State: RAJASTHAN

Agriculture Contingency Plan for District: PALI

1.0 District Agriculture profile					
1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Western Plain, Kachchh And Part Of Kathiawar Peninsula, Hot Arid Eco-Region (2.3)			
	Agro-Climatic Zone (Planning Commission)	WESTERN DRY REGION (XIV)			
	Agro Climatic Zone (NARP)	TRANSITIONAL PLAIN OF LUNI BASIN ZONE (RJ-4)			
	List all the districts or part thereof falling under the NARP Zone	Pali			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		30^0 43'N	$76^0$3'E	212 Meters	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Programme Coordinator, K.V.K. CAZRI, Pali.			
	Mention the KVK located in the district	K.V.K. CAZRI, Pali.			
1.2	**Rainfall** (2007 – 2012 Mean)	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	225	20	1-8 July (Meteorological week 27)	3-9 September (30)
	NE Monsoon(Oct-Dec):	2	2	1-5 October (25)	22-28 December (45)
	Winter (Jan- March)	0	0	-	-
	Summer (Apr-May)	15	5	2-15 May (20)	24-28 May (19)
	Annual	242	27	1st week of July (27)	3-9 September (36)

1.3	**Land use pattern of the district (latest statistics) (2010-11)**	**Geographical area**	**Cultivable area**	**Forest area**	**Land under non-agricultural use**	**Permanent pastures**	**Cultivable wasteland**	**Land under Misc. tree crops and groves**	**Barren and uncultivable land**	**Current fallows**	**Other fallows**
	Area (ha)	1238700	181862	96358	194130	135591	132545	113	47201	94962	0

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area (ha)**	**Percent (%) of total**
	Medium Light yellowish brown Sandy		12.10
	Medium Light yellowish brown Loamy		30.25
	Deep Yellowish brown Sandy		43.76
	Shallow Pale brown Gravelly loam		7.11
	Others Shallow Light yellowish brown Sandy Deep Light yellowish brown Loamy Medium Yellowish brown S		
Total		**145889.00**	

* mention colour, texture (sandy, loamy, clayey etc), depth and give vernacular name in brackets

1.5	**Agricultural land use (2010-11)**	Area (ha)	Cropping intensity %
	Net sown area	202157	121
	Area sown more than once	81763	
	Gross cropped area	283920	

1.6	**Irrigation (2010-11)**	Area (ha)		
	Net irrigated area	102444		
	Gross irrigated area	184207		
	Rainfed area	81763		
	Sources of Irrigation	Number	Area (ha)	Percentage of total irrigated area
	Canals	50	4000	3.9
	Tanks	75	2048	2
	Open wells	295	61466	60
	Bore wells	201	15366	15
	Lift irrigation schemes	-		
	Micro-irrigation	45	3000	0.03
	Other sources (please specify) Rehat, Mal (included in well)	-	-	-

	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited			
	Critical	√		
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture etc. (2010-11)

1.7	**Major Field Crops cultivated (2010-11)**	**Area (ha)**							
		Kharif			***Rabi***			**Summer**	**Total**
		Irrigated	***Rainfed***	**Total**	***Irrigated***	***Rainfed***	**Total**		
	Pearl millet	13295	93131	106426					106426
	Cluster bean	5290	10190	15480					15480
	Moth bean	220	6700	6920					6920
	Green gram	1600	10300	11900					11900
	Sorghum	2000	4515	6515					6515
	Sesame	150	8900	9050					9050
	Cow pea	120	7200	7320					7320
	Groundnut	50	250	300					300
	Castor	1200	920	2120					2120
	Cotton	1395	1015	2410					2410
	Mustard	-	-	-	9175	275	9450		9450
	Wheat	-	-	-	10972	120	11092		11092
	Cumin	-	-	-	7300	90	7390		7390
	Barley	-	-	-	8500	1500	10000		10000
	Gram	-	-	-	6095	1710	7805		7805
	Taramira	-	-	-	595	1276	1871		1871
	Fenu greek (Methi)	-	-	-	3200	150	3350		3350
	Fennel	-	-	-	1720	350	2070		2070
	Total area (ha)		**Irrigated**			**Rainfed**			
	Ber	1500			0		-		

	Aonla	910	250	-
	Lemon	1610	476	-
	Guava	50	717	-
	Lisoda	1200	200	-
	Pomegranate	75	10	-
	Papaya	720	200	-
	Horticultural crops - Vegetables	**Total area**	**Irrigated**	**Rainfed**
	Chillies	4200	3200	1000
	Onion	911	700	211
	Carrot	920	620	300
	Tomato	1176	1000	176
	Brinjal	1309	875	434
	Cole crops	1678	1276	402
	Melon- Musk	1302	120	**1182**
	Medicinal and Aromatic Crops	**Total area**	**Irrigated**	**Rainfed**
	Isabgol	421	421	-
	Sua	221	95	**126**

	Plantation crops	**Total area**	**Irrigated**	**Rainfed**
	Mahandi (Henna)	40000	-	40000
	Fodder crops	**Total area**	**Irrigated**	**Rainfed**
	Sorghum	1621	200	1421
	Pearl millet fodder	920	200	720
	Cluster bean fodder	1720	406	1314
	Lucerne fodder	2295	1195	1100
	Fodder Carrot	600	520	80
	Others (specify)	-	-	-
	Total fodder crop area			
	Grazing land			
	Sericulture etc			
	Others (Specify)			

1.8	**Livestock**	**Male**	**Female**	**Total**
	Non descriptive Cattle (local low yielding)			350186

	Crossbred cattle			8559
	Non descriptive Buffaloes (local low yielding)			315418
	Graded Buffaloes			N.A
	Goat			701932
	Sheep			924553
	Others (Camel, Pig, Yak etc.)			14794
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ()**	
	Commercial	154	3900	
	Backyard	120	53466	

1.10	**Fisheries (Data source: Chief Planning Officer)**						
	A. Capture						
	i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**	**Storage facilities (Ice plants etc.)**	
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
	B. Culture						

		Water Spread Area (ha)	**Yield (t/ha)**	**Production ('000 tons)**
	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)			
	ii) **Fresh water** (Data Source: Fisheries Department)			
	Others			

1.11 Production and Productivity of major crops

1.11	Name of crop	Kharif-2011		Rabi -2011		Summer		Total		Crop residue as fodder (‘000 tons)
		Production (Qtl)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production (Qtl)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Pearl millet	467610	540					467610	540	
	Green gram	303530	310					303530	310	
	Moth bean	14170	201					14170	201	
	Cluster bean	358740	166					358740	166	
	Groundnut	252011	1740					252011	1740	
	Castor	30312	635					30312	635	
	Sesame	458820	280					458820	280	
	Cotton	26410	2100					26410	2100	
	Sorghum	546660	510					546660	510	
	Chillies	271115	620					271115	620	
	Cowpea	282110	199					282110	199	
	Mustard			915990	1390			915990	1390	
	Wheat			1382710	1789			1382710	1789	
	Isabgol			2011	421			2011	421	
	Cumin			25630	642			25630	642	
	Taramira			275920	1120			275920	1120	
	Gram			293690	862			293690	862	
	Barley			73110	1799			73110	1799	
	Onion			104520	1520			104520	1520	
	Garlic			92150	1621			92150	1621	
	Funnel			17900	1820			17900	1820	
	Fenugreek			16110	1615			16110	1615	
Major Horticultural crops (Crops to be identified based on total acreage Area ‘000)										
	Ber	Not given		Onion						

	Lisoda				Carrot						
	Aonla				Col crops						
	Lemon				Tomato						
	Guava				Bringel						
					Pea						

1.12	Sowing window for 5 major field crops	Pearl millet	Green gram & Moth bean	Cluster bean	Sesame	Sorghum
	Kharif- Rainfed (Start)	2nd week of June	1st week of July	2nd week of July	2nd week of July	2nd week of June
	Kharif-Irrigated (End)	1st week of July	2nd week of July	2nd week of July	2nd week of July	2nd week of July
	Rabi- Rainfed (Start)	2nd week of Oct. (Mustard)	2nd week of Sept.(Taramira)	2nd week of Nov. (Wheat)	2nd week of Nov. (Isabgol)	2nd week of Nov. (Cumin)
	Rabi-Irrigated (End)	4th week of Oct. (Mustard)	4th week of Oct.(Taramira)	2nd week of Dec. (Wheat)	4th week of Nov. Isabgol)	4th week of Nov. (Cumin)

1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought	√		
	Flood			√
	Cyclone			√
	Hail storm		√	
	Heat wave	√		
	Cold wave		√	
	Frost		√	
	Sea water intrusion			√
	Pests and disease outbreak (specify)	Pearl millet: Downy mildew, erget & Blister beetle	Green gram & Moth bean: Leaf curl, mosaic, Powdery mildew	Sesame: Macrophomina, *Antigastra catalaunalis*, phyllody
	Others (specify)			

1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: No
		Soil map as Annexure 3	Enclosed: Yes

Map of Pali

N
NAGAUR
JODHPUR
JALOR
SIROHI
AJMER
BHILWARA
RAJSAMAND
CHITTAURGARH
UDAIPUR
PALI
Bhopalgarh
Bilara
Jaitaran
Raipur
Beawar
Sojat
Marwar Junction
Devgarh
Amet
Bali
Desuri
Kumbhalgarh
RAJSAMAND
Relmagra
Rashmi
Kapasan
Mavli
Gogunda
Pindwara
SIROHI
Shivganj
Bhim
Asind
Sahara
Map Not To Scale
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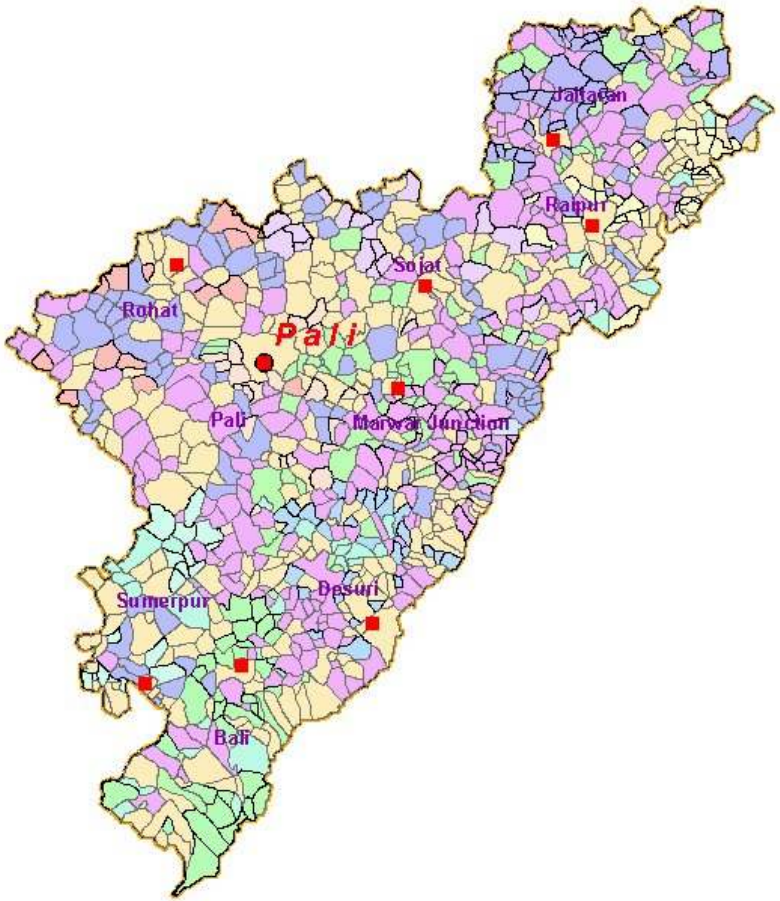
INDIAMAPSTORE.COM
INTERNATIONAL BOUNDARY
STATE BOUN.
DISTRICT BOUN.
GOLDEN QUADRILATERAL
EAST-WEST CORRIDORS
NATIONAL HIGHWAY
NORTH-SOUTH CORRIDORS
STATE HIGHWAY
OTHER ROAD
RAILWAY
STATE CAPITAL
DISTRICT HEADQUARTERS
TALUK HEADQUARTERS
OTHER TOWN
AIRPORT
WILDLIFE SANCTUARY
TOURIST PLACE
RIVER
HISTORICAL PLACE
PILGRIM CENTRE

Nutrient status of soil



Legend

Tehsil Hq

District Hq

Major Nutrients N, P, K

<all other values>

L= Low, M= Medium, H= High

<Null>

LHH

LHM

LLH

LLL

LLM

LMH

LMM

Micro Nutrients Zn, Fe, Cu, Mn

<all other values>

L= Low, S= Sufficient

<Null>

LLSS

LSLS

LSSS

SLSS

SSLS

SSSS

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system[ic] including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks (2^{nd} week July)	Rainfed deep yellow brown sandy soil (low rain)	Pearl millet: MH- 169, ICMH- 356, RHB- 121, & Raj 171	Pearl millet: HHB- 67, HHB- 68 & RHB- 121	Early maturing varieties should be sown. Use press wheel behind tine to secure good germination. Transplanting of pearl millet seedling. Early maturing varieties should be sown. Grow Pulse, Sesame, Guar and Sorghum fodder crops. Adopt wider row spacing with low plant population. Timely removal of weeds, clean cultivation & adoption of dust/ vegetative mulching	Use of NSC, RSSC, SAUs & other agencies certified seed.
		Sesame: RT 127, RT 46 & RT 346	Sesame: RT 127, RT 46 & RT 346		
		Moth: RMO 40, RMO 225, RMO 257 & RMO 435	Moth: RMO 40, RMO 225, RMO 257 & RMO 435		
		Green gram: SML 668, RMG 62 & RMG 268	Green gram: SML 668		
		Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112	Cluster bean: RGC 1017, RGC 1003, RGC 1002 & RGM 112		
	Rainfed medium light brown loamy soil (medium rain)	Cowpea: RC 21, RC 101 & MF 68	Cowpea: RC 101 & MF 68	Summer ploughing for conserving moisture in the soil. Compartmental bunding of field. Ridge and furrow (45 or 60 cm) system Use of FYM in every third year Inter cropping or mix cropping with pulses and sesame. Water harvesting tank for terminal drought life saving irrigation.	Use of NSC, RSSC, SAUs & other agencies certified seed.
		Mahandi (Henna)	Mahandi (Henna)		
		Sorghum (seed)	Sorghum (fodder		
		Sorghum(fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum (fodder): RSG 59-3, CSV 17, CSV 23, MP Chari, Rajasthan Chari		
		Peral millet (fodder: Raj Chari, Raj 171 & Pusa gaint	Pearlmillet (fodder): Raj Chari, Raj 171 & Pusa gaint		
	Rainfed other soils (medium rain)	Cowpea: RC 19, RC 101 & MF 68	Cowpea: RC 101 & MF 68	Summer ploughing for conserving moisture in the soil. Compartmental bunding of field.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.

		Mahandi (Henna)	Mahandi (Henna)	Ridge and furrow (45 or 60 cm) system Use of FYM in every third year Inter cropping or mix cropping with pulses and sesame. Water harvesting tank for terminal drought life saving irrigation.	
		Sorghum (seed)	Sorghum fodder		
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari		
		Peral millet fodder: Raj Chari, Raj 171 & Pusa Jaint	Pearl millet fodder: Raj Chari, Raj 171 & Pusa Jaint		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 4 weeks (4th week of July)	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	Pearl millet: HHB 67, HHB 68 & RHB 121	Early maturing varieties should be sown. Use press wheel behind tine to secure good germination. Transplanting of pearlmillet seedling. Grow Pulse, Sesame, Guar and Sorghum fodder crops. Adopt wider row spacing with low plant population. Timely removal of weeds, clean cultivation & adoption of dust/ vegetative mulching	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Sesame: RT 127, RT 46 & RT 346	Sesame: RT 127, RT 46 & RT 346		
		Moth bean: RMO 40, RMO 225, RMO 257 & RMO 435	Moth bean: RMO 40, RMO 225, CAZRI moth 2 & 3		
		Green gram: SML 668, RMG 62 & RMG 268	Green gram: SML 668		
		Cluster bean	Cluster bean: RGC 936, RGC 1003 & RGM 112		
	Rainfed medium light brown loamy soil	Cow pea: RC 19, RC 101 & MF 68	RC 19, RC 101	Summer ploughing for conserving moisture in the soil. Compartmental bunding of field. Ridge and furrow (45 or 60 cm) system Use of FYM in every third year Inter cropping or mix cropping with pulses and sesame. Water harvesting tank for terminal drought life saving irrigation.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Mahandi (Henna)	Mahandi (Henna)		
		Sorghum for seed	Sorghum fodder		
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari		
		Peral millet fodder: Raj Chari, Raj 171 & Pusa Jaint	Pearl millet fodder: Raj Chari, Raj 171 & bajara own seed for fodder.		
	Rainfed Other soils (medium rain)	Cow pea: RC 19, RC 101 & MF 68		Summer ploughing for conserving moisture in the soil. Compartmental bunding of field. Ridge and furrow (45 or 60 cm)	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Mahandi (Henna)	Mahandi (Henna)		
		Sorghum for seed	Sorghum fodder		

		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	system Use of FYM in every third year Inter cropping or mix cropping with pulses and sesame. Water harvesting tank for terminal drought life saving irrigation.	
		Peral millet fodder: Raj Chari, Raj 171 & Pusa Jaint	Pearl millet fodder: Raj Chari, Raj 171 & bajara own seed for fodder.		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 6 weeks (1st week of August)	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	Grow Pulse/ Guar and Sorghum fodder crops.	Compartmental bunding of field. Summer ploughing for conserving moisture in the soil. Adopt wider row spacing with low plant population. Early maturing varieties should be sown. Timely removal of weeds, clean cultivation & adoption of dust/ vegetative mulching	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Sesame: RT 127, RT 46 & RT 346	-		
		Moth bean: RMO 40, RMO 225, RMO 257 & RMO 435	RMO 40, RMO 225, RMO 257 & RMO 435, CAZRI moth 3		
		Green gram: SML 668, RMG 62 & RMG 268	-		
		Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112	Cluster bean: RGC 936, RGC 1003 & RGM 112		
	Rainfed medium light brown loamy soil	Cowpea: RC 19, RC 101 & MF 68	-	Use of FYM in every third year Inter cropping or mix Cropping with pulses and sorghum fodder. Water harvesting tank for terminal drought life saving irrigation.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Mehandi (Henna)	-		
		Sorghum for seed	Sorghum (fodder		
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum (fodder: RSG 59-3, MP Chari, Rajasthan Chari		
		Peral millet fodder: Raj Chari, Raj 171 & Pusa Jaint	Pearl millet (fodder: Raj Chari, Raj 171 & bajara own seed for fodder.		
	Rainfed Other soils (medium rain)	Cowpea: RC 19, RC 101 & MF 68	Grow pulse crops	Use of FYM in every third year Inter cropping or mix cropping with pulses and sorghum fodder. Water harvesting tank for terminal drought life saving irrigation.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Mahandi (Henna)			
		Sorghum (seed)	Sorghum (fodder		
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari		
		Peral millet fodder: Raj	Pearl millet(fodder: Raj Chari,		

		Chari, Raj 171 & Pusa Jaint	Raj 171 & bajara own seed for fodder.		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks (Specify month) End of August	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	No crop can be grown Moisture can be conserved for rabi gram, Taramira and mustard Land preparation for rabi crops	Compartmental bunding of field. Summer ploughing for conserving moisture in the soil.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Sesame: RT 127, RT 46 & RT 346		Grow Pulses, Guar and Sorghum fodder crops.	
		Moth: RMG 40, RMG 225, RMG 257 & RMO 435		Adopt wider row spacing with low plant population.	
		Green gram: SML 668, RMG 62 & RMG 268		Early maturing varieties should be sown. Use press wheel behind tine to secure good germination.	
		Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112	Cluster bean for fodder or green manuring: RGC 936, RGC 1003 & RGM 112	Timely removal of weeds, clean cultivation & adoption of dust/ vegetative mulching	
	Rainfed medium light brown loamy soil	Cowpea: RC 19, RC 101 & MF 68		Inter cropping or mix cropping with pulses and sorghum fodder.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Mahandi (Henna)		Use of FYM in every third year	
		Sorghum for seed	Sorghum fodder	Timely adoption of plant protection measures.	
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Water harvesting tank for terminal drought life saving irrigation.	
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint	Bajara fodder: Raj Chari, Raj 171 & bajara own seed for fodder.	Timely sowing by early irrigating where irrigation facility available.	
	Rainfed Other soils (medium rain)	Cowpea: RC 19, RC 101 & MF 68		Inter cropping or mix cropping with pulses and sorghum fodder.	Use of NSC, RSSC, SAUniversity & other agencies certified seed.
		Mahandi (Henna)		Use of FYM in every third year	
		Sorghum for seed	Sorghum fodder	Timely adoption of plant protection measures.	
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan	Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Water harvesting tank for terminal drought life saving irrigation.	

		Chari			
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint	Bajara fodder: Raj Chari, Raj 171 & bajara own seed for fodder.	Timely sowing by early irrigating where irrigation facility available.	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	Gap filling in crop should be filled either by transplanting or re-seeding of seed. Hoeing & weeding,	Compartmental bunding of field. Summer ploughing for conserving moisture in the soil. soil mulching	Perform all Agronomical operation in time according to need.
		Sesame: RT 127, RT 46 & RT 346	Timely Thinning. Gap filling or resowing, Hoeing & weeding	Use of FYM in every third year	-do-
		Moth bean: RMG 40, RMG 225, RMG 257 & RMO 435	Adopt wider row spacing with low plant population. Spray of thio urea@ 500 ppm in legume crops, Hoeing & weeding	Timely removal of weeds, clean cultivation in between intra row spacing & adoption of dust/ vegetative mulching.	-do-
		Green gram: SML 668, RMG 62 & RMG 268	Adopt wider row spacing with low plant population. Spray of thio urea@ 500 ppm in legume crops, Hoeing & weeding		-do-
		Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112	Adopt wider row spacing with low plant population. Spray of thio urea@ 500 ppm in legume crops, Hoeing & weeding	Water harvesting tank for light irrigation to secured good germination & application of life saving irrigation to prevent terminal drought.	-do-
	Rainfed medium light brown loamy soil	Cowpea: RC 19, RC 101 & MF 68	Adopt wider row spacing with low plant population. Spray of thio urea@ 500 ppm in legume crops, Hoeing & weeding		Perform all Agronomical operation in time according to need.

		Mahandi (Henna)			
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari			
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint			
	Rainfed Other soils (medium rain)	Cowpea: RC 19, RC 101 & MF 68	Adopt wider row spacing with low plant population. Spray of thio urea@ 500 ppm in legume crops, Hoeing & weeding Use press wheel behind tine to secure good germination.		Perform all Agronomical operation in time according to need.
		Mahandi (Henna)			
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari			
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint			

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**Remarks on Implementation**
At vegetative stage	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	Removing alternate plant or row. Harvesting for fodder purpose	Timely removal of weeds, clean cultivation in between intra row spacing & adoption of dust/ vegetative mulching.	This stage is very critical & all Agronomical operation should perform in time according to need.
		Sesame: RT 127, RT 46 & RT 346	Fodder mulching and spray of Urea (0.2%), Provide life saving protective irrigation.	Use of FYM in every third year.	

		Moth bean: RMG 40, RMG 225, RMG 257 & RMO 435	Spray of anti transparent. Or thiourea @ 500ppm Removing of weeds at 35 DAS & 40 DAS.	Water harvesting tank for protective life saving irrigation at vegetative stage & application of irrigation to prevent terminal drought.	
		Green gram: SML 668, RMG 62 & RMG 268	Spray of anti transparent. Or thiourea @ 500ppm		
		Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112	Spray of anti transparent. Or thiourea @ 500ppm Adoption of proper and timely plant protection measures.		
	Rainfed medium light brown loamy soil	Cowpea: RC 19, RC 101 & MF 68	Roughing & removing phylllody infested plants.		This stage is very critical & all Agronomical operation should perform in time according to need.
		Mahandi (Henna)	In case of total failure re-sowing of Pulses, Guar, sesame and Sorghum fodder crops.		
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Spray of thiourea at 500 – 1000 ppm at vegetative and reproductive stage.		
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint			
	Rainfed Other soils (medium rain)	Cowpea: RC 19, RC 101 & MF 68	Roughing & removing phyllody infested plants.		This stage is very critical & all Agronomical operation should perform in time according to need.
		Mahandi (Henna)	In case of total failure re-sowing of Pulses, Guar, sesame and Sorghum fodder crops.		
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari	Spray of thiourea at 500 – 1000 ppm at vegetative and reproductive stage.		
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint			

Condition			**Suggested Contingency measures**		
Mid season drought (long	**Major Farming**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture**	**Remarks on Implementation[e]**

dry spell)	situation[a]			conservation	
	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	Provide life saving protective irrigation. Water harvesting tank for protective life saving irrigation to prevent terminal drought.	Dust or vegetative mulching.	This stage is also very critical & all Agronomical operation should perform in time according to need.
		Sesame: RT 127, RT 46 & RT 346	Use of FYM in every third year.		
		Moth bean: RMG 40, RMG 225, RMG 257 & RMO 435	Adoption of proper and timely plant protection measures.		
		Green gram: SML 668, RMG 62 & RMG 268	Roughing & removing phyllody infested plants.		
		Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112			
	Rainfed medium light brown loamy soil	Cowpea: RC 19, RC 101 & MF 68	Adoption of Post harvest technology.	Dust or vegetative mulching.	This stage is also very critical & all Agronomical operation should perform in time according to need.
		Mahandi (Henna)	Harvesting of crop in severe moisture stress drought condition & dry in sun heat and store fodder as well grain below 9% moisture in store.		
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari			
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint			
	Rainfed Other soils (medium rain)	Cowpea: RC 19, RC 101 & MF 68	Adoption of Post harvest technology.	Dust or vegetative mulching.	This stage is also very critical & all Agronomical operation should perform in time according to need.
		Mahandi (Henna)	Harvesting of crop in severe moisture stress drought condition & dry in sun heat and store fodder as well grain below 9% moisture in store.		
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari			
		Bajra fodder: Raj Chari, Raj 171 & Pusa Jaint			

Condition			Suggested Contingency measures		
Terminal	Major	Normal	Crop management[c]	Rabi Crop planning[d] measues[d]	Remarks on Implementation[e]

drought (Early withdrawal of monsoon)	**Farming situation**[a]	**Crop/cropping system**[b]			
	Rainfed deep yellow brown sandy soil	Pearl millet: MH 169, ICMH 356, RHB 121, & Raj 171	Provide life saving protective irrigation. Water harvesting tank for protective life saving irrigation to prevent terminal drought.	If heavy rain (> 50 mm) soil moisture is more than 150mm after harvest of kharif crop sowing of rabi crop (mustard, cumin, taramira, barley, gram & wheat) sowing from 15 Sept. onwards should be started.	At this stage decide proper harvesting time & store fodder and grain after complete drying.
		Sesame: RT 127, RT 46 & RT 346	Roughing & removing phyllody infested plants.		Planning for sowing rabi crops.
		Mothbean: RMG 40, RMG 225, RMG 257 & RMO 435			-do-
		Green gram: SML 668, RMG 62 & NMG 268	Adoption of Post harvest technology.		-do-
	Rainfed medium light brown loamy soil	Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112		If heavy rain (> 50 mm) soil moisture is more than 150mm after harvest of kharif crop sowing of rabi crop (mustard, cumin, taramira, barley, gram & wheat) sowing from 15 Sept. onwards should be started.	This stage is also very critical & all Agronomical operation should perform in time according to need.
		Cowpea: RC 19, RC 101 & MF 68			
		Mahandi (Henna)			
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari			
	Rainfed Other soils (medium rain)	Cluster bean: RGC 936, RGC 1003, RGC 1002 & RGM 112		If heavy rain (> 50 mm) soil moisture is more than 150mm after harvest of kharif crop sowing of rabi crop (mustard, cumin, taramira, barley, gram & wheat) sowing from 15 Sept. onwards should be started.	This stage is also very critical & all Agronomical operation should perform in time according to need.
		Cowpea: RC 19, RC 101 & MF 68			
		Mahandi (Henna)			
		Sorghum for seed			
		Sorghum fodder: RSG 59-3, MP Chari, Rajasthan Chari			

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability	Provide Enough feed & green fodder	1. Provide sufficient feed & fodder along with extra supplementation of mineral mixture. 2. Feeding of urea treated low quality roughage 3. Feeding of multi nutrient feed blocks 4. Provide *Azolla* as green fodder substitute	Provide sufficient feed & fodder along with mineral mixture
Drinking water	Enough water for drinking	Provide sufficient and clean water for drinking	Provide sufficient and clean water for drinking
Health and disease management	Animal vaccinated against all the infectious diseases	1. Give vitamin 'A' 2. Vaccinate against all the infectious and contagious diseases	Vaccinate against contagious diseases
Floods			
Feed and fodder availability			
Drinking water			
Health and disease management			
Cyclone			
Feed and fodder availability			
Drinking water			
Health and disease management			
Heat wave and cold wave			
Shelter/environment management			
Health and disease management			

[s] based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event[a]	**During the event**	**After the event**	
Drought				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Floods				
Shortage of feed ingredients				
Drinking water				

Health and disease management				
Cyclone				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave				
Shelter/environment management				
Health and disease management				

[a] based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture: NA

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine			
Inland			
(i) Shallow water depth due to insufficient rains/inflow			
(ii) Changes in water quality			
(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow			
(ii) Impact of salt load build up in ponds / change in water quality			
(iii) Any other			
2) Floods			
A. Capture			
Marine			
Inland			
(i) Average compensation paid due to loss of human life			
(ii) No. of boats / nets/damaged			
(iii) No.of houses damaged			
(iv) Loss of stock			
(v) Changes in water quality			
(vi) Health and diseases			
B. Aquaculture			
(i) Inundation with flood water			
(ii) Water contamination and changes in water quality			

(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, huts etc)			
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Marine			
(i) Average compensation paid due to loss of fishermen lives			
(ii) Avg. no. of boats / nets/damaged			
(iii) Avg. no. of houses damaged			
Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			
4. Heat wave and cold wave			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			
(iii) Any other			

[a] based on forewarning wherever available

	Total Irrigated Area	102444		
	Pump sets	38936	61466	60
	No. of Tractors	12812		
	Groundwater availability and use* (Data source: State/Central Ground water	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride,

	Department /Board)			saline etc)
	Over exploited			
	Critical	√		
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%