & Veg.
	Rainfed Alluvium	Patrapur	18686 ha	51.2	Soil type- Sand to sandy clay loam Rainfall -1290.2 mm	Cropping intensity -178% Major crops - Rice, Green gram, Veg., Groundnut, Sesamum

Basic Information of Ganjam District

Geographical Area and Population details of Ganjam District				
Geographical Area :	871000 ha	Area under Forest :	315000 ha	
Agro climatic Zone		East & South Eastern Coastal Plain Zone		
Total cultivated area High land		393000 ha 184710 ha (47% of cultivated area)		
b)Medium land		110040 ha (28% of cultivated area)		
c)Low land		98250 ha (25% of cultivated area)		
Normal rainfall		1276.2 mm		
Average Fertilizer Consumption		56.41 kg/ha		
Cropping Intensity		181%		
Total Irrigated Area		268597 ha		
Population (2011 Census)		Total	3,529,031	in %
		Male	1,779,218	50.42
		Female	1,749,813	49.58
		Scheduled Caste	688,235	19.50
		Scheduled Tribe	118,928	3.37
Population Density :	429 (Per sq.km)			
Literacy		Total Literate :	2,210,050	71.88
Households		Total Households :	758,267	

Land Holdings Patternduring 2013-14(Holdings in numbers and area in ha)

Block	Marginal Farmers		Small Farmers		Semi-med. Farmers		Medium farmers		Large farmers		Total	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
Patrapur	13294	7059	2430	4313	885	2726	146	892	13	373	16768	15363
Chikiti	6753	3586	1235	2192	450	1386	74	452	6	172	8518	7788
Rangeilunda	7635	4054	1396	2478	509	1568	84	513	7	201	9631	8814
Kukudakhandi	8218	4363	1502	2666	547	1685	90	550	8	230	10365	9494
Sanakhemundi	13656	7251	2497	4432	910	2803	150	916	13	373	17226	15775
Digapahandi	14480	7688	2647	4698	964	2970	159	971	14	402	18264	16729
Chatrapur	9158	4863	1674	2971	610	1879	100	611	9	258	11551	10582
Ganjam	7686	4081	1405	2494	512	1577	84	513	7	201	9694	8866
Purusottamapur	11711	6218	2141	3800	780	2403	129	788	11	316	14772	13525
Hinjilicut	8516	4522	1557	2764	567	1747	93	568	8	230	10741	9831
Khalikote	10790	5729	1973	3502	719	2215	118	721	10	287	13610	12454
Total	**111897**	**59414**	**20457**	**36310**	**7453**	**22959**	**1227**	**7495**	**106**	**3043**	**141140**	**129221**

Module-I, AES Name: Coastal irrigated Alluvium, ACZ: East & South Eastern Coastal Plain Zone (Vill: Rajanapalli, Block: Chhatrapur)

Farming Situation	Existing practices during 2016-17		1st year Interventions 2017-18		2nd year Interventions 2018-19		3rd year Interventions 2019-2020	
	Component /Enterprises	Problem/ Practices	Interventions	Net Income	Interventions	Expected Yield& Income /ha *	Interventions	Expected Yield& Income /ha
Up land Rice-Fallow Cropping System	**Rice**(Khandagiri)**- Fallow 17 q/ha** (Rs. 7589)	▪ Low income from paddy	▪ Crop diversification- High yielding sweet corn C.v-Madhuri	**Rs. 16500/ha (117%)**	▪ Weed control by pre emergence application of Atrazine @ 1-1.5kg/ha 0-3 DAS	**Rs. 20100/ha (21.8%)**	▪ Line sowing of Maize ▪ Spacing 60x45cm	**Rs. 26450/ha (31.5%)**
Medium land Rice-Groundnut/Chilli cropping system	**Rice**(Lalat)-**28 q/ha (Rs.14100**)	▪ Low yield due to old var-Lalat,MTU-1001- ▪ Inadequate application of fertilizer	▪ Cultivation of hybrid rice Var-Rajalaxmi/Ajay ▪ RDF of NPK 120:60:60 kg/ha	**35 q/ha, (28.5%)** Rs.20600/ha (46%)	▪ Line transplanting of paddy ▪ Weed management in paddy- Pre-emergence weedicide:- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT or post emergenceByspyrabic sodium 200 ml per ha 25 DAT/	**41 q/ha (17.1 %)** Rs.24700/ha (19.9%)	▪ Soil test based nutrient management in hybrid rice ▪ Micronutrient application as per soil test results ▪ Market linkage	**51 q/ha (24.3 %)** Rs.30300/ha (22.6%)
	Groundnut 11 q/ha (Rs. 14300)	▪ Low yielding variety ▪ Low income from G. nut ▪ Soil acidity	▪ Var: Devi ▪ Application of lime @ 0.2 LR and Sulphur @ 40kg/ha in groundnut	**14 q/ha (27.2 %)** Rs.18300/ha (27.9%)	▪ Seed treatment with Vitavax power 1.5 gm/kg of seed orTrichodermaviride 5gm/kg ▪ Application of RDF	**16 q/ha (14.4%)** Rs. 20900/ha (14.2%)	▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed ▪ Soil test based fertiliser application	**18 q/ha (12.5%)** Rs. 23600/ha (12.9%)
	Chilli	▪ Low yield	▪ Var: Suryamukhi	29 qt/ha	▪ RDF application	31 qt/ha	▪ Spray Planofix @	35 qt/ha

	25 q/ha (Rs 10500)	▪ Leaf curl of Chilli ▪ Flower drops	/Daya ▪ Seed treatment with Imidacloprid 17.8SL@ 7 ml per kg of seed and foliar spray of Imidacloprid 17.8SL@.5ml/liter of water twice starting from 45 DAT at 15 days interval	(Rs 12500)	125:50:100 kg N: P2O5:K2O/ha ▪ Spraying of 0.125% Tricontanol and IAA 10ppm reduce flower drop and increasing fruit set.	(Rs 14700)	10 ppm at flowering and three weeks later to increase yield or agripro-2 gm/litre ▪ Market linkage	(Rs 18900)
Low land Rice-Greengram/Sesamum	**Rice**(Pooja)-**30 q/ha (Rs.14000**)	▪ Flood prone ▪ Susceptible to false smut ▪ Inadequate application of fertilizer	▪ Cultivation of rice Var- Swarna Sub-1 ▪ Seed treatment with Vitavax power ▪ RDF of NPK 80:40:40 kg/ha	**35 q/ha, (16.7%)** Rs.20000/ha (42.8%)	▪ Line transplanting of paddy ▪ Weed management in paddy- Pre-emergence weedicide:- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT or post emergence Byspyrabic sodium 200 ml per ha 25 DAT/	**42 q/ha (20 %)** Rs.24700/ha (23.5%)	▪ Soil test based nutrient management in rice ▪ Micronutrient application as per soil test results ▪ Market linkage	**45 q/ha (7.15%)** Rs.29000/ha (17.44%)
	Green gram 2.6 q/ha **(Rs.9950)**	▪ Low yield ▪ YMV incidence	▪ Greengram- IPM 02-3/ IPM 02-14 ▪ Seed Treatment with T. Viridae @5gm/kg ▪ Spraying of neem oil(1500 ppm) @ 2ml/lt. at 25 DAS/ Thiamethoxam @ 150 gram/ha. at 40 DAS	**4.5 q/ha (73%)** Rs.18900/ha	▪ STCR based fertilizer application in G.gram ▪ Spraying Water soluble fertilizer(19;19:19::NPK) @ 10 gram/lt. at 30 & 45 DAS	**5.4 q/ha (20%)** Rs.21800/ha	▪ Seed inoculation with rhizobium @ 20g /kg of seed + ammonium molybdate @ 3 g/10 kg of seed ▪ Installation of yellow sticky traps @ 50/ha.	**5.9 q/ha (9.2%)** Rs.23700/ha

	Cultivation of local variety **Sesame** **2.7q/ha (Rs 10260)**	▪ Low yield due to local variety	▪ Introduction of sesame variety- *Amrit* ▪ Seed treatment with T. Viridae/ Vitavax power	4.6 q/ha (70%) (Rs17480)	▪ Integrated nutrient management in Sesamum 25% RDF through the vermicompost + 75% RDF of chemical fertilizers(60:30:30 kg/ha)	5.2q/ha (13%) (Rs19800)	▪ Line sowing behind plough ▪ Integrated weed management in Sesamum	6.2q/ha (19.2%) (Rs 23600)
Allied activities Home stead	Deshi cattle- 65 lit /month (Rs.1500)	▪ Deshi Breed ▪ Low yield of milk due to stray grazing ▪ Supply of local available feed	▪ Breed improvement through AI ▪ Azolla cultivation for supplementary feed (20%) increase milk yield up to .5-1lit/ per day.	**85 lit/Month** (30.7%) Rs. 2000/per month	▪ Azolla supplementary feed (20%) increase milk yield up to 1-1.5lit/ per day. ▪ Supplementation of vitamin mineral mixture@30gm/meal ▪ Fodder Cultivation var. Hybrid nippier var. CO-4	**240 lit/Month (182%)** Rs. 4000 per month	▪ Management of Hybrid Napier ▪ Value addition of milk ▪ Market linkage	**270 lit/Month (12.5%)** Rs.5000 per month
	Poultry birds- (Rs. 3800)	▪ Low income from poultry due to rearing of local bird	▪ Backyard poultry 10 nos (Vanaraja) ▪ Vaccination of birds (Laasota + Gumber)	**Net Income- Rs. 6,250/** (64%)	▪ Backyard poultry 10 nos (Vanaraja) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla	**Net Income- Rs. 7750/-** (24%)	▪ Backyard poultry 10 nos (Palishree) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla ▪ Calcium supplementation to birds	**Net Income- Rs.10,500/-** (35.4%)
	Mushroom **Net Income (Rs. 4000/yr)**	Low income due to im-proper management	▪ Mushroom production of OSM-11 (20 beds/month) and Blue Oyster mushroom cultivation2	**2.4 kg/day (Rs.9000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month)and Blue Oyster mushroom cultivation (20 beds/month)	**3.2 kg/day (Rs.10500/yr)**	▪ Value addition of Mushroom	**4.5 Kg/day Rs. 13200/yr**

			bags/day		▪ Management of competitor moulds and diseases in straw mushroom			
Fish	Not performing pisciculture	▪ No income from existing ponds	▪ Stocking of IMC (Catla, Rohu, Mrigal) and Exotic carp (Common carp & Grass carp) fingerlings @7,500nos/ha with a ratio 25:35:20:10:10 ▪ Pond fertilization with RCD, urea & SSP.	**18 q/ha,** Net Income Rs. 80000	▪ Intercropping of java punti @ 2500 nos/ha in 3 species carp culture (SD @ 7,500 nos /ha at a ratio of 30:40:30 of Catla, Rohu and Mrigal). Harvesting of Java punti within 4-5 months. ▪ Regular water quality monitoring	**23 q/ha. (27.70%)** Net Income Rs. 1,20,000 (37.93%)	▪ Supplementary farm made feeds with (Mustard Oil cake (35%), Sesamum Oil cake (35%), Mahua oil cake 20%, Maize powder (10%) @ 2-4% body wt.	**27 q/ha, (21.40%)** Net Income-Rs. 1,52,600 (27.1%)
Total	**144999**			**221530 (52.78%)**		**288950 (99.2%)**		**356850 (146.1%)**

*** Increase in net income over base year 2016-17**

Module-II, AES Name: RainfedCoastal Alluvial Saline, ACZ: East & South Eastern Coastal Plain Zone (Vill: Putipadar, Block: Rangeilunda)

Farming Situation	Existing practices during 2016-17		1st year Interventions 2017-18		2nd year Interventions 2018-19		3rd year Interventions 2019-2020	
	Component /Enterprises	Problem/ Practices	Interventions	Net Income	Interventions	Expected Yield& Income /ha *	Interventions	Expected Yield& Income /ha
Up land Rice - Fallow cropping system	**Rice**(Khandagiri)- **Fallow** **18 q/ha (P-Rs. 8050)**	▪ High cost due to manual weeding ▪ Low yielding variety	▪ Satyabhama/Sahbhagi ▪ IWM in paddy- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT	**24 q/ha (33.3%)** **(Rs.12597)**	▪ RDF 60:30:30 kg NPK kg/ha ▪ Early sowing of paddy by last week of June ▪ Seed treatment with Vitavax power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg	**28 q/ha (16.6%)** **(Rs.16450)**	▪ Line sowing behind the plough ▪ Early paddy- 15cmX10cm- 6.7 lakh plants/ha ▪ Market linkage	**34 q/ha (21.4%)** **(Rs.22430)**
Medium land Rice-pulse cropping system	**Rice(Pooja) - Pulses** P- 31 q/ha (Rs.14800)	▪ Low yieldingvarieties ▪ Inadequate application of fertilizer	▪ Hy.Paddy- Rajalaxmi/Ajay ▪ RDF in Hy. Paddy (NPK- 120:60:60)	**36 q/ha, (16.1%)** Rs.21300/ha (43.9%)	▪ Line transplanting of paddy ▪ Weed management in paddy- Pre-emergence weedicide:- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT or post emergenceByspyrabic sodium 200 ml per ha 25 DAT	**42 q/ha (16.6 %)** Rs.26800/ha (25.8 %)	▪ Soil test based nutrient management in hybrid rice ▪ Micronutrient application as per soil test results ▪ Market linkage	**53 q/ha (26.1 %)** Rs.36000/ha (34.3%)

	Greengram - **2.8 q/ha (Rs.11600)**	▪ YMV incidence ▪ Low yield	▪ Greengram-TARM-1, spraying of neem oil(1500 ppm) @ 2ml/lt. at 25 DAS,Thiamethoxam @ 150 gram/ha. at 40 DAS, ▪ Installation of yellow sticky traps @ 50/ha. for sucking pests	**4.6 q/ha (64.2%)** Rs.20300/ha (75%)	▪ Variety- IPM 02-3/ IPM 02-14 ▪ Seed treatment with Vitavex power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg ▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed and 50 gmPhospoculture per one kg of seed and 0.3 gm sodium molybdate	**5.3 q/ha (15.2%)** Rs.23800/ha (17.2%)	▪ Line sowing by seed cum fertiliser drill ▪ Spraying Water soluble fertilizer(19;19:19:: NPK) @ 10 gram/lt. at 30 & 45 DAS	**6.2 q/ha (16.9%)** Rs.29600/ha (24.3%)
Allied activities Home stead	Local cattle-240 lit /month (Rs.6000)	▪ Low yield of milk due to stray grazing ▪ Supply of local available feed	▪ Azolla cultivation for supplementary feed (20%) increase milk yield up to 1-1.5lit/ per day.	**270 lit/month** (12.5%) Rs. 6750-per month	▪ Azolla supplementary feed (20%) increase milk yield up to 1-1.5lit/ per day. ▪ Supplementation of vitamin mineral mixture@30gm/meal ▪ Fodder Cultivation var. Hybrid nippier var. CO-4	**300 lit/Month (11.11%)** Rs. 7,500 per month	▪ Supplementation of vitamin mineral mixture@30gm/meal ▪ Management of Hybrid Napier ▪ Value addition of milk	**320 lit/Month (6.66%)** Rs.8,000 per month
	Poultry birds-(Rs. 3800)	▪ Low income from poultry	▪ Backyard poultry 10 nos(Vanaraja) ▪ Vaccination of birds (Laasota+Gumber)	**Net Income-(Rs. 6,250)** (64%)	▪ Backyard poultry 10 nos(Vanaraja) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla	**Net Income (Rs.7750)** (24%)	▪ Backyard poultry 10 nos(palishree) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla ▪ Calcium supplementation to birds	**Net Income-(Rs.10,500)** (35.4%)
Total	**44250**			**67197 (51.8%)**		**82300 (85.9%)**		**106530 (140.7%)**

*** Increase in net income over base year 2016-17**

Module-III, AES Name: RainfedMixed Black & alluvium, ACZ: East & South Eastern Coastal Plain Zone (Vill: Jharapadar, Block: Ganjam)

Farming Situation	Existing practices during 2016-17		1st year Interventions 2017-18		2nd year Interventions 2018-19		3rd year Interventions 2019-2020	
	Component/Enterprises	Problem/ Practices	Interventions	Net Income	Interventions	Expected Yield& Income /ha *	Interventions	Expected Yield& Income /ha
Up land Rice /Cashew-Fallow	**Rice**(Khandagiri)-**Fallow** **18 q/ha (Rs. 8050)**	▪ Low yielding variety ▪ High cost due to manual weeding	▪ Variety: Satyabhama /Sahbhagi ▪ IWM in paddy- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT	**24 q/ha (33.3%)** **(Rs.12500)**	▪ RDF 60:30:30 kg NPK kg/ha ▪ Early sowing of paddy by last week of June ▪ Seed treatment with Vitavax power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg	**28 q/ha (16.6%)** **(Rs.16450)**	▪ Line sowing behind the plough ▪ Early paddy- 15cmX10cm- 6.7 lakh plants/ha ▪ Market linkage	**34 q/ha (21.4%)** **(Rs.22430)**
	Cashew fruit orchard-Fallow **1.6 t/ha (Rs.12000)**	▪ Improper management like training and pruning ▪ Inadequate application of fertilizer ▪ Attack of Tea mosquito leads to low yield	▪ Regular removal of dried /dead wood ▪ Training and pruning is done during August- September, the cut surfaces are smeared with Bordeaux paste ▪ Foliar spray of 50 ppm ethrel (20 days before blossoming and 20 days after full bloom	**1.8 t/ha (12.5%)** (Rs.14000)	▪ Application of RDF (500gmN:125gmP_2O_5:125gmK_2Oper plant.	**2.2 t raw nuts/ha (22.23%)** (Rs.17000)	▪ Tea mosquito can be controlled by spraying quinalphos 0.5% thrice.first time at the time of flushing, second at early flowering, third at the time of fruit set. ▪ Application of RDF(500gmN: 125gmP_2O_5:)125gmK_2O	**2.5t/ha (13.63%)** (Rs.20000)

Medium land Rice-pulse /Vegetable cropping system	Rice(Lalat) - Pulses P- 27q/ha (Rs.13100)	▪ Low yield due to old var-Lalat,MTU -1001 ▪ Inadequate application of fertilizer	▪ Varity: Hy.Paddy-Rajalaxmi/Ajay ▪ RDF in Hy. Paddy (NPK 120:60:60 + ZnSO4 25kg/ha	**36 q/ha, (28.5%)** Rs.20600/ha (66.1%)	▪ Line transplanting of paddy ▪ Weed management in paddy- Pre-emergence weedicide:- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT or post emergenceByspyrabic sodium 200 ml per ha 25 DAT/	**42 q/ha (16.6 %)** Rs.26400/ha (25.6%)	▪ Soil test based nutrient management in hybrid rice ▪ Micronutrient application as per soil test results ▪ Market linkage	**52 q/ha (23.8 %)** Rs.31300/ha (17.2%)
	Chilli **25 q/ha (Rs 10500)**	▪ Low yield ▪ Leaf curl of chilli ▪ Flower drops	▪ Var: Suryamukhi /Daya ▪ Seed treatment with Imidacloprid 17.8SL@ 7 ml per kg of seed and foliar spray of Imidacloprid 17.8SL@.5ml/liter of water twice starting from 45 DAT at 15 days interval	29 qt/ha (Rs 12500)	▪ RDF application 125:50:100 kg N: P2O5:K2O/ha ▪ Spraying of 0.125% Tricontanol and IAA 10ppm reduce flower drop and increasing fruit set.	31 qt/ha (Rs 14700)	▪ Spray Planofix @ 10 ppm at flowering and three weeks later to increase yield or agripro-2 gm/litre ▪ Value addition and Market linkage	35 qt/ha (Rs 18900)
	Green gram- **2.6 q/ha (Rs.9900)**	▪ YMV incidence ▪ Low yield	▪ Variety- IPM 02-3/ IPM 02-14 ▪ Application STBF NPK(25-40-20) +S(40 kg/Ha)	**4.2 q/ha (61.5%)** Rs.16900/ha (70.7%)	▪ Seed treatment with Vitavax power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg ▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed	**5.4 q/ha (28.5%)** Rs.21400/ha (26.6%)	▪ Line sowing by seed cum fertiliser drill ▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed and 50 gmPhospoculture per one kg of seed and 0.3 gm sodium molybdate	**6.1 q/ha (26.6%)** Rs.24200/ha (13%)

Allied activities Home stead	Cross breed cattle-240 lit /month **(Rs.4600)**	▪ Low yield of milk due to stray grazing ▪ Supply of local available feed	▪ Hybrid nappier cultivationvar CO-4	**270 lit/month (12.5%)** Rs. 6750- per month	▪ Fodder with supplementation of vitamin mineral mixture@30gm/meal	**300 lit/Month (11.11%)** Rs. 7,200 per month	▪ Management of Hybrid Napier ▪ Value addition of milk	**320 lit/Month (6.66%)** Rs.8,300 per month
	Poultry birds-**(Rs. 3800)**	▪ Lowincome from poultry due to rearing of local bird	▪ Backyard poultry 10 nos(Vanaraja) ▪ Vaccination of birds (Laasota+Gumber)	**Net Income-Rs. 6,250/** (64%)	▪ Backyard poultry 10 nos(Vanaraja) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla	**Net Income-Rs. 7750/-** (24%)	▪ Backyard poultry 10 nos(palishree) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla ▪ Calcium supplementation to birds	**Net Income-Rs.10,500/-** (35.4%)
		▪ Not cultivating mushroom	▪ Mushroom production of Paddy straw mushroom (20 beds) and Oyster mushroom(20 bags)	**Net Income (Rs. 4000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month) and Blue Oyster mushroom cultivation2 bags/day	**2.4 kg/day (Rs.9000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month)and Blue Oyster mushroom cultivation(20 beds/month) ▪ Management of competitor moulds and diseases in straw mushroom	**3.2 kg/day (Rs.10500/yr)**

Pond based Farming system	IMC spawn and fry in ponds **(12 q/ha)** Net Income (Rs.50000)	▪ Low yield due to improper Stocking ratio and stocking size of fish seed	▪ Stocking of IMC (Catla, Rohu, Mrigal) and Exotic carp (C. carp & Grass carp) fingerlings @7,500nos/ha with a ratio 25:35:20:10:10 .	**17 q/ha, (41.6%)** Net Income Rs. 78500 (57 %)	▪ Intercropping of java punti @ 2500 nos/ha in 3 species carp culture (SD @ 7,500 nos /ha at a ratio of 30:40:30 of Catla, Rohu and Mrigal). Harvesting of Java punti within 4-5 months. ▪ Pond fertilization with RCD, urea & SSP. ▪ Regular water quality monitoring	**22 q/ha. (29.4%)** Net Income Rs. 120000 (52.8%)	▪ Polyculture of fresh water prawn alongwith carp culture (SD @ 7,500 nos /ha at a ratio of 40:40:20 of Catla, Rohu and Mrigal). ▪ Supplementary farm made feeding with (Mustard Oil cake (35%), Sesamum Oil cake (35%), Mahua oil cake 20%, Maize powder (10%) @ 2-4% body wt. ▪ Market linkage	**26 q/ha, (18.1%)** Net Income-Rs. 1,52,000 (26.6%)
Total	**111950**			**172000 (53.6%)**		**239900 (114.2%)**		**298130 (166.3%)**

*** Increase in net income over base year 2016-17**

Module-IV, AES Name: Rainfed Red and Laterite, Vill: Padripalli, Block: Kukudakhandi)

Farming Situation	Existing practices during2015-16		1st year Interventions 2016-17		2nd year Interventions 2017-18		3rd year Interventions 2018-19	
	Component /Enterprise	Problem/Practices	Interventions	Net Income	Interventions	Expected Yield& Income /ha *	Interventions	Expected Yield& Income /ha
Rain-fed Up Land Rice/Off-season vegetable cropping system	Rice(Khandagiri)-Fallow **18.4 q/ha** (P-Rs. 8221) Off season Vegetable-Fallow (Cultivation of tomato variety UtkalKumari) (140 q/ha Rs. 34865)	▪ High cost due to manual weeding ▪ Low yielding due to moisture trace condition	▪ IWM in paddy-Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT	**22 q/ha (19.5%)** **(Rs.10597)**	▪ Variety: Satyabhama/Sahbhagi ▪ RDF 60:30:30 kg NPK kg/ha ▪ Early sowing of paddyby last week of June ▪ Seed treatment with Vitavax power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg	**28 q/ha (27.2%)** (Rs.16450)	▪ Line sowing behind the plough ▪ Early paddy-15cmX10cm- 6.7 lakh plants/ha ▪ Market linkage	**34 q/ha (21.4%)** (Rs.22430)
		▪ Low keeping quality due to thin skin (Utkalkumari) ▪ Low yield	▪ Cultivation of tomato variety *Utkalpragnya* ▪ RDFof NPK (100:50:150kg /ha)	**206 q/ha (47.1 %)** (Rs.52792/ha)	▪ Management of early blight of tomato by spraying of (0.2%) mancozeb 75%WP @(2gm/lit.) ▪ Application of 6%Calcium Chloride at post-harvest stage for enhancing storage life of tomato	**253.76q/ha. (23.1%)** (Rs.65451/ha)	▪ Foliar application of CaCl2(0.6%)+borax(0.2 %)for enhancing plant growth yield and quality of tomato ▪ Value addition ▪ Collective marketing	**287q/ha (13 %)** (Rs.75400/ha)
Medium Land Rice-pulse cropping system	Rice- Pulses **Paddy**(Lalat) **28 q/ha (Rs.13900)**	▪ Imbalance dose of fertilizer application ▪ High cost due to	▪ Cultivation of hybrid rice Var-Rajalaxmi/Ajay ▪ RDF of NPK 120:60:60	**36 q/ha, (28.5%)** Rs.20600/ha (66.1%)	▪ Line transplanting of paddy ▪ Weed management in paddy-Pre-emergenceweedicide:- Londax power	**42 q/ha (16.6 %)** Rs.26400/ha (25.6%)	▪ Soil test based nutrient management in hybrid rice ▪ Micronutrient application as per soil test results	**52 q/ha (23.8 %)** Rs.31300/ha (17.2%)

		manual weeding ▪ Low yielding variety	kg/ha		(Bensulfuronmethyl+ pretilachlor) @ 10kg/ha 0-5 DATor post emergenceByspyrabic sodium 200 ml per ha 25 DAT/		▪ Market linkage	
	G.gram- 2.5 q/ha (Rs.9800)	▪ Imbalance dose of fertilizer application in G. gram	▪ Greengram HYV-TARM-1 ▪ Application STBF NPK(25-40-20) +S(40 kg/Ha)	**4.4 q/ha (76%)** Rs.18600/ha (89%)	▪ Variety- IPM 02-3/ IPM 02-14 ▪ Seed treatment with Vitavax power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg ▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed	**5.4 q/ha (22.7%)** Rs.21400/ha (15%)	▪ Line sowing by seed cum fertiliser drill ▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed and 50 gmPhospoculture per one kg of seed and 0.3 gm sodium molybdate	**6.1 q/ha (12.9%)** Rs.24200/ha (13%)
Allied activities Home Stead **Pond based Farming system**	CrossBreed Cattle- **240 lit /month** **(Rs.6000)**	▪ Low yield of milk due to stray grazing ▪ Supply of local feed	▪ Azolla cultivation for supplementary feed (20%) increase milk yield up to 1-1.5lit/ per day.	**270 lit/month (12.5%)** Rs. 6750- per month	▪ Supplementation of vitamin mineral mixture@30gm/meal ▪ Fodder Cultivation var. Hybrid nappier , var. CO-4	**300 lit/Month (11.1%)** Rs.7,500 per month	▪ Management of Napier Grass ▪ Value addition of milk ▪ Market linkage	**320 lit/Month (6.6%)** Rs.8,000 per month
	Goatery	▪ High Mortality and morbidity	▪ Rearing of Ganjam Goat	**Body wt-10kg per goat** Rs-3500/- Per goat	▪ Fodder Cultivation var. Hybrid nappier, var. CO-4/Stylo grass ▪ Animal Health camp-Deworming&Vaccination	**Body wt-13kg per goat** Rs-4500/- Per goat	▪ Supplementation of vitamin mineral mixture@30gm/meal ▪ Market Linkage	**Body wt-16kg per goat** Rs-5400/- Per goat
	Poultry birds- (Rs. 3800)	▪ Lowincome from poultry due to rearing of local bird	▪ Backyard poultry 10 nos(Vanaraja) ▪ Vaccination of birds	**Net Income-Rs. 6,250/** (64%)	▪ Backyard poultry 10 nos(Vanaraja) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding	**Net Income-Rs. 7750/-** (24%)	▪ Backyard poultry 10 nos(Palishree) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding	**Net Income-Rs.10,500/-** (35.4%)

			(Laasota+Gumber)		with azolla		with azolla ▪ Calcium supplementation to birds	
		▪ Not cultivating mushroom	▪ Mushroom production of Paddy straw mushroom (20 beds) and Oyster mushroom(20 bags)	**Net Income (Rs. 4000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month) and Blue Oyster mushroom cultivation2 bags/day	**2.4 kg/day (Rs.9000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month)and Blue Oyster mushroom cultivation(20 beds/month) ▪ Management of competitor moulds and diseases in straw mushroom	**3.2 kg/day (Rs.10500/yr)**
	IMC spawn and fry in ponds **(12 q/ha)** Net Income (Rs.50000)	▪ Low yield due to improper Stocking ratio and stocking size of fish seed	▪ Stocking of IMC (Catla, Rohu, Mrigal) and Exotic carp (C. carp & Grass carp) fingerlings @7,500nos/ha with a ratio 25:35:20:10:10 .	**17 q/ha, (41.6%)** Net Income Rs. 78500 (57%)	▪ Intercropping of java punti @ 2500 nos/ha in 3 species carp culture (SD @ 7,500 nos /ha at a ratio of 30:40:30 of Catla, Rohu and Mrigal). Harvesting of Java punti within 4-5 months. ▪ Pond fertilization with RCD, urea & SSP. ▪ Regular water quality monitoring	**22 q/ha. (29.4%)** Net Income Rs. 120000 (52.8%)	▪ Intercropping of java punti @ 2500 nos/ha in 6 species carp culture (SD @ 7,500 nos /ha at a ratio of 30:40:30 of Catla, Rohu and Mrigal). ▪ Supplementary farm made feeding with (Mustard Oil cake (35%), Sesamum Oil cake (35%), Mahua oil cake 20%, Maize powder (10%) @ 2-4% body wt.	**26q/ha, (18.1%)** Net Income-Rs. 1,52,000 (26.6%)
Total	**126286**			**201589 (59.6%)**		**278451 (120.4%)**		**339330 (168.6%)**

*** Increase in net income over base year 2015-16**

Module-V, AES Name: Rainfed Laterite, Vill: Giria, Block: Hinjilikatu

Farming Situation	Existing practices during 2015-16		1st year Interventions 2016-17		2nd year Interventions 2017-18		3rd year Interventions 2018-19	
	Component/Enterprises	Problem/ Practices	Interventions	Net Income	Interventions	Expected Yield& Income /ha *	Interventions	Expected Yield& Income /ha
Up land Rice/Off-season vegetable-Fallow cropping system	**Rice(Local) - Fallow 18 qt.** (Rs. 8150)	▪ Low income from paddy	▪ Crop diversification-High yielding sweet corn C.v-Madhuri	**Rs.18400/ha (125.7%)**	▪ Weed control in Maize: Pre emergence application of Atrazine @ 1-1.5kg/ha 0-3 DAS	**Rs. 23900/ha (29.8%)**	▪ Line sowing of Maize ▪ Market Linkage	**Rs. 28200/ha (17.9%)**
	Vegetable (Bitter gourd**)- Fallow** **76.6q/ha (Rs. 31345)**	▪ Immature flower & fruit drop leads to low yield in bittergourd	▪ Bitter gourd cultivation - Ethrel 200 ppm 4 times from 15 days after sowing	**102 q/ha (34.2%)** (Rs. 41700/ha) (33%)	▪ Crop diversification-Pointed gourd var. SwarnaAlaukik, planting ratio- 10:1(female: male) ▪ Recommended dose of fertilizer- 90:60:60 kg NPK/ha	**128q/ha (25.4%)** Rs.52200/ha (25.1%)	▪ Application of STBF ▪ Management of Downey mildew disease in pointed gourd by Krilaxyl Gold (Metalaxyl 8% WP + Mancozeb 64% WP)	**164q/ha(28.12%)** (Rs67240/ha)
Medium land Rice-pulse/oilseed cropping system	Rice(Pooja)- Pulses P- 31 q/ha (Rs.14800)	▪ Low yieldingvarieties ▪ Inadequate application of fertilizer	▪ Hy.Paddy-Rajalaxmi/Ajay ▪ RDF in Hy. Paddy (NPK- 120:60:60)	**37 q/ha, (19.3%)** Rs.22200/ha (43.2%)	▪ Line transplanting of paddy ▪ Weed management in paddy- Pre-emergence weedicide:- Londax power (Bensulfuron methyl+ pretilachlor) @ 10kg/ha 0-5 DAT or post emergenceByspyrabic sodium 200 ml per ha 25 DAT	**43 q/ha (16.21 %)** Rs.27800/ha (31.13 %)	▪ Soil test based nutrient management in hybrid rice ▪ Micronutrient application as per soil test results ▪ Market linkage	**53 q/ha (23.25 %)** Rs.36000/ha (29.4%)
	Green gram-	▪ YMV incidence	▪ Greengram-TARM-1, spraying of neem	**4.6 q/ha (64.2%)**	▪ Variety- IPM 02-3/ IPM 02-14	**5.3 q/ha (15.2%)**	▪ Line sowing by seed cum fertiliser drill	**6.2 q/ha (16.9%)**

	2.8 q/ha (Rs.11600)	▪ Low yield	oil(1500 ppm) @ 2ml/lt. at 25 DAS,Thiamethoxam @ 150 gram/ha. at 40 DAS, ▪ Installation of yellow sticky traps @ 50/ha. for sucking pests	Rs.20300/ha (75%)	▪ Seed treatment with Vitavex power 1.5 gm/kg of seed/ Trichodermaviride 5gm/kg ▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed and 50 gmPhospoculture per one kg of seed and 0.3 gm sodium molybdate	Rs.23800/ha (17.2%)	▪ Spraying Water soluble fertilizer(19;19:19::NPK) @ 10 gram/lt. at 30 & 45 DAS	Rs.29600/ha (24.3%)
	Groundnut- Fallow **11 q/ha** (Rs. 14300)	▪ Low yielding variety ▪ Low income from G. nut ▪ Soil acidity	▪ Var: Devi ▪ Application of lime @ 0.2 LR and Sulphur @ 40kg/ha in groundnut	**14 q/ha (27.2 %)** Rs.18300/ha (27.9%)	▪ Seed treatment with Vitavax power 1.5 gm/kg of seed orTrichodermaviride 5gm/kg ▪ Application of RDF	**16 q/ha (14.4%)** Rs. 20900/ha (14.2%)	▪ Seed inoculation with Rhizobium culture 20 gm/kg of seed ▪ Soil test based fertiliser application	**18 q/ha (12.5%)** Rs. 23600/ha (12.9%)
Allied activities Home stead	Local cattle- 240 lit /month (Rs.6000)	▪ Low yield of milk due to stray grazing ▪ Supply of local available feed ▪ Low income from poultry	▪ Azolla cultivation for supplementary feed (20%) increase milk yield up to 1-1.5lit/ per day.	**272 lit/month** (13.3%) Rs. 6800- per month	▪ Supplementation of vitamin mineral mixture@30gm/meal ▪ Fodder Cultivation var. Hybrid nippier var. CO-4	**303 lit/Month (11.3%)** Rs. 7,570 per month	▪ Management of Napier Grass ▪ Value addition of milk ▪ Market linkage	**322 lit/Month (6.2%)** Rs.8050 per month
Pond based Farming system	Poultry birds-(Rs. 3800)		▪ Backyard poultry 10 nos(Vanaraja) ▪ Vaccination of birds (Laasota+Gumber)	**Net Income- Rs. 6,250/** (64%)	▪ Backyard poultry 10 nos(Vanaraja) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla	**Net Income- Rs. 7750/-** (24%)	▪ Backyard poultry 10 nos(Palishree) with proper vaccination (Lassota+ Gumber) ▪ Supplementary feeding with azolla ▪ Calcium supplementation to birds	**Net Income- Rs.10,500/-** (35.4%)

		▪ Not cultivating mushroom	▪ Mushroom production of Paddy straw mushroom (20 beds) and Oyster mushroom(20 bags)	**Net Income (Rs. 4000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month) and Blue Oyster mushroom cultivation2 bags/day	**2.4 kg/day (Rs.9000/yr)**	▪ Mushroom production of OSM-11 (20 beds/month)and Blue Oyster mushroom cultivation(20 beds/month) ▪ Management of competitor moulds and diseases in straw mushroom	**3.2 kg/day (Rs.10500/yr)**
	IMC spawn and fry in ponds **(13 q/ha,** Net Income (Rs.59,000)	▪ Low yield due to improper Stocking ratio and stocking size of fish seed	▪ Intercropping of java punti @ 2500 nos/ha in 3 species carp culture (SD @ 7,500 fingerlings /ha at a ratio of 30:40:30 of Catla, Rohu and Mrigal). ▪ Early harvesting of Java punti within 4-5 months. ▪ Pond fertilization with RCD, Urea & SSP. ▪ Regular water quality monitoring	**16 q/ha, (23%)** Net Income Rs. 73800(25%)	▪ Intercropping of java punti @ 2500 nos/ha in 6 species carp culture (SD @ 7,500 nos /ha at a ratio of 30:40:30 of Catla, Rohu and Mrigal). ▪ Supplementary farm made feeding (Mustard Oil cake (35%), Sesamum Oil cake (35%), Mahua oil cake 20%, Maize powder (10%) @ 2-4% body wt. ▪ Pond fertilization with RCD, urea & SSP. ▪ Regular water quality monitoring	**21 q/ha. (31.2%)** Net Income Rs. 105000 (43.8%)	▪ Intercropping of java punti @ 2500 nos/ha with IMC 30:40:30 of Catla, Rohu and Mrigal). ▪ Application of growth promoter along with fish feed ▪ Pond fertilization with RCD, urea & SSP. ▪ Regular water quality monitoring	**26 q/ha (23.8%)** Net Income-Rs. 1,51,000 (48%)
Total	**148995**			**211750 (42.1%)**		**277920 (86%)**		**364690 (144%)**

*** Increase in net income over base year 2015-16**