State: RAJASTHAN

Agriculture Contingency Plan for District: JHALAWAR

1.0	**District Agriculture profile**				
1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Central Highlands (Malwa), Gujarat Plain (5.2)			
	Agro-Climatic Zone (Planning Commission)	Central Plateau Hills Region (VIII)			
	Agro Climatic Zone (NARP)	Humid South Eastern Plain Zone (RJ-9)			
	List all the districts or part thereof falling under the NARP Zone	Kota, Bundi, Baran and Jhalawar			
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**	
		24° 36' 0" N	76° 9' 0" E	312m	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Agricultural Research Station Ummedganj, Post Box No. 7, GPO Nayapura, Kota 324 001			
	Mention the KVK located in the district	Krishi Vigyan Kendra, P.O. Box No. 16, Kota Road, Jhalawar, 326001			
1.2	**Rainfall**	**Normal RF(mm)**	**Normal Rainy days (number)**	**Normal Onset**	**Normal Cessation**
	SW monsoon (June-Sep)	801.2	38.2	Last week of June	3rd Week of Sept.
	NE Monsoon(Oct-Dec)	21.3	2.5	-	-
	Winter (Jan- March)	19.5	2.1		
	Summer (Apr-May)	2.3	1.1		
	Annual	844.3	43.9		

Source: Rajasthan statistics at a glance, 2008-09

1.3	Land use pattern of the district (latest statistics)	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 ('000 ha	632.2	322.9	125.0	26.2	48.6	46.5	2.7	34.6	6.9	18.5

Source: Rajasthan statistics at a glance, 2008-09

1. 4	Major Soils (common names like red sandy loam deep soils (etc.,)*	Area ('000 ha)	Percent (%) of total
	Medium brown clayey soils	169.6	27
	Medium black clayey soils	146.5	23
	Deep black clayey soils	76.2	12
	Deep brown loamy soils	55.1	09
	Red gravelly loam hilly soil	152.8	24

Source: NBSS & LUP, Udaipur

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	322.9	158
	Area sown more than once	187.6	
	Gross cropped area	510.5	

Source: Rajasthan statistics at a glance, 2008-09

1.6	Irrigation	Area ('000 ha)
	Net irrigated area	204.2
	Gross irrigated area	211.8
	Rainfed area	298.7

	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		15.8	7.4
	Tanks	1649	1.6	0.7
	Open wells	146625	146.6	69.2
	Bore wells	45306	45.3	21.4
	Lift irrigation schemes	--		--
	Micro-irrigation	--		--
	Other sources (Check dams & anicuts)	2330	2.3	1.1
	Total Irrigated Area		211.7	100
	Pump sets	144350	-	-
	No. of Tractors	5576	-	-

Source: Rajasthan statistics at a glance, 2008-09

	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	04	69.66	Suitable for irrigation
	Critical	02	30.34	Suitable for irrigation
	Semi- critical	-	-	-
	Safe	-	-	--
	Wastewater availability and use	-	-	-
	Ground water quality	-		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

Source: NBSS & LUP, Udaipur

1.7 Area under major field crops & horticulture (year 2008-09)

S.No.	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
	Soybean	-	-	236.79	-	-	-	-	236.7
	Maize	-	-	37.58	-	-	-	-	37.5
	Coriander	-	-	-	-	-	96.94	-	96.9
	Wheat	-	-	-	-	-	58.81	-	58.8
	Rapeseed & Mustard	-	-	-	-	-	38.04	-	38.0

	Others (Urd, Gram)								43.6
	Horticulture crops - Fruits	**Area ('000 ha)**							
		Total							
	Orange	7.0							
	Mango	0.3							
	Guava	0.1							
	Lime	0.04							
	Papaya	0.02							
	Horticulture crops Vegetables								
	Cauliflower	0.1							
	Garlic	2.6							
	Onion	0.1							
	Brinjal	0.05							
	Tomato	0.05							
	Others Okra	0.03							

		Total
	Medicinal and Aromatic crops	
	Ashwagandha	0.5
	Rose	0.01
	Plantation crops	Nil
	Eg., industrial pulpwood crops etc.	Nil
	Fodder crops	-
	Chari Jower	2.4
	Chari Maize	0.07
	Lucerne	0.9
	Berseem	0.4
	Total fodder crop area	3.7
	Grazing land	48.6
	Sericulture etc	--
	Others (specify)	--

Source: Rajasthan statistics at a glance, 2008-09

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	--	--	426.1
	Crossbred cattle	--	--	
	Non descriptive Buffaloes (local low yielding)	--	--	264.0
	Graded Buffaloes	--	--	
	Goat	--	--	321.6
	Sheep	--	--	14.3
	Others (Camel, Pig, Yak etc.)	--	--	10.0
	Commercial dairy farms (Number)			

Source: Raj Agri Data 2008-09

1.9	Poultry	No. of farms	Total No. of birds ('000)
	Commercial	-	78.7
	Backyard	-	-

Source: Raj Agri Data 2008-09

1.10	**Fisheries- NA**						
	A. Capture						
	i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**		**Storage facilites (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**	
				8 (6648)		314 (683)	
	B. Culture						
		Water Spread Area ('000 ha)		**Yield (t/ha)**		**Production ('000 tons)**	

	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)	Not applicable	-	-
	ii) **Fresh water** (Data Source: Fisheries Department)	7331		302
	Others			

1.11 Production and Productivity of major crops (Average of 5 years: 2004-08)

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Soybean	238.6	1241	-	-	-	-	238.6	1241	Information not available
	Maize	93.8	1859	-	-	-	-	93.8	1859	
	Urdbean	13.6	487	-	-	-	-	13.6	487	
	Coriander	-	-	60.9	879	-	-	60.9	879	
	Wheat	-	-	151.9	3027	-	-	151.9	3027	
	Mustard	-	-	74.5	1405	-	-	74.5	1405	
Others	Gram	-	-	14.1	816	-	-	14.1	816	
Major Horticultural crops (Crops to be identified based on total acreage) **A. Fruit Crops**										
	Orange	346.9	49289	-	-	-	-	346.9	49289	Information not available
	Mango	175.5	54362	-	-	-	-	175.5	54362	
	Guava	52.9	52599	-	-	-	-	52.9	52599	
	Lime	9.1	21982	-	-	-	-	9.1	21982	
	Papaya	6.0	36148	-	-	-	-	6.0	36148	

Source: Raj Agri Data 2008-09

B. Vegetable										
	Cauliflower	0.41	5511	-	-	-	-	0.41	5511	Information not available
	Onion	-	-	0.49	4351	-	-	0.49	4351	
	Brinjal	-	-	0.19	4017	-	-	0.19	4017	
	Tomato	-	-	0.15	3248	-	-	0.15	3248	
	Okra	-	-	0.14	4759	-	-	0.14	4759	
Others	Garlic	-	-	4.98	1879	-	-	4.98	1879	

C. Medicinal

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Soybean**	**Maize**	**Wheat**	**Mustard**	**Coriander**
	Kharif- Rainfed	July 1st wk to July 3rd wk	July 1st wk to July 3rd wk	--	--	--
	Kharif-Irrigated	July 1st wk to July 3rd wk	June 3rd wk to July 3rd wk	--	--	--
	Rabi- Rainfed			Oct.4th wk to Nov.2nd wk	Sept. 4th wk to Oct. 2nd wk	Oct. 2nd wk to Nov.2nd wk
	Rabi-Irrigated			Nov.1st wk to Nov. 3rd wk	1st -4th wk. of Oct.	Oct. 2nd wk to Nov.2nd wk

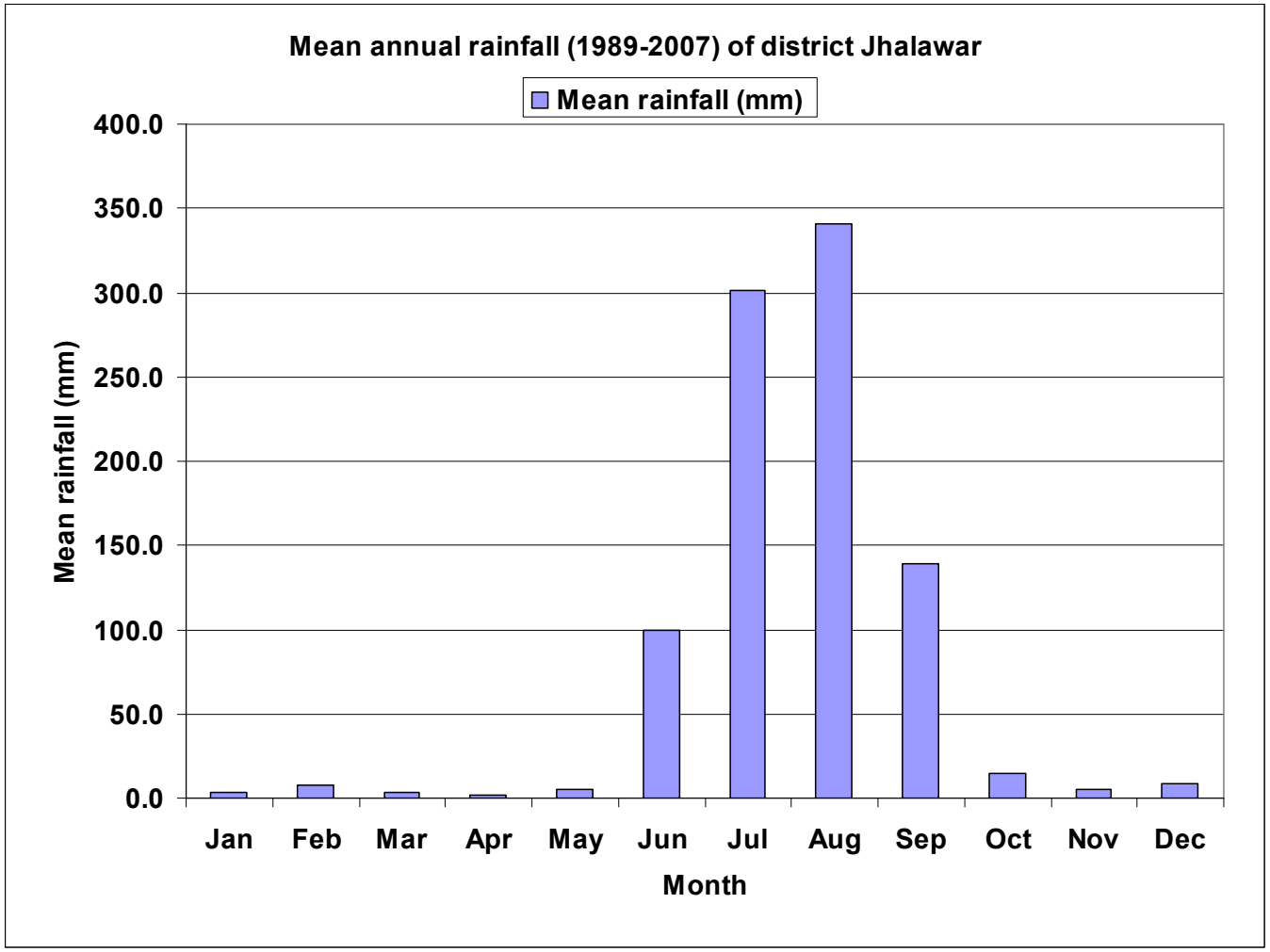
1.13	**What is the major contingency the district is prone to?**	**Regular**	**Occasional**	**None**
	Drought	--	√	--
	Flood	--	√	--
	Cyclone	--	--	√
	Hail storm	--	√	--
	Heat wave	√	--	--
	Cold wave	--	√	--
	Frost	--	√	--
	Sea water intrusion	--	--	√
	Pests and disease outbreak (Tobacco Caterpillar in soybean, Yellow Mosaic Virus in soybean and kharif pulses)	--	√	--

1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure	Enclosed : Yes
		Mean annual rainfall as Annexure 2	Enclosed : Yes
		Soil map as Annexure 3	Enclosed : Yes

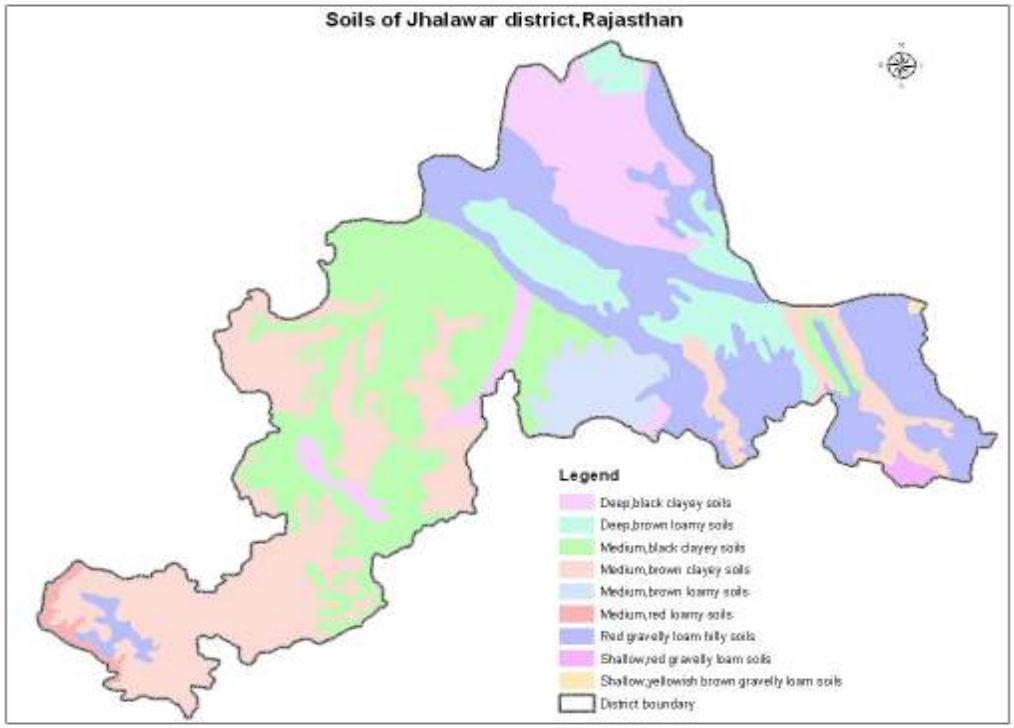
Annexure1 : Location map of Jhalawar District

Annexure1 : Location map of Jhalawar District

Annexure 2- Rainfall data



Annexure 3: Soil map



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation (kharif)

Condition			**Suggested Contingency measures**		
Early season drought(delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks (July 3rd wk)	Medium brown clayey soils	Soybean	No Change	Normal package of practices to be followed	--
		Maize			
		Urdbean			
		Sesamum			
	Medium black clayey soils	Soybean			
		Maize			
		Urdbean			
		Sesamum			
	Deep black clayey soils	Soybean			
		Maize			
		Urdbean			
		Sesamum			
	Deep brown loamy soils	Soybean			
		Maize			
		Urdbean			
		Sesamum			

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks(Aug	Medium brown clayey	Soybean	Prefer varieties of Soybean (JS 93-05, Pratap Soya-1, Pratap Soya-2, JS 95-60)	Use of 25 % higher seed	Timely supply of seed through
		Maize			

1st wk)	soils	Urdbean Sesamum	Urdbean (T-9, PU-19, KU-96-3) Sesamum (TC-25, RT- 46, RT-123, RT-125) Mungbean (RMG-62, SML-266)	rate in soybean	RSSC/NSC
	Medium black clayey soils	Soybean Maize Urdbean Sesamum	-do-	-do-	-do-
	Deep black clayey soils	Soybean Maize Urdbean Sesamum	-do-	-do-	-do-
	Deep brown loamy soils	Soybean Maize Urdbean Sesamum	-do-	-do-	-do-

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 6 weeks (**Aug 3rd wk)**	Medium brown clayey soils	Soybean Maize Urdbean Sesamum	Sorghum Fodder (Raj Chari-1, Raj Chari-2, Pratap Chari-1080, SSG-59-3)- fallow Or, Mungbean (K-851, RMG-62) – fallow Or, Fallow – Toria/Taramira/ Mustard/ Gram/Coriander/ linseed Fenugreek/Lentil on conserved moisture	Use of 25 % higher seed rate Use of bakkhar for field moisture conservation Field bunding Preperation of rabi crops	Timely supply of seed through RSSC/NSC
	Medium black clayey soils	Soybean Maize Urdbean Sesamum	-do-	-do-	-do-

	Deep black clayey soils	Soybean	-do-	-do-	-do-
		Maize			
		Urdbean			
		Sesamum			
	Deep brown loamy soils	Soybean	-do-	-do-	-do-
		Maize			
		Urdbean			
		Sesamum			

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 8 weeks (**Sep 1st wk)**	Medium brown clayey soils	Soybean	Fallow – Toria/Taramira/ Mustard/Gram/Coriander/ Fenugreek/Lentil/linseed on conserved moisture	• Preperation of rabi crops	Timely supply of seed through RSSC/NSC
		Maize			
		Urdbean			
		Sesamum			
	Medium black clayey soils	Soybean	-do-	-do-	-do-
		Maize			
		Urdbean			
		Sesamum			
	Deep black clayey soils	Soybean	-do-	-do-	-do-
		Maize			
		Urdbean			
		Sesamum			
	Deep brown loamy soils	Soybean	-do-	-do-	-do-
		Maize			
		Urdbean			
		Sesamum			

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Medium brown clayey soils	Soybean	• If germination is less than 50% than farmers should go for re-sowing with early maturing varieties using 25% higher seed rate • If plant population is more than 75% go for gap filling.	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds • Light irrigation if available	• Availability of inter-culture implements i.e. wheel hand hoe through RKVY
		Maize	• If germination is less than 50% than go for gap filling with urdbean/mungbean • if plant population is more than 75% go for transplanting of thinned plants	-do-	-do-
		Urdbean/ Sesame	• If germination is less than 50% than go for re-sowing with early maturing varieties	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds	-do-
	Medium black clayey soils	Soybean	• If germination is less than 50% than farmers should go for re-sowing with early maturing varieties using 25% higher seed rate • if plant population is more than 75% go for gap filling.	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds • Light irrigation if available	-do-
		Maize	• If germination is less than 50% than go for gap filling with urdbean/mungbean • if plant population is more than 75% go for transplanting of thinned plants	-do-	-do-
		Urdbean/ Sesame	• If germination is less than 50% than go for re-sowing with early maturing varieties	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds	-do-
	Deep black clayey soils	Soybean	• If germination is less than 50% than farmers should go for re-sowing with early maturing varieties using 25%	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time.	-do-

			higher seed rate • if plant population is more than 75% go for gap filling.	• In situ mulching of weeds • Light irrigation if available	
		Maize	• If germination is less than 50% than go for gap filling with urdbean/mungbean • if plant population is more than 75% go for transplanting of thinned plants	-do-	-do-
		Urdbean/ Sesame	• If germination is less than 50% than go for re-sowing with early maturing varieties	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds	-do-
	Deep brown loamy soils	Soybean	• If germination is less than 50% than farmers should go for re-sowing with early maturing varieties using 25% higher seed rate • if plant population is more than 75% go for gap filling.	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds • Light irrigation if available	-do-
		Maize	• If germination is less than 50% than go for gap filling with urdbean/mungbean • if plant population is more than 75% go for transplanting of thinned plants	-do-	-do-
		Urdbean/ Sesame	• If germination is less than 50% than go for re-sowing with early maturing varieties	• Hoeing by hand hoe to develop soil mulch • Removal of weeds in time. • In situ mulching of weeds	-do-

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 measures**	**Remarks on Implementation**

At vegetative stage	Medium brown clayey soils	Soybean, Maize	• Life saving irrigation with harvested rain water. • Thinning of plants by 30 to 50% • Weeding & hoeing • In situ mulching of weeds	• Use of weeds as mulch. • Spray of 2% urea • Use of anti-transpirants like kaolin @ 5%	• Availability of inter-culture implements through RKVY
		Urdbean, Sesame	• Weeding & hoeing	• Use of anti-transparent like kaolin.	-do-
	Medium black clayey soils	Soybean, Maize	• Life saving irrigation with harvested rain water. • Thinning of plants by 30 to 50% • Weeding & hoeing • In situ mulching of weeds	• Use of weeds as mulch. • Spray of 2% urea • Use of anti-transpirants like kaolin @ 5%	-do-
		Urdbean, Sesame	• Weeding & hoeing	• Use of anti-transpirants like kaolin @ 5%	-do-
	Deep black clayey soils	Soybean, Maize	• Life saving irrigation with harvested rain water. • Thinning of plants by 30 to 50% • Weeding & hoeing • In situ mulching of weeds	• Use of weeds as mulch. • Spray of 2% urea • Use of anti-transpirants like kaolin @ 5%	-do-
		Urdbean, Sesame	• Weeding & hoeing	• Use of anti-transpirants like kaolin @ 5%	-do-
	Deep brown loamy soils	Soybean, Maize	• Life saving irrigation with harvested rain water. • Thinning of plants by 30 to 50% • Weeding & hoeing • In situ mulching of weeds	• Use of weeds as mulch. • Spray of 2% urea • Use of anti-transpirants like kaolin @ 5%	-do-
		Urdbean, Sesame	• Weeding & hoeing	• Use of anti-transpirants like kaolin @ 5%	-do-

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation**	**Normal Crop /cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**Remarks on Implementation**
At flowering/ fruiting stage	Medium brown clayey soils	Soybean	• Life saving irrigation with harvested rain water.	• Spray of 0.1% thio urea	Farm Pond construction
		Maize	• Removal of lower leaves for fodder	• Spray of 0.1% thio urea	-do-

			• Harvest cobs for table purpose (if market is available) and for green fodder • Harvesting of green cobs and green fodder		
		Urdbean	• Life saving Irrigation by the harvested rainwater	• Spray of 2.0% urea	-do-
		Sesamum	• Life saving Irrigation by the harvested rainwater	-	-do-
	Medium black clayey soils	Soybean	• Life saving Irrigation	• Spray of 0.1% thio urea	-do-
		Maize	• Removal of lower leaves for fodder • Harvest cobs for table purpose (if market is available) and for green fodder • Harvesting of green cobs and green fodder	• Spray of 0.1% thio urea	-do-
		Urdbean	• Life saving Irrigation by the harvested rainwater	• Spray of 2.0% urea	-do-
		Sesamum	• Life saving Irrigation by the harvested rainwater	-	-do-
	Deep black clayey soils	Soybean	• Life saving irrigation with harvested rain water.	• Spray of 0.1% thio urea	-do-
		Maize	• Removal of lower leaves for fodder • Harvest cobs for table purpose (if market is available) and for green fodder • Harvesting of green cobs and green fodder	• Spray of 0.1% thio urea	-do-
		Urdbean	• Life saving Irrigation by the harvested rainwater	• Spray of 2.0% urea	-do-
		Sesamum	• Life saving Irrigation by the harvested rainwater	-	-do-
	Deep brown loamy soils	Soybean	• Life saving Irrigation	• Spray of 0.1% thio urea	-do-
		Maize	• Removal of lower leaves for fodder • Harvest cobs for table purpose (if market is available) and for green fodder • Harvesting of green cobs and green fodder	• Spray of 0.1% thio urea	-do-
		Urdbean	• Life saving Irrigation by the harvested rainwater	• Spray of 2.0% urea	-do-
		Sesamum	• Life saving Irrigation by the harvested rainwater	-	-do-

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**

	Medium brown clayey soils	Soybean	• Light irrigation with harvested rain water	--	Farm Pond construction
		Maize	• Removal of lower leaves for fodder • Harvesting of green cobs and green fodder	--	-do-
		Urdbean	• Picking of pods	--	-do-
		Sesame	--		
	Medium black clayey soils	Soybean	• Picking of pods	--	-do-
		Maize	• Removal of lower leaves for fodder • Harvesting of green cobs and green fodder	--	-do-
		Urdbean	• Picking of pods	--	-do-
		Sesame			
	Deep black clayey soils	Soybean	• Light irrigation with harvested rain water	--	-do-
		Maize	• Removal of lower leaves for fodder • Harvesting of green cobs and green fodder	--	-do-
		Urdbean	• Picking of pods	--	-do-
		Sesamum		--	-do-
	Deep brown loamy soils	Soybean	• Light irrigation with harvested rain water	--	-do-
		Maize	• Removal of lower leaves for fodder • Harvesting of green cobs and green fodder	--	-do-
		Urdbean	• Picking of pods	--	-do-
		Sesame	--		

2.1.2 Drought - Irrigated situation (Not applicable)

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Normal Crop/ cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**

Delayed release of water in canals due to low rainfall	NA

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
Non release of water in canals under delayed onset of monsoon in catchment	NA				

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to insufficient / delayed onset of monsoon	NA				

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient groundwater recharge due to low rainfall	Medium brown clayey soils	Soybean/Maize-Wheat/ Coriander	Soybean/Maize-Gram/Coriander/Linseed/ Lentil/Mustard Durum Wheat	• If one irrigation is available apply at CRI stage in wheat, if two apply at CRI and Flowering • Soil stirring for dust mulch • Timely weed removal • Use of Anti Transpirant i.e. Kaolin @ 5 % • Spray of Thiourea 0.1%	• Rain water harvesting (NREGA) • Recharge of dead Well
	Medium black clayey soils	Soybean/Maize-Wheat/ Coriander	Soybean/Maize-Gram/Coriander/ Linseed/ Lentil/ Mustard/ Durum Wheat	-do-	-do-
	Deep black clayey soils	Soybean/Maize-Wheat/	Soybean/Maize-Gram/Coriander/	-do-	-do-

Condition			Suggested Contingency measures		
	Major Farming situation	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
		Coriander	Linseed/ Lentil/ Mustard/ Durum Wheat		
	Deep brown loamy soils	Soybean/Maize-Wheat/ Coriander	Soybean/Maize-Gram/Coriander/Linseed/ Lentil/ Mustard/ Durum Wheat	-do-	-do-

2.2 Un-timely (unseasonal) rains- Situation does not exist

Condition		**Suggested contingency measure**					
Continuous high rainfall in a short span leading to water logging		**Vegetative stage**		**Flowering stage**	**Crop maturity stage**		**Post harvest**
All crops		-		Not Applicable	-		-
Heavy rainfall with high speed winds in a short span		-					
Horticulture crops		-		Not Applicable	-		-
Outbreak of pests and diseases due to unseasonal rains							
	Disease	**Control measure**	**Insect**	**Control measure**			
-	-	-	-	Not Applicable	-	-	-

2.3 Floods

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Soybean	Surface drainage	• Spray of endosulfan or monocrotophas @ 600 – 1000 ml/ha with 400 – 600 litre water for the	• Spray of endosulfan or monocrotophas @ 600 – 1000 ml/ha with 400 – 600 litre water	Proper drainage

		control of Girdal Beetle • Spray of Trizophos 40 EC @ 800 ml/ha for the control of sami-looper • Spray of 2 gm streptocycline per hectare with the mix of 20 litre water for the control of bacterial disease	for the control of Girdal Beetle • Spray of Trizophos 40 EC @ 800 ml/ha for the control of sami-looper • Spray of 2 gm streptocycline per hectare with the mix of 20 litre water	
Maize	-do-	• Use Methyl Paratthion 2 % dust @ 25 kg/ha for the control of army worm	• Use Methyl Paratthion 2 % dust @ 25 kg/ha for the control of army worm	Picking of cobs
Horticulture				
Kharif vegetable	Surface drainage	Proper drainage	Proper drainage	Picking of vegetables
Cucurbits	-do-	-do-	-do-	-do-
Orchards	-do-	-do-	-do-	-do-
Continuous submergence for more than 2 days				
Soybean	Surface drainage	• Spray of endosulfan or monocrotophas @ 600 – 1000 ml/ha with 400 – 600 litre water for the control of Girdle Beetle • Spray of Trizophos 40 EC @ 800 ml/ha for the control of sami-looper • Spray of 2 gm streptocycline per hectare with the mix of 20 litre water	• Spray of endosulfan or monocrotophas @ 600 – 1000 ml/ha with 400 – 600 litre water for the control of Girdal Beetle • Spray of Trizophos 40 EC @ 800 ml/ha for the control of sami-looper • Spray of 2 gm streptocycline per hectare with the mix of 20 litre water	Proper drainage
Maize	-do-	• Use Methyl Paratthion 2 % dust @ 25 kg/ha for the control of army worm	• Use Methyl Paratthion 2 % dust @ 25 kg/ha for the control of army worm	Picking of cobs
Horticulture	-do-			
Kharif vegetable	-do-	Proper drainage	Proper drainage	Picking of vegetables
Cucurbits	-do-	-do-	-do-	-do-
Orchards	-do-	-do-	-do-	Picking of fruits at physiological maturity

Sea water inundation	Not applicable			

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone

Extreme event type	**Suggested contingency measure**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave				
Horticulture				
Tomato	Cultivation in protected conditions	Light and frequent irrigation at evening	Light and frequent irrigation at evening	Picking of fruits at physiological maturity
Brinjal	-do-	-do-	-do-	-do-
Cucurbits	-do-	-do-	-do-	-do-
Okra	-	Light and frequent irrigation at evening	Light and frequent irrigation at evening	Picking of fruits at physiological maturity
Orange	-	Light irrigation at evening	Light irrigation at evening	Not applicable
Papaya	Seedling in protected conditions	Light and frequent irrigation at evening	Light and frequent irrigation at evening	Picking of fruits at physiological maturity
Cold wave				
Wheat	-	• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	NA
Mustard	-	-do-	-do-	NA
Gram	-	-do-	-do-	NA
Coriander	-	-do-	-do-	NA
Fenugreek	-	-do-	-do-	NA
Horticulture				
Tomato		• Burning of farm waste for Smoke, • light irrigation	• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	

		• Spray of sulphuric acid 0.1%		
Brinjal		-do-	-do-	
Frost				
Wheat	-	• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	NA
Mustard	-	-do-	-do-	NA
Gram	-	-do-	-do-	NA
Coriander	-	-do-	-do-	NA
Horticulture				
Tomato		• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	• Burning of farm waste for Smoke, • light irrigation • Spray of sulphuric acid 0.1%	
Brinjal		-do-	-do-	
Papaya		-do-	• Burning of farm waste for Smoke, • light irrigation • Spray of 2,4D @ 0.001%	
Hailstorm	It is rare in the district			
Cyclone	Not applicable			

2.5 Contingent strategies for livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Drought			
Feed and fodder availability	• Storage of feed & fodder in sufficient quantity. • Preparation of Hay & Silage during flush season. • Establishment of fodder bank. • Avoid feed wastage by using chaff cutter, feeding in manger etc. • Cultivation of green fodder and perennial grasses according to availability of land and water. • Develop community pasture land. • Discourage burning of wheat straw after use of	1. Use unconventional feed and fodder. 2. Enrichment of low-grade roughages by urea treatment. 3. Supplementation of feed with mineral mixture. 4. Use pasture land judiciously.	1. Follow normal feeding practices. 2. Cultivation of green fodder according to availability of land and water.

	combine harvester • Encourage use of straw combine/straw bailer		
Drinking water	Generate rain water harvesting structures to ensure sufficient water supply during drought.	Use water judiciously and avoid wastage of water.	
Health and disease management	1. Follow proper vaccination programme. 2. Use deworming schedule. 3. Surveillance and disease monitoring programme should be followed.	1. Treatment and vaccination camp should be organized. 2. Establishment of mobile emergency vety. Medical unit.	Follow routine health and disease management programme.
Floods	NA	NA	NA
Cyclone	NA	NA	NA
Heat wave and cold wave			
Shelter/environment management	1. Construction/ provision of proper shelter to animals. 2. Put gunny bags/ curtains on windows to protect animals from cold/ hot waves.	1. Keep the animals in sheds in extreme weather. 2. During summer graze the animals in early morning and late evening. 3. In winter graze the animals during day. 4. Use willowing/water splashing/ showering during hot part of the day.	Follow routine practices
Health and disease management	1. Follow proper vaccination programme. 2. Use deworming schedule. 3. Surveillance and disease monitoring programme should be followed. Neat & Clean Animal shed	1. Treatment and vaccination camp should be organized. 2. Establishment of mobile emergency vety. Medical unit.	Follow routine health and disease management programme.

2.5.2 Poultry

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Drought			
Feed and fodder availability	1. Rural poultry/Backyard Poultry is reared on scavenging system therefore there is no need to	Ensure supplementary feeding through kitchen waste/ available grain	Follow normal feeding routine.

	prepare contingent plan with respect to feed and fodder.		
Drinking water	Provision of sufficient waters/ water pots	Ensure sufficient water availability to birds.	Follow normal routine practices.
Health and disease management	1. Follow proper vaccination programme. 2. Use deworming schedule. 3. Surveillance and disease monitoring programme should be followed.	1. Treatment and vaccination camp should be organized. 2. Establishment of mobile emergency vety. Medical unit.	Follow routine health and disease management programme.
Floods	NA	NA	NA
Cyclone	NA	NA	NA
Heat wave and cold wave			
Shelter/environment management	1. Construction/ provision of proper shelter to poultry birds. 2. Put gunny bags/ curtains on windows to prevent birds from cold/ hot waves.	1. Keep the birds in sheds in extreme weather.	Follow routine practices
Health and disease management	1. Follow proper vaccination programme. 2. Use deworming schedule. 3. Surveillance and disease monitoring programme should be followed.	1. Treatment and vaccination camp should be organized. 2. Establishment of mobile emergency vety. Medical unit.	Follow routine health and disease management programme.

2.5.3 : Fisheries/Aquaculture

	Suggested Contingency Measures		
	Before the Event	**During the Event**	**After the Event**
1) Drought			
A.Capture			
Marine	**N.A**	**-**	**-**
Inland	**N.A**		
(i)Shallow water depth due to insufficient rains/inflow	▪ Harvest the available fish stock.	▪ Weed clearance from pond ▪ Either market it if marketable size or stock in pond with sufficient water	▪ Stocking of fish seed on arrival of sufficient rain water. ▪ Desilting of ponds on drying ▪ Repair the embankments.
(ii) Changes in water quality	▪ Assess physico-chemical properties of water.	▪ Use buffering agent like lime/alum based on water analysis.	▪ Repeat water quality assessment.

(iii) Any other			
B.Aquaculture			
(i)Shallow water depth in ponds due to insufficient rains/inflow			
(ii) Impact of salt load build up in ponds/Changes 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 to stock			
(v) Change in water quality			
(vi) Health and diseases			

A.Aquaculture			
(i)Inundation with flood water	▪ Clear obstacle from the water ways i.e. inlet & outlet fix screens at inlet & out let	▪ Clear the screen during flood and remove obstacles from screen	▪ Stock assess
(ii) Water continuation and changes in quality	▪ Check entry of polluted water in the pond ▪	▪ Monitoring and management of water quality	▪ Periodical harvesting
(iii) Health and diseases	▪ Assess water quality and health status of fish Biomass	▪ Use recommended treatment against disease indentified if any after flood is over	▪ Stock assessment for losses if any
(iv)Loss to stock and inputs(feed,chemicals etc)	Nil	Nil	Nil
(v) Infrastructure damage(pumps,aerators, hut etc)	Nil	Nil	Nil
(vi) Any other			
3)Cyclone/Tsunami	NA	NA	NA
A.Capture			

Marine			
(i)Average compensation paid due to Fishermen lives			
(ii) Average No of boats/nets damaged			
(iii) Average No of houses damaged			
Inland			
B.Aquaculture			
(i)Overflow/floding of ponds			
(ii)Change in water quality(fresh/brackish water ratio)			
(iii) Health and diseases			
(iv)Loss to stock and inputs(feed,chemicals etc)			
(v) Infrastructure damage(pumps,aerators, hut etc)			
4)Heat & cold wave			
A.Capture			
Marine	-	-	-
Inland	• Selection of suitable species i.e. common carp and IMC for culture • Sufficient water is to be maintained and assess water quality.	• Changing feeding regimes, • De-stocking • Add water to maintain temperature • Stop manuring	• Maintain water level
B.Aquaculture			
(i)Change in pond environment(water quality)	• Selection of suitable species i.e. common carp and IMC for culture • Sufficient water is to be maintained and assess water quality.	• Increasing water depth • Providing oxygen supplementation, • Changing feeding regimes, • Recalculating water • Add water to maintain stemperature • stop manuring	Maintain water level
(ii) Health and diseases management	• Assess water quality and health status of fish Biomass	• Use recommended treatment against disease (if indentified)	Routine management