JICRA - AICRPDA

NICRA - AICRPDA

Technical Program 2013-14













National Initiative on Climate Resilient Agriculture (NICRA)
All India Coordinated Research Project for Dryland Agriculture
Central Research Institute for Dryland Agriculture
Santoshnagar, Hyderabad - 500 059

National Initiative on Climate Resilient Agriculture

Technical Program of NICRA-AICRPDA 2013-14







All India Coordinated Research Project for Dryland Agriculture Central Research Institute for Dryland Agriculture Santoshnagar, Hyderabad-500059

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PREFACE

Climate change has become an important area of concern for India to ensure food and nutritional security for growing population. In India, significant negative impacts have been implied with medium-term (2010-2039) climate change, predicted to reduce yields by 4.5 to 9 percent, depending on the magnitude and distribution of warming. Since agriculture makes up roughly 16 percent of India's GDP, a 4.5 to 9% negative impact on production implies a cost of climate change to be roughly up to 1.5 percent of GDP per year. The Government of India has accorded high priority on research and development to cope with climate change in agriculture sector. The Prime Minister's National Action Plan on climate change has identified agriculture as one of the eight national missions. With this background, the ICAR has launched a major Project entitled, National Initiative on Climate Resilient Agriculture (NICRA) during 2010-11 with the objectives of enhancing the resilience of Indian agriculture covering crops, livestock and fisheries to climatic variability and climate change through development and application of improved production and risk management technologies, demonstration of site specific technology packages on farmers' fields for adapting to current climate risks and to enhance the capacity building of scientists and other stakeholders in climate resilient agricultural research and its application. The overall expected outcome is enhanced resilience of agricultural production to climate variability in vulnerable regions. The project is comprised of four components. 1) Strategic research on adaptation and mitigation; 2) Technology demonstration on farmers' fields to cope with current climate variability; 3) Sponsored and competitive research grants to fill critical research gaps and 4) Capacity building of different stake holders.

The All India Coordinated Research Project for Dryland Agriculture was started in 1971 with 16 centers. At present, it has a network of 22 centers located in 20 State Agricultural Universities, two other Universities. Out of 22 centers, 8 centers are operating Operational Research Project (ORP) for testing the research findings on farmers' fields, receiving feedback and refinement of such technologies to enable up-scaling in the target domains. Under Technology Demonstration Component of NICRA at AICRPDA centres, the on-station and on-farm demonstration / trials were planned in four thematic areas viz., (i) Real Time Contingency Planning, (ii) Rainwater Management, (iii) Soil Health and Carbon Sequestration (iv) Energy Management and (v) Alter Land Use System. The demonstration under real time contingency planning are conducted under real time weather situations and to be implemented accordingly. Further, the interventions under rain water management (*in-situ* and *ex-situ*) and energy management were proven rainfed technologies and are location specific. The demonstrations under alternate land use are long term adaptation strategies, likely to attract the farmers for adoption and benefit with ecosystem services.

I compliment the efforts of Dr Ch. Srinivasarao, Project Coordinator (Dryland Research), Dr G.Ravindra Chary, Dr G.R.Maruthi Sankar and Er. R.Nagarjuna Kumar, the Chief Scientists, Scientists and staff of AICRPDA and ORP centers for compiling the Technical Program (2013-14) of the NICRA project at AICRPDA Centres. This will help for efficient monitoring and evaluation of the NICRA activities. I also thank Dr.AK. Sikka, Deputy Director General (NRM) and Dr.Mohan Kumar, Assistant Director General (Agronomy & Agroforestry), ICAR for providing the guidance and support to AICRPDA from time to time.

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1. Introduction

The All India Coordinated Research Project for Dryland Agriculture (AICPRDA) was launched in 1970 by the Indian Council of Agricultural Research in IV Plan period, in collaboration with the Government of Canada through Canadian International Development Agency (CIDA) with Coordinating Cell at Hyderabad, Andha Pradesh. In 1985, the Project Directorate of AICRPDA was upgraded to the status of an institute i.e. Central Research Institute for Dryland Agriculture (CRIDA) to carry out basic and strategic research while netwoek research under AICRPDA umbrella continued in applied and adaptive research mode. Presently, AICRPDA network has 22 centres and 8 Operational Research Project (Fig.1). viz. 20 centres in State Agricultural Universities, 2 in technical / other Universities and 3 in ICAR institutes located in 15 states in various agroecological settings (Table.1).

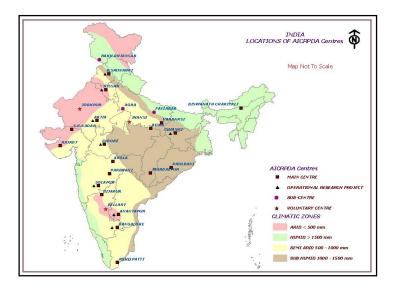


Fig.1. AICRPDA Network Centres - Location map

The project has several unique features compared to any other AICRP. At each centre, location specific research based on natural resource management and socioeconomic status was the hallmark of the programme. Integrated Dryland Development Pilot Projects were started simultaneously and linked with this research network. The domain of some centres also includes the tribal dominated districts. The research under AICRPDA network centres focuses on location specific problems considering agroecological characteristics, predominant rainfed production systems and socioeconomic settings with specific emphasis on soil conservation and rainwater management, evaluation of crops/varieties, cropping/farming systems and contingency planning, integrated nutrient management, alternate land use systems for diversification and efficient implements on a template of resource management paticularly rainwater management.

Table-1: The details on agroecological setting of AICRPDA Network centers

Name of the Centre	SAU / ICAR Institute/ Others (Hqrs)	Agro-Climatic Zone (NARP) / Agro – ecosub region (AESR)	Climate**	Mean Annual Rainfall (mm)	Dominant Soil Type	Major Rainfed Crop based Production System
Agra (SC)	RBSC, Agra	South – western semiarid zone in Uttar Pradesh (4.1)	Semiarid (Hot dry)	665	Inceptisols	Pearlmillet
Akola (MC)	PDKV, Akola	Western Vidarbha Zone in Maharashtra (6.3)	Semiarid (Hot moist)	824	Vertisols	Cotton
Anantapur (MC & ORP)	ANGRAU, Hyderabad	Scarce rainfall zone (Rayalaseema) in Andhra Pradesh (3.0)	Arid (Hot)	544	Alfisols	Groundnut
Arjia (MC & ORP)	MPUAT, Udaipur	Southern zone in Rajasthan (4.2)	Semiarid (Hot dry)	656	Vertisols	Maize
B.Saunkhri (MC & ORP)	PAU, Ludhiana	Kandi region in Punjab (9.1)	Subhumid) (Hot dry)	1011	Inceptisols	Maize
Bangalore (MC & ORP)	UAS_B, Bangalore	Central, eastern and southern dry zone in Karnataka (8.2)	Semiarid (Hot moist)	926	Alfisols	Fingermillet
Bellary (VC)	CSWCRTI, Dehradun	Northern dry zone in Karnataka (3.0)	Arid (Hot)	502	Vertisols	Rabi Sorghum
Bijapur (MC)	UAS_D, Dharwad	Northern dry zone in Karnataka (6.1)	Semiarid (Hot dry)	595	Vertisols	Rabi Sorghum
Biswanath Chariali (MC)	AAU, Jorhat	Nprth Bank Plain zone in Assam (15.2)	Humid (Hot)	1990	Alfisols	Rice
Chianki (MC & ORP)	BAU, Ranchi	Western plateau zone of Jharkhand (11.0	Subhumid (Hot moist)	1179	Inceptisols	Rice
Faizabad (SC)	NDUAT, Faizabad	Eastern plain zone in Uttar Pradesh (9.2)	Subhumid (Hot dry)	1051	Inceptisols	Rice
Hisar (MC & ORP)	CCSHAU, Hisar	South-western dry zone in Haryana (2.3)	Arid (Hyper)	412	Inceptisols	Pearlmillet
Indore (MC & ORP)	RVSKVV, Gwalior	Malwa plateau in Madhya Pradesh (5.2)	Semiarid (Hot moist)	958	Vertisols	Soybean
Jagadalpur (MC)	IGAU, Raipur	Basthar Plateau zone in Chattisgarh (12.1)	Subhumid (Hot moist)	1297	Inceptisols	Rice
Jhansi (VC)	IGFRI, Jhansi	Bundhelkhand zone in Uttar Pradesh (4.4)	Semiarid (Hot moist)	870	Inceptisols	kharif Sorghum
Jodhpur (VC)	CAZRI, Jodhpur	Arid Western zone of Rajasthan (2.1)	Arid (Hyper)	331	Aridisols	Pearlmillet
Kovilpatti (MC)	TNAU, Coimbatore	Southern zone of Tamil Nadu (8.1)	Semiarid (Hot dry)	723	Vertisols	Cotton
Parbhani (MC)	MAU, Parbhani	Central Maharastra Plateau Zone in Maharashtra (6.2)	Semiarid (Hot moist)	901	Vertisols	Cotton
Phulbani (MC)	OUAT, Bhubaneswar	Eastern Ghat Zone in Orissa (12.1)	Subhumid Hot moist)	1580	Oxisols	Rice
Rajkot (MC)	JAU, Junagarh	North Saurashtra zones in Gujarat (5.1)	Semiarid (Hot dry)	590	Vertisols	Groundnut
Rakh Dhiansar (SC)	SKUAS_T, Jammu	Low altitude subtropical zone in Jammu and Kashmir (14.2)	Semiarid (Moist dry)	860	Inceptisols	Maize
Rewa (MC)	JNKVV, Jabalpur	Keymore plateau and Satpura Hill zone in Madhya Pradesh (10.3)	Subhumid (Hot dry)	1088	Vertisols	Soybean
S.K.Nagar (MC)	SDAU, Dantewada	Northern Gujarat in Gujarat (2.3)	Semiarid/Arid (Hot dry)	670	Entisols	Pearlmillet
Solapur (MC & ORP)	MPKV, Rahuri	Scarcity zone in Maharashtra (6.1)	Semiarid (Hot dry)	732	Vertisols	Rabi Sorghum
Varanasi (MC)	BHU, Varanasi	Eastern Plain and Vindhyan Zone in Uttar Pradesh (4.3 / 9.2)	Semi arid (Hot moist) Subhumid (Hot dry)	1049	Inceptisols	Rice

Over a period of 3 decades, AICRPDA network centres generated location specific technologies for up scaling in the respective agroclimatic zones. These technologies basically address rain water harvesting and reuse for higher resource use efficiency and water productivity, efficient crops/varieties and cropping systems for higher yield and income, contingency crop planning, integrated nutrient management, bullock/tractor drawn farm implements for efficient tillage/seeding/fertilizer application/intercultural and other operations with cost effectiveness and timeliness, alternate land use systems for diversification, higher income and resource efficiency.

Climate Resilient Technology Demonstrations at AICRPDA centers

Each centre proposed technological and institutional interventions for enhancing the resilience of farming systems to the climatic variability by involving the major stakeholders such as farmers, researchers, NGOs, officers, of the line departments and extension specialists. Based on the detailed analysis of farming systems, resources, constraints, needs of the village, the climatic vulnerability (drought/ floods/ heat wave/frost/ cyclone) and the available technology options from the concerned Regional/ Zonal Agricultural Research Stations of the SAU and ICAR institutions and time tested climatic resilient farm practices adopted by innovative farmers, the stakeholders in the brainstorming sessions identified the gaps and selected specific interventions related to each of the four sub projects (i) Real time contingency plan impolementation in a participatory mode (ii) Rainwater harvesting (iii) Efficient energy use and management (iv) Alternate land use. It was planned to saturate the whole village with the identified interventions in order to demonstrate a discernable effect and document the constraints and lessons. Further the preference was given to the interventions targeted / focused on the following:

- Interventions benefiting larger and resource poor group
- Interventions which give long- term and sustainable benefits
- Interventions that address resource conservation
- Interventions that promote/ strengthen village level institutions

Coverage of the program

Finally the whole village was to be saturated with the climate resilient technologies; however, in the beginning the numbers of interventions of different types were decided as per the budget available, the interventions which require high investment like farm pond were planned for few suitable locations in the village. The *in- situ* moisture conservation and improved agronomic practices, intercropping and new varieties were planned to be taken up for large number of farms in the village. In selection of beneficiaries, the farmers most vulnerable to climatic variability and small holders were given priority. It was also ensured that the village has control farm /plot/ animals for all the impact of interventions in short period. Every centre was suggested to prepare the activity plan with details of activities along with roles and responsibilities of shakeholders, period and budget for each intervention. The AICRPDA Network centres have been included in the National Intitiative on Climate Resilient Agriculture (NICRA) project of ICAR for taking up demonstration and research activities at various dryland centres in a network mode. The demonstration components of NICRA have been finalized in these centres in a participatory mode.

The NICRA program at 23 AICRPDA Network centres including IGFRI, Jhansi were initiated during 2010, both on-station and on-farm. The on-farm program is being implemented in 34 adopted villages in 26 districts covering 15 states (Fig. 1. and Table.2).

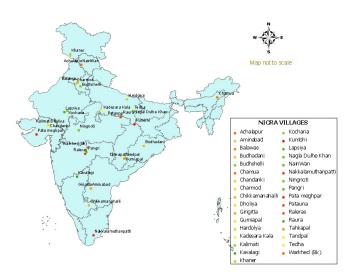


Table-2: Details of villages under NICRA program

Name of the	Name of the Villages	Districts	State
center			
Anantapur	Aminabad, Girigetla	Kurnool	Andhra Pradesh
Biswanath Chariali	Chamua	Lakhlmpur	Assam
Jagdalpur	Tahakapal, Gumiapal, Pahkapal	Bastar	Chittishgarh
Rajkot	Pata meghapar	Jamnagar	Gujarat
SK Nagar	Dholia, Kalimati, Chandanki	Banaskantha Mehasana	Gujarat
Hisar	Budhsheli, Charnod, Balawas	Bhiwani	Haryana
Rakh Dhiansar	Khaner	Rakh Dhiansar	Jammu & Kashmir
Chianki	Khumbhi - bankheta	Garhwa	Jharkhand
Bengaluru	Chikkamaranahalli	Bengaluru Rural	Karnataka
Bijapur	Kaulagi	Bijapur	Karnataka
Rewa	Patauna	Rewa	Madhya Pradesh
Indore	Ningnoti	Indore	Madhya Pradesh
Akola	Warkhed, Belura	Akola	Maharashtra,
Parbhani	Pangri	Parbhani	Maharashtra
Solapur	Raleras	Solapur	Maharashtra
Phulbani	Budhadani	Kandhamal	Orissa
Ballowal Saunkhri	Naiwan, Achalpur	Hosiarpur	Punjab
Arjia	Kocharia, Mandpiya, Sola ka kheda,	Bhilwara	Rajasthan
	Lapsiya, Tara ka kheda	Rajsamand	
Kovilpatti	Nakkalamuthanpatti, alugachalipuram	Tuticorin Thoothukkudi	Tamil Nadu
Faizabad	Hardoiya	Faizabad	Uttar Pradesh
Agra	Nagla Duleh khan	Agra	Uttar Pradesh
Varanasi	Terha Saraya	Mizapur	Uttar Pradesh
Jhansi	Kadesara Kala	Lalitpur	Uttar Pradesh

The technical programme is being implemented during 2013-14, both on-station and on-farm, under various themes (Tables 3 & 4), abstract of which is presented below:

Table -3: On-station interventions

Production System/Center	RTCP	RWM	SHCA	EM	ALU	TOTAL
Rice based production system						
Biswanath Chariali	2	2	2	-	-	6
Chianki	13	-	-	-	-	14
Faizabad	7	1	-	1	-	9
Jagadalpur	3	-	2	-	-	5
Phulbani	2	1	2	-	-	6
Varanasi	3	3	-	-	-	6
Total	30	7	6	1	2	46
Maize based production system						
Arjia	4	1	2	-	-	7
Ballowal Saunkhri	5	1	2	-	1	9
Rakh Dhiansar	4	1	2	1	1	9
Total	13	3	6	1	2	25
Fingermillet based production system						
Bangalore	4	1	1	-	2	8
Total	4	1	1	-	2	8
Pearlmillet based production system						
Agra	1	-	2	-	-	3
Hisar	-	1	-	1	1	3
SK Nagar	2	2	2	1	-	7
Total	3	3	4	2	1	13
Sorghum based production system						
Bijapur	3	1	2	-	4	10
Solapur	-	2	2	2	-	6
Jhansi	2	1	1	-	-	4
Total	5	4	5	2	4	20
Soybean based production system						
Indore	3	1	ı	-	1	5
Rewa	5	-	2	-	-	7
Total	8	1	2	-	1	12
Groundnut based production system						
Anantapur	1	3	-	1	-	5
Rajkot	-	-	-	-	2	2
Total	1	3	-	1	2	7
Cotton based production system						
Akola	-	1	2	-	1	4
Kovilpatti	3	2	2	-	3	10
Pharbani	3	-	-	-	-	3
Total	6	3	4	-	4	17
Grand Total	70	25	28	8	18	

RTCP: Real time contingency planning: RWM: Rainwater management EM: Energy management ALU: Alternate land use

SCHA: Soil health and conservation

agriculture

Table-4: On-farm interventions

Production System/	RTCP	RWM	SCHA	EM	ALU	TOTAL
Center Center	KICP	K W WI	ЗСПА	EWI	ALU	IOIAL
Rice based production sy	stem					
Biswanath Chariali	7	3	2	1	1	32
Chianki	12	3	2	_	-	17
Faizabad	7	2	2	1	_	12
Jagadalpur	4	3	2	6	1	21
Phulbani	5	2	2	1	1	18
Varanasi	8	4	2	1	1	18
Total	43	17	12	10	4	118
Maize based production s	system	1	1	<u> </u>	· ·	•
Arjia	6	3	2	1	4	25
Ballowal Saunkhri	6	2	2	2	2	19
Rakh Dhiansar	6	1	2	1	1	23
Total	18	6	6	4	7	67
Fingermillet based produ	ction syste	m				
Bangalore	4	4	-	1	1	28
Total	4	4	-	1	1	28
Pearlmillet based produc	tion system	ı	•			•
Agra	6	3	2	1	2	21
Hisar	7	3	2	2	1	15
SK Nagar	3	2	2	1	-	22
Total	16	8	6	4	3	58
Sorghum based production	on system	•	•			•
Bijapur	2	2	2	1	4	18
Solapur	2	-	2	1	1	12
Jhansi	2	3	1	1	1	18
Total	6	5	5	3	6	48
Soybean based productio	n system					
Indore	4	1	-	1	2	13
Rewa	6	1	2	1	-	19
Total	10	2	2	2	2	32
Groundnut based produc	tion systen					
Anantapur	5	3	-	1	1	22
Rajkot	5	2	2	1	-	17
Total	10	5	2	2	1	39
Cotton based production	system					
Akola	3	2	1	-	-	7
Kovilpatti	3	2	2	-	3	16
Pharbani	3	2	1	1	-	13
Total	9	6	4	1	3	36
Grand Total	116	53	37	27	27	426

RTCP: Real time contingency planning; RWM: Rainwater management Energy management Soil health and conservation *EM* : ALU: Alternate land use system

SCHA:

agriculture

The number of farmers and the area covered under each thematic area in NICRA villages is presented in (Table 5)

Table 5: List of number of farmers under NICRA at different AICRPDA centers

Centre	RTO	C	RW	M	SHC	A	EN	M	A	LU	Total	Total
	No. of	Area	No. of	Area	No. of	Area						
	far-	(ha)	far-	(ha)	far-	(ha)	far-	(ha)	far-	(ha)	far-	(ha)
	mers		mers		mers		mers		mers		mers	
Biswanath	182	85.0	70	11.0	-	-	-	-	3	-	255	96.0
Chariali												
Chianki	433	4.5	60	0.8	100	-	-	-	-	-	593	5.3
Faizabad	103	6.3	12	1.0	-	-	-	-	-	-	115	7.3
Jagdalpur	75	30.0	15	6.0	-	-	15	4.4	5	5.0	110	45.4
Phulbani	90	24	20	8	-	-	-	-	-	-	110	32.0
Varanasi	75	32.3	42	38.5	-	-	18	13.0	-	1.0	135	84.8
Arjia	96	25.6	8	2.8	-	-	40	9.6	14	14.1	158	52.1
Ballowal	30	8.0	15	3.0	-	-	17	4.4	4	2.0	66	17.4
Saunkhri												
Rakh	134	7.1	8	-	-	-	5	1.0	10	0.5	157	8.6
Dhiansar												
Bangalore	182	50.5	28	14.1	-	-	-	-	2	1.0	212	65.6
Agra	80	32.0	33	18.0	-	-	-	-	2	-	115	50.0
Hisar	85	34.0	15	4.40	-	-	21	8.4	2	2.0	123	48.8
SK Nagar	240	97.6	93	37.6	-	-	13	5.3	-	-	346	140.5
Bijapur	23	9.2	7	2.8	-	-	-	-	20	8.0	50	20.0
Solapur	109	21.8	-	-	-	-	5	2.0	5	0.8	144	55.4
Jhansi	15	9.0	8	4.0	60	-	-	4.0	4	2.0	87	19.0
Indore	40	1.7	3	4.0	-	-	10	0.3	7	0.7	69	6.6
Rewa	81	32.4	33	10.2	-	-				-	114	42.6
Anantapur	94	39.6	18	16.6	-	-	50	50	10	-	379	106.2
Rajkot	125	49.2	44	17.6	40	-	25	8.0	-	0.8	234	83.6
Akola	30	12.0	39	11.2	-	-	-	-	-	-	131	48.0
Kovilpatti	10	5.5	3	1.2	-		-	-	6	0.24	19	6.9
Parbhani	50	20.0	9	3.6	5	5.0	1	0.4	-		65	29.0
Total	2382	637	583	216	205	5.0	220	110.7	94	38.0	3787	1071

RTCP: Real time contingency planning; RWM: Rainwater management EM: Energy management ALU: Alternate land use system

SCHA: Soil health and conservation

agriculture

Custom hiring centres

Each village has one Custom hiring centre (CHC), Climate Risk Management Committee (CRRMC) and Custom hiring Management Committee (CHMC) huge demand for these equipments in the Custom hiring centres. The need based implements based on the decisions at village level and approved by VCRMC, are made available for facilitating the hiring of implements as per the rates by CHMC. The money incurred from the custom hiring is maintained for maintenance and repair of the implements

Table-6: Improved implements available at Custom hiring centres in NICRA villages

Production System/Center	No. of implements available at Custom Hiring
	Centre
Rice based production system	
Biswanath Chariali	18
Chianki	-
Faizabad	-
Jagadalpur	5
Phulbani	7
Varanasi	2
Maize based production system	
Arjia	9
Ballowal Saunkhri	5
Rakh Dhiansar	12
Fingermillet based production system	
Bangalore	18
Pearlmillet based production system	·
Agra	7
Hisar	-
SK Nagar	14
Soybean based production system	
Indore	5
Rewa	9
Groundnut based production system	
Anantapur	12
Rajkot	7
Cotton based production system	
Akola	1
Kovilpatti	6
Pharbani	6
Total	166

The production system-wise and centrewise detailed technical programme is presented in the following chapters.

Rice Based Production System

1.0 RICE BASED CROPPING SYSTEM

1.1 BISWANATH CHARIALI

Sl. No	Code	Interventions	Crops/Treatments	Observations/ parameters/						
	ONET	NATION		Analysis to be recorded						
	A. ON-STATION Theme 1 : Real time contingency planning									
1 nei	BISW/		Demonstrations of	Law aget Varminamnosting unit						
1	N/OS/ RTC/ 2013	Dryland Technology Park	rainfed technologies	Low cost Vermicomposting unit, Rainwater harvesting, Azolla production, compost production, polythene mulching and others						
2	BISW/ N/OS/ RTC/ 2013	Foliar application with need based chemicals/nutrient s/water sprays for mitigating in- season dry spells/droughts	Crop: Rapeseed Foliar spray of 2% KCl solution twice first at flowering and at siliqua formation stage	Days to Maturity Seed yield Straw yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE						
The	ne 2 : Rai	nwater Managemen	t (in-situ & ex-situ)	·						
3	BISW/ N/OS/ RWM/ 2013	Efficient rain water conservation through mulching	Mulching with locally available materials like rice husk, water hyacinth, straw of toria and rice of Rainfed Crop: Ginger, potato	Run off Soil moisture at critical stages of the sole/ main/ intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics						
4	BISW/ N/OS/ RWM/ 2013	Rainwater harvesting and efficient utilization.	Farm pond, supplemental irrigation crop	Run off Water budgeting studies No. of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap No. of irrigations and what stage of the crop, Kind (Flood,drip,sprinkler etc.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,liting from the pond using pumps, labour charges etc) Observations on crops: As per crop given earlier.						

Ther	Theme 3: Soil health and Conservation Agriculture							
5	BISW/	To maintain soil	Linked with PMTs					
	N/OS/	health with						
	SHCA/	appropriate soil						
	2013	and crop						
		management						
6.	BISW/	Development of	 Experimental 					
	N/OS/	CA Strategies	details to be					
	SHCA/		finalized in					
	2013		the CA					
			Platform					

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Far- mers	Observations/param eters/analysis to be recorded
	B. ON-FA					
			aloni, District : Lakhimpur, As	ssam		
7	me I : Rea	l time contingen Demonstration	cy planning Varieties: TS -36 and TS -38	15.0	80	D . M
,	N/OF/ RTC/ 2013	of varieties of improved toria under upland situation	varieties : 13 -30 and 13 -36	13.0	80	Days to Maturity Seed yield Straw yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
8	BISW/ N/OF/ RTC/ 2013	Demonstration of early to medium duration rice varieties	Varieties :	50.0	20	No. of tillers/Plant (or m²), Days to 50% flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics. Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

9	BISW/ N/OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts	Crop1: Rice Application of MOP @ 22.5 kg/ha (one time at tillering or PI stage –in case of occurrence of dry spell) Crop 2: Rapeseed Foliar spray of 2% KCl solution twice first at flowering and siliqua formation stage	1 hac 0.5 hac	6	Rice: as given earlier Rapeseed: as given earlier
10	BISW/ N/OF/ RTC/ 2013	Demonstration and promotion of submergence tolerant rice varieties for flash floods	AHU varieties: Banglami Latguni Luit Kapillee SALI varieties: Jalashree Jalkunwari Swanrasub/ Varieries having staggering ability: Gitesh Prafulla	4.0	20	Rice: as given earlier
11	BISW/ N/OF/ RTC/ 2013	Demonstration of suitable intercropping systems	Cropping systems: Sesame + black gram/green gram Ginger/turmeric + pigeonpea	2.5	10	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

12	DICW/	Domonstration	Variation	6.0		Dava to Maturity
12	BISW/ N/OF/ RTC/ 2013	Demonstration and promotion of cultivation of potato in the upland situation and after harvesting paddy	Varieties • Kufri Jyoti • Kufri Pokhraj	6.0	-	Days to Maturity Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days
						and month) RWUE
13	BISW/ N/OF/ RTC/ 2013	Demonstration of maize varieties after harvesting potato	Hybrid –All-rounder	6.0	40	Days to maturity Seed yield Stalk yield Crop Seasonal Rainfall (mm)
Then	ne 2 : Rai	nwater Managem	nent (in-situ & ex-situ)			
14	BISW/ N/OF/ RWM/ 2013	Efficient rain water conservation through mulching	Mulching of rainfed crop like ginger/turmeric/ potato with locally available mulch materials like rice husk, water hyacinth, straw of toria and rice	5.0	10	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics
15	BISW/ N/OF/ RWM/ 2013	Water harvesting and use from farm	Lifting of water from farm pond and use for irrigation	6.0	-	Water stored in the farm pond \ Duration of availability of water in the pond Efficacy o silt trap Quality of irrigation No. of irrigations and what stage of the crop, kind (lood,drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,lifting from the pond using pumps, labour charges etc)
16	BISW/ N/OF/ RWM/ 2013	Renovation of natural drainage channel	Supplemental irrigation to rabi crops	-	60	

17	BISW/	health and Conse	GPS based soil			
	N/OF/	land parcelwise	sampling			
	SHCA/	(farmerwise)	 Macro and 			
	2013	Soil Health	micronutrients			
		Cards	analysis			
		and Site- specific	 Village Soil fertility 			
		nutrient	map			
		recommendatio	 Site-specific nutrient management 			
		ns	recommendations			
18	BISW/	To demonstrate	Experimental details			Initial soil analysis
	N/OF/	CA practices as	to be finalized in the			crop yields,
	SHCA/	adaptation	CA Platform			Root: shoot ratio plan
	2013					analysis
Thei	me 4 : Ene	ergy Management				
19	BISW/	Demonstration	Water lifting pump	-	-	Energy Input and
	N/OF/	and promotion				Energy Output balance
	EM/	of need based				observations
	2013	manual tools,				Field capacity o the
		bullock and				implement Time saved (hrs)
		tractor drawn implements for				Labour saved
		various				RWUE
		agricultural				Economics,
		operations				
Tl	5 . 414	4- I J II 6		•		
20	BISW/	Production of	Low cost vermicompost	T_	10	Quantity produced
	N/OF/	improved	production		10	Crop residue -type and
	ALU/	organic manure	•			quantity used
	2013	_				Economics
						VC- used and for
						which crops
21	DICM	Duo ma ati f	. I' 1 1		02	Farmers' feedback
21	BISW/ N/OF/	Promotion of integrated	• Fish culture	-	03	Component wise observations
	ALU/	farming system	Pig culture			ouservations
	2013	Tarming system	 Horticulture/ agriculture farming 			
	2013		agriculture farming system	1		

	C. CUSTOM HIRING CENTRE							
22	BISW/ N/OF/ CHC/ 2013	Popularization of need based improved implements	Implements: Cultivator and harrow Water lifting pump Self propelled reaper Thresher Paddy weeder Dryland weeder Rotavator MB plough Ridger Sprayer Cultivator Disc plough		For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio			
			 Paddy transplanter Power tiller Rotary tiller 5HP Hand wheel hoe cum seeder Seed cum fertilizer drill Manual fertilizer broadcaster 		 Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding category wise Crop wise Total area in the village 			

1.2 CHIANKI

Sl. No.	Code	Title	Crop/Treatments	Observations/ parameters/				
	N-STATION			Analysis to be recorded				
	Theme 1: Real time contingency plans implementation							
1.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting drought tolerant high yielding varieties of upland rice	Experimental method: No. of varieties: 7 Birsa Dhan-108, BVD- 109, BVD-110, Vandana, BVD 111 (C), RR 616 -B-2-75-2 and Bakar Dhan Design : R.B.D. Replication : 3 Plot size : 20 m² Spacing:20cm (row to row) Fertilizer dose: 40:30:20 NPK (Kg/ha) Seed rate : 80 kg/ha	No. of tillers/plant (or m2), Days to 50% flowering, Days to maturity, Grain yield, Straw yield, Harvest Index,1000 Grain Weight Economics, , Crop Seasonal Rainfall(mm) No. of Dry spells and what stage of crops, Duration of each Dry spell (mention days and month),RWUE				
2.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting drought tolerant high yielding varieties of rice for medium land	Experimental method: No. of varieties/hybrids:8 Naveen, Sahbhagi, PAC-801, PAC-807, 27- P-31, Tej/Arize, RH - 527 and IR-36 (C) Design : R.B.D. Replication : 3 Plot size : 20 m² Spacing: 25 cm (row to row): 15 cm (plant to plant) Seed rate: 40 kg/ha (for varieties) : 15kg/ha (for hybrids) Fertilizer dose: 100:40:60 NPK (Kg)	No. of tillers/plant No. of tillers/plant(or m2), Days to 50% flowering, Days to maturity, Grain yield, Straw yield, Harvest Index,1000Grain Weight Economics, , Crop Seasonal Rainfall(mm) No. of Dry spells and what stage of crops, Duration of each Dry spell (mention days and month),RWUE				

3.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting drought tolerant high yielding varieties of rice for low land	Experimental method: No. of varieties/hybrids: 8 MTU-7029, BPT-5204, Rajshree (C) MTU-1001, Arize 6444, wita-12,Sambha Mansuri,BAU408-05 Design : R.B.D. Replication : 3 Plot size : 20 m² Spacing: 25 cm (row to row) : 15 cm (plant to plant) Seed rate : 40 kg/ha (for varieties) : 15kg/ha (for hybrids) Fertilizer dose: 120:40:60 NPK (Kg/ha)	No. of tillers/plant No. of tillers/plant(or m2), Days to 50% flowering, Days to maturity, Grain yield, Straw yield, Harvest Index,1000Grain Weight Economics, , Crop Seasonal Rainfall(mm) No. of Dry spells and what stage of crops, Duration of each Dry spell (mention days and month),RWUE
4.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting drought tolerant high yielding varieties of maize evaluation of high yielding	Experimental method: No. of varieties/hybrids:9 BVM-2, Suwan- 1,HQPM-1, Kanchan,DHM- 117,Chatarpur-1, Chatarpur-2,MBP- X08,MBP-708 Design : R.B.D. Replication : 3 Plot size : 20 m² Spacing : 60 x 25cm Seed rate : 20 kg/ha (for varieties) : 10kg/ha (for hybrids) Fertilizer dose: 100:60:40 NPK (Kg./ha	Cob/Plant, Length of cob(cm),Days to maturity,1000grainWeight,gra in yield Straw yield Crop Seasonal Rainfall, No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), Energy balance economic analysis time saved(hrs.),labour saved, RWUE, Bulk density
5.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting drought tolerant high yielding varieties of pigeon pea	Experimental method: No. of varieties/hybrids:4 Birsa Arhar-1,Asha, ICPH-2671 and local (C) Design: R.B.D. Replication: 5 Plot size: 20 m² Spacing: 75 x 25 cm Seed rate: 20 kg/ha (for varieties): 08kg/ha (hybrid) Fertilizer dos: 20:40:20:20 NPKS(Kg./ha	Fruiting branches/plant, Days to 50%flowering,Pods/Plant, Seeds/Pod, Days to maturity, Seed yield, Stalk Yield, Harvest Index, 100Seed Weight, Economics, Net Re turns, BC ratio, Crop Seasonal Rainfall(mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE

6.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting drought tolerant high yielding varieties of sesame	Experimental method: No. of varieties/hybrids:4 Kanke white,Shekhar,Gujarat-4, local (C) Design : R.B.D. Replication : 5 Plot size : 20 m² Spacing : 25 x 15cm Seed rate : 20 kg/ha (for varieties) : 05kg/ha Fertilizer dos: 40:20:20:20 NPKS(Kg./ha)	No. of Capsule/ Plant, Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, RWUE.
7.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting high yielding varieties of horse gram	Experimental method: No. of varieties/entries: 5 Birsa Kulthi-1 GHG-19, GHG-13, Madhu, AK-21 (C) Design: R.B.D. Replications: 5 Plot size: 20 m² Spacing: 30 X 20 cm Seed rate: 20 Kg/ha Fertilizer dose: 20:40:20 NPK(Kg/ha)	Daysto50% flowering, Pods/plant, Seed yield, Stalk Yield, 100, seed weight, Economics, Crop Seasonal Rainfall(mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
8.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promoting high yielding varieties of Niger for rainfed upland	Experimental method: No. of entries: 4 N-5, BN-1, BN-2, BN-3 Design: R.B.D. Replications: 4 Plot size: 20 m² Spacing: 30 X 15 cm Seed rate: 5-6 Kg/ha Fertilizer dose: 40:20:20 NPK(Kg/ha)	Daysto50% flowering, Days to maturity, Seed yield, Stalk Yield, Harvest Index, Economics, 100 seed weight, Economics, Crop Seasonal Rainfall (mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE

9.	CHIA/N/OS/ RTC/2013 AS MSY	Study of pigeon pea based inter cropping system	Experimental method: No. of Treatments: 7 1.Pigeonpea (ICPH - 2671) + Sorghum (CSV-20) (1:1) 2.Pigeonpea (ICPH - 2671) + Okra (SG-152) (1:1) 3.Pigeonpea (ICPH - 2671) + Maize (BVM-2)(1:1) 4.Sole Pigeonpea (ICPH - 2671) 5.Sole Sorghum (CSV-20) 6. Sole Okra (SG-152) 7. Sole Maize (BVM-2) Design: RBD Replication: 5 Plot size: 7.5 m X 3.0 m Spacing 1.Pigeonpea (75 x 25 cm) 2. Sorghum (45 x 15 cm) 3. Okra (60 x 25 cm) 4. Maize (60 x 25 cm) Seed rate 1.Pigeonpea (5kg/ha) 2. Sorghum (10kg/ha) 3. Okra (8kg/ha) 4. Maize (20kg/ha)	Days to maturity for sole crops, Days to maturity for Intercrop Grain/Seed yield of sole crops, Stalk Yield of sole crops, Grain yield of main crop, Grain yield of intercrops, Stalk yield of main crop, Stalk yield of intercrops, Equivalent yield of main crop in the intercropping system LER MAI(Monetary Advantage Index) Economics, Crop Seasonal Rainfall(mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
10.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promotion of different varieties / hybrids of chickpea	Experimental method: No. of entries: 05 KAK – 2, Annegiri KPG – 59 BG – 3 and Local Design : R.B.D. Replication : 4 Plot size : 6 x 3.5 m ² Spacing : 30 x 10 cm Fertilizer dose: 20:40:20 NPK (Kg/ha)	Daysto50%flowering, Days to maturity, Seed yield, Stalk Yield, Harvest Index, Economics,100seed weight, Economics, Crop Seasonal Rainfall (mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
11.	CHIA/N/OS/ RTC/2013 EA AP MSY	Promotion of different varieties / hybrids of lentil	Experimental method: No. of entries: 05 PL - 406, PL - 639, DPL - 62, KLS - 218 and Local Design : R.B.D. Replication : 4 Plot size : 5 x 4.5 m² Spacing : 30 x 15 cm Fertilizer dose: 20:40:20 NPK (Kg/ha)	Daysto50%flowering, Days to maturity, Pod/plant, Seed yield, Stalk Yield, 100seed weight, Economics, Crop Seasonal Rainfall(mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE

12. CHIA/N/OS/ RTC/2013 EA AP MSY	Promotion of different varieties / hybrids of mustard	Experimental method: No. of entries: 06 Shivani, Pusa Bold, Kranti, Vardan, and Local Design : R.B.D. Replication : 4 Plot size : 5 x 3.5 m ² Spacing : 30 x 10 cm Fertilizer dose: 40:40:20 NPK (Kg/ha)	Daysto50%flowering, Days to maturity, Pod/plant, Seed yield, Haulm Yield, 100seed weight, Harvest index, Economics, Crop Seasonal Rainfall (mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
13. CHIA/N/OS/RTC/2013 AS MSY Theme 2: Rainw	management in late sown condition of chickpea varieties	Experimental method: No. of treatments: 09 Varieties: KPG – 59, KAK – 2, and JG-14 Fertilizer Application: 1.20:40:20 NPK (F ₁) 2.F ₁ + 2% Urea Solution at branching stage (F2) 3.F ₁ + 2% Urea Solution at branching stage and pod initiation stage. (F3) Design : Factorial R.B.D. Replication: 3 Plot size : 4.0 mx3.5m Spacing : 30 x 10 cm	Days to maturity, Pod/plant, Grain yield, Stalk Yield, 100seed weight, Harvest index, Economics, Crop Seasonal Rainfall (mm), No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE

Theme 2: Rainwater harvesting (in *situ and ex-situ*) and efficient use: No expts. planed

Theme 3: Efficient energy management (in-situ and ex- situ): No expts. planed

Theme 4: Alternate land use system 14. CHIA/N/OS/ **Treatment details:** Dev. of Alternate land use Horticulture ALU/2013 Paddy Initial and final-Soil system AMA 2. Paddy + Pigeon analysis for macro ΑK pea and micro nutrient AS Maize Organic carbon, pH MSY 4. Maize + Pigeon EC etc. pea Till fruiting Sorghum Establishment in Sorghum + Pigeon spea the first year-7. Pigeon pea mortality, water * Control plot for each use by each plant crop/crop combination to Plant height be laid out separately to Girth compare the treatments Other growth i.e. Guava (5 m x 5m), parameters Paddy (20 cm), Maize specific to (60 cm x 20 cm), Pigeon species pea (60 cm x 20 cm), Land quality Sorghum (50 cm x 15 cm), Paddy +Pigeon pea

		Maize+ Pigeon pea and Sorghum+ Pigeon pea Experimental design: Randomized Block Design (RBD) Number of treatments: 07 Number of replication: 03 Plot size: 17.5 m x 7.5 m Spacing: Recommended spacing for each crop Fertilizers: Recommended dose of NPK and FYM for each crop Sowing time: Onset of monsoon (June/July) Varieties: Guava – Allahabad Safeda Paddy – Vadana Pigeon pea – Birsa Arhar-1 Maize – Suwan Sorghum – CSV-20	From the fruiting year Fruit yield/tree Land quality Agriculture Sole cropping system in between horticultural plan/trees Seed yield of sole/main/ intercrops Stalk yield of sole/main /intercrops Days to maturity crop seasonal
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MSY- MS Yadava, PK- Pramod Kumar, AS- Akhilesh sah, EA – Ekhlaque Ahmad, AK- Anil kumar, AMA- Abdul Majid Ansari, AP- Achutanand Paul, KSM- Kumar Shalendra Mohan

ON-	ON-FARM: Village: Kumbhi and Bankheta District: Garhwa, Jharkhand						
Ther	ne 1: Real time conting	ency planning					
Sl. No	Code	Interventions	Crop/Treatments	Area (acre)	No.o Far- mers	Observations/ parameters/ Analysis to be recorded	
15.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of rice for rainfed upland	Crop: Rice Variety: Vandana and Local	0.5	15	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE	

16.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of rice for rainfed medium land	Crop: Rice Variety: Naveen, Sahabhagi, PAC- 801 and Local	0.5	45	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
17.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of rice for rainfed lowland	Crop: Rice Variety: Arize - 6444 and Local	0.5	50	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
18.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of high yielding short duration varieties of maize	Crop: Maize Variety: Kanchan and Local	0.25	51	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE

19.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of high yielding medium duration varieties of Pigeonpea	Crop: Pigeonpea Variety: Bahar and Local	0.25	20	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
20.	CHIA/N/OF/RTC/2013 A. Sah MSY	Demonstration of drought tolerant high yielding varieties of sorghum	Crop: Sorghum Variety: CSV- 20 and Local	0.33	22	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE
21.	CHIA/N/OF/RTC/2013 A. Sah MSY	Demonstration of Pigeonpea based intercropping system	Intercropping system: Pigeonpea+ Maize Pigeonpea + Sorghum Pigeonpea+ Okra Crop: Pigeonpea, Sorghum, Okra and maize Variety: Pigeonpea(ICPH- 2671) Maize:BVM-2, Sorghum(CSV- 20), Okra- OH-152	0.75	15	Days to maturity, 1000 Seed Weight, Seed yield, straw yield, Harvest Index, Economics, crop seasonal rainfall (mm) No. of Dry spell and what stage of crops, Duration of each Dry spell (mention days and month), RWUE

22.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of wheat for rainfed medium land	Crop: Wheat Variety: K-9107 and Local	0.20	50	Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, and RWUE.
22.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of wheat for rainfed medium land	Crop: Wheat Variety: K-9107 and Local	0.20	50	Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, and RWUE.
23.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of green gram for rainfed medium land	Crop: Green gram Variety: Pusa vishal and Local	0.5	50	Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, and RWUE.
24	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of mustard for rainfed medium land Observation:	Crop: Mustard Variety: Shivani	0.50	30	Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, and RWUE.

25.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of varieties of Safflower for rainfed medium land	Crop: Safflower Variety : A-1	0.20	15	Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, and RWUE.
26.	CHIA/N/OF/RTC/2013 A.Sah MSY	Demonstration of summer vegetable varieties of sponge guard, bitter guard bottle guard cucumber, okra, bodi and ole.	Crop: sponge guard, bitter guard bottle guard cucumber, okra, bodi and ole. Variety: sponge guard (Pusa supriya), bitter guard (Arka harit) bottle guard (Arka bahar) cucumber (Swarn ageti), okra (Sonal), bodi (Swarn Sweta) and ole (Gajendra).	0.02	70	Days to maturity, 1000 Seed Weight, Seed yield, Stalk Yield, Harvest Index, Economics, and RWUE.
27.	CHIA/N/OF/RTC/2013 A.Sah MSY	Renovation of water bodies (pond, well etc) by desilting and in situ moisture conservation		0.2	20	Water stored in farm pond/duration of availability of water in the pond efficiency of silt trap quality of irrigation No. of irrigation and what stage of the crop, Kind(loop, drip, sprinkler etc.) and quantity of each irrigation Cost of each irrigation

						(including cost of micro irrigation system, li from the pond using pumps, labour charges etc.
The	eme 2: Rainwater h	narvesting (in <i>situ</i>	and ex-situ) and	efficien	t use	
28.	CHIA/N/OF/ RWM/ 2013 A.Sah MSY	Demonstration of in-situ moisture conservation		0.20	20	 Conservation furrow Farmers practices Crop seasonal rainfall(mm) No. of dry spell and what stage of crops, duration of each dry spell(mention days and month) Grain/seed yield of sole main/intercrops equivalent yield of main crops in intercropping system RWUE Economics
29.	CHIA/N/OF/ RWM/ 2013 A.Sah MSY	Rainwater harvesting farm pond and efficient utilization.	Supplemental irrigation to field crops	0.4	20	Water stored in farm pond/Duration of availability of water in the pond efficiency silt trap quality of irrigation, no of irrigation and

			what stage of crop, quantity of
			each irrigation
			cost of each
			irrigation(
			including the cost
			of micro
			irrigation system,
			lifting from the
			pond using
			pumps, labour
			charges etc)

1.3 FAIZABAD

S.N.	Code & Investi gators	Title/ Objectives	Crop/ Treatments	Observations/ parameters/ Analysis to be recorded				
	A. ON- STATION							
	Theme 1 : Real time contingency planning							
1.	N/ OSA RTC/ 2013 OPR AKS	Demonstration of drought tolerant short duration pigeonpea varieties	Crop : Pigeonpea V ₁ - Narendra Arhar-1 V ₂ - Narendra Arhar-2 V ₃ - Bahar V ₄ - Malviya Arhar-13	Fruiting branches/Plant Days to 50 % flowering Pods/Plant, Seeds/Pod Days to Maturity Seed and Stalk Yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell RWUE				
2	FAIZ/ N/OS/ RTC/ 2013 OPR AKS	n of drought tolerant short duration rice varieties	Crop: Paddy V ₁ - NDR-97 V ₂ - Baranideep V ₃ - Suskasamrat V ₄ - Vandna	No. of tillers/ Plant (or m²), Days to 50% flowering Days to Maturity Grain and Straw yield, Harvest Index, 1000 Grain Weight Economics Crop Seasonal Rainfall, No. of Dry spells and at what stage of crop, duration of each dry spell, RWUE				
3	FAIZ/ N/OS/ RTC/ 2013 OPR AKS	Demonstration of drought tolerant short duration chickpea varieties	Crop : Chickpea V ₁ - Avarodhi V ₂ - KWR-108 V ₃ - PG-186 V ₄ - Pusa-362	Days to 50% flowering No. of nodules/ Nodules fresh weight Pods/ Plant Days to Maturity Seed yield, Stalk yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE				
4	FAIZ/ N/OS/ RTC/ 2013 OPR AKS	Demonstratio n of crops which provide resilience to climate variability	KharifRabiRiceChickpeaMaizeLentilBlackgramMustardFodderBarley					

5	FAIZ/	Demonstration of	Crop: Rice	No. of tillers/ Plant (or m ²)
3	N/OS/	foliar sprays with	The treatments	Days to 50%flowering
	RTC/	need based	have to be	Days to Maturity
	2013	chemicals/	imposed with	Grain yield,
	OPR	nutrients/ water	relevant	Straw yield,
	NK		chemicals/	Harvest Index,
		sprays for		
	AKS	mitigating in-	nutrients/ water	1000 Grain Weight
		season dry spells/	spray during	economics
		droughts	dry spells	Crop Seasonal Rainfall
			Foilar spray	No. of Dry spells and at what stage of
			treatments for	crop, duration of each dry spell
			in-season dry	(mention days and month), RWUE
			spells (Real-	
			Time)	
			Treatments:	
			• Urea spray	
			• KNO ₃ spray	
			(One)	
			 KNO₃ spray 	
			(Twice)	
			 ZnSO₄ spray 	
6	FAIZ/	Demonstration of	T ₁ - Blackgram +	Days to maturity for sole crops
	N/OS/	double and inter-	Sesame	Days to maturity for intercrops
	RTC/	cropping systems	(1:1)- Fallow	Grain/ Seed yield of Sole crops
	2013		T ₂ - Sorghum	Stalk yield of Sole crops
			(Fodder)-	Grain yield of Main crop
			Chickpea	Grain yield of intercrops
	OPR		T ₃ - Sorghum +	Stalk yields of main crop
	AKS		Blackgram	Stalk yield of intercrops
			(Fodder)	Equivalent Yield of Main crop in the
			(Mixed)-	Intercropping system. LER
			Toria	MAI (Monetary Advantage Index)
			T ₄ - Pigeonpea +	Economics,
			Maize	Crop Seasonal Rainfall No. of Dry
			T ₅ - Maize +	spells and at what stage of crop,
			Blackgram	duration of each dry spell
			(1:1) - Lentil	RWUE
			+ Linseed	
			(4:2)	
7	FAIZ/	Adaptation of	T ₁ - RDF	Initial soil analysis
'	N/OS/	brown manuring	(60:40:30 kg	Crop specific observations
	RTC/	orown manaring	NPK/ha)	Brown manure composition analysis
	2013		T ₂ - 75% RDF +	Crop Nutrient uptake
	NK		Brown	Crop Seasonal Rainfall
	OPR		manuring	Crop ocasonar Ramian
	HCS		T ₃ - 50% RDF +	No. of Dry spells and at what stage
	1105		Brown	of crop, duration of each dry spell
			manuring	RWUE
			T ₄ - Farmers	Economics with and without brown
			practice (100	manuring
			kg N/ha)	

The	me 2 : R	ainwater Harvesting) and Efficient Use	
8	FAIZ/ N/OS/ RWM/ 2013 HCS OPR NK	<i>In situ</i> moisture conservation and	Paddy, Maize, Sorghum Moisture conservation practices- T ₁ -Deep ploughing. T ₂ -Compartmental bunding. T ₃ -Farmers practices (Two harrowing without bunding)	Rice: as given earlier Maize: 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Sorghum Days to Maturity Grain and Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE
The 9	FAIZ/ N/OS/ EM/ 2013 HCS OPR NK	Popularizing of suitable tractor drawn implements for various operations.	nd Management Crop: Rice, Chickpea T ₁ - Sub soiling using sub soiler to a depth of 30 cm with cross pass at 2 m interval. T ₂ - Deep ploughing by MB plough T ₃ - Shallow ploughing by ratavator T ₄ - Shallow ploughing by local cultivator	Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No. of run off events Water stored in the farm pond\ Duration of availability of water in the pond Quality of irrigation

Vil		ardoiya, District	: Faizabad, Uttar Pra			
Sl. No	Code	Interventions	Crops/ Treatments	Area (ha)	No of Farmers	Observations/ parameters/ analysis to be recorded
Th	eme 1 :	Real time conting	gency planning			
1 n	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of drought tolerant short duration pigeonpea varieties	Pigeonpea varities: Narendra Arhar-1 Narendra Arhar-2 Bahar Malviya Arhar-13	0.25 0.25 0.25 0.25	4 4 4 4	Fruiting branches/Plant Days to 50 % flowering Pods/Plant Seeds/Pod Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Economics, Net Returns BC Ratio Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
2	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of drought tolerant short duration rice varieties	Rice varities : NDR-97 Baranideep Suskasamrat Vandna	0.25 0.25 0.25 0.25	4 4 4 4	No. of tillers/ Plant (or m²) Days to 50%flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight economics Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
3	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of drought tolerant short duration chickpea varieties	Chickpea varities: Avarodhi KWR-108 PG-186 Pusa-362	0.25 0.25 0.25 0.25	4 4 4 4	Days to 50% flowering No. of nodules/ Nodules fresh weight Pods/ Plant Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell RWUE

4	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of crops which provide resilience to climate variability	Kharif Rabi Rice Chickpea Maize Lentil Blackgram Mustard Fodder Barley	0.25 0.25 0.25 0.25	4 4 4 4	
5	FAIZ/ N/OF/ RTC/ 2013 OPR AKS		The treatments have to be imposed with relevant chemicals/ nutrients/ water spray during dry spells Foilar spray treatments for inseason dry spells (Real-Time) Treatments: • Urea spray • KNO ₃ spray (One) • KNO ₃ spray (Twice) • ZnSO ₄ spray	0.25 0.25 0.25 0.25	3 3 3 3	No. of tillers/ Plant (or m²) Days to 50%flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight economics Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE
6	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of double and inter-cropping systems	Intercropping systems Blackgram + Sesame (1:1) - fallow Sorghum (Fodder) - Chickpea Sorghum + Blackgram (Fodder) [Mixed] - Toria Pigeonpea + Maize Maize + Blackgram (1:1) - Lentil + Linseed (4:2)	0.25 0.25 0.25 0.25 0.25	3 3 3 3 3	Days to maturity for sole crops Days to maturity for intercrops Grain/ Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of main crop Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system. LER MAI (Monetary Advantage Index) Economics Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell RWUE

7	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of brown manuring	Crop- Rice Treatments: RDF (60:40:30: : N: P: K kg/ha) 75% RDF + Brown manuring 50% RDF + Brown manuring	0.25 0.25 0.25	3 3	Initial soil analysis Crop specific observations Brown manure composition analysis Crop Nutrient uptake Crop Seasonal Rainfall
			• Farmers' practice- 100 kg N/ha	0.25	3	No. of Dry spells and at what stage of crop, duration of each dry spell RWUE Economics with and without brown manuring
			ment (in-situ & ex-situ	<i>ı</i>)		T
8	FAIZ/ N/OF/ RWM/ 2013 HCS OPR	In-situ moisture conservation and mid season corrections to mitigate dry spells.	Crops: Rice, Maize Moisture conservation practices. Treatments: Deep ploughing Compartmental bunding Farmers practices two harrowing without bunding Foliar spray of 2% urea on standing crops and additional application of 10-15 kg N/ha after relief of stress	0.25 0.25 0.25	3 3 3	Rice: as given earlier Maize: 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
9	FAIZ/ N/OF/ RWM/ 2013 HCS OPR	Efficient use of harvested water in farm pond	Water balance study of farm pond	N/A	N/A	Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance, Run off Water budgeting studies No. of run off events Water stored in the farm pond\ Duration of availability of water in the pond Quality of irrigation

The	ne 3 : Enc	ergy Managemer	nt	
10	FAIZ/ N/OF/ EM/ 2013 HCS OPR	Demonstration of tractor drawn implements for various agricultural operations	Crops: Rice, lentil and chickpea Treatments: Sub soiling using sub soiler to a depth of 30 cm with cross pass at 2 m interval Deep ploughing by MB plough Shallow ploughing by ratavator Shallow ploughing by local cultivator	Energy input and energy output balance observations Field capacity of the implement, Time saved (hrs) Labour saved Fuel saved RWUE Economics

1.4 JAGDALPUR

Sl. No	Code	Intervention	Crops / Treatments	Observations/ parameters/ Analysis to be recorded
	A. ON-S	TATION		,
The	me 1 : Re	al time continger	ncy planning	
1.	JAGD/ N/OS/ RTC/ 2013 GKS DST AKT	Foliar application with need based chemicals/nutr ients/water sprays for mitigating in- season dry spells/droughts	Crop: Rice Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray	Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
2.	JAGD/ N/OS/ RTC/ 2013 AKT GKS DST	Evaluation of sorghum based intercropping systems	Crops/intercropping systems: Sorghum Clusterbean Sesame Pigeonpea Okra Soybean Sorghum+ Clusterbean (1:1) Sorghum+ Sesame (1:1) Sorghum+ Pigeonpea (1:1) Sorghum+ Okra (1:1) Sorghum+ Clusterbean (1:2) Sorghum+ Sasame (1:2) Sorghum+ Pigeonpea (1:2) Sorghum+ Okra (1:2) Sorghum+ Okra (1:2)	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
3	JAGD/ N/OS/ RTC/ 2013 AKT GKS DST	Evaluation of maize based intercropping systems	• Sorghum + Soybean (1:2) Crops/intercropping systems: Maize Cowpea Clusterbean Pigeonpea Blackgram Greengram Maize+ Cowpea (1: 1) Maize+ Pigeonpea (1: 1) Maize+ Pigeonpea (1: 1) Maize+ Blackgram (1: 1) Maize+ Greengram (1: 1) Maize+ Cowpea (1: 2) Maize+ Clusterbean (1: 2)	Intercropping system Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics,

			Maize+ Pigeonpea (1:2) Maize+ Blackgram (1:2) Maize+ Greengram (1:2)	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
The	me 2: Soil	health and Cons	servation Agriculture	
4	JAGD/ N/OS/S HCA/ 2013 GKS DST AKT	To maintain soil health with appropriate soil and crop management strategies	Linked with PMTs	
5	JAGD/ N/OS/S HCA/ 2013 GKS DST AKT	Development of CA Strategies	Experimental details to be finalized in the CA Platform	

Sl. No	Code	Intervention	Crops / Treatments	Area (ha)	No o Farr		Observations/ parameters/a nalysis to be recorded
Vill			oal, Gumiapal/Tokapal; Dis gency planning	trict: Ba	star; C	hattisga	rh
6	JAGD/ N/OF/ RTC/2 013 GKS DST AKT	Demonstration of hybrid maize under rainfed upland conditions	Treatment: • Improved practices - full packages of practices • Farmers' practice	10	25	Grain Straw Harve 1000 C econor No. of at what duration	yield, st Index, Grain Weight, nics Dry spells and t stage of crop, on of each dry mention days onth)

7	JAGD/ N/OF/ RTC/2 013 GKS DST AKT	Demonstration of different vegetable crops under rainfed upland situation	Vegetables: Chili, Cabbage, Cauliflower, Okra, Cowpea, Brinjal Management: • Improved practices - full packages of practices • Farmers' practice	10	25	Fruit yield Cost of Cultivation, Economics,
8	JAGD/ N/OF/ RTC/2 013 AKT GKS DST	Demonstration of drought tolerant rice varieties under midland situation	Treatment: • Improved practices - full packages of practices • Farmers' practice	10	25	No. of tillers/Plant (or m²), Days to 50% flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics. Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
9	JAGD/ N/OF/ RTC/2 013 GKS DST AKT	Demonstration of foliar sprays with need based chemicals/nutrie nts/water sprays for mitigating in-season dry spells/droughts	• Crop: rice Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray			Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)

The	me 2 : R	ainwater Mana	agement (in situ and ex situ)			
10	JAGD/ N/OF/ RWM/ 2013 GKS DST AKT	Moisture conservation in farm ponds and efficient utilization	Supplemental irrigation to rabi season vegetables Vegetables: Tomato (Pusa ruby) Cauliflower (Pusa JL-80) Brinjal (Green long) Chili (Japani laungi) Cabbage (Pride of India)	2	5	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE economics
11	JAGD/ N/OF/ RWM/ 2013 GKS DST AKT	Rainwater harvesting and efficient utilization	Supplemental irrigation to rabi season crops Treatments: FYM Compost Poultry manure Control	2	5	Soil moisture content, Soil loss, Water use efficiency, In-situ & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum
						Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No.of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems,lifting from the pond using pumps, labour charges etc)

12	JAGD/ N/OF/ RWM/ 2013 GKS DST AKT	Demonstration of ground water recharge	Crops:	2	5	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE economics
The	me 3: Soi	l Health and Co	nservation Agriculture			
13	JAGD/ N/OF/S HCA/ 2013 GKS DST AKT JAGD/ N/OF/S HCA/ 2013 GKS DST AKT	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations To demonstrate CA practices as adaptation	GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendations Experimental details to be finalized in the CA Platform			As per template enclosed Initial soil analysis crop yields, Root: shoot ratio plant analysis
The	me 4 · F	nergy Managei	ment			
15	JAGD/	Demonstration	Implements:	1	3	Energy Input and
	N/OF/ EM/20 13 DST GKS AKT	of improved weeders for lowland rice	 Ambika paddy weeder Cono weeder Manual 	-		Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,

16	JAGD/ N/OF/ EM/20 13 DST GKS AKT	Demonstration of improved weeders for upland crops	Implements:			Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
17	JAGD/ N/OF/ EM/20 13 GKS DST AKT	Demonstration of improved bullock drown sowing implements for fingermillet	Implements:	1	3	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
18	JAGD/ N/OF/ EM/20 13 GKS DST AKT	Demonstration of improved tractor drawn seed cum fertilizer drill sowing implements for chickpea	Implements: • Tractor drawn seed cum fertilizer drill • Broadcasting (FP)	1	3	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
19	JAGD/ N/OF/ EM/20 13 GKS DST AKT	Demonstration of paddy transplantor in rice	Implements: • Transplanting by paddy transplantor • Transplanting by manual • Broadcasting (FP)	1	3	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
20	JAGD/ N/OF/ EM/20 13 DST GKS AKT	Demonstration of improved plant protection implements	Implements: • Power operated sprayer • Hand operated sprayer • Farmers practice	0.4 ha.	03	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics

	: Alternate Land			107	
JAC N/O ALU 013 AK' GKS DST	strengthening existing integrated farming system models	Village: Tandpal Fruit crops:	5.0 ha	05	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting
					 Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics,

C. (C. CUSTOM HIRING CENTRE						
22	JAGD/ N/OF/ CHC/2 013 DST GKS AKT	Establishment of custom hiring centre	Implements: Mahakal seed drill Bhramdev seed drill Automatic seed drill Paddy transplantor Reaper	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholdin g category wise Crop wise Total area in the village			

1.5 PHULBANI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ analysis to be recorded
	D. ON-STAT	ION		analysis to be recorded
		ne contingency plan	าทเทธ	
1	PHUL/N/O S/RTC/201 3	Contingent crop planning under aberrant weather conditions	For early season drought: Rice, greengram, blackgram For mid-season drought: Niger, mustard For terminal season drought: Mustard, horsegram	No. of tillers/Plant (or m²), Days to 50% flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
2	PHUL/N/O S/RTC/201 3	Foliar application with need based chemicals/nutrien ts/water sprays for mitigating inseason dry spells/droughts	Crop: Rice Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice),ZnSO ₄ spray	Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
Then	ne 2 : Rainwa	ter Management (ii	n-situ&ex-situ)	
3	PHUL/N/O S/RWM/20 13	Rainwater harvesting and efficient utilization	Life saving irrigation to kharif crops and judicious application to rabicrops	Soil moisture content, Soil loss, Water use efficiency, In-situ & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No.of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigationsystems, liftingfrom the pond using pumps, labour charges etc)

Ther	ne 3: Soil Hea	alth and Conservation	on Agriculture	
4	PHUL/N/O	To maintain soil	Linked with PMTs	
	S/SHCA/2	health with		
	013	appropriate soil		
		and crop		
		management		
5	PHUL/N/O	Development of	Experimental	
	S/SHCA/2	CA Strategies	details to be	
	013	_	finalized in the	
			CA Platform	
The	me 4 : Alteri	nate Land Use Sys	tem	
6	PHUL/N/O	Development of		Horticulture
	S/EM/2013	suitable agri-horti		Initial and final - Soil analysis for
		systems.		macro and micro nutrients
				Organic carbon, pH, EC etc.
				Till fruiting
				 Establishment in the first year
				- mortality, water use by each
				plant,
				Plant height
				• Girth
				Other growth parameters
				specific to species
				Land quality
				From the fruiting year
				• Fruit yield/tree
				Land quality
				Agriculture
				a. Sole Cropping Intercropping
				systems in between horticultural
				plants/trees
				Seed yield of
				sole/main/intercrops
				Stalk yield of
				sole/main/intercrops
				Days to maturity
				Crop Seasonal Rainfall
				(mm)
				 No. of Dry spells and at
				what stage of crop,
				duration of each dry spell
				(mention days and month)
				Grain/seed yield of
				sole/main/intercrops
				solo many intercrops
				Equivalent yield of main
				crop in intercropping
				systems
				• RWUE
				• economics

Sl. No	Code	Interventions	Crops/Treatm ents	Area (ha)	No of Far- mers	Observations/paramet ers/ analysis to be recorded
	ON-FARM	dani, Tehsil/Blo	ck • Phulhani. Di	strict: Ks	ndhamal	
		e contingency pla		5011000 110		O WISHW
7	PHUL/N/ OF/RTC/2 013	Demonstration of drought tolerant short duration varieties of rice and wheat	Kharif crop: Rice Vandana (direct sown) Sahabhagi (direct sown and trans- planted) Rabi crop: Wheat (Sonalika)	10	20	Rice: as given earlier Wheat: Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
8	PHUL/N/ OF/RTC/2 013	Demonstration of foliar sprays with need based chemicals/nutr ients/water sprays for mitigating in- season dry spells/drought	Crop: Rice Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray			Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
9	PHUL/N/ OF/RTC/2 013	Demonstration of tuber crops	CropsVarietie S Yam bean RajendraMish ri Kanda – 1 Elephant Gajendra foot yam Sweet potato Kisan	1.0	10	All vegetables: Economic yield Economics RWUE Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)

10	PHUL/N/ OF/RTC/ 2013	Demonstration of maize based efficient intercropping systems	Intercropping system: • Maize + Cowpea (??) • Maize + Pigeonpea (??) • Sole maize	5.0	40	Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
11	PHUL/N/ OF/RTC/2 013	Contingent crop planning under aberrant weather conditions	For early seasondrough t: 1.Rice, 2.greengram, 3.blackgram For mid- season drought 4.Niger, 5.mustard For terminal season drought 6 mustard, 7 horsegram	8.0	20	Rice: as given earlier Greengram/blackgra m/horsegram: Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

						Mustard: Days to 50% flowering Pods/Plant Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Niger: Days to 50% flowering Days to maturity Seed Yield Stalk Yield Harvest Index Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
(TI)	1 D.:	N	(; ; 0 ;)			
Theme	PHUL/N/ OF/RWM/ 2013	In-situ moisture conservation and efficient utilization	In-situ & ex-situ) Treatments: Raising of bund heights in rainfed uplands Deep tillage during summer for increasing infiltration capacity of soil Surface mulching for restricting evaporation loss	8.0	20	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE economics

13	PHUL/N/ OF/RWM/	Rainwater harvesting and	Treatments: • Constructio	2 check dams &	-	Soil moisture content, Soil loss, Water use
	2013	efficient	n of check	2 farm		efficiency, In-situ &
	2013	utilization	dam, lining	ponds		ex-situ moisture and
		************	and also	P		infiltration
			irrigation			Crop seasonal rainfall,
			channel			Minimum & Maximum
			 Lining of 			Temperature,
			farm pond			Evaporation, AET, PET
			for			and water balance
			restricting			Run off
			seepage and			Water budgeting studies
			percolation losses			No.of run off events
			• Judicious			Water stored in the
			utilization of			farm pond \
			harvested			Duration of availability
			water			of water in the pond
			through			Efficacy of silt trap
			improved			Quality of irrigation
			methods of			No. of irrigations and
			irrigation			what stage of the crop,
						Kind (flood, drip,sprinklerect.) and
						Quantity of each
						irrigation
						Cost of each irrigation
						(including the cost of
						microirrigationsystems,
						liftingfrom the pond
						using pumps, labour
						charges etc)
Theme	e 3: Soil Heal t PHUL/N/	th and Conservat				As non tomplate
14	OF/SHCA/	To develop land	• GPS based soil			As per template enclosed
	2013	parcelwise	sampling			Initial soil analysis
	2013	(farmerwise)	Macro and			crop yields,
		Soil Health	micronutrie			Root : shoot ratio plant
		Cards	nts analysis			analysis
		and Site-	Village Soil			-
		specific	fertility map			
		nutrient	• Site-specific			
		recommendati	nutrient			
		ons	management			
			recommend			
			ations			

1.5	DITTE 21	l m	ъ.		 				
15	PHUL/N/	То	• Experimenta						
	OF/SHCA/	demonstrate	l details to						
	2013	CA practices	be finalized						
		as adaptation	in the CA						
			Platform						
Theme	Theme 4 : Energy Management								
16	PHUL/N/	Custom hiring	• Establishme			For each implement			
	OF/EM/20	centre	nt of custom			Hours hired (as			
	13		hiring centre			entered in the			
			for efficient			Register)			
			use of			Area covered (ha)			
			energy in			• Income generated			
			agriculture			(as entered in the			
						register)			
						• Energy use			
						efficiency			
						BC ratio			
						Farmers' feed back			
						Drudgery reduction			
						Total Income			
						Generated through			
						CHC			
						Area Covered -			
						Landholding			
						categorywise			
						• Cropwise			
						Total area in the			
						village			
		te Land Use Sys		I		1			
17	PHUL/N/	Identification	Construction						
	OF/ALU/2	of suitable IFS	of NADEP						
	013	model	and vermin						
			compost pits						
			 Nutritional 						
			garden						
			 Mushroom 						
			cultivation						
			 Backward 						
			poultry unit						
			and bee-						
			keepng						

F.	CUSTOM I	HIRING CENTR	RE		
18	PHUL/N/ OF/CHC/2 013	Popularization of improved implements for different agricultural operations	Implements: • Power tiller • Water pump • MB plough • Weeder • Paddy thresher • Paddy winnower • Rice cutter	15 11 15 13 13 13 11	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding categorywise Cropwise Total area in the village

1.6 VARANASI

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/ parameters/ Analysis to be recorded				
	A. ON-FARM Village a Torche Servey District a Mirgonum Utter Produch									
	Village: TerhaSaraya, District: Mirzapur, Uttar Pradesh Theme 1: Real time contingency planning									
1	VAR	Demons-	Rice varieties:			Rice				
	A/N/ OF/ RTC/ 2013	tration of improved varieties of rice and maize	 NDR-97 NDR-105 HUR-3022 ShushkSa mrat 	1.00	04	No. of tillers/Plant (or m²), Days to 50% flowering Days to Maturity Grain yield, Straw yield, Harvest Index,				
			Maize varieties :	1.00	04	Harvest Index, 1000 Grain Weight Economics. Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Maize 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE				
2	VAR A/N/ OF/ RTC/ 2013	Demonstratio n of improved varieties of sesame and pigeonpea	Sesame varieties: GT-1, Shekhar Local Pigeonpea varieties: Bahar NDA-1 MalviyaCh amatkar	1.00	04	Sesame Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE Pigeonpea Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE				

3	VAR A/N/ OF/ RTC/ 2013	Demonstratio n of improved varieties of chickpea	Varieties: Abrodhi + Improved technique Abrodhi + Local technique Local + Improved technique Local + Local technique Local + Local technique	1.25	05	Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
4	VAR A/N/ OF/ RTC/ 2013	Demonstratio n of improved varieties of pea, lentil, mustard, linseed	Pea varieties: • M-15 • Local Lentil varieties: • HUL-57 • PL-406 • K-75 Mustard varieties: • Varuna (T-59) • Local Linseed varieties: • Garima • Local	1.25 1.00 1.25 1.25	05 04 05 05	Pea/Lentil Seed Yield Stalk Yield 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Mustard Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Linseed Days to maturity Seed Yield Stalk Yield Harvest Index Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Linseed Days to maturity Seed Yield Stalk Yield Harvest Index Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

5	VARA/ N/OF/ RTC/ 2013	Demonstratio n of foliar sprays with need based chemicals/nut rients/water sprays for mitigating in- season dry spells/ droughts	 Crop: Rice Foliar spray treatments for inseason dry spells (Real-Time) Treatments: Urea spray once 2% Urea spray Twice 2% KNO₃ spray (Once 2%) KNO₃ spray (Twice 2%) ZnSO₄ spray 0.5% 			Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
6	VARA/ N/OF/ RTC/ 2013	Demonstratio n of double cropping systems	Double cropping systems: Maize- Mustard Maize- Linseed Rice-Linseed Rice-Mustard	1.00	04	Maize: 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Mustard/Linseed/Rice: as given earlier
7	VARA/ N/OF /RTC/ 2013	Line sowing of upland rice	Crop: Rice (HUR 105, NDA 97)	19.5	24	Rice: as given earlier
8	VARA/ N/OF /RTC/ 2013	Demonstratio n of component crops under intercropping system	Intercropping systems	0.75 1.00	03 04	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm)

No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE		1			1	<u> </u>	N CD II I				
Theme 2 : Rainwater Management (in-situ &ex-situ)							• 1				
Theme 2 : Rainwater Management (in-situ &ex-situ)											
Theme 2 : Rainwater Management (in-situ &ex-situ) 9											
Theme 2: Rainwater Management (in-situ &ex-situ)											
9 VARA/ N/OF/ N/OF/ RWM/ 2013 Efficient withization of RWM/ 2013 Ponds P							KWCL				
9 VARA/ N/OF/ Willization of RWM/ 2013 Pond types: • Excavated and unlined • Unlined	The	Theme 2 : Rainwater Management (in-situ &ex-situ)									
RWM/ 2013 harvested water in farm ponds • Unlined • Unlined • Unlined • Unlined In-situ & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No. of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip, sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigationsystems, liftin gfrom the pond using pumps, labour charges etc) 10 VARA/ N/OF/ RWM/ 2013 In-situ & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No. of run off events Water budgeting studies No. of irrigation No. of irrigation Cost of each irrigation							Soil moisture content, Soil				
2013 water in farm ponds • Unlined • Wate stage of the crop, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops		N/OF/	utilization of	 Excavated 	4.00		loss, Water use efficiency,				
Ponds • Unlined • Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No. of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinklerect.) and Quantity of each irrigation (including the cost of microirrigationsystems, liftin gfrom the pond using pumps, labour charges etc) 10 VARA/ N/OF/ RWM/ conservation in maize Ridge furrow planting system in maize Ridge furrow planting system in maize 6 Soil loss & Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops		RWM/	harvested	and	2.50		In-situ & ex-situ moisture				
Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No. of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip, sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigationsystems, liftin gfrom the pond using pumps, labour charges etc) NOF/ RWM/ conservation in maize Ridge furrow planting system in maize Ridge furrow planting system in maize Ridge furrow planting system in maize A 6 Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops		2013	water in farm	unlined			and infiltration				
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Water budgeting studies No. of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigationsystems, liftin gfrom the pond using pumps, labour charges etc) 10 VARA/ N/OF/ RWM/ 2013 Ridge furrow planting system in maize Ridge furrow planting system in maize Soil loss & Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops											
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Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigationsystems,liftin gfrom the pond using pumps, labour charges etc) 10 VARA/ N/OF/ RWM/ conservation in maize Ridge furrow planting system in maize Ridge furrow planting system in maize Ridge furrow planting system in maize Soil loss & Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops											
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Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigations ystems, liftin gfrom the pond using pumps, labour charges etc) N/OF/ RWM/ conservation in maize Ridge furrow planting system in maize Ridge furrow planting system in maize Soil loss & Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops											
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Kind (flood, drip,sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigationsystems, lifting from the pond using pumps, labour charges etc) 10 VARA/ N/OF/ moisture planting system in RWM/ conservation in maize RWM/ 2013 Ridge furrow planting system in maize Ridge furrow planting system in maize Soil loss & Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops							No. of irrigations and what				
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Microirrigationsystems, lifting from the pond using pumps, labour charges etc)											
The state of the point using pumps, labour charges etc. 10 VARA/ N/OF/											
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N/OF/ RWM/ 2013 moisture conservation in maize planting system in maize planting system in maize 4 6 Soil moisture at critical stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops							pumps, labour charges etc)				
RWM/ conservation in maize maize stages of the crop Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops	10	VARA/	In-situ	Ridge furrow			Soil loss &				
2013 in maize Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops		N/OF/	moisture	planting system in	4	6	Soil moisture at critical				
(mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops			conservation	maize							
No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops		2013	in maize								
what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops											
of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops											
days and month) Grain/seed yield of sole/main/intercrops											
Grain/seed yield of sole/main/intercrops											
sole/main/intercrops											
Equivalent yield of main											
crop in intercropping											
systems							1 11 0				
RWUE											
Economics											

11	TADA 1	D	D' 1 C	l	<u> </u>	
11	VARA/	Demonstratio	Ridge furrow	21	25	As above
	N/OF/	n of ridge and	planting system in	21	25	
	RWM/	furrow	rice + pigeonpea			
	2013	planting of	(1:1)			
		rice +				
		pigeonpeainte				
		rcropping				
		system				
12	VARA/	In-situ	Ridge planting			As above
	N/OF/	moisture	system:	7.00	11	
	RWM/	conservation	 Pearlmillet 			
	2013	in pearlmillet	(MBH-163)			
The	me 3: Soil		nservation Agricultur	re		
13	VARA/	To develop	GPS based			
13	N/OF/	land				
			soil sampling			
	SHCA/	parcelwise	Macro and			
	2013	(farmerwise)	micronutrien			
		Soil Health	ts analysis			
		Cards and	 Village Soil 			
		Site- specific	fertility map			
		nutrient	 Site-specific 			
		recommendati	nutrient			
		ons	management			
			recommenda			
			tions			
14	VARA/	То	Experimenta			
* '	N/OF/S	demonstrate	l details to be			
	HCA/	CA practices	finalized in			
	2013	as adaptation	the CA			
	2013	as auaptation	Platform			
rana.					<u> </u>	
		ergy Manageme		12	10	A11 arang. aa a!1!
15	VARA/	Energy	<u>Kharif</u>	13	18	All crops: as given earlier
	N/OF/	efficiency	<u>cropsVarieties</u>			T.
	EM/	with package	Rice			Intercropping systems: as
	2013	of practices in	NDR-97, NDR-			given earlier
		<i>kharif</i> and	105			
		<i>rabi</i> crops	HUR-3022,			
			ShushkSamrat			
			Maize			
			Shweta, Local			
			Sesame GT-			
			1, Local			
1	l		PigeonpeaBahar,	1		
			rigeompeadanai.			1
			NDA-1,Chamatkar			
			NDA-1,Chamatkar Rabi cropsVar.			
			NDA-1,Chamatkar <u>Rabi cropsVar.</u> Chickpea			
			NDA-1,Chamatkar Rabi cropsVar. Chickpea Abrodhi, Local			
			NDA-1,Chamatkar Rabi cropsVar. Chickpea Abrodhi, Local Pea M-			
			NDA-1,Chamatkar Rabi cropsVar. Chickpea Abrodhi, Local Pea M- 15, Local			
			NDA-1,Chamatkar Rabi cropsVar. Chickpea Abrodhi, Local Pea M- 15, Local Lentil HUL-			
			NDA-1,Chamatkar Rabi cropsVar. Chickpea Abrodhi, Local Pea M- 15, Local Lentil HUL- 57, PL-406			
			NDA-1,Chamatkar Rabi cropsVar. Chickpea Abrodhi, Local Pea M- 15, Local Lentil HUL-			

			Mustard Varuna (T-59), Local Linseed Garima, Local Intercropping systems: Chickpea + Linseed Chickpea + Mustard		
		Pamanstratio	•	1.00	Horticultura
16	VARA/ N/OF/ ALU/ 2013	Demonstration of Custard apple and Guava based agri-horti systems	Fruit crop	1.00	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting Land quality From the fruiting year Fruit yield/tree Economics, Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics,

		ION (Main Campu		achha)	
The		time contingency			
1.	VARA /N/OS/ RTC/	Screening of early maturing rice varieties for	Var. Vandana, sahbhagi, Anjali,	0.5 ha	Yield and yield attributes, RWUE and energy use efficiency
2.	2013 VARA/ N/OS/ RTC/ 2013	drought situation Evaluation of improved variety of sesame under ridge furrow	Danteshwari Var. Sesame – GT-1	0.5 ha	Yield and yield attributes, RWUE and energy use efficiency
3.	VARA/ N/OS/ RTC/ 2013	planting system Varietal compatibility in rice + okra intercropping system in	Var. Rice – HUR - 105, NDR-97, HUR-3022 Okra –	0.5 ha	Yield and yield attributes, RWUE and energy use efficiency
		vindhyan region	Arkaanamika		
The	me 2: Rair	ıwater Managemei)	1
4.	VARA/ N/OS/ RWM/ 2013	Ridge furrow planting of pigeonpea rice cropping system	Variety: Rice - NDR-97 Pigeonpea – Bahar	0.5 ha	Yield and yield attributes, RWUE and energy use efficiency
5.	VARA/ N/OS/ RWM/ 2013	Resource conservation in maize (greencob) under raised bed planting system	Variety: Maize – Pragaticomposi t	0.5 ha	Yield and yield attributes, RWUE and energy use efficiency
6.	VARA/ N/OS/ RWM/ 2013	Resource conservation in pearlmillet under raised bed planting system	Variety: Pearmillet– MBH 163	0.5 ha	Yield and yield attributes, RWUE and energy use efficiency
В.	CUSTOM	HIRING CENTR	E		
17	VARA/ N/OF/ CHC/ 2013		nplements : Disc plough Raised bed planter		For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding categorywise Cropwise Total area in the village

Maize Based Production System

2.0 MAIZE BASED CROPPING SYSTEM

2.1 ARJIA

Sl.	Code	Interventions	Crops/Treatments	Observations/parameters/		
No				Analysis to be recorded		
Α.	ON-ST	ATION				
Theme		time contingency pl				
1	ARJI/	Evaluation of	Crops/variety:	Maize		
	N/OS/	improved variety of	Maize:	Cobs/Plant		
	RTC/	kharif crops	PM-3	Length of Cob (cm)		
	2013		Local	Days to Maturity		
				1000 Grain Weight,		
				Grain yield,		
				Straw yield,		
				Harvest Index,		
				1000 Grain Weight,		
				economics		
				No. of Dry spells and at what		
				stage of crop, duration of each dry		
				spell (mention days and month)		
				RWUE		
			Blackgram	Blackgram		
			-	Days to 50 % flowering		
				Pods/Plant		
				Seed Yield		
				Stalk Yield		
				100 Seed Weight		
				Economics,		
				Crop Seasonal Rainfall (mm)		
				No. of Dry spells and at what		
				stage of crop, duration of each dry		
				spell (mention days and month)		
				RWUE		
			Groundnut	Groundnut		
				Days to 50% flowering		
				Pods/Plant		
				Seeds/Pod		
				Days to Maturity		
				Seed yield		
				Haulm yield		
				Harvest Index,		
				100 Seed Weight		
				Economics,		
				Crop Seasonal Rainfall (mm)		
				No. of Dry spells and at what		
				stage of crop, duration of each dry		
				spell (mention days and month)		
				RWUE		

			Sesame	Sesame
			Sesame	No.of Capsules/Plant
				Days to maturity
				1000 Seed weight
				Seed yield
				Stalk Yield
				Harvest Index
				Economics,
				RWUE
			Sorghum	Sorghum
				Days to Maturity
				Grain yield,
				Straw yield,
				Harvest Index,
				1000 Grain Weight,
				Economics,
				Crop Seasonal Rainfall (mm)
				No. of Dry spells and at what stage
				of crop, duration of each dry spell
				(mention days and month)
				RWUE
				I I I I I I I I I I I I I I I I I I I
			Cluster bean	Clusterbean/Greengram
			Greengram	Days to 50 % flowering
				Pods/Plant
				Seed Yield
				Stalk Yield
				100 Seed Weight
				Economics,
				Crop Seasonal Rainfall (mm)
				No. of Dry spells and at what stage
				of crop, duration of each dry spell
				(mention days and month)
				RWUE
2	ARJI/	Evaluation of	Maize	Maize,Blackgram and
	N/OS/	suitable crops and	Blackgram	Groundnut, Sesame, Sorghum,
	RTC/	cropping system	Groundnut	clusterbean/greengram: as given
	2013	under real time	• Sesame	earlier
		rainfall situations	• Sorghum	
		(late sown	Cluster bean	
		condition)	Green-gram	

Theme	ARJI/ N/OS/ RTC/ 2013	Evaluation of crop management practices for midseason drought in maize	Treatments: Control (no midseason correction) Reduce 25% plant population Soil stirring one time during drought Thiourea spray (2%) Soluble NPK spray (2%) Zinc sulphate spray (0.5%) (in-situ & ex-situ)	Maize: as given earlier
4	ARJI/ N/OS/ RWM/ 2013	Rainwater harvesting and efficient utilization	Kharif crops and vegetables: Maize Irrigation (5 cm) No irrigation Vegetables: Sponge gourd Bottle gourd Ridge gourd Kachari Veg cowpea Rabi vegetables: Pea Coriander Brinjal Irrigation methods: Drip irrigation between two rows) -50% pan evaporation Conventional – 5.0 cm	Water stored in the farm pond \ Duration of availability of water in the pond Efficacy o silt trap Quality of irrigation TAKE ROM SOLAPUR No. of irrigations and what stage of the crop, Kind (lood,drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,liting from the pond using pumps, labour charges etc) Maize: as given earlier Vegetables: Fruit yield Economics Pea Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
Theme	3: Soil F	Iealth and Conserva	tion Agriculture	IV., OL
5	ARJI/N/ OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	Linked with PMTs	
6	ARJI/N/ OS/SH CA/ 2013	Development of CA Strategies	Experimental details to be finalized in the CA Platform	

Sl. No	Code	Interventions	Crops/Tre	atments	Area (ha)	No of Far- mers	Observations/paramet ers/analysis to be recorded		
V D	B. ON-FARM Villages : Kocharia, Mandpiya, Sola ka kheda District Bhilwara, Lapsiya, Tara ka kheda, District Rajasamand; Rajasthan								
		time continge			1	T			
7	ARJI/N/ OF/ RTC/ 2013	Demonstrati on of improved varieties of kharif crops	Crops Maize Local	Varieties PM-3,	6.4	32	Maize Grain yield, Straw yield, Harvest Index, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE		
			Sorghum CSV-17	Pratap-1430, Local			Sorghum Days to Maturity Grain yield, Straw yield, Harvest Index, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE		
			Blackgram	T-9, Local			Blackgram Seed Yield Stalk Yield Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE		

	1	1	G 1	1	ı	
			Groundnut TG-37A, Local			Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
8	ARJI/N/ OF/RT C/2013	Demonstrati on of foliar sprays with need based chemicals/nu trients/water sprays for mitigating in-season dry spells/droug hts	• Crop: maize Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Thiourea - 2 spray KNO ₃ spray (One) ZnSO ₄ spray			Days to maturity Grain yield Stalk yield Harvest index Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
9	ARJI/N/ OF/RT C/2013	Demonstrati on of improved intercroppin g systems (kharif)	Cropping systems: Maize + Blackgram (2:2) Groundnut + Sesame (6:2) Sorghum + Greengram (2:1) Blackgram + Sesame (2:2)	12.8	32	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

10	ARJI/N/ OF/RT C/2013	Demonstrati on of midseason correction during dry spells in kharif crops	Crops: Maize, Sorghum, Blackgram, Greengram Sesame	3.2	16	Maize/sorghum/greengram &blackgram: as given in serial no.8
11	ARJI/N/ OF/RT C/2013	Demonstration of improved varieties of rabi crops	Wheat Raj-4037, Raj-3077, Raj- 3765 Local Mustard Pusa Bold, Laxmi Local	3.2	16	Wheat Days to Maturity Grain yield, Straw yield, Harvest Index, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Mustard Days to Maturity Seed yield Haulm yield Harvest Index, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)
	eme 2 : Rain	water Manag	ement (in-situ & ex-situ)			
12	ARJI/N/ OF/RW M/2013	In-situ moisture conservation and efficient utilization	Treatments: IP -Chisel plough – increase infiltration & Ridge after sowing FP- Crops: Maize, Sorghum	2.8	07	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole crops RWUE economics

ARJI/N/ OF/RW M/2013	Rain water harvesting in nadi/farm pond and efficient utilization	Ponds: • Kuccha • Pucca • Nadi • Life saving /supplemental/presowing irrigation in cotton, maize + blackgram + groundnut + sesame, mustard and for establishment of fruit plants	-	01	Water stored in the farm pond \ Duration of availability of water in the pond No. of irrigations and what stage of the crop, Kind (flood,drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,litting from the pond using pumps, labour charges etc)
na 3. Sail I	Health and Co	ncarvation Agricultura			
ARJI/N/ OF/SH CA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommenda tions	GPS based soil sampling Macro and micronutrients analysis			 Village Soil fertility map Site-specific nutrient management recommendations
ARJI/N/ OF/SH CA/ 2013	To demonstrate CA practices as adaptation	Experimental details to be finalized in the CA Platform			
no A . Enc		ont.			•
ARJI/N/ OF/EM/ 2013	Demonstrati on of need based improved implements	Equipments:	2.4 1.5 5.7	06 04 30	Observations Field capacity of the implement Time saved (hrs) Labour saved
	OF/RW M/2013 ne 3: Soil I ARJI/N/ OF/SH CA/ 2013 ARJI/N/ OF/SH CA/ 2013	OF/RW M/2013 harvesting in nadi/farm pond and efficient utilization me 3: Soil Health and Co ARJI/N/ OF/SH CA/ parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations ARJI/N/ OF/SH CA/ practices as adaptation me 4: Energy Managemeter ARJI/N/ OF/EM/ 2013 Demonstration on of need based improved	OF/RW M/2013	OF/RW M/2013 in nadi/farm pond and efficient utilization efficient efficie	OF/RW M/2013 in nadi/farm pond and efficient utilization efficient efficient efficient utilization efficient e

Them	ne 5 : Alter	rnate Land Us	se Systems			
17	ARJI/N/ OF/AL U/2013	Demonstrati on of pastoral system in community lands	Treatments: IP Ditch fencing, cross cultivation and contour trenching Line seeding of improved grass - CAZRI-76 Plantation of neem (Azadircta indica), deshi babool (Acacia species) and ingadalsis/ keekar (Piethocolobium dulce) at spacing of 5 m in contour trenches Control	1.25	01	Biomass yield (fresh / day weight) Economics Crop measurable rainfall (mm) No. of dry spells and at what type of crop, duration of each dry spell (days and month)
18	ARJI/N/ OF/AL U /2013	Demonstrati on of pastoral system in private land	Treatment – IP Bio-fencing Contor bunds Parallel ridging Peripheral bunding Pasture Cenchrus Setrgerus Control	12.8	01	Biomass yield (fresh / day weight) • Economics • Crop measurable rainfall (mm) No. of dry spells and at what type of crop, duration of each dry spell (days and month)
19	ARJI/N/ OF/AL U /2013	Farming system- animal intervention	Murrah breed of buffalo- 3 He-buffallow- 1	-	04	Sustainability and economics
20	ARJI/N/ OF/AL U/ 2013	Introduction of bio-gas plants	Construction of bio gas plants	-	08	To improve the decomposition of FYM and reduce weed infestation

21	ARJI/N/ OF/CH C/ 2013	Popularizatio n of need base improved implements trough custom hiring centre	Implements: Reversible disc plough Chiesel plough Cultivator Intercropping seed drill Seed drill for sowing of groundnut Raised bed seed drill Arjia wheel hoe Single row power weeder-4 type	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated
			Battery operated power sprayer	through CHC Area Covered -
				Landholding categorywiseCropwiseTotal area in the village

2.2 BALLOWAL SAUNKRI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
	A. ON-S	TATION	<u> </u>	rinarysis to be recorded
Thei	me 1 : Re	al time contingency	planning	
1	BAL O/N/ OS/R TC/20 13	Evaluation of improved varieties of <i>kharif</i> crops	Crops Varieties Maize Prakash, JH-3459, Local Blackgram Mash-338, Mash-114 Local	Cobs/Plant Length of Cob (cm) Days to Maturity 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Blackgram Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
2	BAL O/N/ OS/R TC/20 13	Evaluation of improved varieties of <i>rabi</i> crops	Crops Varieties Wheat PBW-175, PWB- 644, Local Raya PBR-97, RLM-619, Local Chickpea PBG-1, PBG-5, Local Taramira LMC-2, Local Lentil LL-699, Local	Wheat Tillers/Plant Days to 50% flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Raya and Taramira Days to 50% flowering Pods/Plant Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics,

			1	C C1 D-:
				Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Chickpea Days to 50% flowering No.of nodules/ Nodules resh weight Pods/Plant Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
3	BAL O/N/ OS/R TC/20 13	Foliar application with need based chemicals/nutrient s/water sprays for mitigating inseason dry spells/droughts	Crop: Maize Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray	 Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Revised Technical Programme received by email after 20th August, 2013 and there was no drought after that period, so the experiment can be conducted during next
4	BAL O/N/ OS/R TC/20 13	Evaluation of improved intercropping systems	Kharif: • Maize sole • Maize + Blackgrams • Maize + Greengram Rabi: • Wheat sole • Wheat + Raya • Chickpea + Raya • Lentil + Raya	year, in case of such dry spells. Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

5	BAL	Evaluation of	Improved practice:	Maize, Raya / Taramira, Lentil and Wheat
	O/N/	maize based	 Maize 	: as given earlier
	OS/R	double cropping	(Prakash) –	
	TC/20	system	Taramira	
	13		(TMLC-2)	
			 Maize 	
			(Prakash) –	
			Raya (RLM-	
			619)	
			 Maize 	
			(Prakash) –	
			Lentil (LL-	
			699)	
			• Maize	
			(Prakash) –	
			Wheat (PBW-	
			175)	
			Framers' practice : • Maize (Local)	
			Maize (Local)Wheat	
			(Local)	
Thei	me 2 · Ra	inwater Manageme		
6	BAL	Effect of sowing	Treatments:	Soil moisture content, Soil loss, Water use
	O/N/	on yield of maize	With summer	efficiency, In-situ & ex-situ moisture and
	OS/R	and <i>in-situ</i> rain	plough	infiltration
	WM/2	water harvesting	• Without	Crop seasonal rainfall, Minimum &
	013		summer plough	Maximum Temperature, Evaporation, AET,
			• Sowing across	PET and water balance
			slope	Run off
			 Sowing along 	Water budgeting studies
			slope	No.of run off events
			 No earthing up 	Water stored in the farm pond \
			 Earthing up 	Duration of availability of water in the pond
			with wheel hoe	Efficacy of silt trap
				Quality of irrigation
				No. of irrigations and what stage of the crop,
				Kind (flood, drip, sprinkler ect.) and Quantity
				of each irrigation Cost of each irrigation (including the cost of
				microirrigation systems, lifting from the pond
				using pumps, labour charges etc)
The	ne 3: Soi	l Health and Conser	vation Agriculture	
7	BAL	To maintain soil	Linked with PMTs	As per template enclosed
	O/N/	health with		Initial soil analysis crop yields,
	OS/S	appropriate soil		Root: shoot ratio plant analysis
1	HCA/	and crop		
	IICA/			
	2013	management		There is no PMT at this station, so this
		_		There is no PMT at this station, so this experiment cannot be conducted at this

8	BAL O/N/ OS/S HCA/ 2013	Development of CA Strategies	Experimental details to be finalized in the CA Platform	
The	me 4 : Al	ternate Land Use Sy	rstems	
9	BAL O/N/ OS/A LU/20 13	Evaluation of amla and guava based agri-horti systems	Treatments: Guava + Greengram Greengram Amla + Greengram [kharif season] Guava + Taramira Guava [rabi season]	Horticulture Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No. of Far-	Observations/parameters/ Analysis to be recorded			
,	B. ON-FARM Villages: Nainwan and Achalpur; District: Hoshiarpur; Punjab Theme 1: Real time contingency planning								
10	BAL O/N/ OF/R TC/20 13	Demonstration of improved hybrids of maize under rainfed condition	Varieties : • Prakash • JH-3459 • PMH-1	2.0	10	Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE			
11	BAL O/N/ OF/R TC/20 13	Demonstration of varietal performances of crops under rainfed condition	Crops Varieties Sesame RT- 346, Local Blackgram Mash- 114, Local Pearlmillet FBC- 16, Local Raya RLM- 619, Local Chickpea PBG-, Local Taramira TMLC-2, Local	2.0	10	Sesame Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE Blackgram Seed Yield Stalk Yield 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Pearlmillet Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Raya and Chickpea: as given earlier			

12	BAL O/N/ OF/R TC/20 13	Demonstration of performances of wheat hybrids	Varieties:			Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
13	BAL O/N/ OF/R TC/20 13	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating inseason dry spells/drought s	• Crop: Maize Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray			 Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Revised Technical Programme received by email after 20th August, 2013 and there was no drought after that period, so the experiment can be conducted during next year, in case of such dry spells.
14	BAL O/N/ OF/R TC/20 13	Demonstration of improved intercropping systems (rabi)	Treatments: • Wheat • Wheat + Raya • Chickpea + Raya			Intercropping systems : as given earlier
15	BAL O/N/ OF/R TC/20 13	Demonstration of maize based of double cropping system	Double cropping systems:	2.0-4.0	10	Maize, Taramira and Wheat : as given earlier Ashgourd: Fruit yield Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

The	Theme 2 : Rainwater Management (in-situ & ex-situ)							
16	BAL O/N/ OF/R WM/2 013	Rain water harvesting in farm ponds and efficient utilize	 Renovation of farm pond Storing of excess runoff water in the farm pond for effective use for high value crops Supplemental irrigation of wheat (PBW-175) at critical growth period Life saving irrigation of young amla plantation 			Soil moisture content, Soil loss, Water use efficiency, In-situ & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No.of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems, lifting from the pond using pumps, labour charges etc)		
17	BAL O/N/ OF/R WM/2 013	Demonstration of in-situ moisture conservation practices	 In-situ moisture conservation practices: With summer plough Without summer plough Sowing along slope Sowing across slope With earthing Without earthing Crop: Maize 	2.0-3.0	10-15	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE economics		

Ther	ne 3: Soi	l Health and Cor	nservation Agriculture			
18	BAL O/N/ OF/S HCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendatio ns	 GPS based soil sampling Macro and micronutrients analysis 			As per template enclosed Initial soil analysis crop yields, Root: shoot ratio plant analysis
19	BAL O/N/ OF/S HCA/ 2013	To demonstrate CA practices as adaptation	Experimental details to be finalized in the CA Platform			
Ther	me 4 : En	ergy Manageme	nt			
20			Implements: Tractor Bullock drawn Manual	2.0-4.0	10-15	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
21	BAL O/N/ OF/E M/201 3	Reduced tillage on crop productivity under dry land conditions	Maize-wheat cropping sequence	0.40	02	Maize and Wheat : as given earlier
Ther	me 5 · Ali	ternate I and IIs	e Systems			
22	Theme 5 : Alternate Land Use Systems		1.0-2.0	01-02	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting • Land quality From the fruiting year • Fruit yield/tree • Economics, • Land quality Agriculture	

						 a. Sole Cropping Intercropping systems in between horticultural plants/trees Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics,
23	BAL O/N/ OF/A LU/20 13	Silvi-pastoral system	Guinea grass – seeding Subabul – seeding Napier Bajra hybrid - Cutting	0.50- 1.0	01-02	Initial & Final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Sillviculture Land quality Economics, Pasture Biomass yield -fresh/dry weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell mention days and month) Carbon sequestration studies -every five years

(C. CUSTOM HIRING CENTRE						
24	BAL O/N/ OS/C HC/20 13	Popularization of improved implements through custom hiring centre	Machineries:	 Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding category wise Crop wise Total area in the village 			

2.3 RAKH DHAINSAR

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded				
	G. ON-STA	ΓΙΟΝ		,				
Ther	Theme 1: Real time contingency planning							
1.	RAKH/N/	Demonstration of	During <i>Kharif 2013</i>	Maize:				
	OS/RTC/	improved varieties/	Name of Crop - Maize	1000 Grain Weight,				
	2013	hybrids of <i>kharif</i>	A. Date of Sowing: Two	Grain yield,				
		(Maize) and rabi	1. D ₁ - Onset of Monsoon	Straw yield,				
		(Wheat) crops under	2. D ₂ - 10 Days after onset	Harvest Index,				
		rain fed condition	of Monsoon	Economics				
			B. Varieties/hybrids : Four	No. of Dry spells and at what				
			I. V ₁ - Tip Top	stage of crop, duration of each				
			II. V ₂ - KH-517	dry spell (mention days and				
			III. V ₃ - Double DeKalb	month)				
			IV. V ₄ - PB-2475	RWUE				
			Replication: Three	Wheat:				
			Plot Size: 6X6 m ²	Days to Maturity, Grain yield,				
			Design: R.B.D.	Straw yield,				
			During <i>Rabi 2013-14</i>	Harvest Index,				
			Wheat Varieties: Five	1000 Grain Weight				
			I. V ₁ - <i>PBW175</i>	Economics,				
			II. $V_2 - PBW3077$	Crop Seasonal Rainfall (mm)				
			III. $V_3 - \text{Raj } 3765$	No. of Dry spells and at what				
			IV. V ₄ - PBW373	stage of crop, duration of each				
			V. V ₅ -RSP 561	dry spell (mention days and				
			Replication: Three	month)				
			Plot Size: 6X6 m ²	RWUE				
			Design: R.B.D.					
2.	RAKH/N/	Demonstration of	Treatments:	Maize and Wheat : as given				
	OS/RTC/	maize based double	Maize (Double DeKalb) – William (DDW) 175	earlier				
	2013	cropping systems	Wheat (<i>PBW-175</i>)	Mustard				
			Maize (Double DeKalb) –	Days to Maturity				
			Mustard (Pusa Bold)	Seed yield Haulm yield				
			• Green gram (<i>PDM-14</i>) –	Harvest Index,				
			Wheat (<i>PBW-175</i>) • Black gram (<i>Uttara</i>) –	1000 Seed Weight				
			Chickpea (GNG-469)	Economics,				
			• Fodder (mixed fodder) –	Crop Seasonal Rainfall (mm)				
			fodder (Oat)	No. of Dry spells and at what				
			• Sesame (<i>Pb. Til -1</i>) – Mustard	stage of crop, duration of each				
			(Pusa Bold)	dry spell (mention days and				
			(- 2022 - 2022)	month)				
				RWUE				
				Green gram/ Black gram				
				Seed Yield Stalk Yield				
				2 111111				
				100 Seed Weight Crop Seasonal Rainfall (mm)				
				No. of Dry spells and at what				
				stage of crop, duration of each				
				dry spell (mention days and				
				month)				
				RWUE				
				··· 				
L	<u>I</u>	ı	I	I				

				Chickpea Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Fodder Oat: Biomass Economics RWUE Sesame Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE
3.	RAKH/N/ OS/RTC/ 2013	Demonstration of maize based intercropping systems	 During Kharif 2013 Maize (Double DeKalb) + Black gram (Uttara) [2:1] Maize (Double DeKalb) + Green gram (PDM-14) [2:1] During Rabi 2013-14 Wheat (PBW 175) + Chick pea (GNG-469) [2:2] Wheat (PBW 175) + Field pea (Rachna) [2:2] 	Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

1	DAVII/NI/	Domonstration of	VI:£ 2012.	All fodden eneng
4.	RAKH/N/ OS/RTC/	Demonstration of	<i>Kharif 2013:</i> Mixed fodder : Maize +Pearl	All fodder crops Biomass
		improved fodder		
	2013	systems	millet +	Economics
			Cowpea +Sorghum	RWUE
			Rabi 2013-14: Oats	Crop duration
				N, P, K before sowing and final
				(after harvesting)
		r Management (in-situ		
5.	RAKH/N/	Rainwater	Pacca and poly tanks	Soil moisture content, Water use
	OS/RWM/	harvesting and	Presowing/ supplemental water	efficiency,
	2013	efficient utilization	to rainfed crops and	Crop seasonal rainfall, Minimum
			establishment of fruit plants	& Maximum Temperature,
				Evaporation, AET, PET and
				water balance
				Run off
				Water budgeting studies
				No. of runoff events
				Water stored in the farm pond \
				Duration of availability of water
				in the pond
				Efficacy of silt trap
				Quality of irrigation
				No. of irrigations and what stage
				of the crop,
				Kind (flood, drip, sprinkler etc.)
				and Quantity of each irrigation
				Cost of each irrigation (including
				the cost of micro irrigation
				systems, lifting from the pond
				using pumps, labour charges etc)
		alth and Conservati		
6.	RAKH/N/	To maintain soil	<u>Linked with PMTs</u>	
	OS/SHCA/	health with		
	2013	appropriate soil and		
7	DAVIDAT	crop management	- 17	
7.	RAKH/N/	Development of CA	• Experimental details to be	
	OS/SHCA/	Strategies	finalized in the CA	
700	2013	3.5	Platform	
Ther 8.		y Management	Charles	T' 1/1
8.	RAKH/N/	Evaluation of	Crops:	Time saved (hrs)
	OS/EM/	improved	• Maize	Labour saved
	2013	implements for	• Wheat	Fuel saved
		various agricultural	Treatments:	RWUE
		operations	• Improved practice	economics
			Sowing with planter	
			• Sowing with seed cum fertilizer	
			drill	
			■ Farmers¹ practice	
			■ Broadcasting	
			Manually line sowing	

The	na 5 · Altarn	ate Land Use System	ne			
9.	RAKH/N/ OS/ALU/2 013-2013	Evaluation of fodder systems	Crops: Pearlmillet Sorghum Maize (Kharif) Gobi sarson (Rabi)		RWUE, Crop sea No. of dr at what s	ield Economics, sonal rainfall, y spells and tage of the crop, of each dry spell (give month)
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Far- mers	Observations/param eters/analysis to be recorded
	H. ON-FAR				1	1
		aner; District : Saml ime contingency plar	ba; State : Jammu and K	<u>ashmir</u>		
10.	RAKH/N/ OF/RTC /2013	Demonstration of improved varieties/ hybrids of <i>kharif</i> and <i>rabi</i> crops	[Kharif 2013] Varieties/hybrids: Four 1. Tip Top 2. KH-517 3. Double DeKalb 4. PB-2475 No. of farmers 6 per variety/hybrid During Rabi 2013-14 Wheat: • PBW-175 [Rabi]	2.0	24 40	Maize: 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, Economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Wheat: Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
11.	RAKH/N/ OF/RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrients/ water sprays for mitigating in-season dry spells/droughts	• Crop: maize Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray			Days to maturity Grain yield Stalk yield Harvest index 1000 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)

12	RAKH/N/	Demonstration of	Treatments:			Intercropping systems
	OF/RTC/	maize based	(Kharif)	0.3	06	Days to maturity for
	2013	intercropping				sole crops
		systems	Maize (Double			Days to maturity for
			DeKalb) + Mash (Var.			intercrops
			<i>Uttara</i>) [2:1]			Grain/Seed yield of Sole
						crops
						Stalk yield of Sole crops
						Grain yield of Main
						crop
						Grain yield of intercrops
						Stalk yields of main
						crop
						Stalk yield of intercrops
						Equivalent Yield of
						Main crop in the
						Intercropping system
						LER
						MAI (Monetary
						Advantage Index)
						Economics,
						Crop Seasonal Rainfall
						(mm)
						No. of Dry spells and at
						what stage of crop,
						duration of each dry
						spell (mention days and
						month)
						RWUE

13	RAKH/N/ OF/RTC/2 013	Demonstration of maize based double cropping systems	Treatments: • Maize (Double DeKalb) - Wheat (PBW-175) • Maize (Double DeKalb) - Mustard (Pusa Bold) • Green gram (PDM-14) - Wheat (PBW-175) • Green gram (PDM-14) - Wheat (PBW-175) • Black gram (Uttara) - Chickpea (Pusa-372) Fodder (mixed fodder) - fodder (Oat) • Sesame (Pb. Til no 1) - Mustard (Pusa Bold)	0.7	14	Maize and Wheat: as given earlier Mustard Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Green gram/Black gram Seed Yield Stalk Yield 100 Seed Weight Crop Seasonal Rainfall (mm)
			Wheat (PBW-175) Green gram (PDM-14) — Wheat (PBW-175) Black gram (Uttara) — Chickpea (Pusa-372) Fodder (mixed fodder) — fodder (Oat) Sesame (Pb. Til no 1) —			Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Green gram/Black gram Seed Yield Stalk Yield 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Chickpea Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall
14	RAKH/N/	Demonstration of	Kharif 2013:	0.3	06	(mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Fodder Oat: Biomass Economics RWUE Sesame Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE All fodder crops
	OF/RTC/ 2013	improved fodder systems	Mixed fodder : Maize +Pearl millet +Cowpea +Sorghum			Biomass Economics RWUE

1.5	DAIZII/NI/	W/1	XI:-4-1	2.25	4.4	1			
15	RAKH/N/	Weed management	Varietal	2.25	44				
	OF/RTC/2		Cropping sequence						
	013		Intercropping						
Theme 2: Rainwater Management (in-situ & ex-situ)									
16	RAKH/N/	Rainwater	 Pacca and poly tanks 	two	08	Cost of each irrigation			
	OF/RWM/	harvesting and	Presowing/ supplemental	ponds		(including the cost o			
	2013	efficient utilization	water to rainfed crops and			micro irrigation			
			establishment of fruit			systems, liting from the			
			plants			pond using pumps,			
						labour charges etc)			
Thor	o 2. Coil Hool	th and Conservation A	A grigulturo						
17	RAKH/N/	To develop land				As per template			
1 /	OF/SHCA/	parcel wise (farmer				enclosed			
	2013	wise) Soil Health	Soil fertility analysis Village Scil fortility analysis			Initial soil analysis			
	2013	Cards and Site-	Village Soil fertility map			crop yields,			
		specific nutrient				Root: shoot ratio plant			
		recommendations				analysis			
18	RAKH/N/	To demonstrate CA	Experimental details						
	OF/SHCA/	practices as	to be finalized in						
	2013	adaptation	the CA Platform						
					1	L			
Then	ne 4 : Energy	Management							
19	RAKH/N/	Demonstration of	Crops:	1.0	05	Energy Input and			
	OF/EM/	need based	Maize			Energy Output balance			
	2013	improved	 Wheat 			observations			
		implements for	Treatments:			Field adaptability of			
		various agricultural	Improved practice			the implement			
		operations	 Sowing with maize 			Time saved (hrs)			
			planter			Labour saved			
			 Sowing with seed cum 			RWUE			
			fertilizer drill			Economics,			
			Farmers' practice						
			 Broadcasting 						
			 Manually line sowing 						
753	- 43.								
		te Land Use Systems	T		l	TT (* 1)			
20	RAKH/N/	Demonstration of	Treatments:			Horticulture			
	OF/ALU/2	agro-hort. system	• Fodder systems	0.20	0.4	Initial & final - Soil			
	013	with nutrient	■ Pearlmillet + Sorghum +	0.20	04	analysis for macro nutrients			
		management	Maize (<i>Kharif</i>) ■ Gobi sarson			Organic carbon, pH, EC			
				0.10	02	etc.			
			(Rabi)	0.10	02	Till fruiting			
			Nutrient managementMaize			Land quality			
			Maize + 100% inorganic	0.10	02	From the fruiting year			
			■ Maize + 50% N	0.10	02	• Fruit yield/tree			
			(inorganic) + 50 % N			•			
			(morganic) + 50 % N (organic)			• Economics,			
			(Kharif)			Land quality Agriculture			
			■ Gobi sarson			Agriculture a. Sole Cropping			
			(Rabi)			Intercropping systems			
			■ Intercropping	0.10	02	in between			
			■ Maize + Blackgram	-		horticultural plants/trees			
			(Kharif)			norticultural plants/tices			
			Gobi sarson (<i>Rabi</i>)						
			` ′			•			
L	1	l	1		1	1			

				Seed yield of sole/main/intercrop s Stalk yield of sole/main/intercrop s Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrop s Equivalent yield of main crop in intercropping systems RWUE Economics,
	C CUSTO	 OM HIRING CE	NTDE	
21	RAKH/N/	Popularizatio	Equipments:	For each implement
	CHC/ 2013	n of need based improved implements	Disc plough (Tractor drawn) M B Plough (Tractor drawn) Leveller (Tractor drawn) Disc harrow (Tractor and animal drawn) Cultivator (Tractor drawn) Maize planter (Tractor drawn) Zero till ferti seed drill (Tractor drawn) Seed cum ferti seed drill (Animal drawn) Wheel hand hoe Peg type dryland weeder Knapsack sprayer Maize sheller (Electric motor operated)	Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Land holding category wise Crop wise Total area in the village

Note:

- Experiment No. 1 to 4 is running on station under Real contingency plan during 2013-14 and are included in the technical programme
- Experiment No.5 on station under rain water management (in-situ & ex-situ) could not be executed due to transfer of Jr. Scientist (Agril.Engg.) and water pond is not constructed till date
- Experiment No.6 & 7 on station under soil health and conservation agriculture will be started from next year i.e. 2014-15, as ensuing the *kharif crops* are near to physiological maturity
- ➤ Experiment No.11 on farm under RTC of Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts will be started from next year i.e. 2014-15, as ensuing the kharif crops are near to physiological maturity
- Experiment No.16 on farm under rain water management (in-situ & ex-situ) not able to execute due to transfer of Jr. Scientist (Agril. Engg.) and water ponds are not constructed till date
- Experiment No.17& 18 on farm under soil health and conservation agriculture will be started from next year i.e. 2014-15, as ensuing the *kharif crops* are near to physiological maturity

Fingermillet Based Production System

3. FINGERMILLET BASED CROPPING SYSTEM

3.1 BENGALURU

Sl. No	Code	Interventions	Crops / Treatments	Observations/parameters/ Analysis to be recorded
A	A. ON-S	TATION		
		Real time contin		
1	BENG /N/OS/ RTC/ 2013	Evaluation of drought tolerant high yielding varieties of fingermillet under different dates of sowing	Fingermillet varieties: GPU-48 GPU-66 MR-1 Dates of sowing: July 1 st fortnight July 2 nd fortnight August 1 st fortnight August 2 nd fortnight	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns
2	BENG /N/OS/ RTC/ 2013	Evaluation of intercropping systems with nutrient management	Intercropping systems : • Pigeonpea (BRG-1) + Cowpea (1:1) + FYM + NPK + Zn + B	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns, LER Soil fertility and plant analysis
3	BENG /N/OS/ RTC/ 2013	Foliar application with need based chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts	• Crop: Finger millet Foilar spray treatments for <i>In-season</i> dry spells (Real-Time) a. Let us go for mid season droughts stage only Treatemnts Water Spray Urea spray KNO3 spray (One) KNO3 spray (Twice)	
4	BENG /N/OS/ RTC/ 2013	Dryland Technology Park : on station demonstration of performance of crops/verities/ cropping systems	Crops and Varieties: Horsegram (PHG-9) - Fingermillet (GPU-28) Glyricidia - Fingermillet (GPU-28) Dry sowing Fingermillet (GPU-28) Rice bean Horsegram (PHG-9) Field bean (HA-4) Cowpea (PKG-6) Cowpea (IT-38956) Finger millet (ML-365) + DAP + seed drill sown Transplanted Fingermillet (KMR-204) Fingermillet (GPU-28) + Pigeonpea direct sown (BRG-2) [8:2] Fingermillet(GPU-28) + transplanted Pigeonpea (BRG-2) [8:2]	Grain/pod/fruit yield, Straw/fodder yield, Harvest index, Days to 50% flowering and maturity, Monetary returns, LER

T T	
 Fingermillet (GPU-28) + Field bean (4:1) Fingermillet (GPU-28)+ akkadi Farmers practice Fodder Pearlmillet (Giant Bajra) Sweet Sorghum (SSV-74) Fodder Maize (SAT) Non -nipped castor (DCS-9) Nipped castor (DCS-9) Groundnut (CTMG-6) + Lime + NP + 150% K Maize hybrid 1137 (Hema) Sunflower (KBSH-53) Niger (No.71) Chilli - Chikkaballapur local Chilli is Samrudhi with mulch Prosomillet Littlemillet Foxtailmillet Kodomillet Grain Amaranth (Suvarna) Grain Amaranth (KBGA-1) Fingermillet (GPU-28) + Rec. NPK Fingermillet (GPU-28) + FYM + NPK + Zn + B Fingermillet (GPU-28) + FYM + NPK without lime Finger millet (GPU-28) + NPK with lime Fodder bajra (Gaint bajra) Pigeonpea (BRG-1) + Soybean (1:1) + FYM + NPK + Zn + B Pigeonpea (BRG-1) + Cowpea (1:1) + FYM + NPK + Zn + B Pigeonpea (BRG-1) + Fieldbean (1:1) + FYM + NPK + Zn + B Pigeonpea (BRG-1) Fieldbean (1:1) + FYM + NPK + Zn + B Groundnut (TMV-2) + Nipped castor (8:1) + NPK + Lime + Sulphur Groundnut (TMV-2) + Pigeaonpea (BRG-1) [8:1] + NPK + Zn + B Groundnut (TMV-2) + Pigeaonpea (BRG-1) [8:1] + NPK + Zn + B Groundnut (CV. Chintamani-1 and CTMG-6) + NP + Lime + 150% K 	
• Groundnut (cv. Chintamani-1 and CTMG-6) + NP + Lime + 150% K	
 Maize Hybrid 1137 (Hema) Maize (Nithyashree) + Pigeonpea (1:1) TTB-7 (July) Cowpea (IT-38956) - 	
Fingermillet GPU 48 (August)	

			 Cowpea PKB-4 - Fingermillet GPU 48 Fingermillet GPU 28 + Akkadi Farmers practice Fingermillet GPU 28 + Field bean (July) (4:1) Fingermillet (GPU- 28) + Pigeonpea- Transplanting (BRG-2) (8:2) Fingermillet (GPU- 28) + Pigeonpea direct sown (BRG-2) [8:2] Fingermillet (KMR 204) Fingermillet (ML-365) + DAP + Seeds drill sown Cowpea (IT-38956) Cowpea (PKB-6) Field Bean (HA-4) Horsegram (PHG-9) 	
	ne 2: Rai	nwater Managen	nent (in-situ and ex-situ)	
5	BENG/ N/OS/ RWM/ 2013	Catchment- storage (farm pond) command relationship for enhancing water productivity in micro watershed	Treatments: • Life saving irrigation system around the farm pond (bricks) • Fish culture (soil + cement over layered polythene lining and brick compartment) • Horticulture components around the farm pond	Soil moisture, runoff soil loss, RWUE, Quantity of irrigation to each crop and type of irrigation, Grain yield, Straw yield, Harvest index, Monetary returns
Then	ne 3: Soil	health and Cons	ervation Agriculture	
6	BENG/ N/OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	 FYM/ Maize Residue 1. Finger millet Cropping 2. Finger millet – Groundnut rotation 	Physical, chemical and biological properties of soil
Thei	me 4: Ali	ternate Land Us	se Systems	
7	BENG/ N/OS/ ALU/ 2013	Evaluation of Amla based agri-horti systems	Treatments T1: Finger millet T2: Fodder maize T3: Grain Amaranthus T4: Cowpea T5: Horsegram T6: Field bean T7: Amla T8: Amla + finger millet T9: Amla + fodder maize T10: Amla + Grain Amaranthus T11: Amla + cowpea T12: Amla + horsgram T13: Amla + field bean Design: RCBD Replication: 3	Soil analysis, Grain yield, Straw yield, Harvest index, Monetary returns
	BENG/ N/OS/ ALU/ 2013	Evaluation of Custard apple based agri-horti systems for rainfed condition in	Treatments T1: Fingermillet T2: Fodder maize T3: Field bean T4: Niger	Soil analysis, Grain yield, Straw yield, Harvest index, Monetary returns

Sl. No	Code	Alfisols Interventions	T5: Chilli T6: Cowpea T7: Custard apple alone T8: Custard apple + fingermillet T9: Custard apple + fodder maize T10: Custard apple + field Bean T11: Custard apple + niger T12: Custard apple + fhilli T13: Custard apple + cowpea Design: RCBD Replication: Crops / Treatments	Area (ha)	No of Far- mers	Observations to be recorded
I	B. ON-FA	ARM			111015	
			alli cluster, Nelamangala taluk,	Bengal	uru rura	l district
		l time contingenc		1		la : : : : : :
9	BENG/ N/OF/ RTC/ 2013	Demonstration of finger millet varieties	Varieties: MR-1 (Long duration) GPU-28 (Medium duration) GPU-48 (Short duration) Horsegram (KBH-1) Fodder maize (SA-tall) Farmers' Practice-Local	1.6 5.2 1.32 3.2 4 12	5 30 4 7 10 47	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns
10	BENG/ N/OF/ RTC/ 2013	Demonstration of pigeonpea based intercropping system	 Pigeonpea + Field bean/ Cowpea (1:1) intercropping Pigeonpea + Fieldbean Pigeonpea + Cowpea 	1.28 1.28	3 3	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns, LER
11	BENG/ N/OF/ RTC/ 2013	Demonstration fingermillet based inter cropping system	Treatments: • Finger millet + Pigeonpea (8:2) + ZnSO4 • Farmers Practice • Finger millet + Pigeonpea (8:2) with conservation furrow • Finger millet + Pigeonpea (8:2) intercropping system • Farmers Practice	6.08 6.08 5.24	19 18	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns, LER
12	BENG/ N/OF/ RTC/ 2013	Evaluation of transplanted and direct sown finger millet	Treatments:	3.2	11 10	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns
The	me 2: Ra	inwater Manage	ement (in-situ and ex-situ)			
13	BENG/ N/OF/ RWM/ 2013	Rainwater harvesting in farm ponds and efficient utilization	 Storing of excess runoff water in the farm pond for effective use for high value crops Use of efficient, low cost portable pump for lifting water from farm pond 	2	2	Soil moisture, runoff soil loss, RWUE, Quantity of irrigation to each crop and type of irrigation, Grain yield, Straw yield, Harvest index, Monetary returns

						89
			Water use in agriculture: multiple use agriculture, livestock, pesticide application, fisheries etc.	2 2	2	
14	BENG/ N/OF/ RWM/ 2013	Location specific <i>in-situ</i> moisture conservation	Contour cultivation and moisture conservation in finger miller + Pigeonpea cropping system	6.08	18	Soil moisture, runoff soil loss, RWUE, , Grain yield, Straw yield, Harvest index, Monetary returns
15	BENG/ N/OF/ RWM/ 2013	Recycle farm pond silt for agriculture and horticulture purposes	At the end of the season Silt collected in the farm pond is used back in the field by the farmers.	2	2	
16	BENG/ N/OF/R WM/ 2013	Ground water recharging	Village: Hosapalya, Nelamangala Recharging of bore well with runoff water	bore wells	2	10.5 lits of water is the yield in Hosapalya borewell and Kalipalya borewell Motor is yet be fixed
		rgy Management				
17	BENG/ N/OF/ EM/ 2013	Demonstration of suitable manual tools, bullock and tractor drawn implements for various agricultural operations	Implements: Cultivators Modified seed drill Knapsack sprayers Disc plough Improved sickle KM Plough Post hole digger Leveler			Input and output energy, Time of different operations, Grain yield, Straw yield, Harvest index
(D)	4 . 414	4 . T 1 TT	Water lifting pump			
		ernate Land Use	· ·		1	
18	BENG/ N/OF/ ALU/ 2013	Evaluation of mango based agri- horti systems	Treatments:	0.4 0.6	1 1	Grain yield, Straw yield, Harvest index, Monetary returns
		OM HIRING C	ENTRE		I	-1
19	BENG/ N/OF/ CHC/ 2013	Popularization of improved implements	Hand tools: Improved sickles (50) Hand weeders (20) Grondnut decorticator (5) Maize sheller (5) Hand ridger (2) Knapsack sprayer (5) Bullock drawn: KM plough (3) Multi furrow opener (4) Modified seed drill (6) Tractor drawn: Disc plough (2) MB plough (1) Cultivator (2) Post hole digger (1) Leveler (1) Spike tooth harrow (2) Electric/diesel operated tools: Winnower (2) Water lifting pump (2) Chaff cutter (1)			Input and output energy, Time of different operations, Grain yield, Straw yield, Harvest index

Pearlmillet Based Production System

4. PEARLMILLET BASED CROPPING SYSTEM

4.1 AGRA

Sl. No	Code	Interventions	Crops/Treatments			arameters/ ecorded
110	ON-S	TATION		Anarysi	15 10 00 1	ecor ded
			ent (in-situ & ex-situ)			
1	AGR A/N/ OS/ RWM /2013	Rainwater harvesting and efficient utilization	Supplemental irrigation to rainfed crops	Run off Soil loss & Water budgeting studies No.of run off events Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood,drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,lifting from the pond using pumps, labour charges etc) Observations on crops: As per crop given in the technical programme		
Ther 2	AGR A/N/	To maintain soil health with	cervation Agriculture Linked with PMTs			
	OS/ SHCA /2013	appropriate soil and crop management				
3	AGR A/N/ OS/ SHCA /2013	Development of CA Strategies	Experimental details to be finalized in the CA Platform			
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Far- mers	Observations/parameters/ analysis to be recorded
•		Nagla Dulhe Kha	n and Faziyatpura; Dis	strict : A	gra; Utta	ar Pradesh
		al time contingenc		7.6	10	D121-4
4	AGR A/N/ OF/ RTC/ 2013	Demonstration of drought tolerant varieties of <i>kharif</i> crops	Pearlmillet: Pro-agro-9444, JKBH-26	7.6	25	Pearlmillet Tillers/Plant Grain Weight/ Earhead (g) Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Crop Seasonal Rainfall (mm)

			Sesame RT- 54, Pragati	No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Sesame: No. of Capsules/Plant Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index
			Clusterbean RGC-1002, RGC- 936	Economics, RWUE Clusterbean Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
5	AGR A/N/ OF/ RTC/ 2013	Demonstration of drought tolerant varieties of <i>Rabi</i> crops	Mustard: Bio-902, Rohini, Urvashi, NRCDR-HB-101	Mustard Days to 50% flowering Pods/Plant Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
			Chickpea K-850, Avrodhi	Chickpea Days to 50% flowering No.of nodules/ Nodules resh weight Pods/Plant Days to Maturity

			Wheat PBW-550, HD-2678, Raj-3765, DBW-17			Seed yield Stalk yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Wheat Tillers/Plant Days to 50% flowering Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
6	AGR A/N/ OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrie nts/water sprays for mitigating in-season dry spells/droughts	Pearlmillet Foilar spray treatments for inseason dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray?			Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
7	AGR A/N/ OF/ RTC/ 2013	Demonstration of improved intercropping or strip cropping systems	Cropping systems : Kharif Pearlmillet + Clusterbean (4:4) Pearlmillet + Sesame (4:4)	1.6	04	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops

			• Chickpea + Mustard (5:1)			Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
8	AGR A/N/ OF/ RTC/ 2013	Demonstration benefits of green manuring and legume based double cropping	Cropping systems Greengram – mustard (kharif)	1.6 1.6	04 04	Greengram Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Mustard Days to 50% flowering Pods/Plant Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

	1		Ι α .	1	1	Γ ~
			Sesame – mustard		1	Sesame
			(rabi)		1	No.of Capsules/Plant
						Days to maturity
						1000 Seed weight
						Seed yield
						Stalk Yield
						Harvest Index
						Economics,
						RWUE
						Days to 50% flowering
						Pods/Plant
						Days to Maturity
						Seed yield
						Haulm yield
						Harvest Index,
						100 Seed Weight
						Economics,
						Crop Seasonal Rainfall
						(mm)
						No. of Dry spells and at
						what stage of crop,
						duration of each dry spell
						(mention days and
						month)
						RWUE
9	AGR	INM with in-situ	Pearlmillet – split of	3.2	08	Pearlmillet, Wheat and
	A/N/	moisture	N Mustard – 50 kg	3.2	00	Mustard - as given
	OF/R	conservation	K/ha with RDF			earlier
	TC/20	practices	Wheat – RDF +	4.8	12	Carner
	13	<u> </u>	compartment	4.0	12	
			ment (in-situ & ex-situ)	T	1	T
10	AGRA		Treatments:		1	Mustrad, Pearlmillet
	/N/OF/	on of in-situ	 Deep ploughing 	0.0	20	and Wheat: : as given
	RWM/	moisture	in alternate year	8.0	20	earlier
	2013	conservation	in mustard		1	Energy balance,
		practices	 Ridge and 			Economics and RWUE in
		under	furrow system		1	each treatment
		aberrant	of planting in			
		monsoon condition	pearlmillet		1	
		condition	• Compartmental		1	
			bunding in		1	
			pearlmillet/		1	
			wheat		1	
			• Tillage after		1	
			each effective		1	
			rainfall in		1	
			mustard]	

11	AGRA /N/OF/ RWM/ 2013	Rainwater harvesting and efficient utilization through micro- irrigation systems	Supplemental irrigation at critical growth stage of mustard, wheat and vegetables	2.0	05	Water stored in the farm pond \ Duration of availability of water in the pond Efficacy o silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,lifting from the pond using pumps, labour charges etc) Mustard, wheat : as given earlier
12	AGRA /N/OF/ RWM/ 2013	Demonstrati on of ground water recharge and sharing practices	Recharge of defunct open wells/bore wells with appropriate filters	08 bore well	8	Quality of irrigation, Water use by crops, WUE, Economics, Energy balance Crop seasonal rainfall Crop: as per crop
The	ne 3· Soil		onservation Agriculture	<u>l</u>	<u>I</u>	01000 45 001 0100
13	AGRA /N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Sitespecific nutrient recommend ations	 GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendations 			As per template enclosed Initial soil analysis crop yields, Root: shoot ratio plant analysis
14	AGRA /N/OF/ SHCA/ 2013	To demonstrate CA practices as adaptation	Experimental details to be finalized in the CA Platform			

5	AGRA	rgy Managem Demonstrati	Implements:	Whole	_	Energy Input and Energy
	/N/OF/	on of need	Ridge seeder	village		Output balance
	EM/	based	Rotavator			observations
	2013	improved	Raidge bed planter			Field capacity o the
		implements	Mould board plough			implement
		in <i>kharif</i> and				Time saved (hrs)
		rabi crops	Disc prougn			Labour saved
		· · · · · · · · · · · · · · · · · · ·	Spray pamp			RWUE
			Sprinkler system			Economics
	ne 5 : Alte	ernate Land U	se System			
)	AGRA	Demonstrati	Cropping systems:	?	02	Horticulture
	/N/OF/	on of ber	• Ber + Green fodder			Initial & final - Soil
	ALU/	and bel	(pearlmillet + cowpea)			analysis for macro and
	2013	based on	Ber + Mustard			micro nutrients
		agri-horti	Bel + Green fodder			Organic carbon, pH, EC
		systems	(pearlmillet + cowpea)			etc.
			Bel + Mustard			Till fruiting
						 Land quality
						From the fruiting year
						 Fruit yield/tree
						• Economics,
						 Land quality
						Agriculture
						a. Sole Cropping
						Intercropping systems in
						between horticultural
						plants/trees
						 Seed yield of
						sole/main/intercrops
						Stalk yield of
						sole/main/intercrops
						Crop Seasonal Rainfa
						(mm)
						No. of Dry spells and
						at what stage of crop,
						duration of each dry
						spell (mention days
						and month)
						Grain/seed yield of
						sole/main/intercrops
						• Equivalent yield of
						main crop in
						intercropping systems
						RWUE
						• Economics

17	AGRA /N/OF/ ALU/ 2013	Improvemen t of health and productivity of livestock	Vaccination and balanced feed CENTRE	Whole village	Impact of vaccination on animal health, feed back from the farmers
18	AGRA/ N/ CHC /2013	Popularizati on of improved implements through custom hiring centre	Implements: Ridge seeder (2) Rotavator (2) Ridge bed planter (1) Mould board plough (1) Disc plough (1) Spray pump (2) Sprinkler system (1)		For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding categorywise Cropwise Total area in the village

4.2 HISAR

S.N.	Code	Title/ Objectives	Crop/ Treatments		vations/ pa	arameters/
		Objectives		Anaiy	sis to be re	coraea
		Balsmand and Hi				
			(in- situ & ex- situ)	Τ.		
1	HISA/N/	In- situ	Crop: Pearl millet			ainfall (mm)
	OS/RWM/ 2013	moisture conservation	(HHB-67 improved) Treatments: Two			s and at what stage
	2010	with pod silt	T ₁ - Mixing of pod			n of each dry spell
		application in	silt @ 20t/ha (0-15		days and	nonin) ld of crop RWUSE,
		light soils	cm soil depth T ₂ - Control		omics	nd of crop KW OSE,
The	me 2: Energy	management		•		
2	HISA/N/	Weed	Weed control and	Field	capacity of	the implement
	OS/EM/	management	moisture		saving(hrs)	1
	2013		conservation by		saving	
			wheel hand hoe in		E, Economic	
			pearl millet, chick			and weed control
			pea and mustard	efficie	ncy	
		ite Land Use Syst				
3	HISA/N/	Management of	Two villages on			sis for macro and
	OS/ALU/	fruit tree	CPRS subject to	micro	nutrients	
	2013	plantation with harvested rain	consent	•		nment in first year,
		water				se/ plant
		water		F		uiting year
				•	Fruit yie	-
				•		cultivation
				•	_	ross returns
				•	BC ratio	
Sl.	Code	Interventions	Crops/Treatments	Area	No.	Observations/para
No				(ha)	of formans	meters/analysis to
1	L. ON-FARM	<u> </u> //			farmers	be recorded
			ict : Hisar; Budhshelly, I	District •	Rhiwani: 9	State · Harvana
		ne contingency pla		91501100.	Din wain,	Juic : Hui yunu
4	HISA/N/O	Evaluation of	HHB-67 Imp vs.	4.8	12	Days to maturity
	F/RTC/	drought tolerant	HHB 226/HHB 223			Grain yield,
	2013	varieties of pearl				Straw yield,
		millet				Harvest Index,
						1000 Grain weight,
						Drought tolerant
						parameter
						Economics, RWUE
						Crop seasonal
						rainfall (mm) No. of dry spells and
						stage of crop,
						duration of each dry
						spell (with days and
						month)
	1	I				111011111)

5	HISA/N/O F/RTC/ 2013	Evaluation of drought tolerant varieties of chickpea under farmers' management	Varieties :	4.0	10	Days to maturity Seed yield Stalk yield Harvest Index, 100 Seed weight Drought tolerant parameter Economics, RWUE Crop seasonal rainfall (mm) No. of dry spells and stage of crop, duration of each dry spell (with days and month)
6	HISA/N/O F/RTC/ 2013	Demonstration of foliar sprays of need based chemicals/nutrie nts for mitigating in- season dry spells/droughts	 Crop: Pearl millet in <i>kharif</i> and mustard in <i>rabi</i> Varieties: Prevalent ones Foliar spray treatments for <i>inseason</i> dry <i>spells</i> (<i>Real-Time</i>) Treatments: Urea spray (1%) One KNO₃ spray (1%) Two KNO₃ sprays (1%) One ZnSO₄ (0.5%) spray 			Days to maturity Grain yield Stalk yield Harvest index 1000 seed weight Drought tolerant parameter Economics Crop seasonal rainfall No. of dry spells and stage of crop, duration of each dry spell (with days and month)

7	HISA/N/O F/RTC/ 2013	Evaluation of strip cropping of pearl millet-legume association	Treatments: • Pearl millet (45 cm) • Pearl millet + Green gram/cluster bean in 8:4 (30 cm)	3.6	09	Days to maturity for sole crops Days to maturity for intercrops Grain/seed yield of sole crops Stalk yield of sole crops Grain yield of main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent yield of main crop in the intercropping system Economics, RWUE Crop seasonal rainfall (mm) No. of dry spells and stage of crop, duration of each dry spell (with days and month)
8	HISA/N/O F/RTC/ 2013	Evaluation of mustard under different fertilizer doses in combination with Azotobacter	Treatments: • 20 kg N/ha • 20 kg N/ha + Azotobacter	2.4	06	Days to maturity Seed yield Haulm yield Harvest Index, 1000 seed weight Economics, RWUE Crop seasonal rainfall (mm) No. of dry spells and stage of crop, duration of each dry spell (with days and month)

9	HISA/N/O	Evaluation of	Crops:	14.4	36	Clusterbean and
	F/RTC/	management	• Clusterbean	1		Green gram
	2013	practices of	Green gram			Seed yield
	2013	kharif and rabi	_			Stalk yield
		crops	Mustard			100 Seed weight
		crops	Chickpea			_
			Treatments:			Crop seasonal
			 Full package 			rainfall (mm)
			of practices			No. of dry spells and
			• Farmers'			stage of crop,
			practice			duration of each dry
			1			spell (with days and
						month)
						RWUE
						Mustard
						Days to maturity
						Seed yield
						Haulm yield
						Harvest Index,
						100 Seed weight
						Economics,
						Crop seasonal
						rainfall (mm)
						No. of dry spells and
						stage of crop,
						duration of each dry
						spell (with days and
						month)
						RWUE
						Chickpea
						Days to maturity
						Seed yield
						Stalk yield
						Harvest Index,
						100 Seed weight
						Economics, RWUE
						Crop seasonal
						rainfall (mm)
						No. of dry spells and
						stage of crop,
						duration of each dry
						spell (with days and
						month)
						For all crops: Drought
						tolerant parameter will
						also be studied

10	HISA/N/O F/RTC/ 2013	Advance application of fertilizers in mustard	Treatments: Two T ₁ - Recommended fertilizer dose at seeding T ₂ - Recommended fertilizer dose at receding monsoon Mustard Variety: RH 30	4.8	12	Soil analysis, Days to maturity Seed yield Haulm yield Harvest index, 1000 Seed weight Economics, RWUE Crop seasonal rainfall (mm), No. of dry spells and stage of crop, duration of each dry spell (with days and month).A drought tolerant parameter will also be studied
Ther 11	HISA/N/O F/RWM/	ter Management (Demonstration of in situ	in-situ & ex-situ) Crops : Chickpea	2.4-3.6	6-9	Soil moisture at critical stages of the
	2013	moisture conservation practices				crop Chickpea and mustard: as given earlier
12	HISA/N/O F/RWM/ 2013	Rainwater harvesting in Common resources	Community utilization	-	1-2	Water quantity stored in the farm pond Duration of availability of water in the pond
13	HISA/N/O F/RWM/ 2013	Recharge of ground water	Injection well technique	-	2	No. of well treated/charged Quality of water re- charge rates, No. of runoff events etc.

Thei	ne 3: Soil Hea	lth and Conservati	on Agriculture			
14	HISA/N/O F/ SHCA/ 2013	To develop (farmer wise) Soil Health Cards and Site- specific nutrient recommendations	GPS based soil sampling Macro and micronutrients analysis Village soil fertility map Site-specific nutrient management recommendations	Budh-shelly	Whole village area	Initial soil analyses, crop yields, plant analyses for major nutrients of the standing crops
15	HISA/N/O F/ SHCA/ 2013	To demonstrate CA practices as adaptation	Experimental details to be finalized in the CA platform			
Thei	ne 4 : Energy	Management				
16	HISA/N/O F/EM/ 2013	Demonstration of ridger seeder for sowing of small seeded crops	Crops: Pearl millet, mustard Treatments: Improved practice - ridger seeder Farmers' practice - local plough	3.6	09	Energy Input and Energy Output balance Field capacity of the implement Time saving (hrs) Labor savings RWUE, Economics

4.3 SK NAGAR

A/N/ drought I. Pearlmillet OS/ tolerant short II. Maize RTC/ duration III. Cotton 2013 varieties of IV. Green gram kharif crop V. Cluster bean	Pearl millet Tillers/Plant Grain Weight/ Ear head (g) Days to Maturity Conin violate
`1 SKN Evaluation of A/N/ drought I. Pearlmillet OS/ tolerant short duration II. Maize RTC/ duration III. Cotton 2013 varieties of kharif crop IV. Green gram V. Cluster bean	Tillers/Plant Grain Weight/ Ear head (g) Days to Maturity
A/N/ drought I. Pearlmillet OS/ tolerant short II. Maize RTC/ duration III. Cotton 2013 varieties of IV. Green gram kharif crop V. Cluster bean	Tillers/Plant Grain Weight/ Ear head (g) Days to Maturity
	Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Maize Cobs/Plant Length of Cob (cm) Days to Maturity 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Cotton Bolls/Plant Days to first picking Days to last picking Seed cotton yield Lint yield Seed Index (100 Seed Weight) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and

				Green gram/ Cluster bean/ Black gram Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWU Castor: Capsules/Plant Seeds/Capsule Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
2	SKN A/N/ OS/ RTC/ 2013	Foliar application with need based chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts	Crop: Pearl millet Foliar spray treatments for <i>In-season</i> dry <i>spells</i> (<i>Real-Time</i>) Treatments: I. Urea spray (1%) II. Urea spray (2%) III. Thiourea 1000 ppm IV. N application for 20 kg/ha (at 20-25 DAS) V. N application for 20 kg/ha (at 40-45 DAS) VI. ZnSO ₄ spray 0.5%	Pearl millet Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)

3	SKN	<i>In-situ</i> moisture	ment (in-situ & ex-situ) Crop: Pearlmillet &	Soil loss &		
	A/N/	conservation in	Castor	Soil moisture at critical stages of the crops		
	OS/	pearlmillet and	Treatments:	Pearl millet & Castor: as given earlier		
	RWM	castor	I. Improved practice –			
	/2013		Compartmental			
			bunding			
			II. Local practice – No			
			compartmental			
			bunding			
			Crop: Castor			
			Treatments:			
			I. Improved practice			
			- Ridge and furrow			
			II. Local practice -			
			Flat bed			
4	SKN	Rainwater	Supplemental irrigation	Castor		
•	A/N/	harvesting and	to rainfed crops and	Capsules/Plant		
	OS/	efficient	adoption of micro-	Seeds/Capsule		
	RWM	utilization	irrigation system	Days to Maturity		
	/2013	diffization	inigation system	Seed yield		
	72013		I. Castor	Haulm yield		
			II. Cumin	Harvest Index,		
			III. Rajma	100 Seed Weight		
			Tii. Kajina	Economics,		
				Crop Seasonal Rainfall (mm)		
				No. of Dry spells and at what stage of crop,		
				duration of each dry spell (mention days and		
				month)		
				RWUE		
				Cumin		
				Crop Seasonal Rainfall (mm)		
				No. of Dry spells and at what stage of crop,		
				duration of each dry spell (mention days and		
				month)		
				RWUE		
				Fruit yield		
				Economics		
				Rajma Days to 50 % flowering		
				Pods/Plant		
				Seed Yield		
				Stalk Yield		
				100 Seed Weight		
				Economics,		
				Crop Seasonal Rainfall (mm)		
				No. of Dry spells and at what stage of crop,		
				duration of each dry spell (mention days and		
				month)		
			1	RWUE		

Then	Theme 3: Soil health and Conservation Agriculture						
5	SKN	To maintain	Crop	Soil:			
	A/N/	soil health with	Castor &	OC, N, P, K, S, Ca, Mg Micro nutrients,			
	OS/	appropriate soil	Greengram Rotation	Nutrient use efficiency, Carbon balance,			
	SHCA	and crop	Treatment:	Nutrient balance			
	/2013	management	I. Control	Castor			
	/=010	munugement	II. Farmer's method	Capsules/Plant			
			III. 100% RDN (Urea)	Seeds/Capsule			
			IV. 50%	Days to Maturity			
			14. 30%	Seed yield			
				Haulm yield			
			Recommended N	Harvest Index,			
			(Urea) + 50% RD	100 Seed Weight			
			N (FYM)	Economics,			
			V. 50% RDN (FYM)	Crop Seasonal Rainfall (mm)			
			V. 30% KDN (1 1 W)	No. of Dry spells and at what stage of crop,			
				duration of each dry spell (mention days and			
				1			
				month) RWUE			
				Green gram			
				Days to Maturity			
				Grain yield,			
				Straw yield,			
				Harvest Index,			
				1000 Grain Weight,			
				Economics,			
				Crop Seasonal Rainfall (mm)			
				No. of Dry spells and at what stage of crop,			
				duration of each dry spell (mention days and			
				month)			
6	CIZNI	Davidor	a Francisco (1	RWUE			
6	SKN	Development	• Experimental				
	A/N/	of CA	details to be				
	OS/	Strategies	finalized in the CA				
	SHCA		Platform				
TUL	/2013	<u> </u>	4				
7		ergy Managemen Evaluation of		Energy Input and Energy Output balance			
'	SKN	need based	Crop : Green gram Treatments :	observations			
	A/N/						
	OS/	improved		Field capacity of the implement			
	EM/	manual tools	II. Strip till drill	Time saved (hrs)			
	2 013	and implements	III. Zero till drill	Labour saved			
		for sowing	IV. Numatic planter	Fuel saved			
			V. Raised bed	RWUE .			
			planter	economics			

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Far- mers	Observations/paramet ers/analysis to be recorded				
	B. ON-FARM Villages : Kalimati/Dholiya, Taluka : Amirgadh, District : Banaskantha Village : Chandanki, Taluka : Becharaji, District : Mehsana, State : Gujarat									
	Theme 1 : Real time contingency planning									
8	SKN	Demonstration of	Crops			Pearl millet				
	A/N/	improved verities	Varieties			Tillers/Plant				
	OF/	of pearl millet,	I. Pearl millet			Grain Weight/ Ear head				
	RTC/	maize, cotton,	GHB-558, Local	16.18	40	(g)				
	2013	green gram,	II. Maize			Days to Maturity				
		cluster bean,	GM-2, HQPM-1,	8.09	20	Grain yield,				
		black gram, castor	Local			Straw yield,				
		for weather	III. Cotton	0.00	20	Harvest Index,				
		aberration	G Cot21, Local	8.09	20	1000 Grain Weight,				
			IV. Green gram GM-4, Local	8.09	20	Crop Seasonal Rainfall (mm)				
			V. Cluster bean	8.09	20	No. of Dry spells and at				
			GG-2, Local	8.09	20	what stage of crop,				
			VI. Black gram	0.07	20	duration of each dry				
			GU-2, Local	8.09	20	spell (mention days and				
			VII. Castor			month)				
			GCH-2, GCH-5,	16.18	40	RWUE				
			GCH-7, Local			Maize				
						Cobs/Plant				
						Length of Cob (cm)				
						Days to Maturity				
						1000 Grain Weight,				
						Grain yield,				
						Straw yield,				
						Harvest Index,				
						1000 Grain Weight, economics				
						No. of Dry spells and at				
						what stage of crop,				
						duration of each dry				
						spell (mention days and				
						month)				
						RWUE				
						Green gram/ Cluster				
						bean/ Black gram				
						Days to Maturity				
						Grain yield,				
						Straw yield,				
						Harvest Index,				
						1000 Grain Weight,				
						Economics,				
						Crop Seasonal Rainfall				
						(mm)				
				1	1					

9	SKN	Demonstration of	Crop: Pearl millet			No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Cotton Seed cotton yield, Lint yield, Seed Index (100 Seed Weight) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Castor: Capsules/Plant Seeds/Capsule Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Days to maturity Grein yield
	A/N/ OF/ RTC/ 2013	foliar sprays with need based chemicals/nutrient s/water sprays for mitigating in- season dry spells/droughts	Foliar spray treatments for <i>In-season</i> dry spells (Real-Time) Treatments: I. Urea spray (2%) II. Thiourea 1000 ppm III. N application for 20 kg/ha (at 20-25 DAS) VI. ZnSO ₄ spray 0.5% V. Farmers practices	8.09	20	Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)

10	SKN	Demonstration of	Cropping systems:			Intercropping system
10	A/N/	efficient	• Castor (GCH-7) +	16.18	40	Days to maturity for
	OF/	intercropping	Green gram (GM-4)			sole crops
	RTC/	system	Management practices:			Days to maturity for
	2013	System	Soil moisture			intercrops
	2013		conservation practices			Grain/Seed yield of
			I. Deep summer			Sole crops
			ploughing			Stalk yield of Sole
			alternate year			crops
			II. Minimum tillage/			Grain yield of Main
			zero tillage			crop
			seeding for rabi			Grain yield of
			III. Nutrient			intercrops
			management			Stalk yields of main
			IV. Line sowing with			crop
			•			Stalk yield of intercrops
			wider spacing for rabi			Equivalent Yield of
						Main crop in the
			V. Improved / local			Intercropping system
			varieties			LER
			VI. Weed control VII. Farmers '			MAI (Monetary
						Advantage Index)
			practices			Economics,
						Crop Seasonal Rainfall
						-
						(mm)
						No. of Dry spells and at
						what stage of crop,
						duration of each dry
						spell (mention days and
						month)
7771						RWUE
			nt (in-situ & ex-situ)	10.55	26	0 0 1510
11	SKN	Demonstration of	Pearl millet	10.52	26	Crop Seasonal Rainfall
	A/N/	<i>in-situ</i> moisture	Treatments:			(mm)
	OF/	conservation in	I. Improved practice			No. of Dry spells and at
	RWM	pearlmillet and	– Compartmental			what stage of crop,
	/2013	castor	bunding			duration of each dry
			II. Local practice –			spell (mention days and
			No			month)
			compartmental			
			bunding	13.35	33	Pearl millet and
			Castor			Castor:
			Treatments:			as given earlier
			I. Improved practice			
			 Ridge and 			
			furrow			
			II. Local practice -			
			Flat bed			

12	CIZNI	Dainwata:	Cymplement-1			Cail maistres
12	SKN	Rainwater	Supplemental	12.75	2.4	Soil moisture content,
	A/N/	harvesting and	irrigation to rainfed	13.75	34	Soil loss, Water use
	OF/	efficient	crops and adoption of			efficiency, In-situ & ex-
	RWM	utilization	micro-irrigation			situ moisture and
	/2013		system for castor,			infiltration
			cumin, rajma			Crop seasonal rainfall,
			-			Minimum & Maximum
						Temperature,
						Evaporation, AET, PET
						and water balance
						Run off
						Water budgeting studies
						No. of runoff events
						Water stored in the
						farm pond \
						Duration of availability
1						of water in the pond
						Efficacy of silt trap
						Quality of irrigation
						No. of irrigations and
						what stage of the crop,
						Kind (flood, drip,
						sprinkler etc.) and
						Quantity of each
						irrigation
						Cost of each irrigation
						(including the cost of
						micro irrigation
						systems, lifting from
						the pond using pumps,
						labour charges etc)
		Health and Conser				
13	SKN	To develop land	I. GPS based soil			As per template
1	A/N/	parcelwise	sampling			enclosed
1	OF/	(farmerwise) Soil	II. Macro and			Initial soil analysis crop
1	SHCA	Health Cards	micronutrients			yields,
1	/2013	and Site- specific	analysis			Root : shoot ratio plant
1		nutrient	III. Village Soil			analysis
1		recommendations	fertility map			
1			IV. Site-specific			
			nutrient			
1			management			
1			recommendations			

14	SKN	To demonstrate	- F : (1			
14			Experimental			
	A/N/	CA practices as	details to be			
	OF/	adaptation	finalized in the			
	SHCA		CA Platform			
	/2013					
		ergy Management	T	•		
15	SKN	Demonstration of	Crop: Green gram	5.26	13	Energy Input and
	A/N/	need based	(GM-4)			Energy Output balance
	OF/	improved manual	Treatments:			observations
	EM/2	tools and	I. Roto till drill			Field capacity o the
	013	implements	II. Strip till drill			implement
		through custom	III. Zero till drill			Time saved (hrs)
		hiring centre	IV. Numatic planter			Labour saved
			V. Raised bed plante			RWUE
			1			Economics,
	C. C	USTOM HIRING (CENTRE	1	Ī	1 2 2 2 7
16	SKN	Popularization of	I. MB plough			For each implement
	A/N/	improved	II. Disc plough			 Hours hired (as
	OF/	implements	III. Disc harrow			entered in the
	CHC/	1	IV. Rotavator			Register)
	2013		V. Lesser land			Area covered
			leveller			(ha)
			VI. Roto till drill			• Income
			VII. Strip till drill			
			VIII. Zero till drill			generated (as
			IX. Numatic planter			entered in the
			X. Raised bed			register)
			planter			• Energy use
			XI. Seed cum			efficiency
			Fertilizer Dril			 BC ratio
			XII. Power weeder			 Farmers' feed
			XIII. Speyer			back
						 Drudgery
			XIV. Multi crop Thresher			reduction
			Thresher			Total Income
						Generated through
						СНС
						Area Covered -
						 Landholding
						categorywise
						 Cropwise
						Total area in the village

Soil:

OC, N, P, K, S, Ca, Mg Micro nutrients, Nutrient use efficiency, Carbon balance, Nutrient balance

Castor: as given earlier Uptake N, P, K, S, Ca, Mg Micro nutrients

Other parameters:

Moisture availability at different crop growing stages, Economic analysis

Sorghum Based Production System

5.0 SORGHUM BASED CROPPING SYSTEM

5.1 BIJAPUR

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
	M ON S	TATION		Allarysis to be recorded
		al time contingen	ev nlanning	
1	BIJA/ N/OS/ RTC/ 2013	Optimization of plant population and planting geometry for pigeonpea under set furrow cultivation in medium deep black soils Plant geometry and in situ moisture conservation with set furrow in pigeonpea	Crop: Pigeonpea Treatments:	Fruiting branches/Plant Days to 50 % flowering Pods/Plant Seeds/Pod Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Economics, Net Returns BC Ratio Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Run off Soil loss & Soil moisture at critical stages of the sole/ main/ intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics

	DILA	Г 1'	G G 1		<u> </u>
2	BIJA/	Foliar	• Crop: <u>Sorghum</u>		Days to maturity
	N/OS/	application with need	F 11		Grain yield
	RTC/		Foilar spray treatme		Stalk yield
	2013	based	dry spells (Real-Tim	ie)	 Harvest index
		chemicals/nutri	<u>Treatments</u> :		• 100/100 seed
		ents/water	<u>Urea spray</u>		weight
		sprays for	Thiourea?		 Economics
		mitigating in-	KNO ₃ spray (One)		 Crop seasonal
		season dry	KNO ₃ spray (Twice	<u>)</u>	rainfall
		spells/droughts	ZnSO ₄ spray		No. of dry spells and at
					what stage of crop, duration
					of each dry spell (mention
					days and month)
3	BIJA/	Evaluation and	Relay cropping:		Days to maturity for sole
	N/OS/	improvement	1 st year cropping sys		crops
	RTC/	of traditional		- Greengram (2:4)	Days to maturity for
	2013	intercropping	2 nd year cropping sy		intercrops
		systems in	Kharif	Rabi	Grain/Seed yield of Sole
		rotation	Greengram	Sorghum +	crops
				Chickpea	Stalk yield of Sole crops
			Pearlmillet/Green	Sorghum +	Grain yield of Main crop
			gram	Chickpea	Grain yield of intercrops
			Onion	Sorghum	Stalk yields of main crop
			Chilli + Cotton	Fallow	Stalk yield of intercrops
			(1:1)		Equivalent Yield of Main
			Pearlmillet/Green	Chickpea	crop in the Intercropping
			gram		system LER
			Sunflower (wider)	Sorghum	MAI (Monetary Advantage
			Sunflower (wider)	Chickpea	Index)
			Pearlmillet	Sunflower	Economics,
			(wider)	(wider)	Crop Seasonal Rainfall
			Fallow	sorghum	(mm)
			Chilli + Cotton	Fallow	No. of Dry spells and at
					what stage of crop, duration
					of each dry spell (mention
					days and month)
					RWUE
Ther	ne 2 : R	ainwater Manas	gement (in situ and	ex situ)	
4	BIJA/	Rainwater	Farm pond	,	Runoff
	N/OS/	harvesting in	1		Water budgeting studies
	RWM	farm pond and			No.of run off events
	/2013	efficient			Water stored in the farm
		utilization			pond \
					Duration of availability of
					water in the pond
					No. of irrigations and what
					stage of the crop,
					Kind (lood,drip,sprinkler
					ect.) and Quantity of each
					irrigation
					Cost of each irrigation

			1
			(including the cost o microirrigation systems, liting from the pond using pumps, labour charges etc) Observations on crops:
			As per crop given earlier.
Theme 3	3: Soil health and Cons	ervation Agriculture	
	IJA/ To maintain	Linked with PMTs	To be given
	OS/ soil health with HCA appropriate soil		
	013 and crop		
	management		
7* BI	strategies IJA/ Development	Experimental details to be	To be given
	/OS/ of CA	finalized in the CA	10 De given
l I	HCA Strategies	Platform	
	013		
	4 : Alternate Land Use IJA/ Evaluation of		Horticulture
N/ AI	IJA/ Evaluation of sapota based agri-horti system in medium deep black soils	Treatments: Sapota + Chickpea Guava + Chickpea Fig + Chickpea Drumstick + Chickpea Sapota + Guava + Chickpea Sapota + Fig + Chickpea Sapota + Drumstick + Chickpea No inter row plants	Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting • Establishment in the first year - mortality, water use by each plant, • Plant height • Other growth parameters specific to species • Land quality From the fruiting year • Fruit yield/tree • Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees • Seed yield of sole/main/intercrops • Stalk yield of sole/main/intercrops • Days to maturity • Crop Seasonal Rainfall (mm)

					 No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE economics
9	BIJA/ N/OS/ ALU/ 2013	Studies on Simaruba based agri-horti system in medium black soils	Treatments: Simaruba + C Guava + Chick Fig + Chickpe Drumstick + C Simaruba + G Simaruba + Fi Simaruba + D Chickpea No inter row p	kpea a Chickpea uava + Chickpea g + Chickpea rumstick +	Agrihortisystem: as given earlier in sl.no. 8
10	BIJA/ N/OS/ ALU/ 2013	Evaluation of amla based agri-silvi-horti system in medium deep black soils	Amla + Henna Amla + Custard apple Amla + Custard apple + Henna	No intercropping Chickpea Chickpea + Safflower No intercropping Chickpea + Safflower No intercropping Chickpea + Safflower No intercropping Chickpea Chickpea Chickpea + Safflower No intercropping Chickpea + Safflower Safflower Safflower	Agrihortisystem: as given earlier in sl.no. 8
11	BIJA/ N/OS/ ALU/ 2013	Evaluation of tamarind based horticulture	Tamarind spacing • 10 m × 3 m • 10 m × 6 m • 10 m × 9 m	: m m	Agrihortisystem: as given earlier in sl.no. 8

Sl. No	Code	Interventions	Crops/Treatments		Area (ha)	No of Far- mers	Observa tions/par ameters/ analysis to be
	N. ON-F						1 00 200
		Kaulagi; District : al time contingen	Bijapur; State : Karnataka	1			
12	BIJA/ N/OF/ RTC/ 2013	Demonstration of improved varieties of kharif and rabi crops	Crop: Pigenpea Varieties: TS-3R, BSMR-736, ICPL-8863, Asha, ICPL-87, WRP-1	4.8	12	Seed Yi Stalk Y: Harvest 100 See Crop Se Rainfall No. of I and at w of crop, of each	Maturity eld ield Index, d Weight easonal
			Crop: Pearlmillet Varieties: Pearlmillet ICTP-8203, MH-946, ICMV-221			Grain yn Straw y Harves 1000 Gr Weight, Econom	Maturity feld, ield, t Index, rain
						and at woof crop, of each	

Crop : Groundnut	Groundnut
1	Days to Maturity
Varieties:	Seed yield
GPBD-4, TMV-2,	Haulm yield
DH-101	Harvest Index,
	100 Seed Weight
	Economics,
	Crop Seasonal
	Rainfall (mm)
	No. of Dry spells and
	at what stage of crop,
	duration of each dry
	spell (mention days and month)
	RWUE
Crop: Mothbean and	Mothbean and
Crop : Wothbean and	Horsegram
Varieties:	Seed Yield
BJMB-40, Local and	Stalk Yield
20112 10, Edul and	100 Seed Weight
Crop: Horsegram	Crop Seasonal
	Rainfall (mm)
Varieties:	No. of Dry spells and
GPM-6, Local	at what stage of crop,
	duration of each dry
	spell (mention days
	and month)
	RWUE
G G 69	C. OG
Crop: Safflower	Safflower
Varieties : A-1, A-2	Seed yield Haulm yield
varieties . A-1, A-2	Harvest Index,
	100 Seed Weight
	Economics,
	Crop Seasonal
	Rainfall (mm)
	No. of Dry spells and
	at what stage of crop,
	duration of each dry
	spell (mention days
	and month)
	RWUE
Corr. C. al.	
Crop : Sorghum	Sorghum Days to Motority
Varieties:	Days to Maturity
M-35-1, DSV-4, Local	Grain yield, Straw yield,
WI-33-1, D3 V-4, LOCAI	Harvest Index,
	1000 Grain Weight,
	Economics,
	Crop Seasonal
	Rainfall (mm)

			No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
	Crop: Castor Varieties: 48-1, DCH-177		Castor Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
			Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE and month) RWUE
	Crop: Sunflower Varieties: KBSH-1, KBSH-53, Local Crop: Chickpea Varieties:		
	BDG-103, JG-11, Annigeri	I	

13	BIJA/ N/OF/ RTC/ 2013	Demonstration of intercropping systems	1:5) • Pearlmil	let + ut (1: 2; 2:4;	4.4	11	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops
			1:5) • Safflowe (1: 2; 2:4) • Sorghum (1: 2; 2:4)	r + Chickpea d; 1:5) a + Chickpea d; 1:5) nonion (2:4) with rabi			Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
7 01				•••			
Ther 14	ne 2 : Ra BIJA/	inwater Managem Demonstration	ent (<i>in-situ &</i> Crops	Treatments	2.4	06	Crops: as given
	N/OF/ RWM /2013	of in-situ moisture conservation practices in kharif and rabi crop	Sorghum	Compart ment bunding Without compart ment bunding Compart ment bunding Without compart ment bunding Without compart ment bunding			earlier For in situ moisture conservation practices for all crops: Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE economics

15	BIJA/ N/OF/ RWM /2013	Ex-situ moisture conservation - rainwater harvesting and efficient utilization	 Presowing/supple mental irrigation to kharif/rabi crops Irrigation establishment of agriculture systems 	0.4	01	Water stored in the farm pond \ Duration of availability of water in the pond No. of irrigations and what stage of the crop, Kind (lood,drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o microirrigation systems,liting from the pond using pumps, labour charges etc)
Ther 16*	BIJA/ N/OF/ SHCA /2013	To develop land parcelwise	GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendations			As per template enclosed Initial soil analysis crop yields,

] [BIJA/ N/OF/ SHCA /2013	To demonstrate CA practices as adaptation	• Experimental details to be finalized in the CA Platform			To be given
18 I	e 4 : En BIJA/ N/OF/ EM/2 013	Demonstration of need based implements for various agricultural operations	Crops: Sorghum Chickpea Implements: Tractor drawn double bottom reversible plough Diesel engine (low cost) 1.5 hp Manual sprayer Power sprayer Cycle weeder Tractor drawn automatic seed drill Sprinkler set with 6 heads			Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
19 I	BIJA/ N/OF/ ALU/ 2013	Demonstration of tamarind based agri-horti system	Fruit crop : Tamarind Annual crops : kharif and rabi	2.0	05	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting • Land quality From the fruiting year • Fruit yield/tre e • Econom ics, • Land quality • Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees • Seed yield of sole/main/in tercrops

						 Stalk yield of sole/main/in tercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/in tercrops Equivalent yield of main crop in intercroppin g systems RWUE Economics,
20	BIJA/ N/OF/ ALU/ 2013	Demonstration of jamun based agri-horti system	Fruit crop : Jamun Annual crops : kharif and rabi	2.0	05	As given in sl. no. 22
21	BIJA/ N/OF/ ALU/ 2013	Demonstration of custard apple based agri-horti system	Fruit crop : Custard apple Annual crops : <i>kharif</i> and <i>rabi</i>	2.0	05	As given in sl. no. 22

22	BIJA/ N/OF/ ALU/ 2013	Demonstration of sapota based agri-horti system FOM HIRING CE Popularization	Fruit crop : Sapota Annual crops : <i>kharif</i> and <i>r</i>	abi	2.0	05	As given in sl. no. 22
23	N/OF/ CHC/ 2013	of improved implements through custom hiring centre	 Tractor drawn double bottom reversible plough Diesel engine (low cost) 1.5 hp Manual sprayer Power sprayer Cycle weeder Tractor drawn automatic seed drill Sprinkler set with 6 heads 	02 02 01 02 05 01 01	To the A	 Ho ent Reg Are Inc (as reg Endeffi BC Far Drugh Crough Crough Cove Lar cate Cro 	

5.2 SOLAPUR

Sl. No	Code	Interventions	Crops/Treatments	Observations to be recorded					
). ON-S	TATION		<u> </u>					
	Theme 1 : Rainwater Management (in-situ & ex-situ)								
1	SOLA /N/OS /RW M/201 3	Effect of <i>in-situ</i> moisture conservation practices for <i>rabi</i> sorghum	Treatments: • Ridge and furrow (compartment bunding) • Farmers' practice (two harrowing)	Run off Soil loss & Soil moisture at critical stages Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE					
2	SOLA /N/OS /RW M/201 3	Rain water harvesting in farm pond and efficient utilization	Treatments: Utilization of harvested rainwater for: <i>Crops:</i> Custard apple 0.30 ha (5 x5 m = 120 plants) Pomegranate 0.30 ha (4.5 x 3 m = 220 plants)	Soil loss, Water use efficiency, infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET Run off Water budgeting studies No.of run off events Water stored in the farm pond \ Duration of availability of water in the pond Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems, lifting from the pond using pumps, labour charges etc)					

Ther	ne 2 : En	ergy Managemen	t	
3	SOLA /N/OS /EM/2 013	Demonstration of CRIDA planter for sowing of <i>rabi</i> crops (<i>Rabi</i> sorghum and chickpea)	Treatments: Improved practice (bullock drawn CRIDA planter) Farmers' practice (two bowl fertilizer seed drill)	Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved RWUE economics
4	SOLA /N/OS /ALU/ 2013	Evaluation of Agrihoritisyste ms	Horticulture ? Crops ?	Horticulture Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting

Ther	ne 3: Soi	l health and Conso	ervation Agriculture			
5	SOLA	To maintain	Linked with PMTs			
	/N/OS	soil health with				
	/SHC	appropriate soil				
	A/201	and crop				
	3	management				
6	SOLA	Development	Experimental deta	ils to be		
	/N/OS	of CA	finalized in the C			
	/SHC	Strategies	Platform	А		
	A/201	Strategres	1 latioi m			
	3					
Sl.	Code	Interventions	Crops/Treatments	Area	No of	Observations to be
No	Couc	inter ventions	Crops/ Freatments	(ha)	Farmers	recorded
	E. ON-F	ADM		(IIa)	Farmers	recorded
			olapur; Maharashtra			
		al time contingence				
7	SOLA		Improved Practice x			1 Diagonnos
1	/N/OF	Kharif Season 2013-14	Farmers Practice			1.Pigeonpea
						Days to Maturity
	/RTC/	Demonstration	Improved Practice:			Seed Yield
	2013	of Improved	1.Timely sowing			Stalk Yield
		Practice x	2.Use of Improved			Harvest Index,
		Farmer practice	Variety			100 Seed Weight
			3.Use recommended			Crop Seasonal Rainfall
			spacing			(mm)
			4.Use recommended seed			No. of Dry spells and at
			rate			what stage of crop,
			5.Use recommended			duration of each dry
			fertilizer dose			spell (mention days and
			6.Plant protection as and			month)
			when required.			2.Sunflower
			A)Kharif season 2013			Days to Maturity
			1.Pigeonpea (Vipula)(IP)	3.00	15	Seed yield
			• Local (FP)			Haulm yield
			2.Sunflower (Bhanu)(IP)	4.00	20	Harvest Index,
			• Local(FP)			100 Seed Weight
			3.Blackgram (TPU)(IP)	1.20	06	Economics,
			• Local (FP)			Crop Seasonal Rainfall
	1		4.Pearlmillet (Shanti)(IP)	2.80	14	(mm)
	1		• Local(FP)			No. of Dry spells and at
	1		B) Rabi season 2013			what stage of crop,
	1		1.Rabi sorghum (Phule			duration of each dry
	1		Anuradha (Shallow to	4.00	20	spell (mention days and
	1		medium soil > 45 cm)			month)
	1		& Phule Vasudha			3.Blackgram
	1		(Medium to deep soil a<			Seed Yield
	1		45 cm) (IP)			Stalk Yield
	1		• Local(FP)			100 Seed Weight
	1					

	2.Chickpea (Vijay, Digvijay recommended for dry land condition) (IP) • Local(FP)	4.00	20	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)
	*Drought mitigation: Recommended foliar sprays of 2% urea in sorghum and 1% KNO ₃ In chickpea will be followed while raising the crop .			4.Pearlmillet Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Rabi season 1.Sorghum Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) 2.Chickpea Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight Economics Nodulation Crop Seasonal Rainfall (mm)

	1			1	1	
8	SOLA /N/OF /RTC/ 2013	Demonstration of sunflower based intercropping systems	Kharif season 2013-14 Sunflower (Bhanu)+ Pigeonpea (Vipula) (2:1)	2.80	14	No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) 1.Sunflower (Bhanu)+ Pigeonpea (Vipula) (2:1) Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yield of intercrops Stalk yield of intercrops Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and
	TDI	2 C 2 L 14 L 1				month)
			Conservation Agriculture	1	I	
9	SOLA /N/OS /SHC A/201 3	To maintain soil health with appropriate soil and crop management	Linked with PMTs Long Term Experiment on PMT is in progress			
10	SOLA /N/OS /SHC A/201 3	Development of CA Strategies	Experimental details to be finalized in the CA Platform			
		ergy Management		T	T	T
11	SOLA /N/OF /EM/2 013	Efficient energy management through improved implements	Crop : Rabi sorghum Bullock drawn CRIDA planter Local (two bowl ferti seed drill)	2 ha	05	Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved RWUE Economics,

Ther	ne 4 : Alt	ternate Land Use S	Systems				
12	SOLA /N/OF /ALU/ 2013	Demonstration of Horti-pasture systems	• Grass / Fodder Stylo Marvel Madras Anjan Phule Jaywant • Orchards- Mango, Custard apple, Tamarind Livestock: Baffalow (5)	0.80		05	Initial & Final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Hortipasture • Land quality • Economics, Pasture • Biomass yield - fresh/dry weight • Economics, • Crop Seasonal Rainfall (mm) • No. of Dry spells and at what stage of crop, duration of each dry spell mention days and month) • Carbon sequestration studies -every five years
	C. CUST	OM HIRING CE	NTRE				1 , , , , , , , , , , , , , , , , , , ,
13	SOLA /N/OF /CHC/ 2013	Demonstration of farm implements through custom hiring centre	Implements: Tractor operated four blade Baliram plough with harrow Baliram plough 12" (Bullock drawn) with wooden handle and wooden beam Laxmi sickle CRIDA 9 row tractor drawn seed cum fertilizer planter CRIDA 4 row bullock drawn seed cum fertilizer planter CRIDA 3 row bullock drawn seed cum fertilizer planter	(h. 6 6 - 4. 11 11 11 11 11 11 11 11 11 11 11 11 11	8	No.of farmers 5	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency Farmers' feed back Drudgery reduction in terms of time and labour saving Total Income Generated through CHC Area Covered - Landholding category wise Crop wise Total area in the village

5.3 JHANSI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
I	F. ON-ST	TATION	<u> </u>	
Ther	ne 1 : Rea	al time contingency p	lanning	
1	JHAN /N/OS /RTC/ 2013	Evaluation of drought tolerant varieties	Crop Varieties Sorghum PC-6, Nondescript-340 (local)	Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield
			Cowpea BL-2, Nondescript- 255 (local) Blackgram Azad-2, Local-640 Maize PHM-5, Local-720	100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE No.of Capsules/Plant Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics,
			Sesame Sekhar, Local-189	RWUE Days to 50% flowering Pods/Plant Seeds/Pod Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what
			Groundnut Amber, Local-405	stage of crop, duration of each dry spell (mention days and month) RWUE

			Berseem BB-3, Local	Tillers/Plant Green fodder yield, Dry matter yield, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
			Wheat Harshita, N.Chandausi, Local Oat JHO-822, Local	Wheat Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Any drought tolerant parameter to
			Chickpea Uday, Local	be studied Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Pods/Plant Seed Yield Stalk Yield
			Lentil K-75, Local	100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
2	JHAN /N/OS /RTC/ 2013	Evaluation of inter cropping systems	 Sorghum + Berseem Cowpea + Wheat Blackgram + Oat Maize + Chickpea Sesame + Lentil Groundnut + Wheat 	Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

Ther	ne 2 : Rai	nwater Management (in-situ 8	& ex-situ)	
3	JHAN /N/OS /RWM /2013	Evaluation of <i>in-situ</i> moisture conservation practices	•	Improved practice: Land configuration/ interterrace land management practices Farmers' practice	Soil moisture at critical stages of the sole/ main/ intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems, Economics RWUE
Ther 4	ne 3 : Alte JHAN	ernate Land Use System Evaluation of amla		Microsita	Horticulture
4	JHAN /N/OS /ALU / 2013	Evaluation of amla based horti-pasture system	•	Microsite improvent/ moisture conservation practices Contour staggered trenches	Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting Establishment in the first year - mortality, water use by each plant, Plant height Girth Other growth parameters specific to species Land quality From the fruiting year Fruit yield/tree Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Days to maturity Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.

				- m pla	tablishme nortality, ant, ant height rth her growt ecific to s and quality conomics re comass yie gight ost of Cultons Net Returns C Ratio to Season of Dry sage of croy spell me onth)	ch parameters pecies y eld -fresh/dry tivation, teturns nal Rainfall (mm) spells and at what p, duration of each ention days and nestration studies -
Sl. No	Code	Interven- tions	Crops/Treatments	Area (ha)	No of Far-	Observations/p arameters/anal
					mers	ysis to be recorded
	G. ON-FA	ARM				recorded
			n, District : Lalitpur, Uttar Prade	esh		
Thei	me 1 : Rea JHAN	l time conting		5		0 1 1
,	/N/OF /RTC/ /2013	Demonstrati on of improved varieties	Groundnut Amber, Chitra, Local		7	Groundnut Seed yield straw yield Harvest Index, 100 Seed Weight Any drought tolerant parameter to be studied Economics, Crop Seasonal Rainfall (mm) No. of Dry

Sesame Sekhar, JTS-8, T-78, Local	Sesame 1000 Seed weight Any drought tolerant parameter to be studied Seed yield Stalk Yield Harvest Index Economics, RWUE
Blackgram Azad-2, Uttra, Local Wheat Harshita, N.	Blackgram Seed Yield Stalk Yield 100 Seed Weight Any drought tolerant parameter to be studied Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
Wheat Harshita, N. Chandausi, Poorna, Amar,Raj-3765, Pusa Bahar, Amrita, Local	Wheat Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Any drought tolerant parameter to be studied Economics, Crop Seasonal Rainfall (mm)

			T			1
						Wheat Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Any drought tolerant parameter to be studied Economics, Crop Seasonal Rainfall (mm)
						No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
6	JHAN /N/OF /RTC/	Demonstrati on of double cropping	Groundnut - Wheat Sesame - Wheat Blackgram - Wheat	4	8	
	2013	system				
			gement (in-situ & ex-situ)			
7	JHAN /N/OF /RWM/ 2013	Evaluation of <i>in-situ</i> moisture conservation practices	 Improved practice: INM + integrated crop management module Farmers' practice 	4	8	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercr ops Equivalent yield of main crop in intercropping systems RWUE

8	JHAN /N/OF /RWM/ 2013	Rainwater harvesting and efficient utilization	 Improved practice: Presowing/supplemental irrigation to kharif/rabi crops Farmers' practice: No irrigation 	Soil moisture content, Soil loss, Water use efficiency, Insitu & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No.of run off events Water stored in the farm pond \ Duration of availability of water in the pond
				Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems,lifting from the pond using pumps, labour charges etc)

9 Ther 10	JHAN /N/OF /RWM/ 2013 me 3: Soil JHAN /N/OF/ SHCA/ 2013	moisture conservation (check dam) Health and Cor To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient	vegetal	ion Agriculture GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendations		60	As above As per template enclosed Initial soil analysis crop yields,
		recommend ations					
TIL	4 E	l l	4		1	1	1
11	JHAN /N/OF /EM/ / 2013	Demonstration suitable tools f various agricult operations	of for	Implements: Bullock drawn automatic seed drill Tractor drawn automatic seed drill Rotavator Hand drawn seed drill Sprayers Groundnut decorticator Bund former Diesel pump set	4.0		Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
The	me 5 · Alta	ernate Land Us	e Syste	me			
12	JHAN /N/OF ALU// 2013	Demonstration horti- pasture s	of	Horticulture: Guava (Allhabad safeda) Amla (NA-7) Citrus (paper lime) Pasture: Guinea Cenchrus Stylo	2.0	4	Initial & Final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Sillviculture • Land quality • Economics, Pasture • Biomass yield -fresh/dry weight • Economics, • Crop Seasonal Rainfall (mm)

				 No. of Dry spells and at what stage of crop, duration of each dry spell mention days and month) Carbon sequestration studies -every five years
13	H. CUST JHAN	OM HIRING CENTR Demonstration of	E Bullock drawn	For each
	/N/OF	need based farm	automatic seed	implement
	/CHC /	implements through	drill (1)	 Hours hired
	2013	custom hiring centre	Tractor drawn	(as entered in
			automatic seed	the Register)
			drill (1)	• Area covered
			• Rotavator (1)	(ha)
			• Hand drawn	• Income
			seed drill (1)	generated (as entered in the
			• Sprayers (1)	register)
			• Groundnut decorticator (1)	• Energy use
			• Bund former (1)	efficiency
			Tractor drawn	BC ratio
			furrow openers	Farmers' feed
			(1)	back
			Bullock drawn	 Drudgery
			harrow (1)	reduction
			Diesel pump set	Total Income
			(1)	Generated
				through CHC
				Area Covered -
				• Landholding
				categorywise
				• Cropwise Total area in the
				village
		l		village

Soyabean Based Production System

6.0 SOYABEAN BASED CROPPING SYSTEM

6.1 INDORE

Sl.	Code	Interventions	Crops/Treatments	Observations/parameters/						
No	ONG	TATION		Analysis to be recorded						
	O. ON-STATION Theme 1 : Real time contingency planning									
Ther 1	me 1 : Re INDO /N/OS /RTC/ 2013	Evaluation of drought tolerant varieties of pigeonpea	36 enteries	Fruiting branches/Plant Days to 50 % flowering Pods/Plant Seeds/Pod Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Any drought tolerant parameter to be studied Economics, Net Returns BC Ratio Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell						
2	INDO /N/OS /RTC/ 2013	Evaluation of improved varieties of chickpea in dryland conditions	Varieties :7	(mention days and month) RWUE Days to 50% flowering No. of nodules/ Nodules resh weight Pods/Plant Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight Any drought tolerant parameter to be studied Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE						

2	INIDO	Evolvation	Crons and arrania	Carrhaan
3	INDO	Evaluation of	Crops and cropping	Soybean
	/N/OS	contingent	systems:	Days to 50% flowering
	/RTC/	cropping	• T1: Soybean + Maize	Days to Maturity
	2013	systems under	(4:2) with balanced	Seed yield
		aberrant	nutrition	Stalk yield
		weather	T2: Soybean +	Harvest Index,
		condition	Pigeonpea (4:2) with	100 Seed Weight
			balanced nutrition	Economics,
				Crop Seasonal Rainfall (mm)
			• T1: Seed treatment @	No. of Dry spells and at what stage of
			1.0 g per	crop, duration of each dry spell
			of seed	(mention days and month), RWUE
			T2: Foliar application	Maize
			@ 0.1%	Cobs/Plant
			• T1: RDF (20N + 60	Length of Cob (cm)
			$P_2O_5 + 20$	Days to Maturity
				1000 Grain Weight,
	1		$K_2O + 20 \text{ S/ha}$	Grain yield,
	1		T2: Farmers Practice	Straw yield,
			(50 kg	Harvest Index,
			DAP/ha)	1000 Grain Weight,
			• T1: Polythene mulch	economics
			T2: No mulch	No. of Dry spells and at what stage of
			• JS 95-60, JS 93-05	crop, duration of each dry spell
			and RVS 2001-04	(mention days and month), RWUE
			and 11 (5 2001 0)	Pigeonpea
				Fruiting branches/plant, Days to
				50%flowering,Pods/Plant, Seeds/Pod,
				Days to maturity, Seed yield, Stalk
				Yield, Harvest Index, 100Seed Weight,
				Economics, Net Re turns, BC ratio,
				Crop Seasonal Rainfall(mm), No. of
				Dry spell and what stage of crops,
				Duration of each Dry spell (mention
				days and month), RWUE
				Intercropping system
				Days to maturity for sole crops
	1			Days to maturity for intercrops
				Grain/Seed yield of Sole crops
				Stalk yield of Sole crops
	1			Grain yield of Main crop
				Grain yield of intercrops
	1			Stalk yields of main crop
	1			Stalk yield of intercrops Equivalent Yield of Main grap in the
	1			Equivalent Yield of Main crop in the
				Intercropping system
	1			LER
	1			MAI (Monetary Advantage Index)
				Economics,
	1			Crop Seasonal Rainfall (mm)
	1			No. of Dry spells and at what stage of
				crop, duration of each dry spell
	1			(mention days and month)
	1			RWUE

Then	Theme 2 : Rainwater Management (in-situ & ex-situ)						
4	INDO/	Catchment –	Treatment details:	Soybean			
	N/OS/	storage -	 Double cropping 	Days to 50% flowering			
	RWM/	command	system	Days to Maturity			
	2013	relationship for	■ Soybean –	Seed yield			
		enhancing	chickpea	Stalk yield			
		water	Horticultural	Harvest Index,			
		productivity in	crops	100 Seed Weight			
		micro –	(Vegetasbles,	Economics,			
		watershed	Flowers)	Crop Seasonal Rainfall (mm)			
		watershed	Fodder	No. of Dry spells and at what stage of			
			Foddel	crop, duration of each dry spell (mention			
				days and month)			
				RWUE			
				Chickpea			
				Days to Maturity			
				Seed yield			
				Stalk yield			
				Harvest Index,			
				100 Seed Weight			
				economics			
				Crop Seasonal Rainfall (mm)			
				No. of Dry spells and at what stage of			
				crop, duration of each dry spell (mention			
				days and month)			
				RWUE			
				All fodder crops			
				Biomass			
				Economics			
				RWUE			
				Crop duration			
				N, P, K before sowing and final (after			
				harvesting)			
Then	ne 4 : Alt	ernate Land Use	Systems				
5	INDO/	Evaluation of	Fruit crops :	Horticulture			
	N/OS/	agri-horti	Ber + annual	Initial & final - Soil analysis for macro			
	ALU/	system for	crops	and micro nutrients			
	2013	medium deep	• Guava + annual	Organic carbon, pH, EC etc.			
		Vertisols	crops	Till fruiting			
		, 6, 1, 1, 5, 1, 5	• Amla + annual	Land quality			
				From the fruiting year			
			crops	Fruit yield/tree			
			 Phalsa + annual 	1			
			crops	• Economics,			
			 Mango + annual 	Land quality			
			crops	•			
			 Drumstick 	Agriculture			
			Kharif crops:	a. Sole Cropping Intercropping systems			
			• Soybean	in between horticultural plants/trees			
			 Pigeonpea 	Seed yield of sole/main/intercrops			
			• Soybean +	Stalk yield of sole/main/intercrops			
			Pigeonpea (4:2)	Crop Seasonal Rainfall (mm)			
				No. of Dry spells and at what stage of			
			Rabi crop:	crop, duration of each dry spell (mention			
			 Chickpea 				
				days and month)			

Sl.	Code	Interventions	Crops/Treatments	Area	Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems Economics, RWUE No of Observations/parameters/ar		
No			- · k · · · · · · · · · · · · · · · · · · ·	(ha)	Far-	lysis to be recorded	
ļ.,					mers		
	P. ON-FA		istrict : Indore, Mad	hva Dra	doch		
		al time contingen		пуа гта	uesii		
6	INDO/	Demonstratio	Crops	0.50	10	Soybean	
	N/OF/ RTC/ 2013	n of improved varieties of crops in kharif & rabi season	Varieties Soybean RVS 2004-1, JS 95-60	0.50		Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Maize: 1000 Grain Weight, Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, economics No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Pigeonpea Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Figeonpea Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE For all crops: any drought tolerant parameter to be	

7	INDO/ N/OF/ RTC /2013	Demonstratio n of improved varieties of crops in rabi season	Crops Varieties Chickpea JG-16, JG-226, JAKI-9218 Wheat	0.75 0.75	10 10	Chickpea Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Wheat Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and mon For all crops: any drought tolerant parameter to be studied) RWUE
8	INDO/ N/OF/ RTC/ 2013	Demonstratio n of need based crop management practices	 Crop: Soybean Treatments: Mo application in soybean- chickpea sequence Intercultural mulching Re-sowing with changed crops/ varieties Farmers' practice 	0.25	10	Soybean: as given earlier

9	INDO/ N/OF/ RTC/ 2013	Establishment of agro- advisories	Disseminate agro- advisories through ICT combining village level weather data	All farmers of village Nignoti		What and for which crop - Agroadvissories?? Farmers feedback on the advisories Impact of agroadvisories on saving quantity/money on inputs/pest control, labour, timely pest control, increase in productivity/profitability etc.
Ther	ne 2 · Dai	inwater Managa	ment (<i>in-situ & ex-situ</i>	<i>-</i>		_
10	INDO/ N/OF/ RWM/ 2013	Rainwater harvesting and efficient utilization	Supplemental irrigating to wheat, chickpea, potato, garlic from farm ponds	4.0	03	Soil moisture content, Soil loss, Water use efficiency, Insitu & ex-situ moisture and infiltration Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET and water balance Run off Water budgeting studies No.of run off events Water stored in the farm pond Uuration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems,lifting from the pond using pumps, labour charges etc)
			GY USE AND MANA	GEMENT		
11	INDO/ N/OF/ EM/ 2013	Low Till Farming Strategies for resource conservation and improving soil quality	• Dry sowing chickpea Sowing after pre-so irrigation (<i>Palewa</i>)		/ 0.25	10

12	INDO/ N/OF/ ALU/ 2013	nate Land Use Sy Demonstration of dryland horticulture	Fruit trees: Mango Citrus Guava Custard apple Drumstick Neem Jackfruit	0.25	3	Initial - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species
13	INDO/ N/OF/ ALU/2 013	Demonstration of improve forage crop cultivation for enhancement of milk production	Milch animals – buffalo and cow Berseem	0.40	04	 Land quality From the fruiting year Fruit yield/tree economics Land quality Crop seasonal rainfall Any dry spells (give details) Biomass yield Economics RWUE Quantity and quality of milk

	C. C	USTOM HIRING	CENTRE		
14	INDO /N/OF /CHC/ 2013	Popularization of improved implements through custom hiring centre	 Implements: Reversible plough palti plough Seed cum ferti seed drill Knapsack hand sprayer single Knapsack hand sprayer double Power sprayer 	09	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding category wise Crop wise Total area in the village

6.2 REWA

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ analysis to be recorded
		TATION		
		al time continger		
1	REW A/N/ OS/ RTC/ 2013	Evaluation of intercropping systems under set furrow cultivation in upland and medium land situation	Treatments: Blackgram Greengram Soybean Sesame Pigeonpea Blackgram + Pigeonpea (4:2) Greengram + Pigeonpea (4:2) Soybean + Pigeonpea (4:2) Sesame + Pigeonpea (4:2)	Blackgram /Greengram Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Soybean Days to 50% flowering Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Sesame No.of Capsules/Plant Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE Pigeonpea Fruiting branches/Plant Days to 50 % flowering Pods/Plant Seeds/Pod Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight

				Economics, Net Returns BC Ratio Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Run off Soil loss & Soil moisture at critical stages of the sole/main/ intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics
2	REW A/N/ OS/ RTC/ 2013	Optimization of plant population and planting method for soybean under set furrow cultivation in medium land situation	Crop: Soybean Varieties: JS 95-60, JS 93-05 Seed rate: 70, 80 and 100 kg/ha	Soybean : as given earlier

3	REW A/N/ OS/ RTC/ 2013	Evaluation of kharif crops under different dates of sowing	Soybean, Blackgram, Greengram, Sesame Sowing details: T1: Onset of monsoon (Normal) T2: 10 days after onset of monsoon T3: 20 days after onset of monsoon	
4	REW A/N/ OS/ RTC/ 2013	Foliar application with need based chemicals/nutr ients/water sprays for mitigating in- season dry spells/droughts	Crop: Soybean Foilar spray treatments for In-season dry spells (Real-Time) Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray	Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
5	REW A/N/ OS/ RTC/ 2013	Evaluation of chickpea + linseed intercropping system	Treatments: Chickpea Chickpea+Linseed (1:1) Chickpea+Linseed (2:1) Chickpea+Linseed (2:2) Chickpea+Linseed (4:2) Chickpea+Linseed (6:2) Chickpea+Linseed (6:4) Chickpea+Linseed (8:4) Chickpea+Linseed (1:1)	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

Then	ne 2: Soil	health and Cons	servation Agriculture	!		
6	REW A/N/ OS/ SHCA /2013	To maintain soil health with appropriate soil and crop management	Linked with PMTs			
7	REW A/N/ OS/S HCA/ 2013	Development of CA Strategies	 Experimental details to be finalized in t CA Platform 			
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Far- mers	Observations/parameters/ analysis to be recorded
	R. ON-F					
'	/illage:]	Patauna, & Raur	ra District : Rewa, Ma	adhya	Pradesh	1
Then	ne 1 : Re	al time contingen	cy planning			
8	REW	Demonstration	Crops & Varieties			
	A/N/	of drought	Soybean	1.2	03	Soybean
	OF/	tolerant	JS-335, JS 95-60,	1.0	02	Days to 50% flowering
	RTC/ 2013	varieties of	JS 93-05	1.2	03	Days to Maturity
	2013	various crops in upland		1.2	03	Seed yield Stalk yield
		situation		1.4	03	Harvest Index,
		5110001011		1.2	03	100 Seed Weight
			Blackgram LBG-20, PU-30, PDU-1			Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Blackgram Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Pigeonpea Fruiting branches/Plant Days to 50 % flowering Pods/Plant

			Pigeonpea Asha, ICPL 88039- 50, TDT 50, Sesame TKG-22, JT-7, TKG- 306			Seeds/Pod Days to Maturity Seed Yield Stalk Yield Harvest Index, 100 Seed Weight Economics, Net Returns BC Ratio Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Sesame No.of Capsules/Plant Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE
9	REW A/N/ OF/ RTC/ 2013	Demonstration of drought tolerant varieties of <i>kharif</i> crops	Crops & Varieties Soybean JS-335, JS 95-60, JS 93-05 Blackgram	1.2	03	Soybean, Blackgram, Pigeonpea: as given earlier Rice: No. of tillers/Plant (or m²), Days to 50% flowering
		under midland situation	LBG-20, PU-30, PDU-1 Pigeonpea Asha, ICPL 88039- 50, TDT 50,	1.2	03	Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight
			Sesame TKG-22, JT-7, TKG- 306 Rice JR-201, Sahbhagi,	1.2	03	Economics. Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)
			Danteshwari	1.2	03	RWUE

10	REW	Demonstration	Crops & Varieties			
10	A/N/	of drought	Wheat	1.2	03	Wheat
	OF/	tolerant	JW-17, HI-1500,	1.2	03	Days to Maturity
	RTC/	varieties of				
			JW- 2030			Grain yield,
	2013	different rabi			0.2	Straw yield,
		crops	Lentil	1.2	03	Harvest Index,
			JL-1, JL-2, JL-3			1000 Grain Weight
						Economics,
				1.2	03	Crop Seasonal Rainfall (mm)
			,			No. of Dry spells and at what stage
						of crop, duration of each dry spell
						(mention days and month)
				1.2	03	RWUE
						Chickpea
				1.2	03	Days to Maturity
			Chickpea	1.2	0.5	Seed yield
			JG-130, JG-11,			Stalk yield
			JG-130, JG-11,			Harvest Index,
			JO-14			100 Seed Weight
						economics
						Crop Seasonal Rainfall (mm)
						No. of Dry spells and at what stage
						of crop, duration of each dry spell
						(mention days and month)
						RWUE
			Linseed			Linseed
			JL-9, JL-23, R-552			Seed Yield
						Stalk Yield
						100 Seed Weight
						Crop Seasonal Rainfall (mm)
						No. of Dry spells and at what stage
						of crop, duration of each dry spell
						(mention days and month)
						RWUE
			Mustard			Mustard
			Pusa bold, Baruna			Days to Maturity
			Tarak			Seed yield
			I WI WIL			Haulm yield
						Harvest Index,
						100 Seed Weight
						Economics,
						*
						Crop Seasonal Rainfall (mm)
						No. of Dry spells and at what stage
						of crop, duration of each dry spell
						(mention days and month)
						RWUE

11	REW A/N/ OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i> (<i>Real-Time</i>) Let us go for mid season drought stage only Treatments: Urea spray Thiourea? KNO ₃ spray (One) KNO ₃ spray (Twice) ZnSO ₄ spray			Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
12	REW A/N/ OF/ RTC/ 2013	Demonstration of efficient intercropping systems	Cropping systems: Blackgram + Pigeonpea (4:2) Soybean + Pigeonpea (4:2) Sesame + Pigeonpea (4:2) [Upland situation] Blackgram + Pigeonpea (4:2) Soybean + Pigeonpea (4:2) Soybean + Pigeonpea (4:2) Chilli + Onion (???)	1.2 1.2 1.2 1.2 1.2 1.2 1.2	03 03 03 03 03 03 03	Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
13	REW A/N/ OF/ RTC/ 2013	Demonstration of double cropping systems	Soybean – Chickpea Rice – Lentil Soybean – Lentil Rice – Chickpea Soybean – Chickpea + Linseed (4:2) [Midland situation	1.2 1.2 1.2 1.2 1.2 1.2	03 03 03 03 03 03	Soybean ,Linseed, nd Chickpea: as given earlier Lentil Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Intercropping systems: as given earlier

4	REW	Rainwater	ement (in-situ & ex-sit Treatments:	10.2	33	Initial & final - Soil analysis for
	A/N/	harvesting and	Dryland			macro and micro nutrients
	OF/	efficient	horticulture			Organic carbon, pH, EC etc.
	RWM	utilization for	Guava			Till fruiting
	/ 2013	multiple uses	Amla			Establishment in the first year -
			Arable crops with			mortality, water use by each plant,
			supplemental			Land quality
			irrigation			From the fruiting year
			Cucumber			Fruit yield/tree
			Greengram			Cost o Cultivation (including the
			Okra + Greengram			cost o microsite improvement, if
			Onion			any)
			Bottle guard			Gross returns
			Pumpkin			Net returns
			Tomato			BC ratio
			Brinjal			Land quality
						Vegetables
						Fruit yield
						Cost of Cultivation,
						Economics,
						Seed Yield
						Stalk Yield
						100 Seed Weight
						Crop Seasonal Rainfall (mm)
						No. of Dry spells and at what stag
						of crop, duration of each dry spell
						(mention days and month)
						RWUE
						Vegetables
						Fruit yield
						Cost of Cultivation,
						Economics,
'h o	ma 2. Sai	l Ugalth and Car	nservation Agricultur			
5	REW	To develop	GPS based soil			Initial & final - Soil analysis for
	A/N/	land	sampling			macro and micro nutrients
	OF/	parcelwise	Macro and			Organic carbon, pH, EC etc.
	SHCA	(farmerwise)	micronutrients			Till fruiting
		Soil Health	analysis			Establishment in the first year -
	1 / 2013		anarysis			mortality, water use by each plant,
	/ 2013		Village Soil			I IIIOITAIITY, WALEI USE DY CACII DIAIIT.
	/ 2013	Cards	Village Soil fartility man			
	7 2013	Cards and Site-	fertility map			Land quality
	7 2013	Cards and Site- specific	fertility map • Site-specific			Land quality From the fruiting year
	7 2013	Cards and Site- specific nutrient	fertility map • Site-specific nutrient mana-			Land quality From the fruiting year Fruit yield/tree
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the
	7 2013	Cards and Site- specific nutrient	• Site-specific nutrient management recommendatio			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any)
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management recommendatio			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any) • Gross returns
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management recommendatio			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any) Gross returns Net returns
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management recommendatio			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any) Gross returns Net returns BC ratio
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management recommendatio			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any) Gross returns Net returns BC ratio Land quality
	7 2013	Cards and Site- specific nutrient recommendati	• Site-specific nutrient management recommendatio			Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any) Gross returns Net returns BC ratio

The : 17	REW A/N/ OF/ SHCA / 2013 me 4: Al REW A/N/ OF/ ALU/ 2013	To demonstrate CA practices as adaptation ternate Land U Demonstratio n of agri- horti systems	Experimental details to be finalized in the CA Platform See System	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting Land quality from the fruiting year Fruit yield/tree Economics, Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural
			• Soybean + chickpea	plants/trees Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems, Economics RWUE

Groundnut Based Production System

7.0 GROUNDNUT BASED PRODUCTION SYSTEM

7.1 ANANTAPUR

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Far- mers	Observations/parameters/ Analysis to be recorded				
	S. ON-F		<u> </u>			1				
	Village : Aminabad and Girigetla; District : Kurnool; Andhra Pradesh									
Ther		al time continge								
1	ANAN /N/OF/ RTC/2 013	Demonstration of drought tolerant varieties of groundnut	Varieties : • Kadiri- 6 • Kadiri- 9 • ICGV-91114 • Dharani	4.0	10	Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE				
2	ANAN /N/OF/ RTC/2 013	Demonstration of different varieties hybrids of castor	Varieties and hybrids: • Haritha • PCH - 111 • DCH - 177	4.0	10	Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE				
3	ANAN /N/OF/ RTC/2 013	Demonstration of improved inter cropping system	Cropping system: Groundnut + Pigeonpea (15:1)	10	20	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics,				

						Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
4	ANAN /N/OF/ RTC/2 013	Disease/pest/we ed management based on agro- advisories	Application of pesticide/herbicide in suitable dose Crop: Groundnut	20	50	Crop and disease specific observations
5	ANAN /N/OF/ RTC/2 013	Contingent crops for late on set of monsoon	Setaria, pearlmillet, cl usterbean (Real time contingency planning)	1.6	04	Crop specific observations along with Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE for all the crops
Then	ne 2 · Ra	inwater Manage	ement (in-situ & ex-sit	(u)		
6	ANAN /N/OF/ RWM/ 2013	In-situ moisture conservation and efficient utilization	Crop : Groundnut Treatments : Improved practice - conservation furrows Farmers' practice	6.0	10	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics
7	ANAN /N/OF/ RWM/ 2013	Catchment- storage – command relationship of farm ponds for efficient use of harvested wate	Treatments: (4 Farm ponds) Excavation of farm pond Lining with soil + cement (6:1) Lifting water and irrigation with micro- irrigation systems	9.0	4	Water stored in the farm pond \ Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind of irrigation (flood,drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost o

				1	1	
						microirrigation systems, lifting from the pond using pumps, labour charges etc)
8	ANAN /N/OF/ RWM/ 2013	Demonstration of tank silt as an organic amendment to conserve soil moisture	Addition of silt from check dams/tanks to field	1.6	4	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE economics
Then	ne 3 : En	ergy Manageme	nt			
9	ANAN/ N/OF/E M/2013	Demonstration of need based improved implements through custom hiring centre	of Implements : Tractor drawn ananta, planter Bullock drawn	50	50	Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved RWUE Economics
Thon	no 1 · 11	ternate Land Use	Systems			
10	ANAN /N/OF/ ALU/2 013	Demonstration of millet based farmi system	Rajasri birds after	-	10	Weight birds, Returns of farm birds, Economics
11	ANAN /N/OF/ ALU/2 013	Encouraging on- farm generation or organic manure	f Household based Vermi composting/ composting will be proposed		2	

C. C	USTOM HIRING C	ENTRE			
ANAN /N/OF/ CHC/2 013	Popularization of improved implements through custom hiring centre	Implements: Ananta tractor drawn seed planter Ananta bullock drawn seed drill Mould board plough Duck foot 5 row cultivator Fresh pod thresher Dry pod thresher Duck foot 5 row cultivator Fresh pod tresher Dry pod tresher Dry pod tresher Groundnut wet pod thresher Taiwan sprayer Castor sheller	8.0 2.0 4.4 16 2.0 5 16. 0 2.0 5.0 20. 0 26. 0 8.0	05 03 1 02 02 04 02 04 20 29 02	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding category wise Crop wise Total area in the village

7.2 RAJKOT

Sl.	Code	Interventions	Crops/	Area	No of	Observations/parame
No			Treatments	(ha)	Far-	ters/ Analysis to be
					mers	recorded
	Γ. ON-S					
The		ernate Land Use		,		
1	RAJK	Demonstration	Fruit crop: Guava	0.4	On .	Horticulture
	/N/OS	of guava based	Arable crops:		stati	Initial & final - Soil
	/ALU/	agri-horti	• Groundnut (GG-		on	analysis for macro and
	2013	system	20)			micro nutrients
			Black gram (GIL 1)			Organic carbon, pH, EC etc.
			(GU-1)			
			Treatments:			From the fruiting year • Fruit yield/tree
			• No mulch			• Economics,
			• Mulch with crop residue @ 5t/ha			Leonomics,Land quality
						Agriculture
			Plastic mulch			a. Sole Cropping
						Intercropping systems
						in between
						horticultural
						plants/trees
						 Seed yield of
						sole/main/intercrops
						• Stalk yield of
						sole/main/intercrops
						 Crop Seasonal
						Rainfall (mm)
						• No. of Dry spells and
						at what stage of crop,
						duration of each dry
						spell (mention days
						and month)
						• Grain/seed yield of
						sole/main/intercrops
						• Equivalent yield of
						main crop in
						intercropping
						systems
						• RWUE
						 Economics

2	DATT	D	NI 1	0.4		T 4
2	RAJK	Demonstration	Normal onset of	0.4	On	Intercropping systems
	/N/OS	of intercropping	mansoon:		stati	Days to maturity for sole
	/ALU/	systems	 Groundnut 		on	crops
	2013		60x10 cm			Days to maturity for
			• Castor 90x20 cm			intercrops
			• Sesame 60 x15			Grain/Seed yield of Sole
			cm			crops
			• Groundnut +			Stalk yield of Sole crops
			castor (3:1) 60-			Grain yield of Main crop
			240 cm			Grain yield of intercrops
						Stalk yields of main crop
			• Groundnut +			Stalk yield of intercrops
			sesame (1:1)			Equivalent Yield of Main
			120-120 cm			crop in the Intercropping
			Delayed on set of			system
			monsoon:			LER
			• Castor 90 X 20			MAI (Monetary
			cm Groundnut			
			60x10 cm			Advantage Index) Economics,
			Blackgram 60x10			,
			cm			Crop Seasonal Rainfall
			• Castor +			(mm)
			groundnut (1:3)			No. of Dry spells and at
			• Castor + black			what stage of crop,
			gram (1:2)			duration of each dry spell
			gram (1.2)			(mention days and
						month)
						RWUE
τ	J. ON-F	ARM				RWUE
			 	Jamnag	ar; Guj	
V	'illage : F	Pata Meghpar Teh		Jamnag	ar; Guj	
V	'illage : F		cy planning	Jamnag	ar; Guj	arat
Then	'illage : F ne 1 : Re RAJK	Pata Meghpar Teh al time contingend Demonstration	cy planning Crops	Jamnag	ar; Guj	arat Groundnut
Then	rillage : F ne 1 : Re RAJK /N/OF	Pata Meghpar Tele al time contingend Demonstration of drought	cy planning Crops Varieties			Groundnut Days to Maturity
Then	'illage: For the second	Pata Meghpar Tel- al time contingend Demonstration of drought tolerant	cy planning Crops Varieties Groundnut Semi	Jamnag	ar; Guj	Groundnut Days to Maturity Seed yield
Then	rillage : F ne 1 : Re RAJK /N/OF	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of	Crops Varieties Groundnut Semi	4	10	Groundnut Days to Maturity Seed yield Haulm yield
Then	'illage: For the second	Pata Meghpar Tehal time contingent Demonstration of drought tolerant varieties of crops in	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8			Groundnut Days to Maturity Seed yield Haulm yield Harvest Index,
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II	4 2	10	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight
Then	'illage: For the second	Pata Meghpar Tehal time contingent Demonstration of drought tolerant varieties of crops in	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366*	4 2 2	10 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics,
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3*	4 2 2 2 2	10 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1*	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm)
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3*	4 2 2 2 2	10 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2*	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop,
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2*	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2*	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton Seed cotton yield, Lint
Then	'illage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton Seed cotton yield, Lint yield, Seed Index (100
Then	rillage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton Seed cotton yield, Lint yield, Seed Index (100 Seed Weight)
Then	rillage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton Seed cotton yield, Lint yield, Seed Index (100 Seed Weight) Economics,
Then	rillage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton Seed cotton yield, Lint yield, Seed Index (100 Seed Weight)
Then	rillage: For the second	Pata Meghpar Telestal time contingent Demonstration of drought tolerant varieties of crops in medium black	Crops Varieties Groundnut Semi spreading Cotton G. Cot-6, 8 BG-II Wheat GW-366* Gram- Guj. Gram-3* Fenugreek GM-1* Gum Guar-G-2* *If irrigation water available during rabi	4 2 2 2 2 2	10 5 5 5 5	Groundnut Days to Maturity Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month), RWUE Cotton Seed cotton yield, Lint yield, Seed Index (100 Seed Weight) Economics,

4	RAIK	Demonstration	Treatments:			No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Wheat Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Fenugreek Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics Gum Guar Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics Gum Guar Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics,
4	RAJK /N/OF /RTC/ 2013	Demonstration of nutrient management practices in <i>kharif</i> and <i>rabi</i> crops	Treatments: • Integrated nutrient management Groundnut GG20 Cotton BGII	4	10	Groundnut Days to Maturity Pod yield Haulm yield Harvest Index, 100 Seed Weight Economics Cotton Seed cotton yield, Lint yield, Seed Index (100
						Seed Weight) Economics

	1		. g:, g ::	I		
			• Site Specific			Groundnut
			Nutrient		10	Pod yield
			management	4	10	Haulm yield
			Groundnut (GG 20)			Harvest Index,
			application of	4	10	100 Seed Weight
			sulphur/ as per soil			Economics
			test value			
			 Foliar fertilization 	2	5	Cotton
			Groundnut (GG 20)			Seed cotton yield, Lint yield,
			Ferrous sulphate 1%			Seed Index (100 Seed
			1	2	5	Weight)
			Cotton BGII			Economics
			Potassium Nitrate			
			3%			
5	RAJK	Demonstration	Crop : Cotton	4	10	Seed cotton yield, Lint yield,
1	/N/OF	of pest	Treatments:	_		Seed Index (100 Seed
	/RTC/	management	Improved			Weight)
	2013	practices in	practice – castor			Economics,
	2013	cotton	cake @ 500 kg/ha			Crop Seasonal Rainfall (mm)
1		John	+ tricoderna			No. of Dry spells and at what
			powder @ 2.5			stage of crop, duration of
			-			each dry spell (mention days
			kg/ha + nimazel 200ml + blue			and month)
						RWUE
			copper 500gm			RWUE
			Farmers' practice			_
6	RAJK	Demonstration	• Crop:			Days to maturity
	/N/OF	of foliar sprays	<u>Groundnut</u>	1.2	4	Grain yield
	/RTC/	with need	Any other crops	1.2	4	Stalk yield
		l				Horyoct indox
	2013	based	Cotton			Harvest index
	2013	chemicals/nutri	Foilar spray			100/100 seed weight
	2013	chemicals/nutri ents/water	Foilar spray treatments for <i>In</i> -			100/100 seed weight Economics
	2013	chemicals/nutri ents/water sprays for	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i>			100/100 seed weight Economics Crop seasonal rainfall
	2013	chemicals/nutri ents/water sprays for mitigating in-	Foilar spray treatments for <i>In</i> -			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what
	2013	chemicals/nutri ents/water sprays for mitigating in- season dry	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i>			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of
	2013	chemicals/nutri ents/water sprays for mitigating in-	Foilar spray treatments for <i>In-</i> season dry spells (Real-Time)			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days
	2013	chemicals/nutri ents/water sprays for mitigating in- season dry	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i> (<i>Real-Time</i>) Treatments: KNO ₃ spray (One) Phenyl Mercuric			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of
	2013	chemicals/nutri ents/water sprays for mitigating in- season dry	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i> (<i>Real-Time</i>) Treatments: KNO ₃ spray (One)			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days
7	2013 RAJK	chemicals/nutri ents/water sprays for mitigating in- season dry	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i> (<i>Real-Time</i>) Treatments: KNO ₃ spray (One) Phenyl Mercuric			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days
7		chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts	Foilar spray treatments for <i>Inseason</i> dry <i>spells</i> (<i>Real-Time</i>) Treatments: KNO ₃ spray (One) Phenyl Mercuric Acetate (PMA)	1.6	4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)
7	RAJK	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO ₃ spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems	1.6	4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems
7	RAJK /N/OF	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient	Foilar spray treatments for In- season dry spells (Real-Time) Treatments: KNO ₃ spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems :Groundnut+ Castor	1.6	4 4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems: Groundnut+ Castor (3:1)			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO ₃ spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) • Cotton+ Groundnut (1:1)			100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO ₃ spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) Cotton+ Groundnut (1:1) Cotton+ Blackgram	1.6	4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO ₃ spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) Cotton+ Groundnut (1:1) Cotton+ Blackgram (1:1)	1.6 1.6	4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) • Cotton+ Groundnut (1:1) • Cotton+ Blackgram (1:1) • Cotton+ Green gram	1.6	4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems: Groundnut+ Castor (3:1) • Cotton+ Groundnut (1:1) • Cotton+ Blackgram (1:1) • Cotton+ Green gram (1:1)	1.6 1.6 1.6	4 4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) • Cotton+ Groundnut (1:1) • Cotton+ Blackgram (1:1) • Cotton+ Green gram (1:1) • Cotton+ Sesame	1.6 1.6 1.6	4 4 4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) Cotton+ Groundnut (1:1) Cotton+ Blackgram (1:1) Cotton+ Green gram (1:1) Cotton+ Sesame (1:1)	1.6 1.6 1.6	4 4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) Cotton+ Groundnut (1:1) Cotton+ Blackgram (1:1) Cotton+ Green gram (1:1) Cotton+ Sesame (1:1) Cotton+ Soyabean	1.6 1.6 1.6	4 4 4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops
7	RAJK /N/OF /RTC/	chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts Demonstration of efficient intercropping	Foilar spray treatments for Inseason dry spells (Real-Time) Treatments: KNO3 spray (One) Phenyl Mercuric Acetate (PMA) Intercropping systems:Groundnut+ Castor (3:1) Cotton+ Groundnut (1:1) Cotton+ Blackgram (1:1) Cotton+ Green gram (1:1) Cotton+ Sesame (1:1)	1.6 1.6 1.6	4 4 4	100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) Intercropping systems Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop

						crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
Then	RAJK/ N/OF/ RWM/ 2013	Demonstration of in-situ moisture conservation practices	ent (in-situ & ex-situ) Treatments: Improved practice Conservation furrow Crop residues/plastic mulching Murrum and sediment application Deep tillage Farmers' practice	1.6 1.6 4	4 4 10 10	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems Economics RWUE
9	RAJK/ N/OF/ RWM/ 2013	Rainwater harvesting and efficient utilization	Crops: Groundnut & Cotton Supplemental irrigation to rainfed crops from farm ponds/wells Treatments: Adoption of micro-irrigation system for horticulture crops Lifting the farm pond water by pump/engine	4 1.6 0.8	10 4 2	Water use efficiency, Crop seasonal rainfall, Minimum & Maximum Temperature, Water stored in the farm pond Duration of availability of water in the pond Quality of irrigation No. of irrigations and what stage of the crop, Kind (flood, drip,sprinkler ect.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems, lifting from the pond using pumps, labour charges etc)

Then	ne 3: Soil l	Health and Conser	vation Agriculture			
10	RAJK/ N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Sitespecific nutrient recommendation s	 GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendations 	As per holding	40	Initial soil analysis crop yields, Root: shoot ratio plant analysis
11	RAJK/ N/OF/ SHCA/ 2013	To demonstrate CA practices as adaptation	Experimental details to be finalized in the CA Platform	NIL	NIL	Not Started
Then	ne 4 : Ener	rgy Management				•
12	RAJK/ N/OF/ EM/ 2013	Demonstration of need based improved implements for various agricultural operations	Implements: Cultivator Rotavator Land leveler Cotton shredder Reversible plough	2 2 2 - 2	5 5 5 5 5	Energy Input and Energy Output balance Observations Field capacity o the implement Time saved (hrs) Labour saved Economics, RWUE
	/ CUSTO	M HIRING CEN	TRF			RWCL
13	RAJK/ N/OF/ CHC/ 2013	Popularization of improved implements	Implements: Tractor drawn spike tooth harrow Cultivator Rotavator Land leveler Rain guage Cotton shredder Reversible plough	1 1 1 1 1 1 1 1 1		For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding category wise Crop wise Total area in the village

Cotton Based Production System

8.0 COTTON BASED CROPPING SYSTEM

8.1 AKOLA

Sl. No	Code	Interventions	Crops/	Observations/parameters/
			Treatments	Analysis to be recorded
W.	ON-STA	ATION		
Theme	1 : Rain	water Manageme	ent (<i>in-situ&ex-situ</i>	u)
1	AKO	Rainwater	Supplemental	Run off
	L/N/	harvesting and	irrigation to	Soil loss &
	OS/	efficient	rainfed crops	Water budgeting studies
	RW	utilization	_	No.of run off events
	M/20			Water stored in the farm pond \
	13			Duration of availability of water in the pond
				Efficacy of silt trap
				Quality of irrigation
				No. of irrigations and what stage of
				the crop,
				Kind (flood,drip,sprinklerect.) and
				Quantity of each irrigation
				Cost of each irrigation (including the
				cost of micro-irrigation systems, lifting
				from the pond using pumps, labour
				charges etc)
				Observations on crops: As per crop
				given earlier
Theme	2:Soil he	ealth and Conser	vation Agriculture	e
2	AKO	To maintain	Linked with	
	L/N/	soil health with	<u>PMTs</u>	
	OS/S	appropriate		
	HCA/	soil and crop		
	2013	management		
3	AKO	Development	Experimental	
	L/N/	of CA	details to be	
	OS/S	Strategies	finalized in	
	HCA/		the CA	
	2013		Platform	

AKO	Evaluation of	Treatments:	Horticulture
L/N/	Tamarind +	T ₁ : Tamarind +	Initial and final - Soil analysis for
OS/A	Guava based	Guava + Sole	macro and micro nutrients
LU/2	agri-horti	Green gram	Organic carbon, pH, EC etc.
013	systems	T ₂ : Tamarind +	Till fruiting
		Guava + Sole	• Establishment in the first y
		Black gram	- mortality, water use by ea
		T ₃ : Tamarind +	plant,
		Guava + Sole	• Plant height
		Soybean	• Girth
		T ₄ : Tamarind +	Other growth parameters
		Guava + Sole	specific to species
		Pigeon pea	• Land quality
		T ₅ : Tamarind +	From the fruiting year
		Guava + (Green	• Fruit yield/tree
		gram + Pigeon	Land quality
		pea 2:1)	
		T ₆ : Tamarind +	Agriculture
		Guava + (Black	a. Sole Cropping Intercropping
		gram + Pigeon	systems in between horticultura
		pea 2:1)	plants/trees
		T_7 : Tamarind +	Seed yield of
		Guava +	sole/main/intercrops
			Stalk yield of
		(Soybean +	sole/main/intercrops
		Pigeon pea 2:1)	 Days to maturity
		T ₈ : Tamarind + Guava (Control)	 Crop Seasonal Rainfal
		Guava (Control)	(mm)
			 No. of Dry spells and
			what stage of crop,
			duration of each dry sp
			(mention days and mo
			Grain/seed yield of
			sole/main/intercrops
			• Equivalent yield of m
			crop in intercropping
			systems
			• RWUE

Sl.	Code	Interventions	Crops/Treatment	Area	No of	Observations/parameters/a					
No			S	(ha)	Far- mers	nalysis to be recorded					
	K. ON-FA		l .	ı	mers						
	Village : Warkhed, District : Akola, Maharashtra Theme 1 : Real time contingency planning										
Ther 5	AKOL /N/OF/ RTC/2 013	Demonstration of improved varieties of sorghum and soybean	Crops Varieties Sorghum Bhagyalaxmi-296 CSH- 14 CSH-9 (local) Soybean JS 93- 05, JS 95-60, JS-335 (local), MAUS-71	2.8	03	Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE					
6	AKOL /N/OF/ RTC/2 013	Demonstration of foliar sprays with need based chemicals/nutr ients/water sprays for mitigating in- season dry spells/droughts	• Crop: Cotton Foilar spray treatments for Mid- season dry spells (Real-Time) Treatments: Urea spray: 2% in the Morning/Evening at flowering stage DAP: 2% in the Morning/Evening at boll development stage	0.8	02	 Days to maturity Grain yield Stalk yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month) 					
7	AKOL /N/OF/ RTC/2 013	Demonstration of efficient intercropping systems in different soils	Crops Varieties Soybean JS-335 Pigeonpea PKV-Tara Cotton NCS-145 Greengram Green gold	4.4 2.4 0.4	11 06 01	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops					

			Treatments: Soybean + Pigeonpea [4:2] Cotton + Greengram [1:1] Cotton + Sorghum + Pigeonpea + Sorghum [3:1:1:1]			Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
Ther	ne 2 : Rai AKOL /N/OF/ RWM/ 2013	inwater Managen In-situ moisture conservation practices in cotton and soybean	crops: Crops: Cotton Soybean Treatments: Improved practice (furrow opening) Local practice (without furrow opening)	2.4 8.0	06 31	Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems Economics
9	AKOL /N/OF/ RWM/ 2013	Rainwater harvesting and efficient utilization	Supplemental irrigation for arable crops through farm ponds	0.8	02	RWUE Water stored in the farm pond \ Duration of availability of water in the pond Efficacy o silt trap Quality of irrigation No. of irrigations and what stage of the crop, Kind (lood,drip,sprinklerect.) and Quantity of each irrigation Cost of each irrigation (including the cost omicroirrigationsystems,li ting from the pond using pumps, labour charges etc)

10	AKOL /N/OF/ SHCA /2013	To develop land parcelwise (farmerwise) Soil Health Cards and Sitespecific nutrient recommendations	 GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendati ons 			As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis
Y	CUST	OM HIRING CE				
11	AKOL /N/OF/ CHC/2 013	Demonstration of need based improved implements for various agricultural operations	Implements: • Mutipurpo se thresher	24.8	62	For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered - Landholding categorywise Cropwise

8.2 KOVILPATTI

Sl. No	Code	Interventions	Crops/Treatments		Observations/parameters/ Analysis to be recorded
	ON-STAT	ION			Analysis to be recorded
		time contingency	planning		
1	KOVI/N/		Crops	<u>Varieties</u>	Cotton
	OS/RTC/	drought	Cotton	Jadoo BG II	
	2013	tolerant		Jackpot BG II	Bolls/Plant, Boll weight,
		varieties		Chirutha BG II	Days to 50 % flowering
			-	Mallika BG II (LC)	Days to first picking Days to last picking
			Maize	900 M gold	Seed cotton yield
				NK-30	Lint yield, Ginning out turn
				NK 6240	(%) 2.5 % span length, fibre
			(COH (M)-6 (local)	strength and Seed Index (100
					Seed Weight)
			Daarlmilla	t CO (Cu)-9	Economics, Crop Seasonal Rainfall (mm)
			reallillille	Pioneer -80M32	No. of dry spells and at what
				Aruna	stage of crop, duration of each
				CO-9 (local)	dry spell , RWUE
					Maize
					Cobs/Plant, No. of grains/cob
					Length of Cob (cm)
					Days to Maturity 1000 Grain Weight,
					Grain yield,
					Straw yield,
					Harvest Index,
					1000 Grain Weight,
					Economics
					No. of dry spells and at what stage of crop, duration of each
					dry spell, RWUE
					Pearlmillet
					Tillers/Plant,
					No. of grains/earhead
					Grain Weight/ Earhead (g)
					Days to Maturity Grain yield,
					Straw yield,
					Harvest Index,
					1000 Grain Weight,
					Crop Seasonal Rainfall (mm)
					No. of dry spells and at what
					stage of crop, duration of each
					dry spell , RWUE

2	KOVI/N/ OS/RTC/ 2013	Foliar application with need based chemicals/nutri ents/water sprays for mitigating in- season dry spells/droughts		d spray (100 ray (500 ppm) ated facultative ohs (500 ml/ha) %) + Boric	Maize Days to maturity Grain yield Stalk yield Harvest index 1000 grain weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell Cotton No. of sympodial branches
			sulphate (0.5	5%) + Urea	No. of bolls/ plant Seed cotton yield
3	KOVI/N/	Evaluation of	(1%) foliar s	pray Varieties	Intercropping systems
	OS/RTC/ 2013	cotton based intercropping systems	Bt cotton Clusterbean Nowbhagar Coriander Radish Onion Treatments: Bt cott Bt cott Cluster Bt cott Bt cott Bt cott Bt cott Bt cott	Jadoo Pusa CO 1 local local on on + bean on + Coriander on + Radish on + Onion	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Stalk yields of main crop Equivalent yield of main crop in the intercropping system, LER, MAI (Monetary Advantage Index), Economics, Crop Seasonal Rainfall (mm) No. of dry spells and at what stage of crop, duration of each dry spell, RWUE
4	KOVI/N/	Effect of in-situ	Crops	Treatments	Runoff
	OS/ RWM/ 2013	moisture conservation practices on different crops	Maize Greengram Blackgram	 Broad bed and furrows Ridges and furrows Broad bed and furrows Flat sowing Broad bed and furrows 	Soil loss Soil moisture at critical stages of the crops, Crop seasonal rainfall (mm) No. of dry spells and at what stage of crop, duration of each dry spell Grain/seed yield of crops Economics RWUE

5	KOVI/N/ OS/RWM/ 2013	Ex-situ moisture conservation - Rain water harvesting in farm ponds and recycling of stored water during dry spells	Treatments: Supplemental irrigation No irrigation Crops (Varieties): Maize (NK-30) Cotton (Mallika BG II) Marigold	Soil moisture content, Soil loss, Water use efficiency Soil moisture at critical stages Crop seasonal rainfall, Minimum & Maximum Temperature, Evaporation, AET, PET, Runoff Water budgeting studies No.of runoff events Water stored in the farm pond Duration of availability of water in the pond Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Type of irrigation (Sprinkler) and quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems, lifting from the pond using pumps, labour charges etc)
Th			vation Agriculture	g
6	KOVI/N/ OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	Crops: Bt cotton and maize Treatments • Control • 50 % organic manure • 50 % organic + 50 % inorganic • 100 % inorganic • 100 % inorganic + ZnSo4 application Rep: 3 Linked with PMT	Soil: OC, N, P, K, Micro nutrients , Nutrient use efficiency, Carbon balance, Nutrient balance Cotton and Maize Uptake N, P, K Other parameters: Crop seasonal rainfall Economic analysis
7	KOVI/N/ OS/SHCA /2013	Development of CA Strategies	• Experimental details to be finalized in the CA Platform	

Theme 4 : Energy Management - Nil						
Theme 5 : Alternate Land Use Systems						
8 KOVI/N/ OS/	Evaluation of aonla based	Cropping systems:	Horticulture			
OS/ ALU/ 2013	aonla based agri-horti systems	 Aonla (NA-7) Aonla (NA-7) + Greengram (CO 6) Aonla (NA-7) + Cowpea (C152) Aonla (NA-7) + Clusterbean (PNB) 	Initial and final soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Observations until fruiting Establishment in the first year - mortality, water use by each plant, Plant height Girth Other growth parameters specific to species Land quality From the fruiting year Fruit yield/tree Land quality Agriculture Sole Cropping Intercropping systems in between horticultural plants/trees Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Days to maturity Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell Grain/seed yield of main crop in intercropping systems RWUE			

9	KOVI/N/	Evaluation of	Cropping systems:	Horticulture
	OS/ALU/	custard apple	Cropping systems.	Horaculture
	2013	based agri-horti	• Custard apple (APK-1)	Initial and final - Soil analysis
	2013	systems	• Custard apple (APK-1) +	for macro and micro nutrients
		Systems	Greengram (CO 6)	Organic carbon, pH, EC etc.
			• Custard apple (APK-1) +	organic careon, pri, de etc.
			Moth bean (TMV (mb) – 1)	
			• Custard apple (APK-1) +	Observations until fruiting
			Horsegram (local)	
			Horsegram (rocar)	• Establishment in the first
				year - mortality, water use
				by each plant,
				 Plant height
				Girth
				Other growth parameters
				specific to species
				Land quality
				From the fruiting year
				Fruit yield/tree
				Land quality
				Agriculture
				a. Sole Cropping Intercropping
				systems in between horticultural plants/trees
				Seed yield of
				sole/main/intercrops
				Stalk yield of
				sole/main/intercrops
				Days to maturity
				Crop Seasonal Rainfall (mm)
				No. of Dry spells and at what
				stage of crop, duration of each
				dry spell
				Grain/seed yield of
				sole/main/intercrops Equivalent yield of main crop
				in intercropping systems
				Economics
				RWUE
10	KOVI/N/	Evaluation of	Cropping systems:	Horticulture
	OS/ALU/	sapota based	• Sapota (PKM-1)	
	2013	agri-horti	• Sapota (PKM-1) +	Initial and final - Soil analysis
		systems	Coriander (Local)	for macro and micro nutrients
			• Sapota (PKM-1)	Organic carbon, pH, EC etc.
			+ Bengal gram (local)	Observations until femities
			• Sapota (PKM-1)	Observations until fruiting • Establishment in the first
			+ Bhendi (Arka	year - mortality, water use
			Anambika)	by each plant,
				Plant height
				• Girth
				Other growth parameters
				specific to species
				• Land quality

				Agrica. Solo system hortical sole/stalk sole/stalk sole/stalk sole/stage dry sale dry sale from the sole/stage dry sale from the sole from	Fruit yie Land que culture le Cropp ms in cultural yield o main/in to matic Season of Dry se of croppell m/seed y main/in valent y tercroppomics	ality ping Intercropping between plants/trees f tercrops f tercrops arity al Rainfall (mm) pells and at what b, duration of each
Sl.	Code	Interventions	Crops/Treatments	Area	No.	Observations/pa
No				(ha)	of Far-	rameters/ analysis to be
					mers	recorded
AA.	ON-FA			•		
		<u>adakkupatti; Dist</u> l time contingency	trict : Thoothukudi; Tamil Na	ıdu		
11	KOVI/	Demonstration	<u>Crops</u> <u>Varieties</u>			
	N/OF/	of drought	Cotton Jadoo BG II	2.4	1	Cotton
	RTC/	tolerant varieties	Jackpot BG II			Bolls/Plant, Boll
	2013	of rainfed crops	Chirutha BG II			weight, Days to
			Mallika BG II (LC)			50 % flowering Days to first
			(LC)		1	picking
						Days to last
						picking
						Seed cotton yield Lint yield,
						Ginning out turn
					1	(%) 2.5 % span
						length, fibre strength and
						Seed Index (100
						Seed Weight)
						Economics,
						Crop Seasonal Rainfall (mm)
						Kamian (IIIII)

12	KOVI/ N/OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrien ts/water sprays for mitigating in- season dry spells/droughts	Crops: Maize and Bt cotton Treatments: • KCl spray (1%) • Salicylic acid spray (100 ppm) • Thiourea spray (500 ppm) • Pink pigmented facultative methanotrophs (500 ml /ha) • ZnSo4 (0.5 %) + Boric acid (0.3%) + Ferrous sulphate (0.5%) + Urea (1%)	1.6	2	Maize Days to maturity Grain yield Stalck yield Harvest index 100/100 seed weight Economics Crop seasonal rainfall No. of dry spells and at what stage of crop, duration of each dry spell Cotton No. of sympodium branches No. of bolls/ plant Seed cotton yield
13	KOVI/ N/OF/ RTC/ 2013	Demonstration of cotton based intercropping systems	Crops Varieties Bt cotton Jadoo Clusterbean Pusa- Nowbhagar Coriander CO 1 Radish local Onion local Treatments: Bt cotton Bt cotton + Clusterbean Bt cotton + Coriander Bt cotton + Coriander Bt cotton + Coriander Bt cotton + Radish Bt cotton + Onion	1.5	5	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops Grain yield of Main crop Grain yield of intercrops Stalk yields of main crop Haulm yield of intercrops Crop equivalent Yield of Main crop in the Intercroping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell RWUE

Then	ne 2 : Rai	nwater Manage	ement (in-situ & ex	r-situ)			
14 15	KOVI/ N/OF/ RWM/ 2013 KOVI/ N/OF/ RWM/ 2013	Demonstrati on of in-situ moisture conservation practices on different crops Rain water harvesting and efficient utilization	Crops Maize Blackgram Greengram Excavation of farm ponds	Treatments Broad bed and furrow Ridge and furrow Broad bed and furrow Flat sowing Broad bed and furrow Flat sowing Two or three farm ponds will be dug based on the farmers. The size of the farm pond will be decided based on the farm holding size.	1.2	3	Crop Seasonal Rainfall (mm) No. of dry spells and at what stage of crop, duration of each dry spell, Grain/seed yield of crops RWUE Economics Water stored in the farm pond, Duration of availability of water in the pond, Efficacy of silt trap Quality of irrigation No. of irrigations and what stage of the crop, Type of irrigation (Sprinkler) and quantity of each irrigation Cost of each irrigation (including the cost
							of microirrigation systems, lifting from the pond using pumps, labour charges etc)
			nservation Agricul	ture	_		
16	KOVI/ N/OF/ SHCA/ 2013	To develop land / farmer wise soil health cards and site- specific nutrient recommendat ions	 GPS based soil sampling Macro and micronutrient s analysis Village Soil fertility map Site-specific nutrient management recommendat ions 				Initial soil analysis crop yields Root : shoot ratio plant analysis

7	KOVI/	To demonstrate	• Ever anima 4-1			
/	N/OF/	CA practices as	 Experimental details to be 			
	SHCA/	adaptation	finalized in			
	2013	adaptation	the CA			
			Platform			
Then	ne 4 : Alte	ernate Land Use S				
18	KOVI/	Demonstration	Cropping systems	0.18	1	Horticulture
	N/OF/	of aonla based	:			Initial & final - Soil
	ALU/	agri-horti	• Aonla			analysis for macro and
	2013	systems	• Aonla + Green			micro nutrients
			gram (Co 6)			Organic carbon, pH, EC etc.
			• Aonla + Cowpea			Observations until
			(C 152)			fruiting
			• Aonla +			Land quality
			Clusterbean			From the fruiting year
			(PNB)			• Fruit yield/tree
						• Economics,
						 Land quality
						Agriculture a. Sole Cropping
						Intercropping systems
						in between horticultural
						plants/trees
						 Seed yield of
						sole/main/intercrops
						• Stalk yield of
						sole/main/intercrops
						• Crop Seasonal Rainfall (mm)
						No. of Dry spells and
						at what stage of crop,
						duration of each dry
						spell
						Grain/seed yield of
						sole/main/intercrops
						• Equivalent yield of
						main crop in
						intercropping systems
						• RWUE • Economics
19	KOVI/	Demonstration	Cropping systems	0.4	4	Horticulture
17	N/OF/	of acid lime	:	0.7	⊣ T	Initial & final - Soil
	ALU/	based agri-				analysis for macro and
	2013	horti systems	Acid lime			micro nutrients
			(PKM-1)			Organic carbon, pH, EC
			• Acid lime + Bt			etc.
			cotton			01 (1 (1)
			• Acid lime +			Observations until
			Hybrid maize			fruiting • Land quality
			(NK30)			From the fruiting year
						110m me maning jem

			• Acid lime + Hybrid Bajra (86 M 86)			 Fruit yield/tree Economics, Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems
						RWUE Economics
20	KOVI/ N/OF/ ALU/ 2013	Demonstration of sapota based agri-horti systems	Cropping systems Sapota (PKM-1) Sapota (PKM-1) + Coriander (CO 1) Sapota (PKM-1) + Bengal gram (local) Sapota (PKM-1) + Bhendi (Arka Anambika)	0.2	1	Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Observations until fruiting • Land quality From the fruiting year • Fruit yield/tree • Economics, • Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees • Seed yield of sole/main/intercrops

	C. CUS	ГОМ HIRING C	FNTRF		Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics
21	KOVI/	Popularization	Implements:	Need based	For each implement
21	N/CH C/2013	of need based improved implements through custom hiring centre	 TNAU power weeder Wheel hoe Mini weeder Diesel pump set (1.5 HP) Ferti seed drill Rotavator 	implements will be hired by the farmers from the custom hiring centre	 For each implement Hours hired (as entered in the Register) Area covered (ha) Income generated (as entered in the register) Energy use efficiency BC ratio Farmers' feed back Drudgery reduction Total Income Generated through CHC Area Covered Landholding category wise Crop wise Total area in the village

8.3 PARBHANI

Sl.	Code	Interventions	Crops/Treatments	Observations/parameters/
No	TT A TIO	NT .		Analysis to be recorded
	STATIO			
		al time contingen		G #
01	PARB	Demonstration	Crops	Cotton
	/N/OS	of short	<u>Varieties</u>	Seed cotton yield, Lint yield, Seed Index
	/RTC/	duration	Cotton: (06) variety	(100 Seed Weight) Economics,
	2013	varieties of	Greengram :BM 2002-1	Crop Seasonal Rainfall (mm)
		kharif crops		No. of Dry spells and at what stage of
			Blackgram :TAU-1	crop, duration of each dry spell (mention
	SBC			days and month)
	AKG		Soybean: MAUS-71	RWUE
	MSP		MAUS-81	Soybean
				Seed Yield
			Pigeonpea: BDN-708	Stalk Yield
			BSMR-736	100 Seed Weight
			BDN-711	Crop Seasonal Rainfall (mm)
				No. of Dry spells and at what stage of
			Sorghum: PVK-809	crop, duration of each dry spell (mention
				days and month)
			Bajra : ABPC-4-3	RWUE
				Greengram/Blackgram
			Treatments:	Days to Maturity
			 Improved 	Seed yield
			packages of	Stalk yield
			practices	Harvest Index,
			 Farmers' practice 	100 Seed Weight
				economics
				Crop Seasonal Rainfall (mm)
				No. of Dry spells and at what stage of
				crop, duration of each dry spell (mention
				days and month)
				RWUE
				Sorghum
				Days to Maturity
				Grain yield,
	1			Straw yield,
	1			Harvest Index,
	1			1000 Grain Weight,
	1			Economics,
	1			Crop Seasonal Rainfall (mm)
				No. of Dry spells and at what stage of
	1			crop, duration of each dry spell (mention
	1			days and month)
				RWUE

2	PARB /N/OS /RTC/ 2013 SBC AKG MSP	Demonstration of improved varieties of rabi crops	Safflower: PBNS-PBNS- Sorghum: M-35-1 Treatments: Improved packages of practices Farmers' pra	,	No. of Dry crop, dura days and r RWUE	eld idex, Weight s, onal Rainfall (mm) y spells and at what stage of tion of each dry spell (mention
3	PARB /N/OS /RTC/ 2013 SBC AKG MSP	Demonstration of improved intercropping systems	Cropping systems: Soybean + Pigeonpea (4 Sorghum + Pigeonpea (4 Cotton + gre gram (1:1) [kharif]	1:2)	Intercrop Days to m Days to m Grain/See Stalk yield Grain yiel Grain yiel Stalk yield Stalk yield Equivalen Intercropp LER MAI (Mon Economic Crop Seas No. of Dry	ping system aturity for sole crops aturity for intercrops d yield of Sole crops l of Sole crops d of Main crop d of intercrops ls of main crop l of intercrops t Yield of Main crop in the ing system metary Advantage Index) s, onal Rainfall (mm) y spells and at what stage of tion of each dry spell (mention
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	of Far-	Observations/parameters/a nalysis to be recorded
	D. ON-1	FARM			mers	
			istrict : Parbhani, M	ahara	shtra	
		al time contingen				
4	PARB	Demonstration	Crops			Cotton
	/N/OF	of short	<u>Varieties</u>	0.4	01	Seed cotton yield, Lint yield,
	/RTC/	duration	Cotton:	0.4	01	Seed Index (100 Seed
	2013	varieties of	Mallika Bt	0.8	02	Weight)
		kharif crops	Greengram BM 2003-2	0.8	02	Economics, Crop Seasonal Rainfall (mm)
	SBC		BM 2003-2 BM-4	0.8	02	No. of Dry spells and at what
	AKG		DIVI-4	0.8	02	stage of crop, duration of
	MSP		Blackgram:	0.0	02	each dry spell (mention days
	10101		TAU-1	1.2	03	and month)
			BDU-1	1.2	03	RWUE
				1.2		

	1					
			Soybean: MAUS-71 MAUS-81 Pigeonpea: BDN-708 BSMR-736 BDN-711 Sorghum: PVK-809 Bajra: ABPC-4-3 Treatments: Improved packages of practices Farmers' practice	0.8 0.8 0.8 0.8	02 02 02 02 0.2	Soybean Seed Yield Stalk Yield 100 Seed Weight Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Greengram/Blackgram Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight economics Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Sorghum Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of
5	PARB /N/OF /RTC/ 2013 SBC AKG MSP	Demonstration of improved varieties of rabi crops	Safflower: PBNS-12 PBNS-40 Sorghum: M-35-1, Parbhani Moti Parbhani Jyoti Gram: BDN-79 Vijay Digvijay	0.8 0.8 0.8 0.8 0.8 0.8	02 02 02 02 02 02 02 02 02	Safflower Seed yield Haulm yield Harvest Index, 100 Seed Weight Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE Sorghum: as given earlier

						T
			Treatments: • Improved packages of practices • Farmers' practice			
6	PARB /N/OF /RTC/	Demonstration of improved intercropping	Cropping systems: • Soybean + Pigeonpea	0.8	02	Intercropping system Days to maturity for sole crops
	2013	systems	(4:2)	0.8	02	Days to maturity for
	SBC AKG		Sorghum + Pigeonpea (4:2)Cotton +	0.4	01	intercrops Grain/Seed yield of Sole crops Stalk yield of Sole crops
	MSP		green gram (1:1)	0.8	02	Grain yield of Main crop Grain yield of intercrops
Thor	no 2 : Po	investor Managar	[kharif] Sorghum + Safflower (6:2) Gram + Safflower (6:2) [rabi]	0.8	02	Stalk yields of main crop Stalk yield of intercrops Equivalent Yield of Main crop in the Intercropping system LER MAI (Monetary Advantage Index) Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE
			nent (in-situ & ex-sit	u)	1	T
7	PARB /N/OF /RW M/	In-situ moisture conservation and mid season correction to	Crop: Soybean, Cotton Intercrops	0.8 0.8	02 02	Intercropping systems: as given earlier Sole crops: as given earlier
	2013	overcome dry spells	Soybean+ Pigeonpea (4:2)	0.8	02	
	SBC AKG MSP	эрспэ	Cotton +Pigeonpea (4:2) Treatments: Improved practice - conservation furrow Local practice	0.8	02	

0	DADD	D	0	0.4	01	
8	PARB	Rainwater	Crop: Cotton,	0.4	01	
	/N/OF	harvesting and	0 1			oil moisture content, Soil
	/RW	efficient	Supplementary			loss, Water use efficiency,
	M/	utilization	irrigation :			In-situ & ex-situ moisture
	2013		• Drip			and infiltration
			irrigation			Crop seasonal rainfall,
			 Surface 			Minimum & Maximum
	MSP		irrigation			Temperature, Evaporation,
	SBC					AET, PET and water
	AKG					balance
						Run off
						Water budgeting studies
						No.of run off events
						Water stored in the farm
						pond \
						Duration of availability of
						water in the pond
						Efficacy of silt trap
						Quality of irrigation
						No. of irrigations and what
						stage of the crop,
						Kind (flood, drip, sprinkler
						etc.) and Quantity of each
						irrigation
						Cost of each irrigation
						(including the cost of
						microirrigation
						systems, lifting from the
						pond using pumps, labour
(D)	2.0.1		4. 4 . 14			charges etc)
9			ervation Agriculture		-	As man tamenlate analoggi
9	PARB /N/OF	To develop land parcelwise	• GPS based	5	5	As per template enclosed Initial soil analysis crop
	/SHC		soil sampling			
	A/201	(farmerwise) Soil Health	Macro and			yields,
	A/201	Cards	micronutrient			Root: shoot ratio plant
	3	and Site-	s analysis			analysis
			Village Soil			
		specific nutrient recommendation	fertility map			
			Site-specific			
		S	nutrient			
			management			
			recommendat			
			ions			
1		1	l	ĺ	1	

The	Theme 4: Energy Management							
10	PARB /N/OF /EM/2 013	Demonstration of suitable manual tools, bullock and tractor drawn implements for various agricultural operations	Bullock drawn implements: Seed drill Seed cum fertilizer drill Ridger Power sprayers Tractor drawn implements: Seed drill Rotavator	0.4	1	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,		

Theme 5: Alternate Land Use System: Nil

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Farm pond in NICRA village, Varanasi



Pearlmillet (GHB 558) in NICRA village, SK Nagar



Wheat + raya intercropping in NICRA village, Ballowal Saunkhri



Setaria (Srilaxmi) in NICRA village, Anantapur



Farm implements in the Custom Hiring Centre,
Bangalore



Farmers training program, Kovilpatti









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