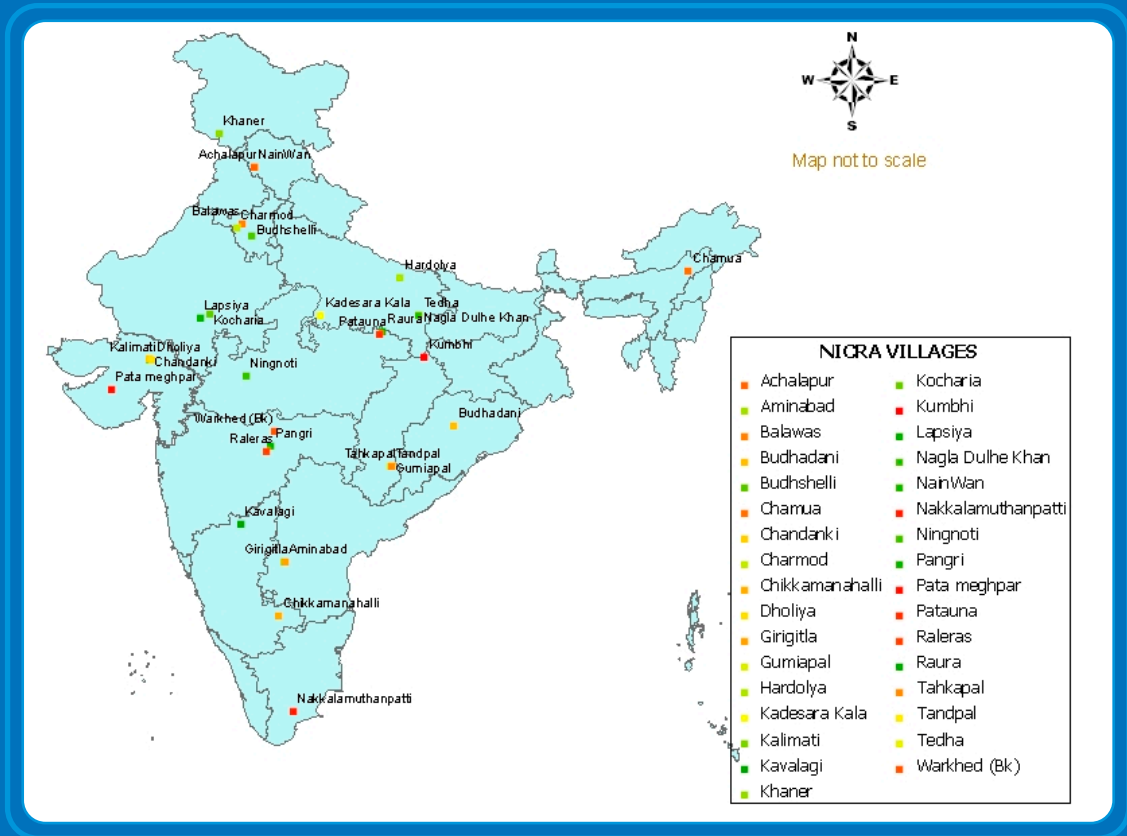


NICRA - AICRPDA

Technical Program 2013-14

NICRA - AICRPDA



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

**Technical Program of NICRA-AICRPDA
2013-14**

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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 stakeholders.

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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CONTENTS

S.No.	Production System / Centre	Page Nos
Preface		
Introduction		1
1.0	Rice Based Production System	
1.1	Biswanath Chariali	9
1.2	Chianki	16
1.3	Faizabad	27
1.4	Jagadapur	34
1.5	Phulbani	42
1.6	Varanasi	50
2.0	Maize Based Production System	
2.1	Arjia	57
2.2	Ballowal Saunkhri	66
2.3	Rakh Dhiansar	76
3.0	Fingermillet Based Production System	
3.1	Bengaluru	85
4.0	Pearlmillet Based Production system	
4.1	Agra	90
4.2	Hisar	98
4.3	S.K.Nagar	104
5.0	Sorghum Based Production System	
5.1	Bijapur	113
5.2	Solapur	125
5.3	Jhansi	131
6.0	Soybean Based Production System	
6.1	Indore	140
6.2	Rewa	148
7.0	Groundnut Based Production System	
7.1	Anantapur	157
7.2	Rajkot	161
8.0	Cotton Based Production System	
8.1	Akola	167
8.2	Kovilpatti	172
8.3	Parbhani	184
9.0	Project Team	190

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
Jagdalpur (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 Maharashtra 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 implementation 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 stakeholders, period and budget for each intervention. The AICRPDA Network centres have been included in the National Initiative 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).

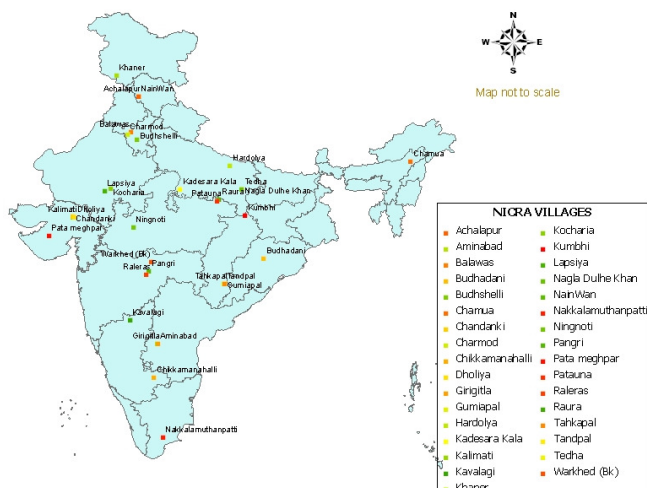


Table-2: Details of villages under NICRA program

Name of the center	Name of the Villages	Districts	State
Anantapur	Aminabad, Girigetla	Kurnool	Andhra Pradesh
Biswanath Chariali	Chamua	Lakhlmpur	Assam
Jagdapur	Tahakapal, Gumiapal, Pahkapal	Bastar	Chittishgarh
Rajkot	Pata meghpar	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, Lapsiya, Tara ka kheda	Bhilwara Rajsamand	Rajasthan
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
Jagadapur	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
Ballawal 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	-	-	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
Pharbandi	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
SHCA: Soil health and conservation 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	RTC		RWM		SHCA		EM		ALU		Total No. of farmers	Total Area (ha)
	No. of farmers	Area (ha)	No. of farmers	Area (ha)	No. of farmers	Area (ha)	No. of farmers	Area (ha)	No. of farmers	Area (ha)		
Biswanath Chariali	182	85.0	70	11.0	-	-	-	-	3	-	255	96.0
Chianki	433	4.5	60	0.8	100	-	-	-	-	-	593	5.3
Faizabad	103	6.3	12	1.0	-	-	-	-	-	-	115	7.3
Jagdapur	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
Balallowal Saunkhri	30	8.0	15	3.0	-	-	17	4.4	4	2.0	66	17.4
Rakh Dhiansar	134	7.1	8	-	-	-	5	1.0	10	0.5	157	8.6
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
SHCA: 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	-
Jagadapur	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 productionsystem-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/ Analysis to be recorded
A. ON-STATION				
Theme 1 : Real time contingency planning				
1	BISW/ N/OS/ RTC/ 2013	Dryland Technology Park	Demonstrations of 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: <u>Rapeseed</u> 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
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)				
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.

Theme 3: Soil health and Conservation Agriculture			
5	BISW/ N/OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>
6.	BISW/ N/OS/ SHCA/ 2013	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded
B. ON-FARM						
Village : Chamua, Ganakdaloni, District : Lakhimpur, Assam						
Theme 1 : Real time contingency planning						
7	BISW/ N/OF/ RTC/ 2013	Demonstration of varieties of improved toria under upland situation	Varieties : TS -36 and TS -38	15.0	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 : <ul style="list-style-type: none"> Satya ranjan Basundhara Mulaghabharu Dihangi 	50.0	20	No. of tillers/Plant (or m ²), 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/nutrients/water sprays for mitigating in-season dry spells/droughts	Crop1: <u>Rice</u> <u>Application of MOP @ 22.5 kg/ha (one time at tillering or PI stage –in case of occurrence of dry spell)</u> Crop 2: Rapeseed Foliar spray of 2% KCl solution twice first at flowering and siliqua formation stage	1 hac 0.5 hac	6 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 : <ul style="list-style-type: none"> • Banglami • Latguni • Luit • Kapillee SALI varieties : <ul style="list-style-type: none"> • Jalashree • Jalkunwari • Swanrasub/ Varieries having staggering ability : <ul style="list-style-type: none"> • Gitesh • Prafulla 	4.0	20	Rice: as given earlier
11	BISW/ N/OF/ RTC/ 2013	Demonstration of suitable intercropping systems	Cropping systems : <ul style="list-style-type: none"> • 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 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	BISW/ N/OF/ RTC/ 2013	Demonstration and promotion of cultivation of potato in the upland situation and after harvesting paddy	Varieties <ul style="list-style-type: none"> • 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)
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
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 <i>rabi</i> crops	-	60	

Theme 3: Soil health and Conservation Agriculture						
17	BISW/ N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrients analysis • Village Soil fertility map • Site-specific nutrient management recommendations 			
18	BISW/ N/OF/ SHCA/ 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			Initial soil analysis crop yields, Root : shoot ratio plant analysis
Theme 4 : Energy Management						
19	BISW/ N/OF/ EM/ 2013	Demonstration and promotion of need based manual tools, bullock and tractor drawn implements for various agricultural operations	<ul style="list-style-type: none"> • Water lifting pump 	-	-	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
Theme 5 : Alternate Land Use Systems						
20	BISW/ N/OF/ ALU/ 2013	Production of improved organic manure	Low cost vermicompost production	-	10	Quantity produced Crop residue -type and quantity used Economics VC- used and for which crops Farmers' feedback
21	BISW/ N/OF/ ALU/ 2013	Promotion of integrated farming system	<ul style="list-style-type: none"> • Fish culture • Pig culture • Horticulture/ agriculture farming system 	-	03	Component wise observations

C. CUSTOM HIRING CENTRE						
22	BISW/ N/OF/ CHC/ 2013	Popularization of need based improved implements	Implements : <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Hours hired (as entered in the Register) • Area covered (ha) • Income generated (as entered in the register) • Energy use efficiency • BC ratio
			<ul style="list-style-type: none"> • Paddy transplanter • Power tiller • Rotary tiller 5HP • Hand wheel hoe cum seeder • Seed cum fertilizer drill • Manual fertilizer broadcaster 			<ul style="list-style-type: none"> • Farmers' feed back • Drudgery reduction Total Income Generated through CHC Area Covered - <ul style="list-style-type: none"> • Landholding category wise • Crop wise Total area in the village

1.2 CHIANKI

Sl. No.	Code	Title	Crop/Treatments	Observations/ parameters/ Analysis to be recorded
A. ON-STATION				
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 Birs 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 m ² Spacing: 20cm (row to row) Fertilizer dose: 40:30:20 NPK (Kg/ha) Seed rate : 80 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, 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 m ² 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, 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

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 m ² 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 m ² 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, grain 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 m ² 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 m ² 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 Birsra Kulthi-1 GHG-19, GHG-13, Madhu, AK-21 (C) Design : R.B.D. Replications : 5 Plot size : 20 m ² 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 m ² 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,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

9.	CHIA/N/OS/ RTC/2013 AS MSY	Study of pigeon pea based inter cropping system	<p>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)</p>	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	<p>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 m² Spacing : 30 x 10 cm Fertilizer dose: 20:40:20 NPK (Kg/ha)</p>	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	<p>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)</p>	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	Fertilizer 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 (F ₂) 3.F ₁ + 2% Urea Solution at branching stage and pod initiation stage. (F ₃) 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/ ALU/2013 AMA AK AS MSY	Dev. of Alternate land use system	Treatment details: 1. Paddy 2. Paddy + Pigeon pea 3. Maize 4. Maize + Pigeon pea 5. Sorghum 6. Sorghum + Pigeon spea 7. Pigeon pea * Control plot for each crop/crop combination to be laid out separately to compare the treatments i.e. Guava (5 m x 5m), Paddy (20 cm), Maize (60 cm x 20 cm), Pigeon pea (60 cm x 20 cm), Sorghum (50 cm x 15 cm), Paddy +Pigeon pea	Horticulture Initial and final-Soil analysis for macro and micro nutrient 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

			<p>Maize+ Pigeon pea and Sorghum+ Pigeon pea</p> <p>Experimental design: Randomized Block Design (RBD)</p> <p>Number of treatments: 07</p> <p>Number of replication: 03</p> <p>Plot size: 17.5 m x 7.5 m</p> <p>Spacing : Recommended spacing for each crop</p> <p>Fertilizers : Recommended dose of NPK and FYM for each crop</p> <p>Sowing time: Onset of monsoon (June/July)</p> <p>Varieties: Guava – Allahabad Safeda Paddy – Vadana Pigeon pea – Birsa Arhar-1 Maize – Suwan Sorghum – CSV-20</p>	<p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Land quality Agriculture <ul style="list-style-type: none"> a. 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-FARM: Village: Kumbhi and Bankheta District: Garhwa, Jharkhand						
Theme 1: Real time contingency planning						
Sl. No	Code	Interventions	Crop/Treatments	Area (acre)	No. of Farmers	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: <ul style="list-style-type: none"> • 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 <i>in situ</i> 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.
Theme 2: Rainwater harvesting (in situ and ex-situ) and efficient use						
28.	CHIA/N/OF/ RWM/ 2013 A.Sah MSY	Demonstration of <i>in-situ</i> moisture conservation		0.20	20	<ul style="list-style-type: none"> • 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)
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1.3 FAIZABAD

S.N.	Code & Investigators	Title/ Objectives	Crop/ Treatments	Observations/ parameters/ Analysis to be recorded
A. ON- STATION				
Theme 1 : Real time contingency planning				
1.	FAIZ/ N/ OS/ 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	Demonstration 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 m ²), 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	Demonstration of crops which provide resilience to climate variability	<u>Kharif</u> Rice Maize Blackgram Fodder <u>Rabi</u> Chickpea Lentil Mustard Barley	

5	FAIZ/ N/OS/ RTC/ 2013 OPR NK AKS	Demonstration of foliar sprays with need based chemicals/ nutrients/ water sprays for mitigating in-season dry spells/ droughts	Crop: Rice The treatments have to be imposed with relevant chemicals/ nutrients/ water spray during dry spells Foliar spray treatments for <i>in-season dry spells (Real-Time)</i> Treatments : • Urea spray • KNO ₃ spray (One) • KNO ₃ spray (Twice) • ZnSO ₄ spray	No. of tillers/ Plant (or m ²) 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/OS/ RTC/ 2013 OPR AKS	Demonstration of double and inter-cropping systems	T ₁ - Blackgram + Sesame (1:1)- Fallow T ₂ - Sorghum (Fodder)- Chickpea T ₃ - Sorghum + Blackgram (Fodder) (Mixed)- Toria T ₄ - Pigeonpea + Maize T ₅ - Maize + Blackgram (1:1) - Lentil + Linseed (4:2)	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 No. of Dry spells and at what stage of crop, duration of each dry spell RWUE
7	FAIZ/ N/OS/ RTC/ 2013 NK OPR HCS	Adaptation of brown manuring	T ₁ - RDF (60:40:30 kg NPK/ha) T ₂ - 75% RDF + Brown manuring T ₃ - 50% RDF + Brown manuring T ₄ - Farmers practice (100 kg N/ha)	Initial soil analysis Crop specific observations Brown manure composition analysis Crop Nutrient uptake Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell RWUE Economics with and without brown manuring

Theme 2 : Rainwater Harvesting (<i>in situ</i> and <i>ex situ</i>) and Efficient Use				
8	FAIZ/ N/OS/ RWM/ 2013 HCS OPR NK	<i>In situ</i> moisture conservation and mid corrections to overcome short dry spells.	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
Theme 4 : Efficient Energy Use and Management				
9	FAIZ/ N/OS/ EM/ 2013 HCS OPR NK	Popularizing of suitable tractor drawn implements for various operations.	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

B. On Farm						
Village : Hardoiya, District : Faizabad, Uttar Pradesh						
Sl. No	Code	Interventions	Crops/ Treatments	Area (ha)	No of Farmers	Observations/ parameters/ analysis to be recorded
Theme 1 : Real time contingency planning						
1	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of drought tolerant short duration pigeonpea varieties	Pigeonpea varieties : • 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 varieties : • NDR-97 • Baranideep • Suskasamrat • Vandna	0.25 0.25 0.25 0.25	4 4 4 4	No. of tillers/ Plant (or m ²) 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 varieties : • 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	<table border="0"> <tr> <td><i>Kharif</i></td> <td><i>Rabi</i></td> <td></td> </tr> <tr> <td>Rice</td> <td>Chickpea</td> <td>0.25</td> </tr> <tr> <td>Maize</td> <td>Lentil</td> <td>0.25</td> </tr> <tr> <td>Blackgram</td> <td>Mustard</td> <td>0.25</td> </tr> <tr> <td>Fodder</td> <td>Barley</td> <td>0.25</td> </tr> </table>	<i>Kharif</i>	<i>Rabi</i>		Rice	Chickpea	0.25	Maize	Lentil	0.25	Blackgram	Mustard	0.25	Fodder	Barley	0.25		4 4 4 4	
<i>Kharif</i>	<i>Rabi</i>																				
Rice	Chickpea	0.25																			
Maize	Lentil	0.25																			
Blackgram	Mustard	0.25																			
Fodder	Barley	0.25																			
5	FAIZ/ N/OF/ RTC/ 2013 OPR AKS	Demonstration of foliar sprays with need based chemicals/ nutrients/ water sprays for mitigating in-season dry spells/ droughts	<ul style="list-style-type: none"> • Crop: Rice The treatments have to be imposed with relevant chemicals/ nutrients/ water spray during dry spells Foliar spray treatments for <i>in-season</i> dry spells (<i>Real-Time</i>) Treatments : • Urea spray • KNO₃ spray (One) • KNO₃ spray (Twice) • ZnSO₄ spray 	0.25 0.25 0.25 0.25	3 3 3 3	No. of tillers/ Plant (or m ²) 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	<ul style="list-style-type: none"> 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 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 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 • Farmers' practice- 100 kg N/ha	0.25 0.25 0.25 0.25	3 3 3 3	Initial soil analysis Crop specific observations Brown manure composition analysis Crop Nutrient uptake Crop Seasonal Rainfall No. of Dry spells and at what stage of crop, duration of each dry spell RWUE Economics with and without brown manuring
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
8	FAIZ/ N/OF/ RWM/ 2013 HCS OPR	<i>In-situ</i> 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 0.25	3 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

Theme 3 : Energy Management						
10	FAIZ/ N/OF/ EM/ 2013 HCS OPR	Demonstration of tractor drawn implements for various agricultural operations	Crops : Rice, lentil and chickpea Treatments : <ul style="list-style-type: none"> • 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-STATION				
Theme 1 : Real time contingency planning				
1.	JAGD/ N/OS/ RTC/ 2013 GKS DST AKT	Foliar application with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	Crop : <u>Rice</u> Foliar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u>	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 : <ul style="list-style-type: none"> • Sorghum • Clusterbean • Sesame • Pigeonpea • Okra • Soybean • Sorghum+ Clusterbean (1:1) • Sorghum+ Sesame (1:1) • Sorghum+ Pigeonpea (1:1) • Sorghum+ Okra (1:1) • Sorghum + Soybean (1:1) • Sorghum+ Clusterbean (1:2) • Sorghum + Sasame (1:2) • Sorghum+ Pigeonpea (1:2) • Sorghum+ Okra (1:2) • Sorghum + Soybean (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	Crops/intercropping systems : Maize Cowpea Clusterbean Pigeonpea Blackgram Greengram Maize+ Cowpea (1: 1) Maize+ Clusterbean (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 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
Theme 2: Soil health and Conservation Agriculture				
4	JAGD/ N/OS/S HCA/ 2013 GKS DST AKT	To maintain soil health with appropriate soil and crop management strategies	<u>Linked with PMTs</u>	
5	JAGD/ N/OS/S HCA/ 2013 GKS DST AKT	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 	

Sl. No	Code	Intervention	Crops / Treatments	Area (ha)	No of Farmers	Observations/ parameters/analysis to be recorded
A. ON-FARM						
Villages :Tahakapal, Tandpal, Gumiapal/Tokapal; District: Bastar; Chattisgarh						
Theme 1 : Real time contingency planning						
6	JAGD/ N/OF/ RTC/2 013 GKS DST AKT	Demonstration of hybrid maize under rainfed upland conditions	Treatment : <ul style="list-style-type: none"> Improved practices - full packages of practices Farmers' practice 	10	25	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

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 : <ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> Improved practices - full packages of practices Farmers' practice 	10	25	No. of tillers/Plant (or m ²), 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/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> Crop: <u>rice</u> <p>Foilar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u></p>			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)

Theme 2 : Rainwater Management (<i>in situ</i> and <i>ex situ</i>)						
10	JAGD/ N/OF/ RWM/ 2013 GKS DST AKT	Moisture conservation in farm ponds and efficient utilization	Supplemental irrigation to <i>rabi</i> season vegetables Vegetables : <ul style="list-style-type: none"> • 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 <i>rabi</i> season crops Treatments : <ul style="list-style-type: none"> • 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 : <ul style="list-style-type: none"> • Cauliflower • Tomato • Chilli Percolation tank/recharge pit Open well RCC well	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
Theme 3: Soil Health and Conservation Agriculture						
13	JAGD/ N/OF/S HCA/ 2013 GKS DST AKT	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendatio ns	<ul style="list-style-type: none"> • 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	JAGD/ N/OF/S HCA/ 2013 GKS DST AKT	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			
Theme 4 : Energy Management						
15	JAGD/ N/OF/ EM/20 13 DST GKS AKT	Demonstration of improved weeders for lowland rice	Implements : <ul style="list-style-type: none"> • Ambika paddy weeder • Cono weeder • Manual 	1	3	Energy Input and 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 : <ul style="list-style-type: none">• Dryland weeder• Cycle wheel hoe• Hand hoe• Manual			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 drawn sowing implements for finger millet	Implements : <ul style="list-style-type: none">• Borhamdev• Indira seed drill• Mahakal dufan• Broadcasting (FP)	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 : <ul style="list-style-type: none">• 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 transplanter in rice	Implements : <ul style="list-style-type: none">• Transplanting by paddy transplanter• 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 : <ul style="list-style-type: none">• 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

Theme 5 : Alternate Land Use System						
21	JAGD/ N/OF/ ALU/2 013 AKT GKS DST	Development of new and strengthening existing integrated farming system models	Village : Tandpal Fruit crops : <ul style="list-style-type: none"> • Mango • Cashew • Amla • Guava 	5.0 ha	05	<p>Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Till fruiting</p> <ul style="list-style-type: none"> • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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)
						<ul style="list-style-type: none"> • Grain/seed yield of sole/main/intercrops • Equivalent yield of main crop in intercropping systems • RWUE • Economics,

C. CUSTOM HIRING CENTRE						
22	JAGD/ N/OF/ CHC/2 013 DST GKS AKT	Establishment of custom hiring centre	Implements: <ul style="list-style-type: none"> • Mahakal seed drill • Bhramdev seed drill • Automatic seed drill • Paddy transplantor • Reaper 			<p>For each implement</p> <ul style="list-style-type: none"> • 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 <p>Total Income Generated through CHC</p> <p>Area Covered -</p> <ul style="list-style-type: none"> • Landholding category wise • Crop wise <p>Total area in the village</p>

1.5 PHULBANI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/analysis to be recorded
D. ON-STATION				
Theme 1 : Real time contingency planning				
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 m ²), 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/nutrients/water sprays for mitigating in-season dry spells/droughts	Crop: <u>Rice</u> Foliar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice), ZnSO₄ spray</u>	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)
Theme 2 : Rainwater Management (in-situ & ex-situ)				
3	PHUL/N/O S/RWM/20 13	Rainwater harvesting and efficient utilization	Life saving irrigation to <i>kharif</i> crops and judicious application to <i>rabicrops</i>	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, lifting from the pond using pumps, labour charges etc)

Theme 3: Soil Health and Conservation Agriculture				
4	PHUL/N/O S/SHCA/2 013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>	
5	PHUL/N/O S/SHCA/2 013	Development of CA Strategies	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 	
Theme 4 : Alternate Land Use System				
6	PHUL/N/O S/EM/2013	Development of suitable agri-horti systems.	--	<p>Horticulture Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting</p> <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Equivalent yield of main crop in intercropping systems • RWUE • economics

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/ analysis to be recorded
E. ON-FARM						
Village : Budhadani, Tehsil/Block : Phulbani, District: Kandhamal, Odisha						
Theme 1 : Real time contingency planning						
7	PHUL/N/OF/RTC/2013	Demonstration of drought tolerant short duration varieties of rice and wheat	<i>Kharif</i> crop : Rice • Vandana (direct sown) • Sahabhagi (direct sown and trans-planted) <i>Rabi</i> 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/2013	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/drought	Crop: <u>Rice</u> Foilar spray treatments for <i>In-season</i> dry spells (<i>Real-Time</i>) <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u>			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/2013	Demonstration of tuber crops	<u>Crops/Varieties</u> Yam bean Rajendra Mishri 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 : <ul style="list-style-type: none"> • 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 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/2013	Contingent crop planning under aberrant weather conditions	For early season drought : 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/blackgram/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

						<p>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</p> <p>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</p>
Theme 2 : Rainwater Management (in-situ & ex-situ)						
12	PHUL/N/OF/RWM/2013	<i>In-situ</i> moisture conservation and efficient utilization	Treatments : <ul style="list-style-type: none"> • 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/ 2013	Rainwater harvesting and efficient utilization	Treatments : <ul style="list-style-type: none"> • Constructio n of check dam, lining and also irrigation channel • Lining of farm pond for restricting seepage and percolation losses • Judicious utilization of harvested water through improved methods of irrigation 	2 check dams & 2 farm ponds	-	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)
Theme 3: Soil Health and Conservation Agriculture						
14	PHUL/N/ OF/SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendati ons	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrie nts analysis • Village Soil fertility map • Site-specific nutrient management recommenda tions 			As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis

15	PHUL/N/OF/SHCA/2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			
Theme 4 : Energy Management						
16	PHUL/N/OF/EM/2013	Custom hiring centre	<ul style="list-style-type: none"> • Establishment of custom hiring centre for efficient use of energy in agriculture 			<p>For each implement</p> <ul style="list-style-type: none"> • 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 <p>Total Income Generated through CHC</p> <p>Area Covered -</p> <ul style="list-style-type: none"> • Landholding categorywise • Cropwise <p>Total area in the village</p>
Theme 5: Alternate Land Use System						
17	PHUL/N/OF/ALU/2013	Identification of suitable IFS model	<ul style="list-style-type: none"> • Construction of NADEP and vermin compost pits • Nutritional garden • Mushroom cultivation • Backward poultry unit and bee-keepng 	--	--	

F. CUSTOM HIRING CENTRE						
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 winnowers • Rice cutter	15 11 15 13 13 13 11		For each implement <ul style="list-style-type: none"> • 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 - <ul style="list-style-type: none"> • 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 : TerhaSaraya, District : Mirzapur, Uttar Pradesh						
Theme 1 : Real time contingency planning						
1	VAR A/N/ OF/ RTC/ 2013	Demonstration of improved varieties of rice and maize	Rice varieties : <ul style="list-style-type: none"> • NDR-97 • NDR-105 • HUR-3022 • ShushkSamrat Maize varieties : <ul style="list-style-type: none"> • Shweta • Local 	1.00	04	Rice No. of tillers/Plant (or m ²), 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 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	Demonstration of improved varieties of sesame and pigeonpea	Sesame varieties : <ul style="list-style-type: none"> • GT-1, Shekhar • Local Pigeonpea varieties : <ul style="list-style-type: none"> • Bahar • NDA-1 • MalviyaChamatkar 	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	Demonstration of improved varieties of chickpea	Varieties : <ul style="list-style-type: none"> • Abrodhi + Improved technique • Abrodhi + Local technique • Local + Improved 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	Demonstration of improved varieties of pea, lentil, mustard, linseed	Pea varieties : <ul style="list-style-type: none"> • M-15 • Local Lentil varieties : <ul style="list-style-type: none"> • HUL-57 • PL-406 • K-75 Mustard varieties : <ul style="list-style-type: none"> • Varuna (T-59) • Local Linseed varieties : <ul style="list-style-type: none"> • Garima • Local 	1.25	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

5	VARA/ N/OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> • Crop: <u>Rice</u> Foliar spray treatments for <i>in-season dry spells (Real-Time)</i> <u>Treatments :</u> <ul style="list-style-type: none"> • 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	Demonstration of double cropping systems	Double cropping systems : <ul style="list-style-type: none"> • 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	Demonstration of component crops under intercropping system	Intercropping systems <ul style="list-style-type: none"> • Chickpea • Mustard • Linseed • Chickpea + Mustard (6:2) • Chickpea + Linseed (2:1) 	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
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
9	VARA/ N/OF/ RWM/ 2013	Efficient utilization of harvested water in farm ponds	Pond types : <ul style="list-style-type: none"> • Excavated and unlined • Unlined 	4.00 2.50		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 microirrigations systems, liftin g from the pond using pumps, labour charges etc)
10	VARA/ N/OF/ RWM/ 2013	<i>In-situ</i> moisture conservation in maize	Ridge furrow planting system in maize	4	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 Equivalent yield of main crop in intercropping systems RWUE Economics

11	VARA/ N/OF/ RWM/ 2013	Demonstration of ridge and furrow planting of rice + pigeonpea intercropping system	Ridge furrow planting system in rice + pigeonpea (1:1)	21	25	As above
12	VARA/ N/OF/ RWM/ 2013	<i>In-situ</i> moisture conservation in pearl millet	Ridge planting system : <ul style="list-style-type: none"> Pearl millet (MBH-163) 	7.00	11	As above
Theme 3: Soil Health and Conservation Agriculture						
13	VARA/ N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> GPS based soil sampling Macro and micronutrients analysis Village Soil fertility map Site-specific nutrient management recommendations 			
14	VARA/ N/OF/S HCA/ 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 			
Theme 4 : Energy Management						
15	VARA/ N/OF/ EM/ 2013	Energy efficiency with package of practices in <i>kharif</i> and <i>rabi</i> crops	<u>Kharif crops Varieties</u> Rice NDR-97, NDR-105, HUR-3022, Shushk Samrat Maize Shweta, Local Sesame GT-1, Local Pigeonpea Bahar, NDA-1, Chamatkar <u>Rabi crops Var.</u> Chickpea Abrodhi, Local Pea M-15, Local Lentil HUL-57, PL-406 K-75	13	18	All crops: as given earlier Intercropping systems: as given earlier

			Mustard Varuna (T-59), Local Linseed Garima, Local Intercropping systems : <ul style="list-style-type: none"> • Chickpea + Linseed • Chickpea + Mustard 			
Theme 5 : Alternate Land Use System						
16	VARA/ N/OF/ ALU/ 2013	Demonstratio n of Custard apple and Guava based agri-horti systems	<u>Fruit crop</u> <ul style="list-style-type: none"> • Guava • Custard apple <u>Annul crop</u> <ul style="list-style-type: none"> • Greengram, • Blackgram, • Sesame • Niger 	1.00	-	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting <ul style="list-style-type: none"> • Land quality From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees <ul style="list-style-type: none"> • 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,

B. ON-STATION (Main Campus & RGSC, Barkachha)						
Theme 1: Real time contingency planning						
1.	VARA/N/OS/RTC/2013	Screening of early maturing rice varieties for drought situation	Var. Vandana, sahbhagi, Anjali, Danteshwari	0.5 ha		Yield and yield attributes, RWUE and energy use efficiency
2.	VARA/N/OS/RTC/2013	Evaluation of improved variety of sesame under ridge furrow planting system	Var. Sesame – GT-1	0.5 ha		Yield and yield attributes, RWUE and energy use efficiency
3.	VARA/N/OS/RTC/2013	Varietal compatibility in rice + okra intercropping system in vindhyan region	Var. Rice – HUR - 105, NDR-97, HUR-3022 Okra – Arkaanamika	0.5 ha		Yield and yield attributes, RWUE and energy use efficiency
Theme 2: Rainwater Management (in-situ & ex-situ)						
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 – Pragaticomposit	0.5 ha		Yield and yield attributes, RWUE and energy use efficiency
6.	VARA/N/OS/RWM/2013	Resource conservation in pearl millet under raised bed planting system	Variety : Pearlmillet– MBH 163	0.5 ha		Yield and yield attributes, RWUE and energy use efficiency
B. CUSTOM HIRING CENTRE						
17	VARA/N/OF/CHC/2013	Popularization of need based improved implements	Implements : • 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. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
A. ON-STATION				
Theme 1 : Real time contingency planning				
1	ARJI/ N/OS/ RTC/ 2013	Evaluation of improved variety of <i>kharif</i> crops	Crops/variety: Maize : PM-3 Local Blackgram Groundnut	<p>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</p> <p>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</p> <p>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</p>

			<p>Sesame</p> <p>Sorghum</p> <p>Cluster bean Greengram</p>	<p>Sesame No.of Capsules/Plant Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE</p> <p>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</p> <p>Clusterbean/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</p>
2	ARJI/ N/OS/ RTC/ 2013	Evaluation of suitable crops and cropping system under real time rainfall situations (late sown condition)	<ul style="list-style-type: none"> • Maize • Blackgram • Groundnut • Sesame • Sorghum • Cluster bean • Green-gram 	Maize,Blackgram and Groundnut , Sesame, Sorghum, clusterbean/greengram: as given earlier

3	ARJI/ N/OS/ RTC/ 2013	Evaluation of crop management practices for midseason drought in maize	Treatments : <ul style="list-style-type: none"> • 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%) 	Maize: as given earlier
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)				
4	ARJI/ N/OS/ RWM/ 2013	Rainwater harvesting and efficient utilization	<p><i>Kharif</i> crops and vegetables :</p> <p>Maize</p> <ul style="list-style-type: none"> • Irrigation (5 cm) • No irrigation <p>Vegetables :</p> <ul style="list-style-type: none"> • Sponge gourd • Bottle gourd • Ridge gourd • Kachari • Veg cowpea <p><i>Rabi</i> vegetables :</p> <ul style="list-style-type: none"> • Pea • Coriander • Brinjal <p>Irrigation methods :</p> <ul style="list-style-type: none"> • Drip irrigation between two rows) -50% pan evaporation • Conventional – 5.0 cm 	<p>Water stored in the farm pond \</p> <p>Duration of availability of water in the pond</p> <p>Efficacy o silt trap</p> <p>Quality of irrigation</p> <p>TAKE ROM SOLAPUR</p> <p>No. of irrigations and what stage of the crop,</p> <p>Kind (lood,drip,sprinkler ect.) and</p> <p>Quantity of each irrigation</p> <p>Cost of each irrigation (including the cost o microirrigation systems,liting from the pond using pumps, labour charges etc)</p> <p>Maize: as given earlier</p> <p>Vegetables:</p> <p>Fruit yield</p> <p>Economics</p> <p>Pea</p> <p>Days to 50 % flowering</p> <p>Pods/Plant</p> <p>Seed Yield</p> <p>Stalk Yield</p> <p>100 Seed Weight</p> <p>Economics,</p> <p>Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p>
Theme 3: Soil Health and Conservation Agriculture				
5	ARJI/N/ OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>	
6	ARJI/N/ OS/SH CA/ 2013	Development of CA Strategies	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 	

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded												
B. ON-FARM																		
Villages : Kocharia, Mandpiya, Sola ka kheda District Bhilwara, Lapsiya, Tara ka kheda, District Rajasamand; Rajasthan																		
Theme 1 : Real time contingency planning																		
7	ARJI/N/OF/RTC/2013	Demonstration of improved varieties of <i>kharif</i> crops	<table border="0"> <tr> <td><u>Crops</u></td> <td><u>Varieties</u></td> </tr> <tr> <td>Maize</td> <td>PM-3,</td> </tr> <tr> <td>Local</td> <td></td> </tr> <tr> <td>Sorghum</td> <td>Pratap-1430,</td> </tr> <tr> <td>CSV-17</td> <td>Local</td> </tr> <tr> <td>Blackgram</td> <td>T-9, Local</td> </tr> </table>	<u>Crops</u>	<u>Varieties</u>	Maize	PM-3,	Local		Sorghum	Pratap-1430,	CSV-17	Local	Blackgram	T-9, Local	6.4	32	<p>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</p> <p>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</p> <p>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</p>
<u>Crops</u>	<u>Varieties</u>																	
Maize	PM-3,																	
Local																		
Sorghum	Pratap-1430,																	
CSV-17	Local																	
Blackgram	T-9, Local																	

			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	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> Crop: <u>maize</u> Foliar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Thiourea - 2 spray</u> <u>KNO₃ spray (One)</u> <u>ZnSO₄ spray</u>			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	Demonstration of improved intercropping systems (<i>kharij</i>)	Cropping systems : <ul style="list-style-type: none"> 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	Demonstration of midseason correction during dry spells in <i>kharif</i> 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 <i>rabi</i> 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)
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
12	ARJI/N/OF/RW M/2013	<i>In-situ</i> 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

13	ARJI/N/ OF/RW M/2013	Rain water harvesting in <i>nadi</i> /farm pond and efficient utilization	Ponds : <ul style="list-style-type: none"> • Kuccha • Pucca • <i>Nadi</i> • Life saving /supplemental/pre-sowing 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)	
Theme 3: Soil Health and Conservation Agriculture							
14	ARJI/N/ OF/SH CA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendations	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrients analysis 			<ul style="list-style-type: none"> • Village Soil fertility map • Site-specific nutrient management recommendations 	
15	ARJI/N/ OF/SH CA/ 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 				
Theme 4 : Energy Management							
16	ARJI/N/ OF/EM/ 2013	Demonstration of need based improved implements	Equipments :	2.4	06	Observations Field capacity of the implement Time saved (hrs) Labour saved	
			<ul style="list-style-type: none"> • Arjia wheel hoe 				
			<ul style="list-style-type: none"> • Single row power weeder (Four stroke) 	1.5	04		
			<ul style="list-style-type: none"> • Intercropping seed drill 	5.7	30		

Theme 5 : Alternate Land Use Systems						
17	ARJI/N/OF/ALU/2013	Demonstration of pastoral system in community lands	Treatments : IP <ul style="list-style-type: none"> • Ditch fencing , cross cultivation and contour trenching • Line seeding of improved grass - CAZRI-76 • Plantation of neem (<i>Azadircta indica</i>) , deshi babool (<i>Acacia species</i>) and ingadalsis/ keekar (<i>Piethocolobium dulce</i>) at spacing of 5 m in contour trenches Control	1.25	01	Biomass yield (fresh / day weight) <ul style="list-style-type: none"> • 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/ALU/2013	Demonstration of pastoral system in private land	Treatment – IP <ul style="list-style-type: none"> • Bio-fencing • Contor bunds • Parallel ridging • Peripheral bunding • Pasture • <i>Cenchrus Setrgerus</i> Control	12.8	01	Biomass yield (fresh / day weight) <ul style="list-style-type: none"> • 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/ALU/2013	Farming system- animal intervention	Murrah breed of buffalo- 3 He-buffallow- 1	-	04	Sustainability and economics
20	ARJI/N/OF/ALU/2013	Introduction of bio-gas plants	Construction of bio gas plants	-	08	To improve the decomposition of FYM and reduce weed infestation

C. CUSTOM HIRING CENTRE					
21	ARJI/N/ OF/CH C/ 2013	Popularization of need base improved implements through custom hiring centre	Implements : <ul style="list-style-type: none"> • 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 • Battery operated power sprayer 		For each implement <ul style="list-style-type: none"> • 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 - <ul style="list-style-type: none"> • Landholding categorywise • Cropwise Total area in the village

2.2 BALLOWAL SAUNKRI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded																						
A. ON-STATION																										
Theme 1 : Real time contingency planning																										
1	BAL O/N/ OS/R TC/20 13	Evaluation of improved varieties of <i>kharif</i> crops	<table border="0"> <tr> <td><u>Crops</u></td> <td><u>Varieties</u></td> </tr> <tr> <td>Maize</td> <td>Prakash,</td> </tr> <tr> <td>JH-3459, Local</td> <td></td> </tr> <tr> <td>Blackgram</td> <td>Mash-338,</td> </tr> <tr> <td>Mash-114</td> <td>Local</td> </tr> </table>	<u>Crops</u>	<u>Varieties</u>	Maize	Prakash,	JH-3459, Local		Blackgram	Mash-338,	Mash-114	Local	<p>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</p> <p>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</p>												
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3	BAL O/N/ OS/R TC/20 13	Foliar application with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<p>Crop : <u>Maize</u></p> <p>Foliar spray treatments for <i>In-season dry spells (Real-Time)</i></p> <p><u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u></p>	<ul style="list-style-type: none"> • 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) <p>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.</p>
4	BAL O/N/ OS/R TC/20 13	Evaluation of improved intercropping systems	<p><i>Kharif :</i></p> <ul style="list-style-type: none"> • Maize sole • Maize + Blackgrams • Maize + Greengram <p><i>Rabi :</i></p> <ul style="list-style-type: none"> • Wheat sole • Wheat + Raya • Chickpea + Raya • Lentil + Raya 	<p>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</p>

5	BAL O/N/ OS/R TC/20 13	Evaluation of maize based double cropping system	Improved practice : <ul style="list-style-type: none"> • Maize (Prakash) – Taramira (TMLC-2) • Maize (Prakash) – Raya (RLM-619) • Maize (Prakash) – Lentil (LL-699) • Maize (Prakash) – Wheat (PBW-175) Framers' practice : <ul style="list-style-type: none"> • Maize (Local) – Wheat (Local) 	Maize, Raya /Taramira, Lentil and Wheat : as given earlier
Theme 2 : Rainwater Management (<i>in-situ & ex-situ</i>)				
6	BAL O/N/ OS/R WM/2 013	Effect of sowing on yield of maize and <i>in-situ</i> rain water harvesting	Treatments : <ul style="list-style-type: none"> • With summer plough • Without summer plough • Sowing across slope • Sowing along slope • No earthing up • Earthing up with wheel hoe 	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)
Theme 3: Soil Health and Conservation Agriculture				
7	BAL O/N/ OS/S HCA/ 2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>	As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis There is no PMT at this station, so this experiment cannot be conducted at this station.

8	BAL O/N/ OS/S HCA/ 2013	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 	
Theme 4 : Alternate Land Use Systems				
9	BAL O/N/ OS/A LU/20 13	Evaluation of amla and guava based agri-horti systems	<p>Treatments :</p> <ul style="list-style-type: none"> Guava + Greengram Greengram Amla + Greengram <p>[<i>khariif</i> season]</p> <ul style="list-style-type: none"> Guava + Taramira Guava <p>[<i>rabi</i> season]</p>	<p>Horticulture</p> <p>Initial and final - Soil analysis for macro and micro nutrients</p> <p>Organic carbon, pH, EC etc.</p> <p>Till fruiting</p> <ul style="list-style-type: none"> Establishment in the first year - mortality, water use by each plant, Plant height Girth Other growth parameters specific to species Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> Fruit yield/tree Land quality <p>Agriculture</p> <p>a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> 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

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No. of Farmers	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 : <ul style="list-style-type: none"> • 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 <u>Varieties</u> 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 : <ul style="list-style-type: none"> • PBW-175 • PBW-644 • HD-2967 • 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
13	BAL O/N/ OF/R TC/20 13	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> • Crop: <u>Maize</u> Foliar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u>			<ul style="list-style-type: none"> • 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) <i>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.</i>
14	BAL O/N/ OF/R TC/20 13	Demonstration of improved intercropping systems (<i>rabi</i>)	Treatments : <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Maize-Wheat • Maize-Raya • Maize-Taramira • Ash gourd-Taramira 	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

Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
16	BAL O/N/ OF/R WM/2 013	Rain water harvesting in farm ponds and efficient utilize	<ul style="list-style-type: none"> • 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 <i>in-situ</i> moisture conservation practices	<i>In-situ</i> moisture conservation practices : <ul style="list-style-type: none"> • 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

Theme 3: Soil Health and Conservation Agriculture						
18	BAL O/N/ OF/S HCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> • 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
19	BAL O/N/ OF/S HCA/ 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			
Theme 4 : Energy Management						
20	BAL O/N/ OF/E M/2013	Demonstration of suitable implements for various agricultural operations	Implements : <ul style="list-style-type: none"> • Tractor • Bullock drawn • Manual 	2.0-4.0	10-15	Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved RWUE Economics,
21	BAL O/N/ OF/E M/2013	Reduced tillage on crop productivity under dry land conditions	Maize-wheat cropping sequence	0.40	02	Maize and Wheat : as given earlier
Theme 5 : Alternate Land Use Systems						
22	BAL O/N/ OF/A LU/2013	Demonstration of amla and guava based agri-horti systems	Crops Varieties Amla N-10 Guava Allhabad safeda	1.0-2.0	01-02	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting <ul style="list-style-type: none"> • Land quality From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality Agriculture

						<p>a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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	<p>Initial & Final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Sillviculture</p> <ul style="list-style-type: none"> • Land quality • Economics, <p>Pasture</p> <ul style="list-style-type: none"> • 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 : <ul style="list-style-type: none"> • Tiller • Seed drill • Planker • Rotavator • Thresher 			<ul style="list-style-type: none"> • 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 - <ul style="list-style-type: none"> • Landholding category wise • Crop wise Total area in the village

2.3 RAKH DHAIN SAR

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
G. ON-STATION				
Theme 1: Real time contingency planning				
1.	RAKH/N/OS/RTC/2013	Demonstration of improved varieties/ hybrids of <i>khariif</i> (Maize) and <i>rabi</i> (Wheat) crops under rain fed condition	<p>During <i>Kharif 2013</i> Name of Crop - Maize A. Date of Sowing: Two 1. D₁- Onset of Monsoon 2. D₂- 10 Days after onset of Monsoon B. Varieties/hybrids : Four I. V₁- Tip Top II. V₂ - KH-517 III. V₃ - Double DeKalb IV. V₄- PB-2475 Replication : Three Plot Size: 6X6 m² Design: R.B.D.</p> <p>During <i>Rabi 2013-14</i> Wheat Varieties: Five I. V₁- PBW175 II. V₂ – PBW3077 III. V₃ – Raj 3765 IV. V₄- PBW373 V. V₅-RSP 561 Replication : Three Plot Size: 6X6 m² Design: R.B.D.</p>	<p>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</p>
2.	RAKH/N/OS/RTC/2013	Demonstration of maize based double cropping systems	<p>Treatments :</p> <ul style="list-style-type: none"> • Maize (<i>Double DeKalb</i>) – Wheat (<i>PBW-175</i>) • Maize (<i>Double DeKalb</i>) – Mustard (<i>Pusa Bold</i>) • Green gram (<i>PDM-14</i>) – Wheat (<i>PBW-175</i>) • Black gram (<i>Uttara</i>) – Chickpea (<i>GNG-469</i>) • Fodder (<i>mixed fodder</i>) – fodder (Oat) • Sesame (<i>Pb. Til -1</i>) – Mustard (<i>Pusa Bold</i>) 	<p>Maize and Wheat : as given earlier Mustard Days to Maturity Seed yield Haulm yield Harvest Index, 1000 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</p>

				<p>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</p> <p>Fodder Oat: Biomass Economics RWUE</p> <p>Sesame Days to maturity 1000 Seed weight Seed yield Stalk Yield Harvest Index Economics, RWUE</p>
3.	RAKH/N/OS/RTC/2013	Demonstration of maize based intercropping systems	<p><u>During Kharif 2013</u></p> <ul style="list-style-type: none"> • Maize (Double DeKalb) + Black gram (Uttara) [2:1] • Maize (Double DeKalb) + Green gram (PDM-14) [2:1] <p><u>During Rabi 2013-14</u></p> <ul style="list-style-type: none"> • Wheat (<i>PBW 175</i>) + Chick pea (<i>GNG-469</i>) [2:2] • Wheat (<i>PBW 175</i>) + Field pea (<i>Rachna</i>) [2:2] 	<p>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</p>

4.	RAKH/N/ OS/RTC/ 2013	Demonstration of improved fodder systems	Kharif 2013: Mixed fodder : Maize +Pearl millet + Cowpea +Sorghum Rabi 2013-14: Oats	All fodder crops Biomass Economics RWUE Crop duration N, P, K before sowing and final (after harvesting)
Theme 2 Rainwater Management (in-situ & ex-situ)				
5.	RAKH/N/ OS/RWM/ 2013	Rainwater harvesting and efficient utilization	<ul style="list-style-type: none"> • Pacca and poly tanks • Presowing/ supplemental water to rainfed crops and establishment of fruit plants 	Soil moisture content, Water use efficiency, 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 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)
Theme 3: Soil Health and Conservation Agriculture				
6.	RAKH/N/ OS/SHCA/ 2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>	
7.	RAKH/N/ OS/SHCA/ 2013	Development of CA Strategies	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 	
Theme 4 : Energy Management				
8.	RAKH/N/ OS/EM/ 2013	Evaluation of improved implements for various agricultural operations	Crops : <ul style="list-style-type: none"> • Maize • Wheat Treatments : <ul style="list-style-type: none"> • Improved practice <ul style="list-style-type: none"> ▪ Sowing with planter ▪ Sowing with seed cum fertilizer drill ▪ Farmers' practice ▪ Broadcasting ▪ Manually line sowing 	Time saved (hrs) Labour saved Fuel saved RWUE economics

Theme 5 : Alternate Land Use Systems						
9.	RAKH/N/OS/ALU/2013-2013	Evaluation of fodder systems	Crops : <ul style="list-style-type: none"> Pearlmillet Sorghum Maize (<i>Kharif</i>) Gobi sarson (<i>Rabi</i>) 			Fodder yield Economics, RWUE, Crop seasonal rainfall, No. of dry spells and at what stage of the crop, Duration of each dry spell (give days and month)
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded
H. ON-FARM						
Village : Khaner; District : Samba; State : Jammu and Kashmir						
Theme 1 : Real time contingency planning						
10.	RAKH/N/OF/RTC/2013	Demonstration of improved varieties/ hybrids of <i>kharif</i> and <i>rabi</i> crops	<p>[<i>Kharif 2013</i>]</p> <p>Varieties/hybrids : Four</p> <ol style="list-style-type: none"> Tip Top KH-517 Double DeKalb PB-2475 <p>No. of farmers 6 per variety/hybrid</p> <p>During Rabi 2013-14</p> <p>Wheat:</p> <ul style="list-style-type: none"> PBW-175 [<i>Rabi</i>] 	1.5	24	<p>Maize:</p> <p>1000 Grain Weight, Grain yield, Straw yield, Harvest Index, Economics</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p> <p>Wheat:</p> <p>Days to Maturity</p> <p>Grain yield, Straw yield, Harvest Index, 1000 Grain Weight</p> <p>Economics, Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p>
11.	RAKH/N/OF/RTC/2013	Demonstration of foliar sprays with need based chemicals/nutrients/ water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> Crop: <u>maize</u> <p>Foilar spray treatments for <i>In-season dry spells (Real-Time)</i></p> <p><u>Treatments :</u></p> <p><u>Urea spray</u></p> <p><u>Thiourea ?</u></p> <p><u>KNO₃ spray (One)</u></p> <p><u>KNO₃ spray (Twice)</u></p> <p><u>ZnSO₄ spray</u></p>			<p>Days to maturity</p> <p>Grain yield</p> <p>Stalk yield</p> <p>Harvest index</p> <p>1000 seed weight</p> <p>Economics</p> <p>Crop seasonal rainfall</p> <p>No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p>

12	RAKH/N/ OF/RTC/ 2013	Demonstration of maize based intercropping systems	Treatments : (<i>Kharif</i>) • Maize (<i>Double DeKalb</i>) + Mash (Var. <i>Uttara</i>) [2:1]	0.3	06	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
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13	RAKH/N/ OF/RTC/2 013	Demonstration of maize based double cropping systems	Treatments : <ul style="list-style-type: none"> • 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) 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 (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
14	RAKH/N/ OF/RTC/ 2013	Demonstration of improved fodder systems	Kharif 2013: Mixed fodder : Maize +Pearl millet +Cowpea +Sorghum	0.3	06	All fodder crops Biomass Economics RWUE

15	RAKH/N/ OF/RTC/2 013	Weed management	Varietal Cropping sequence Intercropping	2.25	44	
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
16	RAKH/N/ OF/RWM/ 2013	Rainwater harvesting and efficient utilization	<ul style="list-style-type: none"> • Pacca and poly tanks • Presowing/ supplemental water to rainfed crops and establishment of fruit plants 	two ponds	08	Cost of each irrigation (including the cost of micro irrigation systems, lighting from the pond using pumps, labour charges etc)
Theme 3: Soil Health and Conservation Agriculture						
17	RAKH/N/ OF/SHCA/ 2013	To develop land parcel wise (farmer wise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> • GPS based soil sampling • Soil fertility analysis • Village Soil fertility map 			As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis
18	RAKH/N/ OF/SHCA/ 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			
Theme 4 : Energy Management						
19	RAKH/N/ OF/EM/ 2013	Demonstration of need based improved implements for various agricultural operations	<p>Crops :</p> <ul style="list-style-type: none"> • Maize • Wheat <p>Treatments :</p> <ul style="list-style-type: none"> • Improved practice <ul style="list-style-type: none"> ▪ Sowing with maize planter ▪ Sowing with seed cum fertilizer drill ▪ Farmers' practice ▪ Broadcasting ▪ Manually line sowing 	1.0	05	Energy Input and Energy Output balance observations Field adaptability of the implement Time saved (hrs) Labour saved RWUE Economics,
Theme 5 : Alternate Land Use Systems						
20	RAKH/N/ OF/ALU/2 013	Demonstration of agro-hort. system with nutrient management	<p>Treatments :</p> <ul style="list-style-type: none"> • Fodder systems <ul style="list-style-type: none"> ▪ Pearl millet + Sorghum + Maize (<i>Kharif</i>) ▪ Gobi sarson (<i>Rabi</i>) • Nutrient management <ul style="list-style-type: none"> ▪ Maize ▪ Maize + 100% inorganic ▪ Maize + 50% N (inorganic) + 50% N (organic) (<i>Kharif</i>) ▪ Gobi sarson (<i>Rabi</i>) ▪ Intercropping <ul style="list-style-type: none"> ▪ Maize + Blackgram (<i>Kharif</i>) ▪ Gobi sarson (<i>Rabi</i>) 	0.20	04	Horticulture Initial & final - Soil analysis for macro nutrients Organic carbon, pH, EC etc. Till fruiting <ul style="list-style-type: none"> • Land quality From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees
				0.10	02	
				0.10	02	
				0.10	02	

						<ul style="list-style-type: none"> • 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,
C. CUSTOM HIRING CENTRE						
21	RAKH/N/CHC/2013	Popularization of need based improved implements	Equipments : <ul style="list-style-type: none"> • 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) 			For each implement <ul style="list-style-type: none"> • 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 - <ul style="list-style-type: none"> • 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. ON-STATION				
Theme 1 : Real time contingency planning				
1	BENG /N/OS/ RTC/ 2013	Evaluation of drought tolerant high yielding varieties of fingermillet under different dates of sowing	Finger millet varieties : <ul style="list-style-type: none"> GPU-48 GPU-66 MR-1 Dates of sowing : <ul style="list-style-type: none"> July 1st fortnight July 2nd fortnight August 1st fortnight August 2nd 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 : <ul style="list-style-type: none"> 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/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> Crop: Finger millet Foilar spray treatments for <i>In-season dry spells (Real-Time)</i> <ol style="list-style-type: none"> Let us go for mid season droughts stage only Treatemnts Water Spray Urea spray KNO ₃ spray (One) KNO ₃ spray (Twice)	
4	BENG /N/OS/ RTC/ 2013	Dryland Technology Park : on station demonstration of performance of crops/verities/ cropping systems	Crops and Varieties : <ul style="list-style-type: none"> Horsegram (PHG-9) - Finger millet (GPU-28) Glyricidia - Finger millet (GPU-28) Dry sowing Finger millet (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 Finger millet (KMR-204) Finger millet (GPU-28) + Pigeonpea direct sown (BRG-2) [8:2] Finger millet(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

			<ul style="list-style-type: none"> • Fingermillet (GPU-28) + Field bean (4:1) • Fingermillet (GPU-28)+ <i>akkadi</i> Farmers practice • Fodder Pearl millet (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 Samrudhi with mulch • Proso millet • Little millet • Foxtail millet • Kodomillet • Grain Amaranth (Suvarna) • Grain Amaranth (KBGA-1) • Fingermillet (GPU-28) + Rec. NPK • Fingermillet (GPU-28) + FYM + NPK + Zn + B • Fingermillet (GPU-28) + Rec. NP + 150% K • 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 • Groundnut (TMV-2) + Nipped castor (8:1) + NPK + Lime + Sulphur • Groundnut (TMV-2) + Pigeonpea (BRG-1) [8:1] + NPK + Zn + B • 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) 	
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			<ul style="list-style-type: none"> • Cowpea PKB-4 - Fingermillet GPU 48 • Fingermillet GPU 28 + <i>Akkadi</i> 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) 	
Theme 2: Rainwater Management (<i>in-situ and ex-situ</i>)				
5	BENG/ N/OS/ RWM/ 2013	Catchment-storage (farm pond) command relationship for enhancing water productivity in micro watershed	<p>Treatments:</p> <ul style="list-style-type: none"> • 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
Theme 3: Soil health and Conservation Agriculture				
6	BENG/ N/OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	<ul style="list-style-type: none"> • FYM/ Maize Residue 1. Finger millet Cropping 2. Finger millet – Groundnut rotation 	Physical, chemical and biological properties of soil
Theme 4: Alternate Land Use Systems				
7	BENG/ N/OS/ ALU/ 2013	Evaluation of Amla based agri-horti systems	<p>Treatments</p> <p>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</p> <p>Design: RCBD Replication: 3</p>	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	<p>Treatments</p> <p>T1 : Fingermillet T2 : Fodder maize T3 : Field bean T4 : Niger</p>	Soil analysis, Grain yield, Straw yield, Harvest index, Monetary returns

		Alfisols	T5 : Chilli T6 : Cowpea T7 : Custard apple alone T8 : Custard apple + finger millet 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:			
Sl. No	Code	Interventions	Crops / Treatments	Area (ha)	No of Farmers	Observations to be recorded
B. ON-FARM						
Village : Chikkaamaranahalli cluster, Nelamangala taluk, Bengaluru rural district						
Theme 1 : Real time contingency planning						
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 finger millet 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 15	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: • Direct sown (MR-1) • Transplanted (MR-1)	3.2 2	11 10	Grain yield, Straw yield, Harvest index, Days to 50% flowering and maturity, Monetary returns
Theme 2: Rainwater Management (<i>in-situ</i> and <i>ex-situ</i>)						
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

			<ul style="list-style-type: none"> Water use in agriculture: multiple use agriculture, livestock, pesticide application, fisheries etc. 	2 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	2 bore wells	2	10.5 lits of water is the yield in Hosapalya borewell and Kalipalya borewell Motor is yet be fixed
Theme 3: Energy Management						
17	BENG/ N/OF/ EM/ 2013	Demonstration of suitable manual tools, bullock and tractor drawn implements for various agricultural operations	Implements: <ul style="list-style-type: none"> Cultivators Modified seed drill Knapsack sprayers Disc plough Improved sickle KM Plough Post hole digger Leveler Water lifting pump 			Input and output energy, Time of different operations, Grain yield, Straw yield, Harvest index
Theme 4: Alternate Land Use System						
18	BENG/ N/OF/ ALU/ 2013	Evaluation of mango based agri- horti systems	Treatments: <ul style="list-style-type: none"> Mango + Finger millet Sole Finger millet 	0.4 0.6	1 1	Grain yield, Straw yield, Harvest index, Monetary returns
C. CUSTOM HIRING CENTRE						
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	Observations/parameters/ Analysis to be recorded		
I. ON-STATION						
Theme 1 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
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		
Theme 2 : Soil Health and Conservation Agriculture						
2	AGR A/N/ OS/ SHCA /2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>			
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 Farmers	Observations/parameters/ analysis to be recorded
J. ON-FARM						
Villages : Nagla Dulhe Khan and Faziyatpura; District : Agra; Uttar Pradesh						
Theme 1 : Real time contingency planning						
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 10.0	19 25	Pearlmillet Tillers/Plant Grain Weight/ Earhead (g) Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Crop Seasonal Rainfall (mm)

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

			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	<u>Pearlmillet</u> Foilar spray treatments for <i>in- season dry spells</i> (<i>Real-Time</i>) <u>Treatments :</u> <ul style="list-style-type: none"> • <u>Urea spray</u> • <u>Thiourea ?</u> • <u>KNO₃ spray</u> (One) • <u>KNO₃ spray</u> (Twice) • <u>ZnSO₄</u> <u>spray?</u> 			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 : <u>Khariif</u> <ul style="list-style-type: none"> • Pearlmillet + Clusterbean (4:4) • Pearlmillet + Sesame (4:4) 	1.6 1.6	04 04	Days to maturity for sole crops Days to maturity for intercrops Grain/Seed yield of Sole crops

			<u>Rabi</u> <ul style="list-style-type: none"> 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 (<i>kharif</i>)	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

			Sesame – mustard (<i>rabi</i>)			Sesame 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 A/N/ OF/R TC/20 13	INM with <i>in-situ</i> moisture conservation practices	Pearlmillet – split of N Mustard – 50 kg K/ha with RDF Wheat – RDF + compartment	3.2 4.8	08 12	Pearlmillet, Wheat and Mustard - as given earlier
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
10	AGRA /N/OF/ RWM/ 2013	Demonstrati on of <i>in-situ</i> moisture conservation practices under aberrant monsoon condition	Treatments : <ul style="list-style-type: none"> • Deep ploughing in alternate year in mustard • Ridge and furrow system of planting in pearl millet • Compartmental bunding in pearl millet/ wheat • Tillage after each effective rainfall in mustard 	8.0	20	Mustrad, Pearlmillet and Wheat: : as given earlier Energy balance , Economics and RWUE in each treatment

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	Demonstration of ground water recharge and sharing practices	<ul style="list-style-type: none"> 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
Theme 3: Soil Health and Conservation Agriculture						
13	AGRA /N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 			

Theme 4 : Energy Management						
15	AGRA /N/OF/ EM/ 2013	Demonstration of need based improved implements in <i>kharif</i> and <i>rabi</i> crops	<u>Implements:</u> <ul style="list-style-type: none"> • Ridge seeder • Rotavator • Ridge bed planter • Mould board plough • Disc plough • Spray pump • Sprinkler system 	Whole village	-	Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved RWUE Economics
Theme 5 : Alternate Land Use System						
16	AGRA /N/OF/ ALU/ 2013	Demonstration of ber and bel based on agri-horti systems	Cropping systems : <ul style="list-style-type: none"> • Ber + Green fodder (pearlmillet + cowpea) • Ber + Mustard • Bel + Green fodder (pearlmillet + cowpea) • Bel + Mustard 	?	02	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting <ul style="list-style-type: none"> • Land quality From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees <ul style="list-style-type: none"> • 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

17	AGRA /N/OF/ ALU/ 2013	Improvement of health and productivity of livestock	Vaccination and balanced feed	Whole village		Impact of vaccination on animal health, feed back from the farmers
K. CUSTOM HIRING CENTRE						
18	AGRA/ N/ CHC /2013	Popularization of improved implements through custom hiring centre	Implements: <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 - <ul style="list-style-type: none"> • Landholding categorywise • Cropwise Total area in the village

4.2 HISAR

S.N.	Code	Title/ Objectives	Crop/ Treatments	Observations/ parameters/ Analysis to be recorded		
ON- STATION at Balsmand and Hisar farm						
Theme 1 : Rain water management (in- situ & ex- situ)						
1	HISA/N/ OS/RWM/ 2013	<i>In- situ</i> moisture conservation with pod silt application in light soils	Crop: Pearl millet (HHB-67 improved) Treatments: Two T ₁ - Mixing of pod silt @ 20t/ha (0-15 cm soil depth T ₂ - Control	Crop seasonal rainfall (mm) No. of dry spells and at what stage of crop, duration of each dry spell (with days and month) Grain/ seed yield of crop RWUSE, Economics		
Theme 2: Energy management						
2	HISA/N/ OS/EM/ 2013	Weed management	Weed control and moisture conservation by wheel hand hoe in pearl millet, chick pea and mustard	Field capacity of the implement Time saving(hrs) Labor saving RWUE, Economics Weed dry matter and weed control efficiency		
Theme 3: Alternate Land Use System						
3	HISA/N/ OS/ALU/ 2013	Management of fruit tree plantation with harvested rain water	Two villages on CPRS subject to consent	Initial soil analysis for macro and micro nutrients <ul style="list-style-type: none"> • Establishment in first year, water use/ plant From the fruiting year • Fruit yield/tree • Cost of cultivation • Net & gross returns • BC ratio 		
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No. of farmers	Observations/para meters/analysis to be recorded
L. ON-FARM						
Villages : Balawas, Charnond, District : Hisar; Budhshelly, District : Bhiwani; State : Haryana						
Theme 1 : Real time contingency planning						
4	HISA/N/O F/RTC/ 2013	Evaluation of drought tolerant varieties of pearl millet	HHB-67 Imp vs. HHB 226/HHB 223	4.8	12	Days to maturity Grain yield, Straw yield, 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)

5	HISA/N/O F/RTC/ 2013	Evaluation of drought tolerant varieties of chickpea under farmers' management	Varieties : <ul style="list-style-type: none"> • C-235 • HC-1 	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/nutrients for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> • Crop: Pearl millet in <i>kharif</i> and mustard in <i>rabi</i> Varieties: Prevalent ones Foliar spray treatments for <i>in-season dry spells (Real-Time)</i> <u>Treatments :</u> • 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 : <ul style="list-style-type: none"> • 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 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 : <ul style="list-style-type: none"> • 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 F/RTC/ 2013	Evaluation of management practices of <i>kharif</i> and <i>rabi</i> crops	Crops : <ul style="list-style-type: none"> • Clusterbean • Green gram • Mustard • Chickpea Treatments : <ul style="list-style-type: none"> • Full package of practices • Farmers' practice 	14.4	36	Clusterbean and Green gram Seed yield Stalk yield 100 Seed weight Crop seasonal rainfall (mm) No. of dry spells and stage of crop, duration of each dry 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
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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
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
11	HISA/N/O F/RWM/ 2013	Demonstration of <i>in situ</i> moisture conservation practices	Crops : Chickpea	2.4-3.6	6-9	Soil moisture at critical stages of the 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.

Theme 3: Soil Health and Conservation Agriculture						
14	HISA/N/O F/ SHCA/ 2013	To develop (farmer wise) Soil Health Cards and Site- specific nutrient recommendations	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA platform 			
Theme 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 : <ul style="list-style-type: none"> • 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

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
A. ON-STATION				
Theme 1 : Real time contingency planning				
1	SKN A/N/ OS/ RTC/ 2013	Evaluation of drought tolerant short duration varieties of <i>kharij</i> crop	I. Pearlmillet II. Maize III. Cotton IV. Green gram V. Cluster bean VI. Black gram VII. Castor	<p>Pearl millet 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</p> <p>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</p> <p>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 month) RWUE</p>

				<p>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</p>
2	SKN A/N/ OS/ RTC/ 2013	Foliar application with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<p>Crop: Pearl millet Foliar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> 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. ZnSO₄ spray 0.5%</p>	<p>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)</p>

Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)				
3	SKN A/N/ OS/ RWM /2013	<i>In-situ</i> moisture conservation in pearl millet and castor	Crop : Pearl millet & Castor Treatments : I. Improved practice – Compartmental bunding II. Local practice – No compartmental bunding Crop : Castor Treatments : I. Improved practice – Ridge and furrow II. Local practice - Flat bed	Soil loss & Soil moisture at critical stages of the crops Pearl millet & Castor: as given earlier
4	SKN A/N/ OS/ RWM /2013	Rainwater harvesting and efficient utilization	Supplemental irrigation to rainfed crops and adoption of micro-irrigation system I. Castor II. Cumin III. Rajma	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 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) RWUE

Theme 3: Soil health and Conservation Agriculture				
5	SKN A/N/ OS/ SHCA /2013	To maintain soil health with appropriate soil and crop management	<p>Crop Castor & Greengram Rotation Treatment :</p> <p>I. Control II. Farmer's method III. 100% RDN (Urea) IV. 50%</p> <p>Recommended N (Urea) + 50% RD N (FYM) V. 50% RDN (FYM)</p>	<p>Soil : OC, N, P, K, S, Ca, Mg Micro nutrients, Nutrient use efficiency, Carbon balance, Nutrient balance</p> <p>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</p> <p>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) RWUE</p>
6	SKN A/N/ OS/ SHCA /2013	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 	
Theme 4 : Energy Management				
7	SKN A/N/ OS/ EM/ 2 013	Evaluation of need based improved manual tools and implements for sowing	<p>Crop : Green gram Treatments :</p> <p>I. Roto till drill II. Strip till drill III. Zero till drill IV. Numatic planter V. Raised bed planter</p>	<p>Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved Fuel saved RWUE economics</p>

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/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 A/N/ OF/ RTC/ 2013	Demonstration of improved varieties of pearl millet, maize, cotton, green gram, cluster bean, black gram, castor for weather aberration	Crops Varieties I. Pearl millet GHB-558, Local II. Maize GM-2, HQPM-1, Local III. Cotton G Cot.-21, Local IV. Green gram GM-4, Local V. Cluster bean GG-2, Local VI. Black gram GU-2, Local VII. Castor GCH-2, GCH-5, GCH-7, Local	16.18 8.09 8.09 8.09 8.09 16.18	40 20 20 20 20 40	Pearl millet 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 Green gram/ Cluster bean/ Black gram Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm)

						<p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p> <p>Cotton</p> <p>Seed cotton yield, Lint yield, Seed Index (100 Seed Weight)</p> <p>Economics,</p> <p>Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p> <p>Castor:</p> <p>Capsules/Plant Seeds/Capsule</p> <p>Days to Maturity</p> <p>Seed yield</p> <p>Haulm yield</p> <p>Harvest Index, 100 Seed Weight</p> <p>Economics,</p> <p>Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p>
9	SKN A/N/ OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrient s/water sprays for mitigating in-season dry spells/droughts	<p>Crop: Pearl millet</p> <p>Foliar spray treatments for <i>In-season</i> dry spells (<i>Real-Time</i>)</p> <p><u>Treatments :</u></p> <p>I. Urea spray (2%)</p> <p>II. Thiourea 1000 ppm</p> <p>III. N application for 20 kg/ha (at 20-25 DAS)</p> <p>VI. ZnSO₄ spray 0.5%</p> <p>V. Farmers practices</p>	8.09	20	<p>Days to maturity</p> <p>Grain yield</p> <p>Stalk yield</p> <p>Harvest index</p> <p>100/100 seed weight</p> <p>Economics</p> <p>Crop seasonal rainfall</p> <p>No. of dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p>

10	SKN A/N/ OF/ RTC/ 2013	Demonstration of efficient intercropping system	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Castor (GCH-7) + Green gram (GM-4) <p>Management practices: Soil moisture conservation practices</p> <ol style="list-style-type: none"> I. Deep summer ploughing alternate year II. Minimum tillage/ zero tillage seeding for rabi III. Nutrient management IV. Line sowing with wider spacing for rabi V. Improved / local varieties VI. Weed control VII. Farmers ' practices 	16.18	40	<p>Intercropping system</p> <p>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</p>
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
11	SKN A/N/ OF/ RWM /2013	Demonstration of <i>in-situ</i> moisture conservation in pearl millet and castor	<p>Pearl millet Treatments :</p> <ol style="list-style-type: none"> I. Improved practice – Compartmental bunding II. Local practice – No compartmental bunding <p>Castor Treatments :</p> <ol style="list-style-type: none"> I. Improved practice – Ridge and furrow II. Local practice - Flat bed 	10.52	26	<p>Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>Pearl millet and Castor: as given earlier</p>
				13.35	33	

12	SKN A/N/ OF/ RWM /2013	Rainwater harvesting and efficient utilization	Supplemental irrigation to rainfed crops and adoption of micro-irrigation system for castor, cumin, rajma	13.75	34	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 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)
Theme 3: Soil Health and Conservation Agriculture						
13	SKN A/N/ OF/ SHCA /2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendations	I. GPS based soil sampling II. Macro and micronutrients analysis III. Village Soil fertility map IV. Site-specific nutrient management recommendations			As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis

14	SKN A/N/ OF/ SHCA /2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 			
Theme 4 : Energy Management						
15	SKN A/N/ OF/ EM/2 013	Demonstration of need based improved manual tools and implements through custom hiring centre	Crop : Green gram (GM-4) Treatments : I. Roto till drill II. Strip till drill III. Zero till drill IV. Numatic planter V. Raised bed plante	5.26	13	Energy Input and Energy Output balance observations Field capacity o the implement Time saved (hrs) Labour saved RWUE Economics,
C. CUSTOM HIRING CENTRE						
16	SKN A/N/ OF/ CHC/ 2013	Popularization of improved implements	I. MB plough II. Disc plough III. Disc harrow IV. Rotavator V. Lesser land leveller VI. Roto till drill VII. Strip till drill VIII. Zero till drill IX. Numatic planter X. Raised bed planter XI. Seed cum Fertilizer Dril XII. Power weeder XIII. Speyer XIV. Multi crop Thresher			For each implement <ul style="list-style-type: none"> 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 - <ul style="list-style-type: none"> 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-STATION				
Theme 1 : Real time contingency planning				
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 : <ul style="list-style-type: none"> • 75-225-75 cm × 10 cm • 75-225-75 cm × 20 cm • 75-225-75 cm × 30 cm • 75-225-75 cm × 45 cm • 75-225-75 cm × 60 cm • 75-225-75 cm × 90 cm • 135 cm × 10 cm • 135 cm × 20 cm • 135 cm × 30 cm • 135 cm × 45 cm • 135 cm × 60 cm • 135 cm × 90 cm • 90 cm × 20 cm with set furrow • 90 cm × 20 cm without furrow 	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) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics

2	BIJA/ N/OS/ RTC/ 2013	Foliar application with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> • Crop: <u>Sorghum</u> Foilar spray treatments for <i>In-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u>	<ul style="list-style-type: none"> • 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	BIJA/ N/OS/ RTC/ 2013	Evaluation and improvement of traditional intercropping systems in rotation	Relay cropping: 1 st year cropping system : <ul style="list-style-type: none"> • Pigeonpea + Greengram (2:4) 2 nd year cropping system : <table border="1" data-bbox="607 716 1055 1373"> <thead> <tr> <th><i>Khariif</i></th> <th><i>Rabi</i></th> </tr> </thead> <tbody> <tr> <td>Greengram</td> <td>Sorghum + Chickpea</td> </tr> <tr> <td>Pearlmillet/Greengram</td> <td>Sorghum + Chickpea</td> </tr> <tr> <td>Onion</td> <td>Sorghum</td> </tr> <tr> <td>Chilli + Cotton (1:1)</td> <td>Fallow</td> </tr> <tr> <td>Pearlmillet/Greengram</td> <td>Chickpea</td> </tr> <tr> <td>Sunflower (wider)</td> <td>Sorghum</td> </tr> <tr> <td>Sunflower (wider)</td> <td>Chickpea</td> </tr> <tr> <td>Pearlmillet (wider)</td> <td>Sunflower (wider)</td> </tr> <tr> <td>Fallow</td> <td>sorghum</td> </tr> <tr> <td>Chilli + Cotton</td> <td>Fallow</td> </tr> </tbody> </table>	<i>Khariif</i>	<i>Rabi</i>	Greengram	Sorghum + Chickpea	Pearlmillet/Greengram	Sorghum + Chickpea	Onion	Sorghum	Chilli + Cotton (1:1)	Fallow	Pearlmillet/Greengram	Chickpea	Sunflower (wider)	Sorghum	Sunflower (wider)	Chickpea	Pearlmillet (wider)	Sunflower (wider)	Fallow	sorghum	Chilli + Cotton	Fallow	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
<i>Khariif</i>	<i>Rabi</i>																									
Greengram	Sorghum + Chickpea																									
Pearlmillet/Greengram	Sorghum + Chickpea																									
Onion	Sorghum																									
Chilli + Cotton (1:1)	Fallow																									
Pearlmillet/Greengram	Chickpea																									
Sunflower (wider)	Sorghum																									
Sunflower (wider)	Chickpea																									
Pearlmillet (wider)	Sunflower (wider)																									
Fallow	sorghum																									
Chilli + Cotton	Fallow																									
Theme 2 : Rainwater Management (<i>in situ</i> and <i>ex situ</i>)																										
4	BIJA/ N/OS/ RWM /2013	Rainwater harvesting in farm pond and efficient utilization	<ul style="list-style-type: none"> • Farm pond 	Runoff Water budgeting studies No.of run off events 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 of microirrigation systems, lighting from the pond using pumps, labour charges etc) Observations on crops: As per crop given earlier.
Theme 3: Soil health and Conservation Agriculture				
6*	BIJA/ N/OS/ SHCA /2013	To maintain soil health with appropriate soil and crop management strategies	<u>Linked with PMTs</u>	To be given
7*	BIJA/ N/OS/ SHCA /2013	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 	To be given
Theme 4 : Alternate Land Use Systems				
8	BIJA/ N/OS/ ALU/ 2013	Evaluation of sapota based agri-horti system in medium deep black soils	<p>Treatments :</p> <ul style="list-style-type: none"> Sapota + Chickpea Guava + Chickpea Fig + Chickpea Drumstick + Chickpea Sapota + Guava + Chickpea Sapota + Fig + Chickpea Sapota + Drumstick + Chickpea No inter row plants 	<p>Horticulture Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting</p> <ul style="list-style-type: none"> Establishment in the first year - mortality, water use by each plant, Plant height Girth Other growth parameters specific to species Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> Fruit yield/tree Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> Seed yield of sole/main/intercrops Stalk yield of sole/main/intercrops Days to maturity Crop Seasonal Rainfall (mm)

				<ul style="list-style-type: none"> 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 : <ul style="list-style-type: none"> Simaruba + Chickpea Guava + Chickpea Fig + Chickpea Drumstick + Chickpea Simaruba + Guava + Chickpea Simaruba + Fig + Chickpea Simaruba + Drumstick + Chickpea No inter row plans 	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	<table border="1"> <tr> <td rowspan="3">Amla</td> <td>No intercropping</td> </tr> <tr> <td>Chickpea</td> </tr> <tr> <td>Chickpea + Safflower</td> </tr> <tr> <td rowspan="3">Amla + Henna</td> <td>No intercropping</td> </tr> <tr> <td>Chickpea</td> </tr> <tr> <td>Chickpea + Safflower</td> </tr> <tr> <td rowspan="3">Amla + Custard apple</td> <td>No intercropping</td> </tr> <tr> <td>Chickpea</td> </tr> <tr> <td>Chickpea + Safflower</td> </tr> <tr> <td rowspan="3">Amla + Custard apple + Henna</td> <td>No intercropping</td> </tr> <tr> <td>Chickpea</td> </tr> <tr> <td>Chickpea + Safflower</td> </tr> </table>	Amla	No intercropping	Chickpea	Chickpea + Safflower	Amla + Henna	No intercropping	Chickpea	Chickpea + Safflower	Amla + Custard apple	No intercropping	Chickpea	Chickpea + Safflower	Amla + Custard apple + Henna	No intercropping	Chickpea	Chickpea + Safflower	Agrihortisystem: as given earlier in sl.no. 8
Amla	No intercropping																			
	Chickpea																			
	Chickpea + Safflower																			
Amla + Henna	No intercropping																			
	Chickpea																			
	Chickpea + Safflower																			
Amla + Custard apple	No intercropping																			
	Chickpea																			
	Chickpea + Safflower																			
Amla + Custard apple + Henna	No intercropping																			
	Chickpea																			
	Chickpea + Safflower																			
11	BIJA/ N/OS/ ALU/ 2013	Evaluation of tamarind based horticulture	Tamarind spacing : <ul style="list-style-type: none"> 10 m × 3 m 10 m × 6 m 10 m × 9 m 	Agrihortisystem: as given earlier in sl.no. 8																

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be
N. ON-FARM						
Village : Kaulagi; District : Bijapur; State : Karnataka						
Theme 1 : Real time contingency planning						
12	BIJA/ N/OF/ RTC/ 2013	Demonstration of improved varieties of <i>kharif</i> and <i>rabi</i> crops	<p>Crop : Pigeonpea</p> <p>Varieties : TS-3R, BSMR-736, ICPL-8863, Asha, ICPL-87, WRP-1</p> <p>Crop : Pearlmillet</p> <p>Varieties : Pearlmillet ICTP-8203, MH-946, ICMV-221</p>	4.8	12	<p>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</p> <p>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</p>

		<p>Crop : Groundnut</p> <p>Varieties : GPBD-4, TMV-2, DH-101</p> <p>Crop : Mothbean and</p> <p>Varieties : BJMB-40, Local and</p> <p>Crop: Horsegram</p> <p>Varieties : GPM-6, Local</p> <p>Crop: Safflower</p> <p>Varieties : A-1, A-2</p>		<p>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</p> <p>Mothbean and Horsegram 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</p> <p>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</p>
		<p>Crop : Sorghum</p> <p>Varieties : M-35-1, DSV-4, Local</p>		<p>Sorghum Days to Maturity Grain yield, Straw yield, Harvest Index, 1000 Grain Weight, Economics, Crop Seasonal Rainfall (mm)</p>

			<p>Crop : Castor</p> <p>Varieties : 48-1, DCH-177</p>			<p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE</p> <p>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</p> <p>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</p>
			<p>Crop: Sunflower Varieties: KBSH-1, KBSH-53, Local</p> <p>Crop : Chickpea Varieties : BDG-103, JG-11, Annigeri</p>			

13	BIJA/ N/OF/ RTC/ 2013	Demonstration of intercropping systems	Intercropping systems : <ul style="list-style-type: none"> • Pearl millet + Groundnut (1: 2; 2:4; 1:5) • Pearl millet + Pigeonpea (2: 1; 4:2; 5:1) 	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						
			<ul style="list-style-type: none"> • Pigeonpea + Groundnut (1: 2; 2:4; 1:5) • Safflower + Chickpea (1: 2; 2:4; 1:5) • Sorghum + Chickpea (1: 2; 2:4; 1:5) • Chilli+ Onion (2:4) relayed with <i>rabi</i> Sorghum 			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						
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)												
14	BIJA/ N/OF/ RWM /2013	Demonstration of <i>in-situ</i> moisture conservation practices in <i>kharif</i> and <i>rabi</i> crop	<table border="1"> <thead> <tr> <th>Crops</th> <th>Treatments</th> </tr> </thead> <tbody> <tr> <td>Sorghum</td> <td> <ul style="list-style-type: none"> • Compartment bunding • Without compartment bunding </td> </tr> <tr> <td>Chickpea</td> <td> <ul style="list-style-type: none"> • Compartment bunding • Without compartment bunding </td> </tr> </tbody> </table>	Crops	Treatments	Sorghum	<ul style="list-style-type: none"> • Compartment bunding • Without compartment bunding 	Chickpea	<ul style="list-style-type: none"> • Compartment bunding • Without compartment bunding 	2.4	06	Crops: as given 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
Crops	Treatments											
Sorghum	<ul style="list-style-type: none"> • Compartment bunding • Without compartment bunding 											
Chickpea	<ul style="list-style-type: none"> • Compartment bunding • Without compartment bunding 											

15	BIJA/ N/OF/ RWM /2013	<i>Ex-situ</i> moisture conservation - rainwater harvesting and efficient utilization	<ul style="list-style-type: none"> • Presowing/supplemental 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)
Theme 3: Soil Health and Conservation Agriculture						
16*	BIJA/ N/OF/ SHCA /2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> • 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,

17*	BIJA/ N/OF/ SHCA /2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			To be given
Theme 4 : Energy Management						
18	BIJA/ N/OF/ EM/2 013	Demonstration of need based implements for various agricultural operations	Crops : <ul style="list-style-type: none"> • Sorghum • Chickpea Implements : <ul style="list-style-type: none"> • 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,
Theme 4 : Alternate Land Use Systems						
19	BIJA/ N/OF/ ALU/ 2013	Demonstration of tamarind based agri-horti system	Fruit crop : Tamarind Annual crops : <i>kharif</i> and <i>rabi</i>	2.0	05	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting <ul style="list-style-type: none"> • Land quality From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality • Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees <ul style="list-style-type: none"> • Seed yield of sole/main/in tercrops

						<ul style="list-style-type: none"> • Stalk yield of sole/main/in tercroops • 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 tercroops • Equivalent yield of main crop in intercropping systems • RWUE • Economics,
20	BIJA/ N/OF/ ALU/ 2013	Demonstration of jamun based agri-horti system	Fruit crop : Jamun Annual crops : <i>kharif</i> and <i>rabi</i>	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	Fruit crop : Sapota Annual crops : <i>kharif</i> and <i>rabi</i>	2.0	05	As given in sl. no. 22
C. CUSTOM HIRING CENTRE						
23	BIJA/ N/OF/ CHC/ 2013	Popularization of improved implements through custom hiring centre	Machineries : <ul style="list-style-type: none"> • 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	-	For each implement <ul style="list-style-type: none"> • 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 - <ul style="list-style-type: none"> • Landholding categorywise • Cropwise Total area in the village

5.2 SOLAPUR

Sl. No	Code	Interventions	Crops/Treatments	Observations to be recorded
D. ON-STATION				
Theme 1 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)				
1	SOLA /N/OS /RW M/201 3	Effect of <i>in-situ</i> moisture conservation practices for <i>rabi</i> sorghum	Treatments : <ul style="list-style-type: none"> 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 : Crops: <ul style="list-style-type: none"> 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)

Theme 2 : Energy Management				
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 : <ul style="list-style-type: none"> • 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 Agrihoritisystems	Horticulture ? Crops ?	<p>Horticulture</p> <p>Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting</p> <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Land quality <p>Agriculture</p> <p>a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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

Theme 3: Soil health and Conservation Agriculture						
5	SOLA /N/OS /SHC A/201 3	To maintain soil health with appropriate soil and crop management	Linked with PMTs			
6	SOLA /N/OS /SHC A/201 3	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 			
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations to be recorded
E. ON-FARM						
Village : Narotewadi; Block : Solapur; Maharashtra						
Theme 1 : Real time contingency planning						
7	SOLA /N/OF /RTC/ 2013	Kharif Season 2013-14 Demonstration of Improved Practice x Farmer practice	Improved Practice x Farmers Practice Improved Practice: 1.Timely sowing 2.Use of Improved Variety 3.Use recommended spacing 4.Use recommended seed rate 5.Use recommended fertilizer dose 6.Plant protection as and when required. A)Kharif season 2013 1.Pigeonpea (Vipula)(IP) <ul style="list-style-type: none"> Local (FP) 2.Sunflower (Bhanu)(IP) <ul style="list-style-type: none"> Local(FP) 3.Blackgram (TPU)(IP) <ul style="list-style-type: none"> Local (FP) 4.Pearlmillet (Shanti)(IP) <ul style="list-style-type: none"> Local(FP) B) Rabi season 2013 1.Rabi sorghum (Phule Anuradha (Shallow to medium soil > 45 cm) & Phule Vasudha (Medium to deep soil < 45 cm) (IP) <ul style="list-style-type: none"> Local(FP) 	3.00 4.00 1.20 2.80 4.00	15 20 06 14 20	1.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) 2.Sunflower 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) 3.Blackgram Seed Yield Stalk Yield 100 Seed Weight

			<p>2.Chickpea (Vijay, Digvijay recommended for dry land condition) (IP)</p> <ul style="list-style-type: none"> Local(FP) <p>*Drought mitigation: Recommended foliar sprays of 2% urea in sorghum and 1% KNO₃ In chickpea will be followed while raising the crop .</p>	4.00	20	<p>Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>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)</p> <p>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)</p> <p>2.Chickpea Days to Maturity Seed yield Stalk yield Harvest Index, 100 Seed Weight Economics Nodulation Crop Seasonal Rainfall (mm)</p>
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						No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)
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	1.Sunflower (Bhanu)+ Pigeonpea (Vipula) (2:1) 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 Economics, Crop Seasonal Rainfall (mm) No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)
Theme 2: Soil health and Conservation Agriculture						
9	SOLA /N/OS /SHC A/201 3	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u> <u>Long Term Experiment on PMT is in progress</u>			
10	SOLA /N/OS /SHC A/201 3	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 			
Theme 3 : Energy Management						
11	SOLA /N/OF /EM/2 013	Efficient energy management through improved implements	Crop : <i>Rabi</i> sorghum <ul style="list-style-type: none"> 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,

Theme 4 : Alternate Land Use Systems						
12	SOLA /N/OF /ALU/ 2013	Demonstration of Horti-pasture systems	<ul style="list-style-type: none"> • Grass / Fodder Stylo Marvel Madras Anjan Phule Jaywant • Orchards- Mango, Custard apple, Tamarind <p>Livestock: Baffalow (5)</p>	0.80	05	<p>Initial & Final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Hortipasture</p> <ul style="list-style-type: none"> • 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						
13	SOLA /N/OF /CHC/ 2013	Demonstration of farm implements through custom hiring centre	Implements :	Area (ha)	No. of farmers	<p>For each implement</p> <ul style="list-style-type: none"> • 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 <p>Total Income Generated through CHC</p> <p>Area Covered -</p> <ul style="list-style-type: none"> • Landholding category wise • Crop wise <p>Total area in the village</p>
			Tractor operated four blade Baliram plough with harrow	6	5	
			Baliram plough 12" (Bullock drawn) with wooden handle and wooden beam	-	-	
			Laxmi sickle	-	-	
			CRIDA 9 row tractor drawn seed cum fertilizer planter	4.8	2	
			CRIDA 4 row bullock drawn seed cum fertilizer planter	11	13	
			CRIDA 3 row bullock drawn seed cum fertilizer planter	9	8	

5.3 JHANSI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
F. ON-STATION				
Theme 1 : Real time contingency planning				
1	JHAN /N/OS /RTC/ 2013	Evaluation of drought tolerant varieties	<p>Crop Varieties Sorghum PC-6, Nondescript-340 (local)</p> <p>Cowpea BL-2, Nondescript- 255 (local) Blackgram Azad-2, Local-640 Maize PHM-5, Local-720</p> <p>Sesame Sekhar, Local-189</p> <p>Groundnut Amber, Local-405</p>	<p>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 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, 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 stage of crop, duration of each dry spell (mention days and month) RWUE</p>

			<p>Berseem BB-3, Local</p> <p>Wheat Harshita, N.Chandausi, Local</p> <p>Oat JHO-822, Local</p> <p>Chickpea Uday, Local</p> <p>Lentil K-75, Local</p>	<p>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</p> <p>Wheat Grain yield, Straw yield, Harvest Index, 1000 Grain Weight Any drought tolerant parameter to be studied</p> <p>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</p> <p>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</p>
2	JHAN /N/OS /RTC/ 2013	Evaluation of inter cropping systems	<ul style="list-style-type: none"> • Sorghum + Berseem • Cowpea + Wheat • Blackgram + Oat • Maize + Chickpea • Sesame + Lentil • Groundnut + Wheat 	<p>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</p>

Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)				
3	JHAN /N/OS /RWM /2013	Evaluation of <i>in-situ</i> moisture conservation practices	<ul style="list-style-type: none"> 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
Theme 3 : Alternate Land Use Systems				
4	JHAN /N/OS /ALU/ 2013	Evaluation of amla based horti-pasture system	<ul style="list-style-type: none"> Microsite improvent/ moisture conservation practices Contour staggered trenches 	<p>Horticulture Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting</p> <ul style="list-style-type: none"> Establishment in the first year - mortality, water use by each plant, Plant height Girth Other growth parameters specific to species Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> Fruit yield/tree Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> 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 <p>Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p>

						<p>Silviculture</p> <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species • Land quality • economics <p>Pasture</p> <ul style="list-style-type: none"> • Biomass yield -fresh/dry weight • Cost of Cultivation, • Gross Net Returns • 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) • Carbon sequestration studies - every five years 	
Sl. No	Code	Interven-tions	Crops/Treatments	Area (ha)	No of Far-mers	Observations/p arameters/anal ysis to be recorded	
G. ON-FARM							
Village : Kadesara Kalan, District : Lalitpur, Uttar Pradesh							
Theme 1 : Real time contingency planning							
5	JHAN /N/OF /RTC/ /2013	Demonstrati on of improved varieties	Crop Groundnut	Varieties Amber, Chitra, Local	5	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 spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE

			<p>Sesame Sekhar, JTS-8, T-78, Local</p> <p>Blackgram Azad-2, Uttra, Local</p> <p>Wheat Harshita, N. Chandausi, Poorna, Amar,Raj-3765, Pusa Bahar, Amrita, Local</p>		<p>Sesame 1000 Seed weight Any drought tolerant parameter to be studied Seed yield Stalk Yield Harvest Index Economics, RWUE</p> <p>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</p> <p>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)</p>
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						<p>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)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month) RWUE</p>
6	JHAN /N/OF /RTC/ 2013	Demonstrati on of double cropping system	Groundnut - Wheat Sesame - Wheat Blackgram - Wheat	4	8	
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
7	JHAN /N/OF /RWM/ 2013	Evaluation of <i>in-situ</i> moisture conservation practices	<ul style="list-style-type: none"> 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/interc ops Equivalent yield of main crop in intercropping systems RWUE economics

8	JHAN /N/OF /RWM/ 2013	Rainwater harvesting and efficient utilization	<ul style="list-style-type: none"> • Improved practice : Presowing/supplemental irrigation to <i>khariif/rabi</i> crops • Farmers' practice : No irrigation 		<p>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</p>
					<p>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)</p>

9	JHAN /N/OF /RWM/ 2013	<i>Ex-situ</i> moisture conservation (check dam)	Supplemental irrigation to vegetables, turmeric, ginger			As above
Theme 3: Soil Health and Conservation Agriculture						
10	JHAN /N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommend ations	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrients analysis • Village Soil fertility map • Site-specific nutrient management recommendations 		60	As per template enclosed Initial soil analysis crop yields,
Theme 4 : Energy Management						
11	JHAN /N/OF /EM// 2013	Demonstration of suitable tools for various agricultural operations	Implements : <ul style="list-style-type: none"> • 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,
Theme 5 : Alternate Land Use Systems						
12	JHAN /N/OF ALU// 2013	Demonstration of horti- pasture system	<u>Horticulture:</u> <ul style="list-style-type: none"> • Guava (Allhabad safeda) • Amla (NA-7) • Citrus (paper lime) <u>Pasture :</u> <ul style="list-style-type: none"> • Guinea • Cenchrus • Stylo 	2.0	4	Initial & Final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Sillviculture <ul style="list-style-type: none"> • Land quality • Economics, Pasture <ul style="list-style-type: none"> • Biomass yield -fresh/dry weight • Economics, • Crop Seasonal Rainfall (mm)

						<ul style="list-style-type: none"> • 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
H. CUSTOM HIRING CENTRE						
13	JHAN /N/OF /CHC / 2013	Demonstration of need based farm implements through custom hiring centre	<ul style="list-style-type: none"> • Bullock drawn automatic seed drill (1) • Tractor drawn automatic seed drill (1) • Rotavator (1) • Hand drawn seed drill (1) • Sprayers (1) • Groundnut decorticator (1) • Bund former (1) • Tractor drawn furrow openers (1) • Bullock drawn harrow (1) • Diesel pump set (1) 			<p>For each implement</p> <ul style="list-style-type: none"> • 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 <p>Total Income Generated through CHC</p> <p>Area Covered -</p> <ul style="list-style-type: none"> • Landholding categorywise • Cropwise <p>Total area in the village</p>

*Soyabean Based
Production System*

6.0 SOYABEAN BASED CROPPING SYSTEM

6.1 INDORE

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
O. ON-STATION				
Theme 1 : Real time contingency planning				
1	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 (mention days and month) RWUE
2	INDO /N/OS /RTC/ 2013	Evaluation of improved varieties of chickpea in dryland conditions	Varieties :7	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

3	INDO /N/OS /RTC/ 2013	Evaluation of contingent cropping systems under aberrant weather condition	<p>Crops and cropping systems :</p> <ul style="list-style-type: none"> • T1: Soybean + Maize (4:2) with balanced nutrition T2: Soybean + Pigeonpea (4:2) with balanced nutrition • T1: Seed treatment @ 1.0 g per of seed T2: Foliar application @ 0.1% • T1: RDF (20N + 60 P₂O₅ + 20 K₂O + 20 S/ha) T2: Farmers Practice (50 kg DAP/ha) • T1: Polythene mulch T2: No mulch <ul style="list-style-type: none"> • JS 95-60, JS 93-05 and RVS 2001-04 	<p>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</p> <p>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</p> <p>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</p> <p>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 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</p>
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Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)				
4	INDO/ N/OS/ RWM/ 2013	Catchment – storage - command relationship for enhancing water productivity in micro – watershed	<p>Treatment details:</p> <ul style="list-style-type: none"> • Double cropping system <ul style="list-style-type: none"> ▪ Soybean – chickpea • Horticultural crops (Vegetables, Flowers) Fodder 	<p>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</p> <p>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</p> <p>All fodder crops Biomass Economics RWUE Crop duration N, P, K before sowing and final (after harvesting)</p>
Theme 4 : Alternate Land Use Systems				
5	INDO/ N/OS/ ALU/ 2013	Evaluation of agri-horti system for medium deep <i>Vertisols</i>	<p>Fruit crops :</p> <ul style="list-style-type: none"> • Ber + annual crops • Guava + annual crops • Amla + annual crops • Phalsa + annual crops • Mango + annual crops • Drumstick <p><i>Kharif</i> crops :</p> <ul style="list-style-type: none"> • Soybean • Pigeonpea • Soybean + Pigeonpea (4:2) <p><i>Rabi</i> crop :</p> <ul style="list-style-type: none"> • Chickpea 	<p>Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Till fruiting</p> <ul style="list-style-type: none"> • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality • <p>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)</p>

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded
Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems Economics, RWUE						
P. ON-FARM Village : Nagnoti, Tehsil/District : Indore, Madhya Pradesh						
Theme 1 : Real time contingency planning						
6	INDO/ N/OF/ RTC/ 2013	Demonstration of improved varieties of crops in <i>kharif</i> & <i>rabi</i> season	<u>Crops</u> <u>Varieties</u> Soybean RVS 2004-1, JS 95-60	0.50	10	Soybean 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 For all crops: any drought tolerant parameter to be studied

7	INDO/ N/OF/ RTC /2013	Demonstration of improved varieties of crops in <i>rabi</i> season	<u>Crops</u> <u>Varieties</u> 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 month) For all crops: any drought tolerant parameter to be studied) RWUE
8	INDO/ N/OF/ RTC/ 2013	Demonstration of need based crop management practices	<ul style="list-style-type: none"> • 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 - Agroadvisories?? 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.
Theme 2 : Rainwater Management (<i>in-situ & ex-situ</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, 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)
Theme 3: EFFICIENT ENERGY USE AND MANAGEMENT						
11	INDO/ N/OF/ EM/ 2013	Low Till Farming Strategies for resource conservation and improving soil quality	<ul style="list-style-type: none"> Dry sowing of wheat / chickpea Sowing after pre-sowing irrigation (<i>Palewa</i>) 	0.25	10	

Theme 4 : Alternate Land Use Systems						
12	INDO/ N/OF/ ALU/ 2013	Demonstration of dryland horticulture	Fruit trees : <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species
						<ul style="list-style-type: none"> • Land quality From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • economics • Land quality
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	Crop seasonal rainfall Any dry spells (give details) Biomass yield Economics RWUE Quantity and quality of milk

C. CUSTOM HIRING CENTRE						
14	INDO /N/OF /CHC/ 2013	Popularization of improved implements through custom hiring centre	Implements : <ul style="list-style-type: none"> • Reversible plough palti plough • Seed cum ferti seed drill • Knapsack hand sprayer single • Knapsack hand sprayer double • Power sprayer 		09	<p>For each implement</p> <ul style="list-style-type: none"> • 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 <p>Total Income Generated through CHC</p> <p>Area Covered -</p> <ul style="list-style-type: none"> • Landholding category wise • Crop wise <p>Total area in the village</p>

6.2 REWA

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ analysis to be recorded
Q. ON-STATION				
Theme 1 : Real time contingency planning				
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 <ul style="list-style-type: none"> • 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

				<p>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) Grain/seed yield of sole/main/intercrops Equivalent yield of main crop in intercropping systems RWUE Economics</p>
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 <i>kharij</i> 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/nutrients/water sprays for mitigating in-season dry spells/droughts	Crop: <u>Soybean</u> Foliar spray treatments for <i>In-season</i> dry spells (<i>Real-Time</i>) <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u>	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

Theme 2: Soil health and Conservation Agriculture						
6	REW A/N/ OS/ SHCA /2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>			
7	REW A/N/ OS/S HCA/ 2013	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 			
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded
R. ON-FARM						
Village : Patauna, & Raura District : Rewa, Madhya Pradesh						
Theme 1 : Real time contingency planning						
8	REW A/N/ OF/ RTC/ 2013	Demonstration of drought tolerant varieties of various crops in upland situation	<u>Crops & Varieties</u> Soybean JS-335, JS 95-60, JS 93-05 Blackgram LBG-20, PU-30, PDU-1	1.2 1.2 1.2 1.2	03 03 03 03	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 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 under midland situation	<u>Crops & Varieties</u> Soybean JS-335, JS 95-60, JS 93-05 Blackgram LBG-20, PU-30, PDU-1 Pigeonpea Asha, ICPL 88039-50, TDT 50, Sesame TKG-22, JT-7, TKG- 306 Rice JR-201, Sahbhagi, Danteshwari	1.2	03	Soybean, Blackgram, Pigeonpea: as given earlier Rice: No. of tillers/Plant (or m ²), 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

10	REW A/N/ OF/ RTC/ 2013	Demonstration of drought tolerant varieties of different <i>rabi</i> crops	<u>Crops & Varieties</u>			
			Wheat JW-17, HI-1500, JW- 2030	1.2	03	Wheat Days to Maturity Grain yield, Straw yield,
			Lentil JL-1, JL-2, JL-3	1.2	03	Harvest Index, 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)
			Chickpea JG-130, JG-11, JG-14	1.2	03	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			
			Linseed JL-9, JL-23, R-552			Linseed 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 Pusa bold, Baruna Tarak			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

11	REW A/N/ OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	Crop: <u>Soybean</u> Foilar spray treatments for <i>In-season dry spells (Real-Time)</i> Let us go for mid season drought stage only <u>Treatments :</u> <u>Urea spray</u> <u>Thiourea ?</u> <u>KNO₃ spray (One)</u> <u>KNO₃ spray (Twice)</u> <u>ZnSO₄ spray</u>			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 : <ul style="list-style-type: none"> • Blackgram + Pigeonpea (4:2) • Soybean + Pigeonpea (4:2) • Sesame + Pigeonpea (4:2) [Upland situation] <ul style="list-style-type: none"> • Blackgram + Pigeonpea (4:2) • Soybean + Pigeonpea (4:2) • Sesame + Pigeonpea (4:2) • Chilli + Onion (???) 	1.2 1.2 1.2 1.2 1.2 1.2	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 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	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

Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
14	REW A/N/ OF/ RWM / 2013	Rainwater harvesting and efficient utilization for multiple uses	Treatments : Dryland horticulture Guava Amla Arable crops with supplemental irrigation Cucumber Greengram Okra + Greengram Onion Bottle guard Pumpkin Tomato Brinjal	10.2	33	Initial & 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, Land quality From the fruiting year Fruit yield/tree Cost o Cultivation (including the cost o microsite improvement, if any) Gross returns Net returns BC ratio 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 stage of crop, duration of each dry spell (mention days and month) RWUE Vegetables Fruit yield Cost of Cultivation, Economics,
Theme 3: Soil Health and Conservation Agriculture						
15	REW A/N/ OF/ SHCA / 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendati ons	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrients analysis • Village Soil fertility map • Site-specific nutrient management recommendations 			Initial & 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, Land quality From the fruiting year Fruit yield/tree Cost of Cultivation (including the cost of microsite improvement, if any) <ul style="list-style-type: none"> • Gross returns • Net returns • BC ratio Land quality As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis

16	REW A/N/ OF/ SHCA / 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 			
Theme 4: Alternate Land Use System						
17	REW A/N/ OF/ ALU/ 2013	Demonstration of agri- horti systems	<p>Fruit plants :</p> <ul style="list-style-type: none"> • Amla + custard apple + guava • Amla + custard apple • Amla + guava • Amla • Guava • Guava + lime • Guava + drumstick • Soybean • Soybean + chickpea 			<p>Horticulture</p> <p>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, Economics RWUE</p>

*Groundnut Based
Production System*

7.0 GROUNDNUT BASED PRODUCTION SYSTEM

7.1 ANANTAPUR

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/ Analysis to be recorded
S. ON-FARM						
Village : Aminabad and Girigetla; District : Kurnool; Andhra Pradesh						
Theme 1 : Real time contingency planning						
1	ANAN /N/OF/ RTC/2 013	Demonstration of drought tolerant varieties of groundnut	Varieties : <ul style="list-style-type: none"> • 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 : <ul style="list-style-type: none"> • 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 : <ul style="list-style-type: none"> • 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/weed 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,clusterbean (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
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
6	ANAN /N/OF/ RWM/ 2013	<i>In-situ</i> moisture conservation and efficient utilization	Crop : Groundnut Treatments : <ul style="list-style-type: none"> 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 water	Treatments : (4 Farm ponds) <ul style="list-style-type: none"> 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

						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
Theme 3 : Energy Management						
9	ANAN/N/OF/EM/2013	Demonstration of need based improved implements through custom hiring centre	Implements : <ul style="list-style-type: none"> • Tractor drawn ananta, planter • Bullock drawn ananta seed drill • Groundnut wet pod thresher • Duck foot 5 row cultivator • Farmers' practice 	50	50	Energy Input and Energy Output balance observations Field capacity of the implement Time saved (hrs) Labour saved RWUE Economics
Theme 4 : Alternate Land Use Systems						
10	ANAN/N/OF/ALU/2013	Demonstration of millet based farming system	Rajasri birds after harvest of sorghum and fed with grains	-	10	Weight birds, Returns of farm birds, Economics
11	ANAN/N/OF/ALU/2013	Encouraging on-farm generation of organic manure	Community Household based Vermi composting/ composting will be proposed		2	

C. CUSTOM HIRING CENTRE						
12	ANAN /N/OF/ CHC/2 013	Popularization of improved implements through custom hiring centre	Implements :			For each implement <ul style="list-style-type: none"> 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 - <ul style="list-style-type: none"> Landholding category wise Crop wise Total area in the village
			Ananta tractor drawn seed planter	8.0	05	
			Ananta bullock drawn seed drill	2.0	03	
			Mould board plough	4.4	1	
			Duck foot 5 row cultivator	16	02	
			Fresh pod thresher	2.0	02	
			Dry pod thresher	5	04	
			Duck foot 5 row cultivator	16.0	02	
			Fresh pod tresher	2.0	02	
			Dry pod tresher	5.0	04	
			Groundnut wet pod thresher	20.0	20	
			Taiwan sprayer	26.0	29	
			Castor sheller	8.0	02	

7.2 RAJKOT

Sl. No	Code	Interventions	Crops/ Treatments	Area (ha)	No of Far- mers	Observations/parame ters/ Analysis to be recorded
T. ON-Station						
Theme 1: Alternate Land Use Systems						
1	RAJK /N/OS /ALU/ 2013	Demonstration of guava based agri-horti system	Fruit crop : Guava Arable crops : <ul style="list-style-type: none"> • Groundnut (GG-20) • Black gram (GU-1) Treatments : <ul style="list-style-type: none"> • No mulch • Mulch with crop residue @ 5t/ha • Plastic mulch 	0.4	On stati on	Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. From the fruiting year <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees <ul style="list-style-type: none"> • 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	RAJK /N/OS /ALU/ 2013	Demonstration of intercropping systems	Normal onset of monsoon : <ul style="list-style-type: none"> • Groundnut 60x10 cm • Castor 90x20 cm • Sesame 60 x15 cm • Groundnut + castor (3:1) 60- 240 cm • Groundnut + sesame (1:1) 120-120 cm Delayed on set of monsoon : <ul style="list-style-type: none"> • Castor 90 X 20 cm Groundnut 60x10 cm • Blackgram 60x10 cm • Castor + groundnut (1:3) • Castor + black gram (1:2) 	0.4	On stati on	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
U. ON-FARM						
Village : Pata Meghpar Tehsil-Kalawad; District : Jamnagar; Gujarat						
Theme 1 : Real time contingency planning						
3	RAJK /N/OF /RTC/ 2013	Demonstration of drought tolerant varieties of crops in medium black soil	<u>Crops</u> <u>Varieties</u> 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 & summer seasons	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, Crop Seasonal Rainfall (mm)

						<p>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 Economic yield Economics Gum Guar Days to 50 % flowering Pods/Plant Seed Yield Stalk Yield 100 Seed Weight Economics,</p>
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

			<ul style="list-style-type: none"> • Site Specific Nutrient management Groundnut (GG 20) application of sulphur/ as per soil test value • Foliar fertilization Groundnut (GG 20) Ferrous sulphate 1% Cotton BGII Potassium Nitrate 3% 	4 4 2 2	10 10 5 5	<p>Groundnut Pod yield Haulm yield Harvest Index, 100 Seed Weight Economics</p> <p>Cotton Seed cotton yield, Lint yield, Seed Index (100 Seed Weight) Economics</p>
5	RAJK /N/OF /RTC/ 2013	Demonstration of pest management practices in cotton	<p>Crop : Cotton Treatments :</p> <ul style="list-style-type: none"> • Improved practice – castor cake @ 500 kg/ha + trichoderma powder @ 2.5 kg/ha + nimazal 200ml + blue copper 500gm • Farmers' practice 	4	10	<p>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</p>
6	RAJK /N/OF /RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> • Crop: <u>Groundnut</u> <p>Any other crops Cotton Foliar spray treatments for <i>In-season dry spells (Real-Time)</i> Treatments : <u>KNO₃ spray (One)</u> Phenyl Mercuric Acetate (PMA)</p>	1.2 1.2	4 4	<p>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)</p>
7	RAJK /N/OF /RTC/ 2013	Demonstration of efficient intercropping systems	<p>Intercropping systems :Groundnut+ Castor (3:1)</p> <ul style="list-style-type: none"> • Cotton+ Groundnut (1:1) • Cotton+ Blackgram (1:1) • Cotton+ Green gram (1:1) • Cotton+ Sesame (1:1) • Cotton + Soyabean (1:1) 	1.6 1.6 1.6 1.6 1.6 0.8	4 4 4 4 4 2	<p>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</p>

						<p>crop in the Intercropping system</p> <p>LER</p> <p>MAI (Monetary Advantage Index)</p> <p>Economics,</p> <p>Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p>
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
8	RAJK/ N/OF/ RWM/ 2013	Demonstration of <i>in-situ</i> moisture conservation practices	<p>Treatments :</p> <ul style="list-style-type: none"> • Improved practice ▪ Conservation furrow ▪ Crop residues/plastic mulching ▪ Murrum and sediment application ▪ Deep tillage • Farmers' practice 	1.6	4	<p>Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>Grain/seed yield of sole/main/intercrops</p> <p>Equivalent yield of main crop in intercropping systems</p> <p>Economics</p> <p>RWUE</p>
				1.6	4	
				4	10	
				4	10	
9	RAJK/ N/OF/ RWM/ 2013	Rainwater harvesting and efficient utilization	<p>Crops :</p> <p>Groundnut & Cotton</p> <p>Supplemental irrigation to rainfed crops from farm ponds/wells</p> <p>Treatments :</p> <ul style="list-style-type: none"> • Adoption of micro-irrigation system for horticulture crops • Lifting the farm pond water by pump/engine 	4	10	<p>Water use efficiency, Crop seasonal rainfall, Minimum & Maximum Temperature, Water stored in the farm pond</p> <p>Duration of availability of water in the pond</p> <p>Quality of irrigation</p> <p>No. of irrigations and what stage of the crop, Kind (flood, drip, sprinkler ect.) and Quantity of each irrigation</p> <p>Cost of each irrigation (including the cost of microirrigation systems, lifting from the pond using pumps, labour charges etc)</p>
				1.6	4	
				0.8	2	

Theme 3: Soil Health and Conservation Agriculture						
10	RAJK/ N/OF/ SHCA/ 2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 	NIL	NIL	Not Started
Theme 4 : Energy Management						
12	RAJK/ N/OF/ EM/ 2013	Demonstration of need based improved implements for various agricultural operations	Implements : <ul style="list-style-type: none"> • 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 of the implement Time saved (hrs) Labour saved Economics, RWUE
V. CUSTOM HIRING CENTRE						
13	RAJK/ N/OF/ CHC/ 2013	Popularization of improved implements	Implements : <ul style="list-style-type: none"> • Tractor drawn spike tooth harrow • Cultivator • Rotavator • Land leveler • Rain gauge • Cotton shredder • Reversible plough 	1 1 1 1 1 1 1		For each implement <ul style="list-style-type: none"> • Hours hired (as entered in the Register) • Area covered (ha) • Income generated (as entered in the register) • Energy use efficiency • BC ratio • Farmers' feedback • Drudgery reduction Total Income Generated through CHC Area Covered - <ul style="list-style-type: none"> • 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/ Treatments	Observations/parameters/ Analysis to be recorded
W. ON-STATION				
Theme 1 : Rainwater Management (<i>in-situ&ex-situ</i>)				
1	AKO L/N/ OS/ RW M/20 13	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,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 health and Conservation Agriculture				
2	AKO L/N/ OS/S HCA/ 2013	To maintain soil health with appropriate soil and crop management	<u>Linked with PMTs</u>	
3	AKO L/N/ OS/S HCA/ 2013	Development of CA Strategies	<ul style="list-style-type: none"> Experimental details to be finalized in the CA Platform 	

Theme 2 : Alternate Land Use Systems				
4	AKO L/N/ OS/A LU/2 013	Evaluation of Tamarind + Guava based agri-horti systems	<p>Treatments :</p> <p>T₁: Tamarind + Guava + Sole Green gram</p> <p>T₂: Tamarind + Guava + Sole Black gram</p> <p>T₃: Tamarind + Guava + Sole Soybean</p> <p>T₄: Tamarind + Guava + Sole Pigeon pea</p> <p>T₅: Tamarind + Guava + (Green gram + Pigeon pea 2:1)</p> <p>T₆: Tamarind + Guava + (Black gram + Pigeon pea 2:1)</p> <p>T₇: Tamarind + Guava + (Soybean + Pigeon pea 2:1)</p> <p>T₈: Tamarind + Guava (Control)</p>	<p>Horticulture</p> <p>Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Till fruiting</p> <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Land quality <p>Agriculture</p> <p>a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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

Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded
X. ON-FARM						
Village : Warkhed, District : Akola, Maharashtra						
Theme 1 : Real time contingency planning						
5	AKOL /N/OF/ RTC/2 013	Demonstration of improved varieties of sorghum and soybean	<u>Crops Varieties</u> Sorghum Bhagyalaxmi-296 CSH-14 CSH-9 (local) Soybean JS 93-05, JS 95-60, JS-335 (local), MAUS-71	1.2 2.8	03 07	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/nutrients/water sprays for mitigating in-season dry spells/droughts	<ul style="list-style-type: none"> • Crop: <u>Cotton</u> Foilar spray treatments for <i>Mid-season dry spells (Real-Time)</i> <u>Treatments :</u> <u>Urea spray: 2% in the Morning/Evening at flowering stage</u> <u>DAP: 2% in the Morning/Evening at boll development stage</u>	0.8	02	<ul style="list-style-type: none"> • 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	<u>Crops Varieties</u> 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 : <ul style="list-style-type: none"> • 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
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
8	AKOL /N/OF/ RWM/ 2013	<i>In-situ</i> moisture conservation practices in cotton and soybean	Crops : <ul style="list-style-type: none"> • Cotton • Soybean Treatments : <ul style="list-style-type: none"> • 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 RWUE
9	AKOL /N/OF/ RWM/ 2013	Rainwater harvesting and efficient utilization	Supplemental irrigation for arable crops through farm ponds	0.8	02	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)

Theme 3: Soil Health and Conservation Agriculture						
10	AKOL /N/OF/ SHCA /2013	To develop land parcelwise (farmerwise) Soil Health Cards and Site-specific nutrient recommendations	<ul style="list-style-type: none"> • 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
Y. CUSTOM HIRING CENTRE						
11	AKOL /N/OF/ CHC/2013	Demonstration of need based improved implements for various agricultural operations	Implements : <ul style="list-style-type: none"> • Mutipurpose thresher 	24.8	62	For each implement <ul style="list-style-type: none"> • Hours hired (as entered in the Register) • Area covered (ha) • Income generated (as entered in the register) • Energy use efficiency • BC ratio • Farmers' feedback • Drudgery reduction Total Income Generated through CHC Area Covered - <ul style="list-style-type: none"> • Landholding categorywise • Cropwise Total area in the village

8.2 KOVILPATTI

Sl. No	Code	Interventions	Crops/Treatments		Observations/parameters/ Analysis to be recorded
Z. ON-STATION					
Theme 1 : Real time contingency planning					
1	KOVI/N/ OS/RTC/ 2013	Evaluation of drought tolerant varieties	<u>Crops</u> Cotton	<u>Varieties</u> Jadoo BG II Jackpot BG II Chirutha BG II Mallika BG II (LC)	Cotton Bolls/Plant, Boll weight, Days to 50 % flowering Days to first picking Days to last picking Seed cotton yield Lint yield, Ginning out turn (%) 2.5 % span length, fibre strength and 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 , RWUE
			Maize	900 M gold NK-30 NK 6240 COH (M)-6 (local)	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	CO (Cu)-9 Pioneer -80M32 Aruna CO-9 (local)	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/nutrients/water sprays for mitigating in-season dry spells/droughts	<u>Crops:</u> Bt cotton Maize <u>Treatments :</u> <ul style="list-style-type: none"> • 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%) foliar spray 	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 No. of bolls/ plant Seed cotton yield														
3	KOVI/N/ OS/RTC/ 2013	Evaluation of cotton based intercropping systems	<table border="0"> <tr> <td><u>Crops</u></td> <td><u>Varieties</u></td> </tr> <tr> <td>Bt cotton</td> <td>Jadoo</td> </tr> <tr> <td>Clusterbean</td> <td>Pusa</td> </tr> <tr> <td>Nowbagar</td> <td></td> </tr> <tr> <td>Coriander</td> <td>CO 1</td> </tr> <tr> <td>Radish</td> <td>local</td> </tr> <tr> <td>Onion</td> <td>local</td> </tr> </table> <u>Treatments :</u> <ul style="list-style-type: none"> • Bt cotton • Bt cotton + Clusterbean • Bt cotton + Coriander • Bt cotton + Radish • Bt cotton + Onion 	<u>Crops</u>	<u>Varieties</u>	Bt cotton	Jadoo	Clusterbean	Pusa	Nowbagar		Coriander	CO 1	Radish	local	Onion	local	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, RWUE
<u>Crops</u>	<u>Varieties</u>																	
Bt cotton	Jadoo																	
Clusterbean	Pusa																	
Nowbagar																		
Coriander	CO 1																	
Radish	local																	
Onion	local																	
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)																		
4	KOVI/N/ OS/ RWM/ 2013	Effect of <i>in-situ</i> moisture conservation practices on different crops	<table border="0"> <tr> <td><u>Crops</u></td> <td><u>Treatments</u></td> </tr> <tr> <td>Maize</td> <td> <ul style="list-style-type: none"> • Broad bed and furrows • Ridges and furrows </td> </tr> <tr> <td>Greengram</td> <td> <ul style="list-style-type: none"> • Broad bed and furrows • Flat sowing </td> </tr> <tr> <td>Blackgram</td> <td> <ul style="list-style-type: none"> • Broad bed and furrows • Flat sowing </td> </tr> </table>	<u>Crops</u>	<u>Treatments</u>	Maize	<ul style="list-style-type: none"> • Broad bed and furrows • Ridges and furrows 	Greengram	<ul style="list-style-type: none"> • Broad bed and furrows • Flat sowing 	Blackgram	<ul style="list-style-type: none"> • Broad bed and furrows • Flat sowing 	Runoff 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						
<u>Crops</u>	<u>Treatments</u>																	
Maize	<ul style="list-style-type: none"> • Broad bed and furrows • Ridges and furrows 																	
Greengram	<ul style="list-style-type: none"> • Broad bed and furrows • Flat sowing 																	
Blackgram	<ul style="list-style-type: none"> • Broad bed and furrows • Flat sowing 																	

5	KOVI/N/ OS/RWM/ 2013	<i>Ex-situ moisture conservation</i> - Rain water harvesting in farm ponds and recycling of stored water during dry spells	Treatments : <ul style="list-style-type: none"> • 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)
Theme 3: Soil health and Conservation Agriculture				
6	KOVI/N/ OS/ SHCA/ 2013	To maintain soil health with appropriate soil and crop management	Crops : Bt cotton and maize Treatments <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 	

Theme 4 : Energy Management - Nil				
Theme 5 : Alternate Land Use Systems				
8	KOVI/N/ OS/ ALU/ 2013	Evaluation of aonla based agri-horti systems	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Aonla (NA-7) • Aonla (NA-7) + Greengram (CO 6) • Aonla (NA-7) + Cowpea (C152) • Aonla (NA-7) + Clusterbean (PNB) 	<p>Horticulture</p> <p>Initial and final soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Observations until fruiting</p> <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Land quality <p>Agriculture</p> <p>a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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 • RWUE • Economics

9	KOVI/N/ OS/ALU/ 2013	Evaluation of custard apple based agri-horti systems	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Custard apple (APK-1) • Custard apple (APK-1) + Greengram (CO 6) • Custard apple (APK-1) + Moth bean (TMV (mb) – 1) • Custard apple (APK-1) + Horsegram (local) 	<p>Horticulture</p> <p>Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Observations until fruiting</p> <ul style="list-style-type: none"> • Establishment in the first year - mortality, water use by each plant, • Plant height • Girth • Other growth parameters specific to species • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Land quality <p>Agriculture</p> <p>a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <p>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</p>
10	KOVI/N/ OS/ALU/ 2013	Evaluation of sapota based agri-horti systems	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Sapota (PKM-1) • Sapota (PKM-1) + Coriander (Local) • Sapota (PKM-1) + Bengal gram (local) • Sapota (PKM-1) + Bhendi (Arka Anambika) 	<p>Horticulture</p> <p>Initial and final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Observations until fruiting</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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	
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No. of Farmers	Observations/parameters/analysis to be recorded	
AA. ON-FARM							
Village : Vadakkupatti; District : Thoothukudi; Tamil Nadu							
Theme 1 : Real time contingency planning							
11	KOVI/N/OF/RTC/2013	Demonstration of drought tolerant varieties of rainfed crops	<u>Crops</u> Cotton (LC)	<u>Varieties</u> Jadoo BG II Jackpot BG II Chirutha BG II Mallika BG II	2.4	1 1 1	Cotton Bolls/Plant, Boll weight, Days to 50 % flowering Days to first picking Days to last picking Seed cotton yield Lint yield, Ginning out turn (%) 2.5 % span length, fibre strength and Seed Index (100 Seed Weight) Economics, Crop Seasonal Rainfall (mm)

			<p>Maize 900 M gold NK-30 NK 6240 COH (M)-6 (local)</p> <p>Pearlmillet CO (Cu)-9 Pioneer - 80M32 Aruna CO-9 (local)</p>			<p>No. of Dry spells and at what stage of crop, duration of each dry spell RWUE</p> <p>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</p> <p>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</p>
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12	KOVI/ N/OF/ RTC/ 2013	Demonstration of foliar sprays with need based chemicals/nutrients/water sprays for mitigating in-season dry spells/droughts	<p><u>Crops:</u> Maize and Bt cotton</p> <p>Treatments :</p> <ul style="list-style-type: none"> • 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	<p>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</p> <p>Cotton No. of sympodium branches No. of bolls/ plant Seed cotton yield</p>
13	KOVI/ N/OF/ RTC/ 2013	Demonstration of cotton based intercropping systems	<p><u>Crops</u> <u>Varieties</u> Bt cotton Jadoo Clusterbean Pusa- Nowbhar Coriander CO 1 Radish local Onion local</p> <p>Treatments :</p> <ul style="list-style-type: none"> • Bt cotton • Bt cotton + Clusterbean • Bt cotton + Coriander • Bt cotton + Radish • Bt cotton + Onion 	1.5	5	<p>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 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</p>

Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)							
14	KOVI/ N/OF/ RWM/ 2013	<i>Demonstration of in-situ</i> moisture conservation practices on different crops	Crops Maize Blackgram Greengram	Treatments • Broad bed and furrow • Ridge and furrow • Broad bed and furrow • Flat sowing • Broad bed and furrow • Flat sowing	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
15	KOVI/ N/OF/ RWM/ 2013	Rain water harvesting and efficient utilization	Excavation of farm ponds	Two or three farm ponds will be dug based on the willingness of the farmers. The size of the farm pond will be decided based on the farm holding size.			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)
Theme 3: Soil Health and Conservation Agriculture							
16	KOVI/ N/OF/ SHCA/ 2013	To develop land / farmer wise soil health cards and site-specific nutrient recommendations	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrient analysis • Village Soil fertility map • Site-specific nutrient management recommendations 				Initial soil analysis crop yields Root : shoot ratio plant analysis

7	KOVI/ N/OF/ SHCA/ 2013	To demonstrate CA practices as adaptation	<ul style="list-style-type: none"> • Experimental details to be finalized in the CA Platform 				
Theme 4 : Alternate Land Use Systems							
18	KOVI/ N/OF/ ALU/ 2013	Demonstration of aonla based agri-horti systems	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Aonla • Aonla + Green gram (Co 6) • Aonla + Cowpea (C 152) • Aonla + Clusterbean (PNB) 	0.18	1	<p>Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc. Observations until fruiting</p> <ul style="list-style-type: none"> • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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/ N/OF/ ALU/ 2013	Demonstration of acid lime based agri- horti systems	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Acid lime (PKM-1) • Acid lime + Bt cotton • Acid lime + Hybrid maize (NK30) 	0.4	4	<p>Horticulture Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Observations until fruiting</p> <ul style="list-style-type: none"> • Land quality <p>From the fruiting year</p>	

			<ul style="list-style-type: none"> • Acid lime + Hybrid Bajra (86 M 86) 			<ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • 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	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Sapota (PKM-1) • Sapota (PKM-1) + Coriander (CO 1) • Sapota (PKM-1) + Bengal gram (local) • Sapota (PKM-1) + Bhendi (Arka Anambika) 	0.2	1	<p>Horticulture</p> <p>Initial & final - Soil analysis for macro and micro nutrients Organic carbon, pH, EC etc.</p> <p>Observations until fruiting</p> <ul style="list-style-type: none"> • Land quality <p>From the fruiting year</p> <ul style="list-style-type: none"> • Fruit yield/tree • Economics, • Land quality <p>Agriculture a. Sole Cropping Intercropping systems in between horticultural plants/trees</p> <ul style="list-style-type: none"> • Seed yield of sole/main/intercrops • Stalk yield of sole/main/intercrops

						<ul style="list-style-type: none"> • 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
C. CUSTOM HIRING CENTRE						
21	KOVI/ N/CH C/2013	Popularization of need based improved implements through custom hiring centre	Implements : <ul style="list-style-type: none"> • TNAU power weeder • Wheel hoe • Mini weeder • Diesel pump set (1.5 HP) • Ferti seed drill • Rotavator 	Need based implements will be hired by the farmers from the custom hiring centre	For each implement <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Landholding category wise • Crop wise Total area in the village	

8.3 PARBHANI

Sl. No	Code	Interventions	Crops/Treatments	Observations/parameters/ Analysis to be recorded
ON STATION				
Theme 1: Real time contingency planning				
01	PARB /N/OS /RTC/ 2013 SBC AKG MSP	Demonstration of short duration varieties of <i>kharif</i> crops	<u>Crops</u> <u>Varieties</u> Cotton : (06) variety Greengram :BM 2002-1 Blackgram :TAU-1 Soybean : MAUS-71 MAUS-81 Pigeonpea : BDN-708 BSMR-736 BDN-711 Sorghum : PVK-809 Bajra : ABPC-4-3 Treatments : <ul style="list-style-type: none"> • Improved packages of practices • Farmers' practice 	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 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 each dry spell (mention days and month) RWUE

2	PARB /N/OS /RTC/ 2013 SBC AKG MSP	Demonstration of improved varieties of <i>rabi</i> crops	Safflower: PBNS-12 PBNS-40 Sorghum : M-35-1, Treatments : <ul style="list-style-type: none"> Improved packages of practices Farmers' practice 	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		
3	PARB /N/OS /RTC/ 2013 SBC AKG MSP	Demonstration of improved intercropping systems	Cropping systems : <ul style="list-style-type: none"> Soybean + Pigeonpea (4:2) Sorghum + Pigeonpea (4:2) Cotton + green gram (1:1) <i>[kharif]</i>	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 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		
Sl. No	Code	Interventions	Crops/Treatments	Area (ha)	No of Farmers	Observations/parameters/analysis to be recorded
D. ON-FARM						
Village : Babhulgaon Tq. District : Parbhani, Maharashtra						
Theme 1 : Real time contingency planning						
4	PARB /N/OF /RTC/ 2013 SBC AKG MSP	Demonstration of short duration varieties of <i>kharif</i> crops	<u>Crops</u> <u>Varieties</u> Cotton : Mallika <i>Bt</i> Greengram BM 2003-2 BM-4 Blackgram : TAU-1 BDU-1	0.4 0.8 0.8 0.8 0.8 1.2 1.2	01 02 02 02 02 03 03	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

			<p>Soybean : MAUS-71 MAUS-81</p> <p>Pigeonpea : BDN-708</p> <p>BSMR-736</p> <p>BDN-711</p> <p>Sorghum : PVK-809</p> <p>Bajra : ABPC-4-3</p> <p>Treatments : • Improved packages of practices • Farmers' practice</p>	<p>0.8 0.8 0.8</p> <p>0.8</p> <p>0.8</p>	<p>02 02 02</p> <p>02</p> <p>0.2</p>	<p>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</p> <p>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</p> <p>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</p>
5	<p>PARB /N/OF /RTC/ 2013</p> <p>SBC AKG MSP</p>	<p>Demonstration of improved varieties of <i>rabi</i> crops</p>	<p>Safflower: PBNS-12 PBNS-40</p> <p>Sorghum : M-35-1, Parbhani Moti Parbhani Jyoti Gram : BDN-79 Vijay Digvijay</p>	<p>0.8 0.8</p> <p>0.8 0.8 0.8 0.8 0.8 0.8</p>	<p>02 02</p> <p>02 02 02 02 02 02</p>	<p>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</p> <p>Sorghum: as given earlier</p>

			<p>Treatments :</p> <ul style="list-style-type: none"> • Improved packages of practices • Farmers' practice 			
6	<p>PARB /N/OF /RTC/ 2013</p> <p>SBC AKG MSP</p>	Demonstration of improved intercropping systems	<p>Cropping systems :</p> <ul style="list-style-type: none"> • Soybean + Pigeonpea (4:2) • Sorghum + Pigeonpea (4:2) • Cotton + green gram (1:1) <p>[<i>kharif</i>]</p> <ul style="list-style-type: none"> • Sorghum + Safflower (6:2) • Gram + Safflower (6:2) <p>[<i>rabi</i>]</p>	<p>0.8</p> <p>0.8</p> <p>0.4</p> <p>0.8</p> <p>0.8</p>	<p>02</p> <p>02</p> <p>01</p> <p>02</p> <p>02</p>	<p>Intercropping system</p> <p>Days to maturity for sole crops</p> <p>Days to maturity for intercrops</p> <p>Grain/Seed yield of Sole crops</p> <p>Stalk yield of Sole crops</p> <p>Grain yield of Main crop</p> <p>Grain yield of intercrops</p> <p>Stalk yields of main crop</p> <p>Stalk yield of intercrops</p> <p>Equivalent Yield of Main crop in the Intercropping system</p> <p>LER</p> <p>MAI (Monetary Advantage Index)</p> <p>Economics,</p> <p>Crop Seasonal Rainfall (mm)</p> <p>No. of Dry spells and at what stage of crop, duration of each dry spell (mention days and month)</p> <p>RWUE</p>
Theme 2 : Rainwater Management (<i>in-situ</i> & <i>ex-situ</i>)						
7	<p>PARB /N/OF /RW M/ 2013</p> <p>SBC AKG MSP</p>	<i>In-situ</i> moisture conservation and mid season correction to overcome dry spells	<p>Crop :</p> <p>Soybean,</p> <p>Cotton</p> <p>Intercrops</p> <p>Soybean+ Pigeonpea (4:2)</p> <p>Cotton +Pigeonpea (4:2)</p> <p>Treatments :</p> <p>Improved practice – conservation furrow</p> <p>Local practice</p>	<p>0.8</p> <p>0.8</p> <p>0.8</p> <p>0.8</p>	<p>02</p> <p>02</p> <p>02</p> <p>02</p>	<p>Intercropping systems: as given earlier</p> <p>Sole crops: as given earlier</p>

8	PARB /N/OF /RW M/ 2013 MSP SBC AKG	Rainwater harvesting and efficient utilization	Crop : Cotton, Supplementary irrigation : <ul style="list-style-type: none"> • Drip irrigation • Surface irrigation 	0.4	01	oil 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 etc.) and Quantity of each irrigation Cost of each irrigation (including the cost of microirrigation systems, lifting from the pond using pumps, labour charges etc)
Theme 3: Soil Health and Conservation Agriculture						
9	PARB /N/OF /SHC A/201 3	To develop land parcelwise (farmerwise) Soil Health Cards and Site- specific nutrient recommendation s	<ul style="list-style-type: none"> • GPS based soil sampling • Macro and micronutrient s analysis • Village Soil fertility map • Site-specific nutrient management recommenda tions 	5	5	As per template enclosed Initial soil analysis crop yields, Root : shoot ratio plant analysis

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: <ul style="list-style-type: none"> • Seed drill • Seed cum fertilizer drill • Ridger • Power sprayers Tractor drawn implements: <ul style="list-style-type: none"> • • Seed drill • Rotavator 	0.4	1	Energy Input and Energy Output balance observations Field capacity of 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, Ballawal Saunkhri



Setaria (Srilaxmi) in NICRA village, Anantapur



Farm implements in the Custom Hiring Centre, Bangalore



Farmers training program, Kovilpatti



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