

**State: RAJASTHAN**

**Agriculture Contingency Plan for District: TONK**

1.0 District Agriculture profile					
<b>1.1</b>	<b>Agro-Climatic/Ecological Zone</b>				
	Agro Ecological Sub Region (ICAR)	Northern Plain and Central highlands including Aravallis (4.2)			
	Agro-Climatic Zone (Planning Commission)	Central Plateau and Hills region (VIII)			
	Agro Climatic Zone (NARP)	Semi arid eastern plain zone (RJ-5)			
	List all the districts or part thereof falling under the NARP Zone	Jaipur, Ajmer, Tonk and Dausa			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		26 <sup>0</sup> 10'12"N	75 <sup>0</sup> 46'48"	289 m	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Research Station, Durgapura, Jaipur			
Mention the KVK located in the district	KVK,Banasthali				
<b>1.2</b>	<b>Rainfall</b>	Normal RF(mm)	Normal Rainy days (number)	Normal Onset ( specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	617.3	28.7	4 <sup>th</sup> week of June	2 <sup>nd</sup> Week of September
	NE Monsoon(Oct-Dec):	21.7	1.1		
	Winter (Jan- feb)	17.5	2.0	-	-
	Summer (Feb-May)	11.8	1.2	-	-
	Annual	668.3	33.0	-	-

<b>1.3</b>	<b>Land use pattern of the district</b> (latest statistics) 2007-8	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)	718.0	539.5	27.5	75.9	42.1	43.6	0.1	27.3	43.9	35.5

<b>1.4</b>	<b>Major Soilss (common names like red sandy loam deep soilss (etc.,))*</b>	<b>Area ('000 ha)</b>	<b>Percent (%) of total</b>
	Deep Brown Loamy soilss	350.2	48.7
	Medium brown loamy soilss	319.5	44.5
	Red gravelly loam hilly soilss	28.9	4.0
	Deep dark brown sandy soilss	19.4	2.7

<b>1.5</b>	<b>Agricultural land use (2007-08)</b>	<b>Area ('000 ha)</b>	<b>Cropping intensity %</b>
	Net sown area	449.4	120.0
	Area sown more than once	90.2	
	Gross cropped area	539.5	

<b>1.6</b>	<b>Irrigation (2007-8)</b>	Area ('000 ha)		
	Net irrigated area	217.4		
	Gross irrigated area	221.7		
	Rainfed area	317.9		
	<b>Sources of Irrigation</b>	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		85.3	38.5
	Tanks	-	1.6	0.7
	Open wells	201422	117.5	53.0
	Bore wells	186142	6.3	2.9
	Lift irrigation schemes	-	-	-
	Micro-irrigation			
	Other sources (please specify)		11.0	4.97
	Total Irrigated Area		221.7	
	Pump sets	33986		
	No. of Tractors	543		
	<b>Groundwater availability and use* (Data source: State/Central Ground water Department /Board)</b>	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	3	-	-
	Critical	3	-	-
	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 (as per latest figures)**

1.7	S.No.	Major field crops cultivated	Area ('000 ha)							
			<i>Kharif</i>			<i>Rabi</i>			Summer	Grand total
			Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
1	Mustard	-	-	-	133.8	106.6	240.4	-	240.4	
2	Sorghum	-	62.5	62.5	-	-	-	-	62.5	
3	Kharif Pulses	-	51.6	51.6	-	-	-	-	51.6	
4	Sesamum	-	47.5	47.5	-	-	-	-	47.5	
5	Wheat	-	-	-	37.4	9.2	46.6	-	46.6	
6	Gram	-	-	-	2.0	21.3	23.3	-	23.3	
7	Barley	-	-	-	4.9	0.5	5.4	-	5.4	
	S.No.	Horticulture crops - Fruits	Area ('000 ha)							
			Total		Irrigated		Rainfed			
	1	Mango	0.1		0.1		-			
	2	Guava	0.0		0.0		-			
	3	Pomgranate	0.0		0.0		-			
	4	Papaya	0.0		0.0		-			
	5	Lime	0.0		0.0		-			
		Horticulture crops - Vegetables	Total		Irrigated		Rainfed			

	1	Tomato	0.5	0.5	-
	2	Brinjal	0.1	0.1	-
	3	Onion	0.1	0.1	-
	4	Tinda	1.0	1.0	-
	5	Pea	0.1	0.1	-
	Others (specify)	Cole crops	0.4	0.4	-

<b>1.8</b>	<b>Livestock</b>	<b>Male (number)</b>	<b>Female (number)</b>	<b>Total (number)</b>
	Non descriptive Cattle (local low yielding)	-	-	211.2
	Crossbred cattle	-	-	
	Non descriptive Buffaloes (local low yielding)	-	-	228.9
	Graded Buffaloes	-	-	
	Goat	-	-	326.0
	Sheep	-	-	225.4
	Others (Camel, Pig, Yak etc.)	-	-	12.2
	Commercial dairy farms (Number)			
<b>1.9</b>	<b>Poultry</b>	<b>No. of farms</b>	<b>Total No. of birds (number)</b>	
	Commercial	-	44.9	
	Backyard	-	-	
<b>1.10</b>	<b>Fisheries (Data source: Chief Planning Officer) NA</b>			
	<b>A. Capture</b>			
	<b>i) Marine (Data Source: Fisheries)</b>	<b>No. of fishermen</b>	<b>Boats</b>	<b>Nets</b>

Department)		Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	(Ice plants etc.)
<b>ii) Inland</b> (Data Source: Fisheries Department)	<b>No. Farmer owned ponds</b>	<b>No. of Reservoirs</b>		<b>No. of village tanks</b>		
	-	-		-		
<b>B. Culture</b>						
	<b>Water Spread Area (ha)</b>	<b>Yield (t/ha)</b>		<b>Production ('000 tons)</b>		
i) <b>Brackish water</b> (Data Source: MPEDA/ Fisheries Department)	-	-		-		
ii) <b>Fresh water</b> (Data Source: Fisheries Department)	-	-		-		
<b>Others</b>						

**1.11 Production and Productivity of major crops** (Average of last 5 years: ending 2008:)

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)	
<b>Major Field crops (Crops to be identified based on total acreage)</b>										
1	Sorghum	32.4	446	-	-	-	-	32.4	446	NA
2	Kharif Pulses	25.9	380	-	-	-	-	25.9	380	
3	Sesamum	6.3	389	-	-	-	-	6.3	389	
4	Wheat	-	-	154.2	2605	-	-	154.2	2605	
5	Barley	-	-	10.3	2012	-	-	10.3	2012	

Others	Gram	-	-	11.0	627	-	-	11.0	627		
<b>Major Horticultural crops (Crops to be identified based on total acreage)</b>											
1	Tomato	-					2.2	46906	NA		
2	Brinjal	-					0.8	79578			
3	Onion	-					0.5	70704			
4	Tinda	-					1.0	10099			
5	Pea	-					0.2	32692			
Others	Cole crops	-					1.7	42100			

<b>1.12</b>	<b>Sowing window for 5 major field crops (start and end of normal sowing period)</b>	Sorghum	Sesamum	Wheat	Barley	Mustard
	Kharif- Rainfed	1 <sup>st</sup> week of June - 4 <sup>th</sup> week of July	-	-	-	-
	Kharif-Irrigated	-	1 <sup>st</sup> week of June - 4 <sup>th</sup> week of July	-	-	-
	Rabi- Rainfed	-	-	-	-	1 <sup>st</sup> week of October – 4 <sup>th</sup> week of November
	Rabi-Irrigated	-	-	1 <sup>st</sup> week of October – 4 <sup>th</sup> week of November	1 <sup>st</sup> week of October – 4 <sup>th</sup> week of November	-

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)	-	√	-
	Others (specify)	-	√	-

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

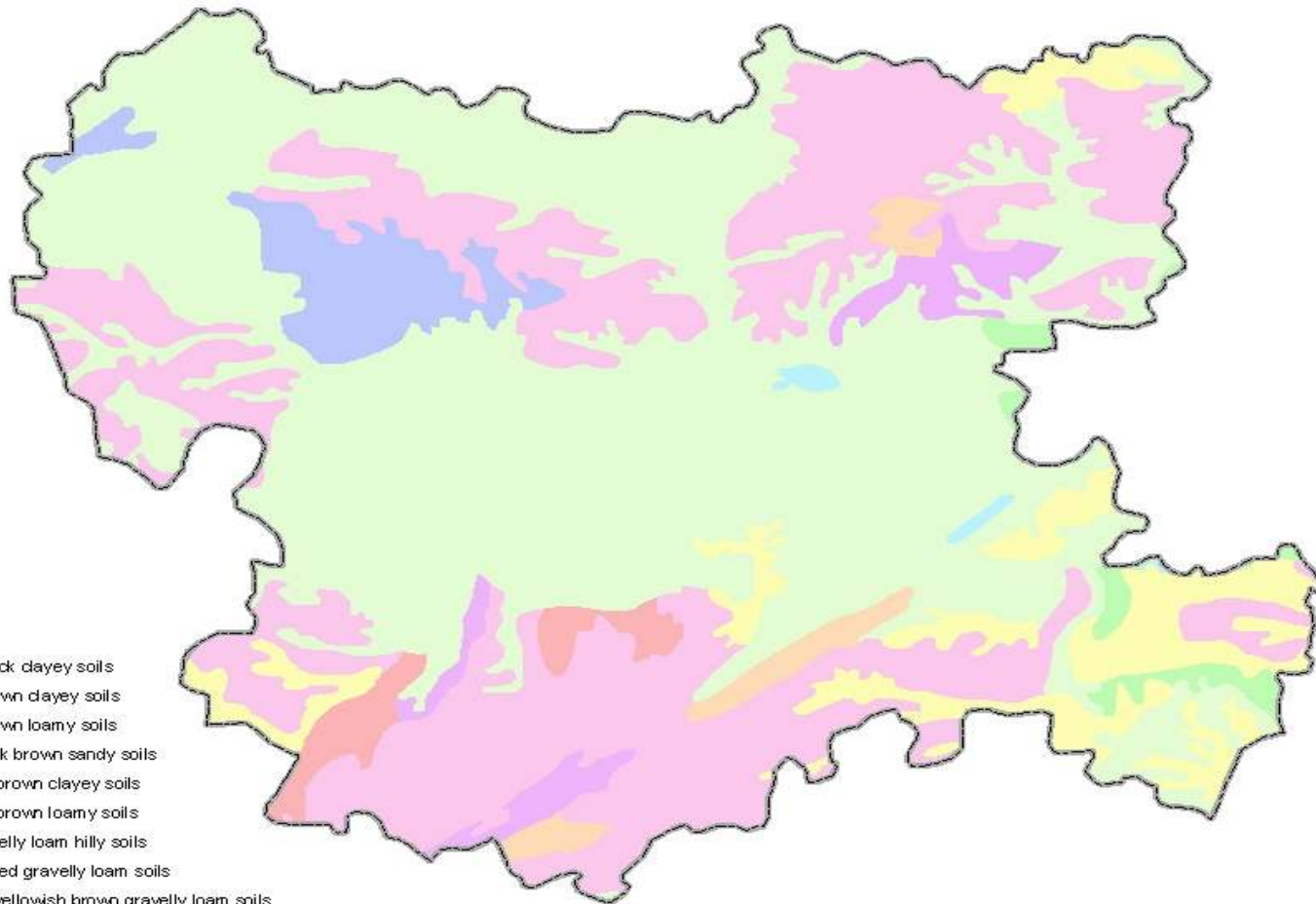


## Soils of Tonk district,Rajasthan



### Legend

-  Deep,black clayey soils
-  Deep,brown clayey soils
-  Deep,brown loamy soils
-  Deep,dark brown sandy soils
-  Medium ,brown clayey soils
-  Medium ,brown loamy soils
-  Red gravelly loam hilly soils
-  Shallow,red gravelly loam soils
-  Shallow,yellowish brown gravelly loam soils
-  District boundary



## 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 including variety	Agronomic measures	Remarks on Implementation	
Delay by 2 weeks (2 <sup>nd</sup> week of July)	Deep brown loamy soils	Sorghum-Fallow	No change	Use recommended practice of fertilizer application	Seed source 1.NSSC 2.RSSC 3.NSP	
		Sesamum-fallow	Urdbean-fallow			
		Green gram-fallow	No change			
		Cowpea -fallow				
	Medium brown loamy soils	Sorghum-mustard		Urdbean-fallow	Fallow conservation measures like mulch	Seed source 1.NSSC 2.RSSC 3.NSP
		Urd bean-mustard				
		Sesame-gram				
		Cotton-wheat				
Condition			Suggested Contingency measures			
Early season drought (delayed onset)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation	
Delay by 4 weeks (4 <sup>th</sup> week of July)	Deep brown loamy soilss	Sorghum-Fallow	Green gram-fallow	Uprooting of weeds & using them as mulch  Seed soaking with 0.1% thiourea	Seed source 1.NSSC 2.RSSC 3.NSP	
		Sesamum-fallow	Cowpea-fallow			
		Green gram-fallow	No change			
	Medium brown	Sorghum-mustard	No change	Follow conservation	Seed source 1.NSSC	

	loamy soilss	Urd bean-mustard	No change	measures like mulch	2.RSSC 3.NSP)
		Sesame-gram	Cowpea-gram		
		Cotton-wheat	Urd bean-fallow		
		Cluserbean-wheat	Urd bean-fallow		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 6 weeks (2 <sup>nd</sup> week of August)	Deep brown loamy soilss	Sorghum-Fallow	Green gram-fallow	Uprooting of weeds & using them as mulch  Seed soaking with 0.1% thiourea	Use short duration of pulses like green gram (RMG-62,RMG-268, RMG-344), Cowpea (RC-19, RC-101)
		Clusterbean-fallow	Cowpea-fallow		
		Sesamum-fallow	Green gram-fallow		
		Sorghum-Fallow	Green gram-fallow		
	Medium brown loamy soils	Sorghum-mustard	Urd bean-mustard	Use short duration of pulses like Urdbean(U-19,RBU-7 and T-9)	-
		Urd bean-mustard	Urd bean-mustard		
		Sesame-gram	Cowpea-gram		
		Cotton-wheat	Urd bean-fallow		
		Clusterbean-wheat	Urd bean-fallow		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)  Delay by 8 weeks (4 <sup>th</sup> week of August)	Deep brown loamy soils	Sorghum-fallow	Fallow-mustard	Follow conservation measures like use of bukhar, spray of stress mitigating chemicals like thiourea etc.	Seed source 1.NSSC 2.RSSC 3.NSP
		Clusterbean-fallow	Fallow-gram		
		Sesamum-fallow	Fallow-gram		
		Cowpea -fallow	Sorghum fodder-fallow		
	Medium brown loamy soils	Sorghum-mustard	Fallow-mustard	Fallow conservation measures like mulch	Sowing of rabi crop like mustard & gram
		Urd bean-mustard	Fallow-mustard		
		Sesame-gram	Fallow-gram		
		Cotton-wheat	Fallow-mustard		
		Urdbean-wheat	Fallow-gram		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soils nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)	Deep brown loamy soils	Sorghum	Uproot weeds and use them as mulch	Spray of thiourea @ 500 ppm and hoeing & weeding to conserve the moisture	Seed source 1.NSSC 2.RSSC 3.NSP 4. Water harvesting structure can be constructed under MANREGA
		Urdbean			
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Medium brown loamy soils)	Clusterbean	-do-	-do-	Seed source 1.NSSC 2.RSSC 3.NSP 4. Water harvesting
		Sorghum			
		Sesamum			
		Urdbean			
		Cotton			

		Pigeon pea			structure can be constructed under MANREGA
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Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soils nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)  At vegetative stage	Deep brown loamy soils	Sesamum	Removal of alternate rows	Hoeing & weeding to conserve moisture	Seed source 1.NSSC 2.RSSC 3.NSP 4.Water harvesting structure can be constructed under MANREGA
		Sorghum			-do-
		Clusterbean			Removal of alternate rows
	Medium brown loamy soils	Sorghum		Spray of thiourea @ 500 ppm to conserve the moisture	Seed source 1.NSSC 2.RSSC 3.NSP 4.Water harvesting structure can be constructed under MANREGA
		Sesamum			
		Pigeon pea			
		Cotton			

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soils nutrient & moisture conservation measues	Remarks on Implementation
Mid season drought (long dry spell)  At flowering/ fruiting stage	Deep brown loamy soils	Greengram	Harvest of Kharif crops and using them as fodder	Do not take rabi crops	Seed source 1.NSSC 2.RSSC 3.NSP 4.Water harvesting structure can be constructed under MANREGA
		Sorghum			
		Clusterbean			
	Medium brown loamy soils	Sorghum			
		Sesamum			
		Pigeon pea			
		Cotton			

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Deep brown loamy soils	Sorghum	Spray of stress mitigating chemicals	Do not take rabi crop	Seed source 1.NSSC 2.RSSC 3.NSP 4.Water harvesting structure can be constructed under MANREGA
		Clusterbean			
		Kharif pulses			
	Rainfed medium brown loamy soils)	Sorghum			
		Sesamum			
		Pigeon pea			

		Cotton			
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## 2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
<b>Continuous high rainfall in a short span leading to water logging</b>				
Pearlmillet	Removal of Excess water	Removal of Excess water	Removal of Excess water	-
Groundnut				
Sorghum				
kharif Pulses				
Maize				
<b>Horticulture</b>				
Tomato	Removal of Excess water	Removal of Excess water	Removal of Excess water	-
Brinjal				
Pea				
Carrot				
Radish				
<b>Heavy rainfall with high speed winds in a short span</b>	-	-	-	-
<b>Outbreak of pests and diseases due to unseasonal rains</b>	-	-	-	-

## 2.3 Floods: NA

## 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

<b>Heat Wave</b>					
Wheat	-	-	Frequent irrigation and spray of Thiourea @500 ppm		
Barley					
Gram					
<b>Horticulture</b>					
Tomato	-	-	Frequent irrigation	Tomato	
Brinjal		-			Brinjal
Pea		-			Pea
<b>Cold wave</b>					
Mustard	-	Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>	Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>		
Pea					
Gram					
Wheat					
Barley					
<b>Horticulture</b>					
Tomato		Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>	Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>		
Brinjal					
Pea					
<b>Frost</b>					
Mustard	-	Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>	Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>		
Pea					
Gram					
Wheat					
Barley					
<b>Horticulture</b>					



Tomato		Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>	Light irrigation, Spray of 0.1 % H <sub>2</sub> SO <sub>4</sub>	Tomato
Brinjal				Brinjal
Pea				Pea
<b>Hailstorm</b>	Not Applicable			
<b>Cyclone</b>				

## Contingent strategies for Livestock, Poultry & Fisheries

### 2.5.1 Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
<b>Drought</b>			
Feed and Fodder availability	<p>As the district frequently prone to drought, it should have some feed and fodder reserves at any point of the year for mobilization to the drought affected villages, Hence the under mentioned feed reserves should be created at district head quarter</p> <p>Silage:40-50 t</p> <p>Urea molasses mineral bricks (UMMB):50-100 t</p> <p>Hay:100-250 t</p> <p>Concentrates: 20-50 t</p> <p>Minerals and vitamin supplements mixture:1-5 t</p> <p>Available crop residues especially wheat straw and sorghum /Barley stover should be stored properly in the farm of hay at individual farmer level.</p> <p>Harvest the top fodder (Neem, Subabul, Acasia, Pipol etc) and create fodder banks at village level</p>	<p>Harvest and use all the failed crop (Sorghum, Barley, Wheat, cowpea, green gram) material as fodder and feed the Livestock.</p> <p>In severe drought harvest all the Muskmelon, Cucurbit, Clusterbean, cowpea vegetation and feed the livestock</p> <p>High productive animals should be Supplemented with tree fodder</p> <p>Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals</p> <p><b>Mild drought:</b> hay should be transported to the drought affected villages</p> <p><b>Moderate drought:</b> hay, silage and vitamin &amp; minerals mixture should be transported to the drought affected villages</p> <p><b>Severe drought:</b> UMMB, hay, concentrates and vitamin &amp; mineral mixture should be transported to the drought affected villages</p> <p>All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS</p> <p>Herd should be split and supplementation should be given only to the highly productive and breeding animals</p> <p>Provision of emergency grazing/feeding (Cow-calf camps or other</p>	<p>Flushing the stock to recoup</p> <p>Replenish the feed and fodder banks</p> <p>Short duration fodder crops of Sorghum / Bajra / Maize (UP Chari, Pusa Chari, HC-136, HD-2/Rajkoo, Gaint Bajra, L-74, K-6677, Ananand / African tall, Kissan composite, Moti, Manjari, BI-7) should be sown in unsown and crop failed areas</p>

	<p>Fodder production with Sorghum – stylo-Sorghum on rotation basis</p> <p>Establishment of silvi-pastoral system in CPRs with <i>Stylosanthus hamata</i> and <i>Cenchrus ciliaris</i> as grass with <i>Leucaena leucocephala</i> as tree component</p> <p>Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in CPRs with the monsoon pattern for higher biomass production</p> <p>Increase area under short duration fodder crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAIN T BAJRA, L-74, K-677, Ananad/African Tall, Kisan composite, Moti, Manjari, B1-7 etc.) on farmers fields with some input subsidy</p> <p>Avoid burning of wheat straw</p> <p>Harvesting and collection of perennial vegetation particularly grasses which grow during monsoon</p> <p>Proper drying, bailing and densification of harvested grass</p> <p>Capacity building and preparedness of the stakeholders and official staff for the extreme events</p>	<p>special arrangements to protect high productive &amp; breeding stock)</p> <p>Available kitchen waste should be mixed with dry fodder while feeding</p> <p>Arrangements should be made for mobilization of small ruminants across the districts where no drought exits</p> <p>Unproductive livestock should to be culled during severe drought</p> <p>Create transportation and marketing facilities for the culled and unproductive animals (10000-20000 animals)</p> <p>Subsidized loans (5-10 crores) should be provided to the livestock keepers</p>	
<b>Cyclone</b>	-	-	-
<b>Floods</b>	-	-	-
<b>Heat &amp; Cold wave</b>	<p>Arrangement for protection from heat wave</p> <p>i) Plantation around the shed</p> <p>ii) H<sub>2</sub>O sprinklers / foggers in the shed</p> <p>iii) Application of white reflector paint on the roof</p> <p><b>Cold wave</b> : Covering all the wire meshed walls /</p>	<p>Allow the animals early in the morning or late in the evening for grazing during heat waves</p> <p>Allow for grazing between 10AM to 3PM during cold waves</p> <p>Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves</p> <p>Add 25-50 ml of edible oil in concentrates and fed to the animal</p>	<p>Feed the animals as per routine schedule</p> <p>Allow the animals for grazing (normal timings)</p>

	open area with gunny bags/ polyethylene sheets (with a mechanism for lifting during the day time and putting down during night time)	during cold waves Put on the foggers / sprinklers during heat waves and heaters during cold waves In severe cases, vitamin 'C' and electrolytes should be added in H <sub>2</sub> O during heat waves. Apply / sprinkle lime powder in the animal shed during cold waves to neutralize ammonia accumulation	
<b>Health and Disease management</b>	Procure and stock emergency medicines and vaccines for important endemic diseases of the area All the stock must be immunized for endemic diseases of the area Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district Adequate refreshment training on draught management to be given to VAS, Jr.VAS, LI with regard to health & management measures. Procure and stock multivitamins & area specific mineral mixture	Carryout deworming to all animals entering into relief camps Identification and quarantine of sick animals Constitution of Rapid Action Veterinary Force Performing ring vaccination (8 km radius) in case of any outbreak Restricting movement of livestock in case of any epidemic Rescue of sick and injured animals and their treatment Organize with community, daily lifting of dung from relief camps	Keep close surveillance on disease outbreak. Undertake the vaccination depending on need Keep the animal houses clean and spray disinfectants Farmers should be advised to breed their milch animals during July-September so that the peak milk production does not coincide with mid summer
<b>Insurance</b>	Encouraging insurance of livestock	Listing out the details of the dead animals	Submission for insurance claim and availing insurance benefit Purchase of new productive animals
Drinking water	Identification of water resources Desilting of ponds Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals) Construction of drinking water tanks in herding places/village junctions/relief camp locations	Restrict wallowing of animals in water bodies/resources Provide clean drinking water	Bleach (0.1%) drinking water / water sources Provide clean drinking water

	Community drinking water trough can be arranged in shandies /community grazing areas		
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**Vaccination schedule in small ruminants (Sheep & Goat)**

<b>Disease</b>	<b>Season</b>
Foot and mouth disease (FMD)	Preferably in winter / autumn
PPR	All seasons, preferably in June-July
Black quarter (BQ)	May / June
Enterotoxaemia (ET)	May
Haemorrhagic septicaemia (HS)	March / June
Sheep pox (SP)	December / march

**Vaccination programme for cattle and buffalo:**

<b>Disease</b>	<b>Age and season at vaccination</b>
Anthrax	In endemic areas only, Feb to May
HS	May to June
BQ	May to June
FMD	November to December

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## 2.5.2 Poultry

	Suggested contingency measures		
	Before the event <sup>a</sup>	During the event	After the event
<b>Drought</b>			
Shortage of feed ingredients	Storing of house hold grain like wheat/rice, sorghum, barley etc, Culling of weak birds	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds	Supplementation to all
Drinking water	Rain water harvesting	Sanitation of drinking water	Give sufficient water as per the bird's requirement
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and IBD	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
<b>Floods</b>	---NA---		
<b>Cyclone</b>	---NA---		
<b>Heat wave and cold wave</b>	---NA---		
<b>Heat wave</b>	---NA---		
Shelter/environment management	Provision of proper shelter with good ventilation	In severe cases, foggers/water sprinklers/wetting of hanged gunny bags should be arranged Don't allow for scavenging during mid day	Routine practices are followed

Health and disease management	Deworming and vaccination against RD and IBD	Supplementation of house hold grain Provide cool and clean drinking water with electrolytes and vit. C In hot summer, add anti-stress probiotics in drinking water or feed	Routine practices are followed
<b>Cold wave</b>			
Shelter/environment management	Provision of proper shelter Arrangement for brooding Assure supply of continuous electricity	Close all openings with polythene sheets In severe cases, arrange heaters Don't allow for scavenging during early morning and late evening	Routine practices are followed
Health and disease management	Arrangement for protection from chilled air	Supplementation of grains Antibiotics in drinking water to protect birds from pneumonia	Routine practices are followed