State: UTTAR PRADESH

Agriculture Contingency Plan for District: Firozabad

1.0 **District Agriculture profile**				
1.1	**Agro-Climatic/ Ecological Zone**			
	Agro-Ecological Sub Region(ICAR)	Western Plain Zone,		
	Agro-Climatic Zone (Planning Commission)	Upper Gangetic Plain Region		
	Agro-Climatic Zone (NARP)	UP-3 South-western Semi-arid Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)	Firozabad, Aligrah, Hathras, Mathura, Mainpuri, Etah		
	Geographical coordinates of district headquarters	Latitude	Longitude	Altitude(mt)
		27.10N	78.25 E	-
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	-		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Hazaratpur, PO.Ussain, Firozabad		
	Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone	C. S.Azad University of Agriculture & Technology Kanpur		

1.2	Rainfall	Normal RF (mm)	Normal Rainy Days (Number)	Normal Onset	Normal Cessation
	SW monsoon (June-sep)	584.3	45	3rd week of June	4th week of September
	Post monsoon (Oct-Dec)	27.7	10	-	-
	Winter (Jan-March)	31.6	10	-	-
	Pre monsoon (Apr-May)	11.9	2	-	-
	Annual	655.5	67	-	-

1.3	Land use pattern of the district (Latest statistics)	Geographical area (ha)	Cultivable area (ha)	Forest area (ha)	Land under non-agricultural use (ha)	Permanent pastures (ha)	Cultivable wasteland	Land under Misc.tree crops and groves	Barren and uncultivable land	Current fallows (Ha)	Other fallows (ha)
	Area (000 ha)	241.2	199.3	8.7	26.6	0.6	2.9	1.0	6.0	6.3	6.4

1.4	Major Soils	Area(‘000 ha)	Percent(%) of total
	Deep, loamy soils	64.0	32
	Deep, loamy soils with moderate salinity and sodicity and moderate water logging	52.0	26
	Deep, fine soils moderately saline and sodic	35.5	18
	Deep, silty soils with moderately salinity and sodicity	28.0	14

1.5	Agricultural land use	Area(‘000 ha)	Cropping intensity (%)
	Net sown area	182.6	152 %
	Area sown more than once	121.7	
	Gross cropped area	304.3	

1.6	Irrigation	Area(‘000 ha)		
	Net irrigation area	174.3		
	Gross irrigated area	220.4		
	Rain fed area	8.3		
	Sources of irrigation(Gross Irr. Area)	Number	Area(’000 ha)	Percentage of total irrigated area
	Canals	-	28.518	12.9
	Tanks	-	0	
	Open wells	-	1.126	0.6
	Bore wells(Tube wells)	-	190.758	86.6
	Lift irrigation schemes	-	NA	
	Micro-irrigation	-	NA	
	Other sources	-	0	
	Total Irrigated Area	-	220.402	
	No. of Pump sets (2011-12)	24328	24328	
	No. of Tractors	6446	6446	
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited	5	-	
	Critical	0	-	
	Semi-critical	1	-	
	Safe	-	-	
	Waste water availability and use	-	-	
	Ground water quality			
*over-exploited groundwater u*Sesame*ization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70%				

1.7 Area under major field crops & (As per latest figures 2011-12)

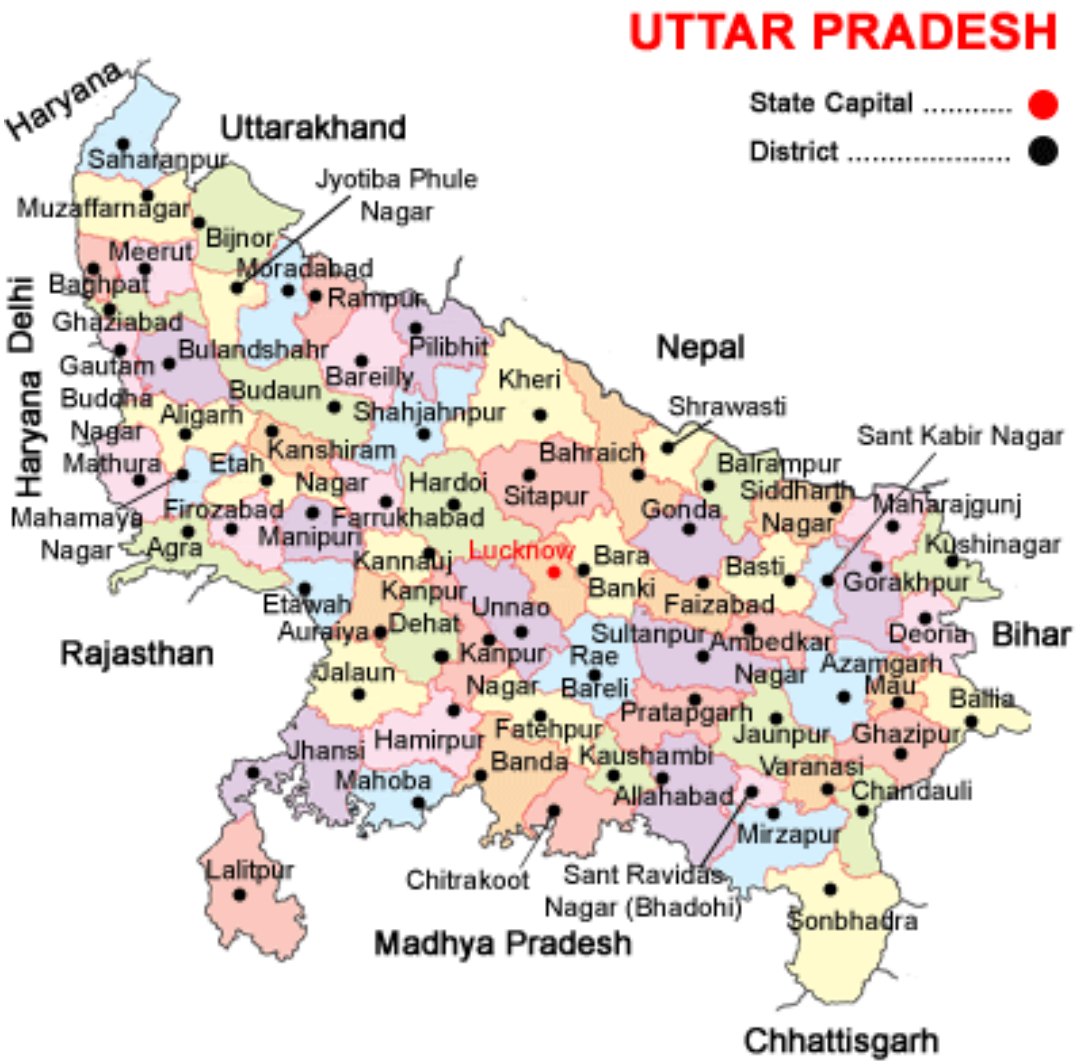
1.7	Major field crops cultivated	Area('000 ha)							
		Kharif			Rabi			Summer	Total
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total		
	Wheat	-	-	-	100.991	0-	100.991	-	100.991
	Bajra	1.802	75.418	72.720	-	-	-	-	72.720
	Potato	-	-	-	48.979	0	48.979	-	48.979
	Rice	19.895	0.738	20.633	-	-	-	-	20.633
	Maize	4.953	3.104	8.057	-	-	-	-	8.057
	Barley	-	-	-	7.487	0.029	7.516	-	7.516

1.12	**Sowing window for 5 major field crops**	**Pearl millet**	**Rice**	**Sorghum**	**Moong**	**Urd**	**Sesame**	**Wheat**	**Barley**	**Gram/Pea**	**Mustard**
	Kharif – Rainfed	2nd week of July to last week of July	-	Last week of June to 2nd week of July	2nd week of July to First week of August	2nd week of July to First week of August	2nd week of July to last week of July	-	-	-	-
	Kharif - Irrigated	-	Last week of june 2nd week of August	-	-	-	-	-	-	-	-
	Rabi – Rainfed	-	-	-	-	-	-	-	Last week of Oct to last week of Nov	first week of Oct last week of Oct	2nd week of Sep to first week of Oct
	Rabi - Irrigated	-	-	-	-	-	-	first week of Nov last week of Nov	-	-	-

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	-	-	-
	Sheath Blight, Stemborrer , Pyrilla loos smut, Heliothis, Rust etc white grub.	-	-	-

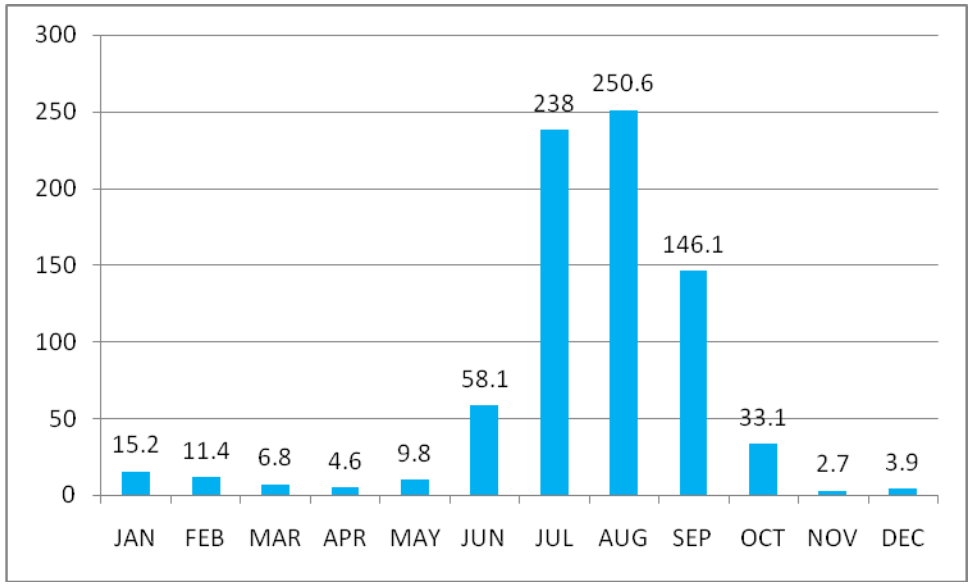
Include Digital maps of the district for	Location map of district with in State as Annexure I	Enclosed : Yes
	Mean annual rainfall as Annexure 2	Enclosed : Yes
	Soil map as Annexure 3	Enclosed : Yes

Annexure I
Location map of Firozabad district

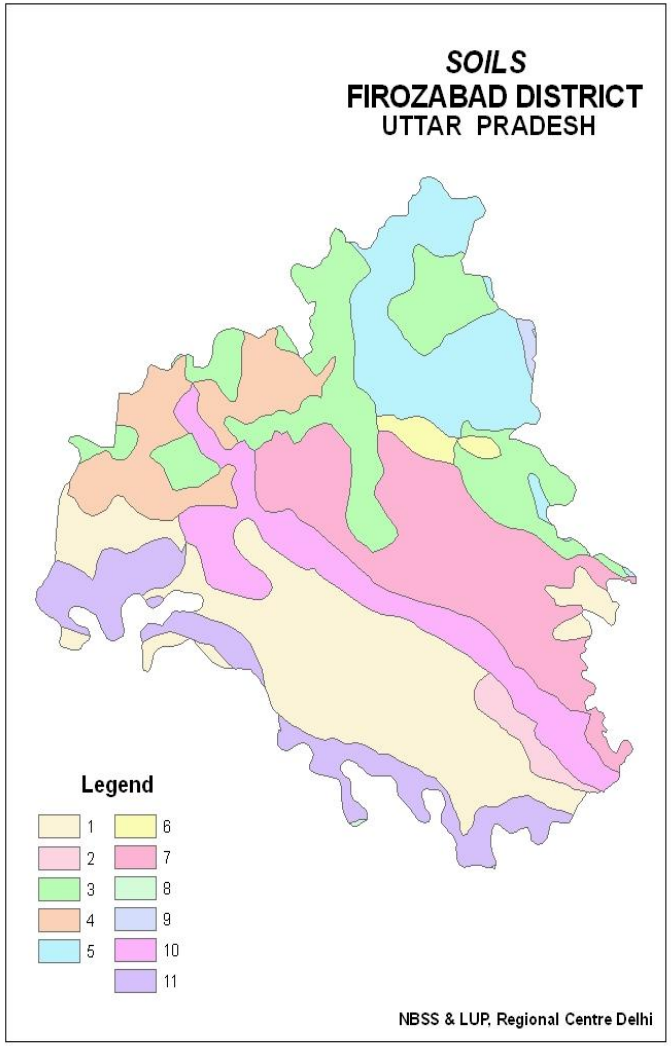


Annexure 2

Average Month-wise rainfall (mm) in Firozabad District



1.14. Soil map of Firozabad district



SOILS OF FIROZABAD DISTRICT (U.P.)

Alluvial plain (0-1% slope)

1. Deep, loamy soils and slightly eroded
2. Deep, loamy soils and slightly eroded associated with silty soils
3. Deep, fine soils moderately saline and sodic associated with loamy soils, slightly eroded
4. Deep, fine soils and slightly eroded associated with loamy soils slightly saline and moderately sodic
5. Deep, silty soils with moderately salinity and sodicity associated with loamy soils with moderate salinity and sodicity and water logging
6. Deep, loamy soils, moderate salinity and sodicity associated with loamy soils with moderate salinity and strong sodicity
7. Deep, loamy soils and slightly eroded associated with loamy soils with moderate salinity and sodicity and moderate water logging.
8. Deep, silty soils associated with loamy soils slightly eroded
9. Deep, loamy soils, slight salinity and moderately sodicity associated with silty soils slightly eroded
10. Deep, silty soils with moderate salinity/sodicity associated with loamy soils slightly eroded

Ravinous land (3-5% slope)

11. Deep, loamy soils and severely eroded

Source: NBSSLUP, Regional Centre, New Delhi

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**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks (July 1st week)	Deep loamy soils	Pearl millet **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	No change	Thinning and Inter-culture	Prefer disease free certified seed from SDC/SAUs
Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks (July 3rd week)	Deep loamy soils	*Pearl millet:* **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	No change	Thinning and Inter-culture	Use disease free certified seed from SDC/SAUs
		Sesame **:**T-78, Pragti, Sekhar,	No change	Thinning and Inter-culture	Use disease free certified seed from SDC/SAUs
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 (1st week of August)	Deep loamy soils	Pearl millet: **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322	No change	Thinning and Inter-culture	Prefer disease free certified seed from SDC/SAUs
		Sesame **:** T-78, Pragti, Sekhar,	Keep fallow	Conserve moisture	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 8 weeks (3rd week of August)	Deep loamy soils	Pearl millet **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	Keep fallow	Land preparation for toria sowing	-

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Deep loamy soils	*Pearl millet:* **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	• Thinning • Inter-culture	• Spray of 2% MOP	
		Sesame **:** T-78, Pragti, Sekhar,	• Line sowing Thinning • Inter-culture	• Spray of 2% MOP • • Manual weeding	

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	Normal rainfall sandy loam soils	*Pearl millet:* **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	• Thinning • Inter-culture	• Spray of 2% MOP	
		Sesame: T-78, Pragti, Sekhar,	• Line sowing Thinning • Inter-culture	• Spray of 2% MOP • Manual weeding	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation**	**Normal Crop**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
At flowering/ fruiting stage	Deep loamy soils	Pearl millet **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	No change Provide supplemental irrigation, if possible	-	
		Sesame: T-78, Pragti, Sekhar,	No change	-	

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**
	Deep loamy soils	Pearl millet **Composite-** ICMB-155, WCC-75,ICTP-8203 ***Hybrid-*** Pusa-23 & 322 and ICMH-451	Harvest for fodder , in case of severe moisture stress.	Prepare for Rabi crop	
		Sesame: T-78, Pragti, Sekhar,	Incorporate in the soil	Prepare for Rabi crop	

2.1.2 Drought - Irrigated situation

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	Deep loamy soils	Rice: **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **(**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh	Direct seeded Rice Saket-4, Ratna, Pant-12, Narendra-80, 2026	Limited irrigation, weed management	***Linked with SDC/SAUs***
Condition			**Suggested Contingency measures**		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Limited release of water in canals due to low rainfall	Deep loamy soils	Rice: **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **(**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh	Direct seeded Paddy Saket-4, Ratna, Pant-12, Narendra-80, 2026	Limited irrigation, weed management	***Linked with SDC/SAUs***

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal 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	Deep loamy soils	Rice: **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **(**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh	Direct seeded rice Saket-4, Ratna, Pant-12, Narendra-80, 2026	Limited irrigation, weed management	***Linked with SDC/SAUs***

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to	Deep loamy soils	Rice:	Direct seeded rice Saket-4, Ratna, Pant-12,	Limited irrigation, weed management	***Linked with SDC/SAUs***

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
insufficient /delayed onset of monsoon		**(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **(**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh	Narendra-80, 2026		

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient groundwater recharge due to low rainfall	Deep loamy soils	Rice	Plan for sowing of toria using varieties like T-9, T-36, PT-30 and PT-303 as per situation	Limited irrigation, Weeding and Management of Pest and Disease	Seed supply through Govt. approved seed centers

2.2 Unusual rains (untimely, un seasonal etc)

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Rice	Bunding around the field	Bunding around the field	Drain out excess water	Shift the produce to safer place
Pearl millet	Drain out excess water			
Sesame				
Outbreak of pests and diseases due to un seasonal rains				

Paddy	Spray of Chloropyriphos 2.5 lt./ ha. for termite and For stemborer (Cartap @25 kg/ hac)	Dusting of Methyl parathion @15 kg/ha. for gundhi bug and Chlorothalonil @2ml/lt of water for false smut.	-	-
Pearl millet	Spray of Chloropyriphos @3.50 lt./ ha. for early shoot borar	Spray of Mancozeb(0.2%) for rust.		
Sesame	Spray of Chloropyriphos @3.50 lt./ ha. for early shoot borar	Spray of Mancozeb (0.2%) for rust.		

2.3 Floods : Not Applicable

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

Extreme event type	**Suggested contingency measure[r]**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave	Not Applicable			
Cold wave[q]				
Potato		Plant protection for early/late blight Provide light irrigation Fumigation	Plant protection for early/late blight Provide light irrigation Fumigation	
Frost	Not applicable			
Hailstorm	Not Applicable			
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	Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in common property resources (CPRs) or private property resources (PPRs) like waste and degraded lands with the monsoon pattern for higher biomass production Promote cultivation of short duration fodder crops of sorghum/bajra/maize suitable to the district Sowing of fodder crops like *Stylo* and *Cenchrus* on bunds so as to provide fodder and strengthening of bunds Avoid burning of paddy straw and storing as dry fodder for future use Proper drying, bailing and densification of harvested dry fodder for transport to the needy villages Complete feed preparation using red gram stalks may be exploited Preserving maize fodder as silage for future use Establishment of silvi-pastoral system	Harvest and use biomass of dried up crops (Bajra, Maize, Rice etc) material as fodder. Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS). Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals In case of mild drought, the available dry fodder may be enriched with urea and molasses and the productive livestock should be supplemented with vitamin & minerals mixture. The available silage may be used as green fodder supplement for high yielders and pregnant animals In case of severe drought, UMMB, hay, concentrates and vitamin & mineral mixture should be transported to the needy areas from the reserves at the district level initially and latter stages from the near by districts. All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS Herd should be split and supplementation should be given only to the highly productive and breeding animals Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive & breeding stock) Available kitchen waste should be mixed with dry fodder while feeding	Green and concentrates supplementation should be provided to all the animals. Short duration fodder crops of should be sown in unsown and crop failed areas where no further routine crop sowing is not possible Promote cultivation of fodder crops during Rabi season

	in CPRs with *Stylosanthus hamata* and *Cenchrus ciliaris* as grass with *Leucaena leucocephala* as tree component Creation of permanent fodder, feed and fodder seed banks in all drought prone villages	Arrangements should be made for mobilization of small ruminants across the districts where no drought exits with subsidized road/rail transportation and temporary shelter provision for the shepherds Unproductive livestock should to be culled during severe drought Create transportation and marketing facilities for the culled and unproductive animals (10000-20000 animals) in case of severe drought Subsidized loans (5-10 crores) should be provided to the livestock keepers for purchase of supplements, concentrate feed ingredients etc., in case of severe drought	
Heat & Cold wave	In villages which are chronically prone to heat waves the following permanent measures are suggested i) Plantation of trees like Neem, Pipal, Subabul around the shed ii) Spreading of husk/straw/coconut leaves on the roof of the shed iii) Water sprinklers / foggers in the animal shed **iv)** Application of white reflector paint on the roof to reduce thermal radiation effect **Cold wave :** Covering all the wire meshed walls / open area with gunny bags/ polyethylene sheets with a mechanism for lifting during the day time and closing during night	Allow the animals preferably early in the morning or late in the evening for grazing during heat waves Allow for grazing between 10AM to 3PM during cold waves Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves Add 25-50 ml of edible oil in concentrates per kg and fed to the animal during cold waves Apply / sprinkle lime powder (5-10g per square feet) in the animal shed during cold waves to neutralize ammonia accumulation Put on the foggers / sprinklers during heat weaves and heaters during cold waves in case of high productive animals In severe cases, vitamin 'C' (5-10ml per litre) and electrolytes (Electral powder @ 20g per litre) should be added in water during severe heat waves.	Green and concentrates supplementation should be provided to all the animals. Allow the animals for grazing (normal timings)
Health and Disease	List out the endemic diseases (species wise) in that district and store vaccines for those diseases	Constitution of Rapid Action Veterinary Force Procurement of emergency medicines and medical kits	Conducting mass animal health camps Conducting fertility

management	Timely vaccination (as per enclosed vaccination schedule) against all endemic diseases Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district	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	camps Mass deworming camps
Insurance	Insurance policy for loss of production due to drought may be developed Encouraging insurance of livestock	Listing out the details of the dead animals and loss of production in high yielders	Submission for insurance claim and availing insurance benefit Purchase of new productive animals
Drinking water	Identification of water resources Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals)	Restrict wallowing of animals in water bodies/resources Provision of wholesome clean drinking water at least 3 times in a day	Bleach (0.1%) drinking water / water sources Provide clean drinking water

2.5.2 Poultry

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice, bajra etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds Culling of weak birds	Supplementation to all survived birds

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 fowl pox	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water (5ml in one litre water)	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
Heat wave			
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 fowl pox	Supplementation of house hold grain Provide cool and clean drinking water with electrolytes and vit. C (5-10 ml per litre) In hot summer, add anti-stress probiotics in drinking water or feed (Reestobal etc., 10-20ml per litre)	Routine practices are followed
Cold wave			
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 (Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to protect birds from pneumonia	Routine practices are followed