State: Uttar Pradesh
Agriculture Contingency Plan for District: Etawah

1.0 District Agriculture profile				
1.1	Agro-Climatic/ Ecological Zone			
	Agro-Ecological Sub Region(ICAR)	Central Plain Zone		
	Agro-Climatic Zone (Planning Commission)	Upper Gangetic Plain Region		
	Agro-Climatic Zone (NARP)	UP-4 Central Plain Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)	Lakhimpur, Kheri, Sitapur, Hardoi, Farrukhabad, Etawah, Kanpur, Kanpur Dehat, Unnao, Lucknow, Rae Bareilly, Fatehpur and Allahabad.		
	Geographical coordinates of district headquarters	Latitude	Longitude	Altitude
		26.48 N	79.06 E	449ft
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS			
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Dr. B.R. Ambedkar Agricultural Engineering College Farm, Etawah		
	Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone	CSA Kanpur		

1.2	Rainfall	Normal RF (mm)	Normal Rainy Days (Number)	Normal Onset	Normal Cessation
	SW monsoon (June-sep)	669.1	45	**3nd week of June**	4rd week of September
	NE monsoon (Oct-Dec)	33.8	10	3rd week of December	2nd week of January
	Winter (Jan-March)	34.7	10	-	-
	Summer (Apr-May)	14.8	2	-	-
	Annual	752.4	67	-	-

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 in ha(000 ha)	240.3	171.3	36.1	24.9	0.5	6.6	0.5	7.4	11.0	5.8

1.4	Major soils	Area(‘000 ha)	Soil (%)
	Deep loamy soils		50.2
	Deep fine soils		30.4
	Deep silty soils		19.4

1.5	Agricultural land use	Area(‘000 ha)	Cropping intensity (%)
	Net sown area	147.6	164.2 %
	Area sown more than once	94.8	
	Gross cropped area	242.4	

1.6	Irrigation	Area(‘000 ha)		
	Net irrigation area	129.1		
	Gross irrigated area	191.2		
	Rain fed area	18.5		
	Sources of irrigation	Number	Area(’000 ha)	Percentage of total irrigated area
	Canals		106.9	55.9
	Tanks		0.1	0.1
	Open wells		0.2	0.1
	Bore wells		83.9	43.9
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources		0	
	Total Irrigated Area		191.2	
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited	0		
	Critical	0		
	Semi-critical	0		
	Safe	0		
	Waste water availability and use			
	Ground water quality			
*over-exploited groundwater utilization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70%				

1.7 Area under major field crops & (As per latest figures 2013-14)

1.7	Major field crops cultivated	Area('000 ha)							
		Kharif			Rabi			Summer	Total
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total		
	Wheat	0	0	0	93.714	0.175	93.889	0	93.889
	Rice	48.764	0.001	48.765	0	0	0	0	48.765
	Millets	1.026	35.576	36.602	0	0	0	0	36.602
	Oilseeds	0.078	0.993	1.071	9.738	6.397	16.135	0.001	17.207
	Pulses	0.077	1.110	1.187	0.959	2.983	3.942	5.238	10.367

	Horticulture crops -Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Mango	0.046	0.046	-
	Guava	0.020	0.020	-
	Horticulture crops -Vegetables			
	Potato	13.099	13.099	-
	Onion	0.047	0.047	-
	Pea	1.332	1.332	-

	Major Fodder crops	Area(ha)	Total
	Kharif	1853	1853
	Rabi	1033	1033
	Summer	541	541
		3427	3427

1.8 Production and productivity of major crops (Average of last 5 years)

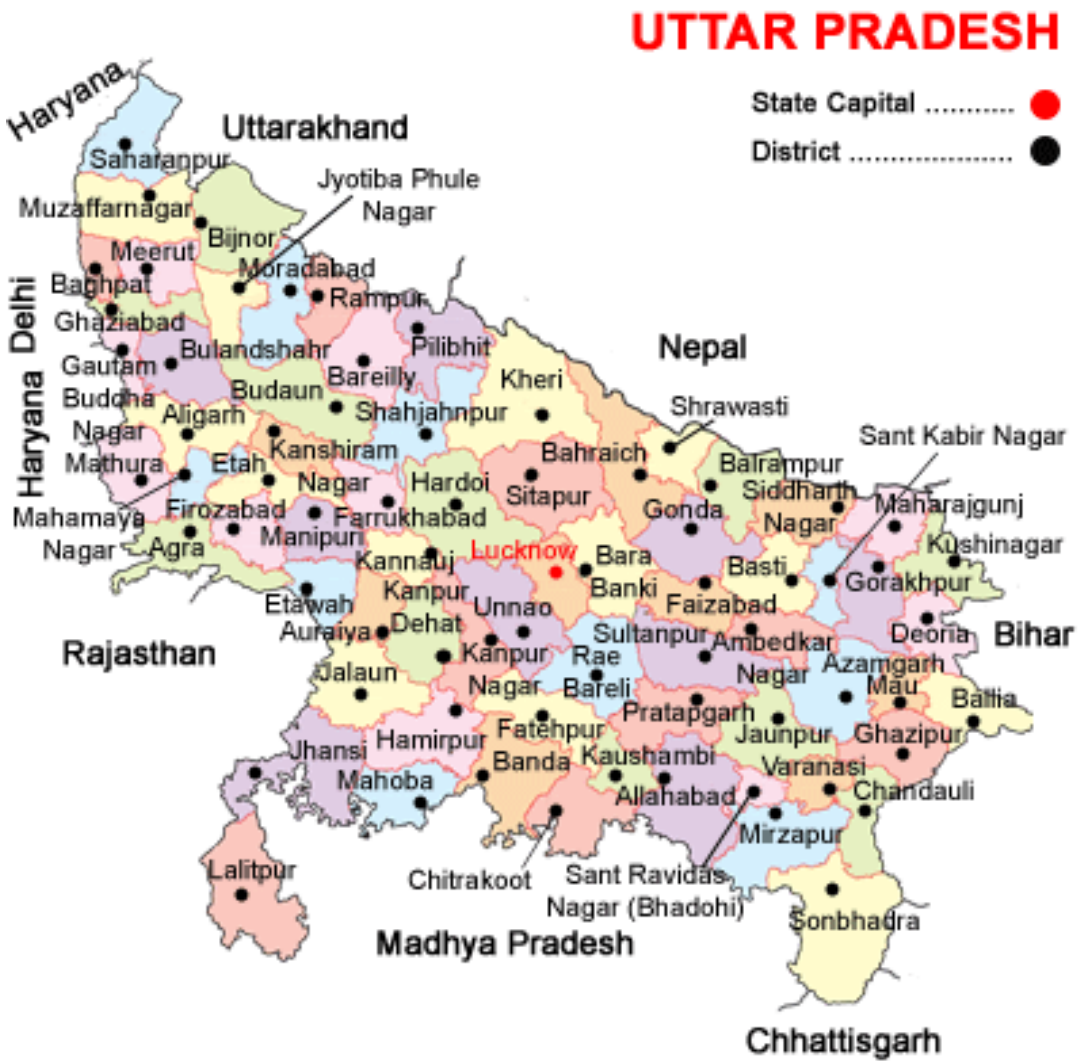
1.7	Major field crops cultivated	Area('000 ha)								
		Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (Kg/ha)	Production ('000t)	Productivity (Kg/ha)	Production ('000 t)	Productivity (Kg/ha)	Production ('000t)	Productivity (Kg/ha)	
	Rice	135.522	2752	0	0	0.001	3000	135.523	2752	
	Wheat	0	0	335.301	3552	0	0	335.301	3552	
	Pulses	0.921	710	7.213	1570	2.971	787	11.218	1154	
	Oilseeds	0.249	219	24.789	1565	0.017	2024	25.042	1480	
	Millets	60.992	1824	0	0	0	0	60.992	1824	
	Foodgrain	227.002	2472	390.114	32.29	3.408	843	567853	2906	

1.9	Livestock(year 2007)	Male(000)	Female(000)	Total(000)
	Non descriptive Cattle (local low yielding)	46.660	70.786	117.446
	Improved cattle	0.000	0.008	0.008
	Crossbred Cattle	1.200	3.693	4.893
	Non descriptive Buffaloes (local low yielding)	21.493	79.928	101.421
	Descript Buffaloes	28.116	103.754	131.870
	Goat	95.157	177.877	273.034
	Sheep			5.086
	Other (Camel,Pig, Yak etc)			15.854
	Commerical dairy farms (number)			0.000

1.10	**Normal sowing window for 5 major field crops**	**Pearl millet**	**Maize**	**Rice**	**Urd**	**Sorghum**	**Pigeonpea**	**Wheat**	**Pea**	**Gram**	**Mustard**
	Kharif – Rainfed	2nd week of July to last week of July	3rd week of June to First week of July	-	2nd week of July to First week of August	First week of July to 2nd week of July	First week of July to Last week of July	-	-	-	-
	Kharif - Irrigated	-	-	3rd week of June to Last week of July	2nd week of July to First week of August	First week of July to 2nd week of July	-	-	-	-	-
	Rabi –Rain fed							Last week of Oct to 2nd week of Nov	First week of Oct to last week of Oct	First week of Oct to last week of Oct	First week of Sep to 2nd week of Oct
	Rabi - Irrigated							2nd week of Nov to last week of Dec	-	-	-

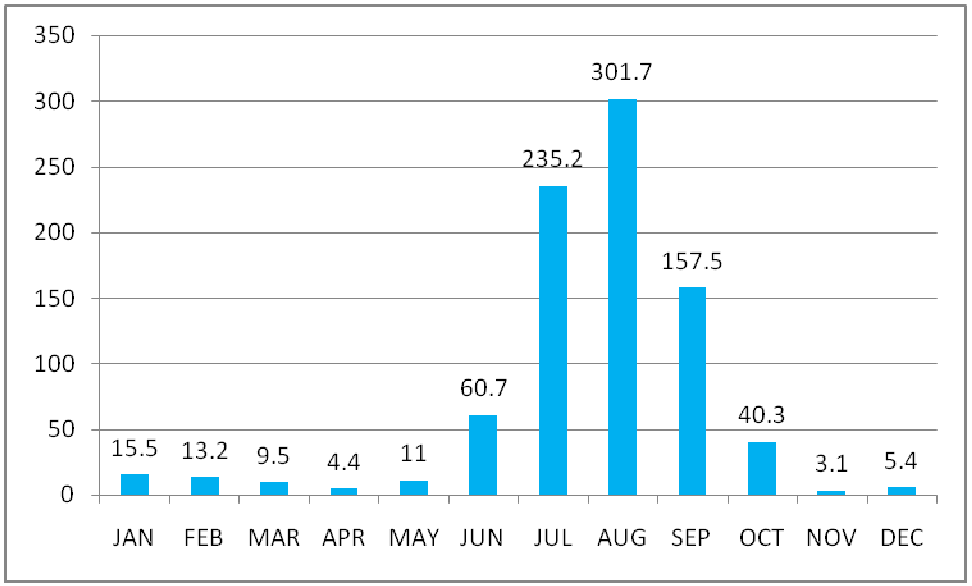
1.11	**What is the major contingency the district is prone to?**	**Regular**	**Occasional**	**None**
	Drought	-	✓	
	Flood	-	✓	
	Cyclone	-	-	
	Hail storm	-	-	
	Heat wave	-	✓	
	Cold wave	-	✓	
	Frost	-	✓	
	Sea water intrusion	-	-	
	Sheath Blight, Stemborrer , Pyrilla loos smut, Heliothis, Rust etc white grub.	-	✓	

Annexure I
Location map of Etawah district

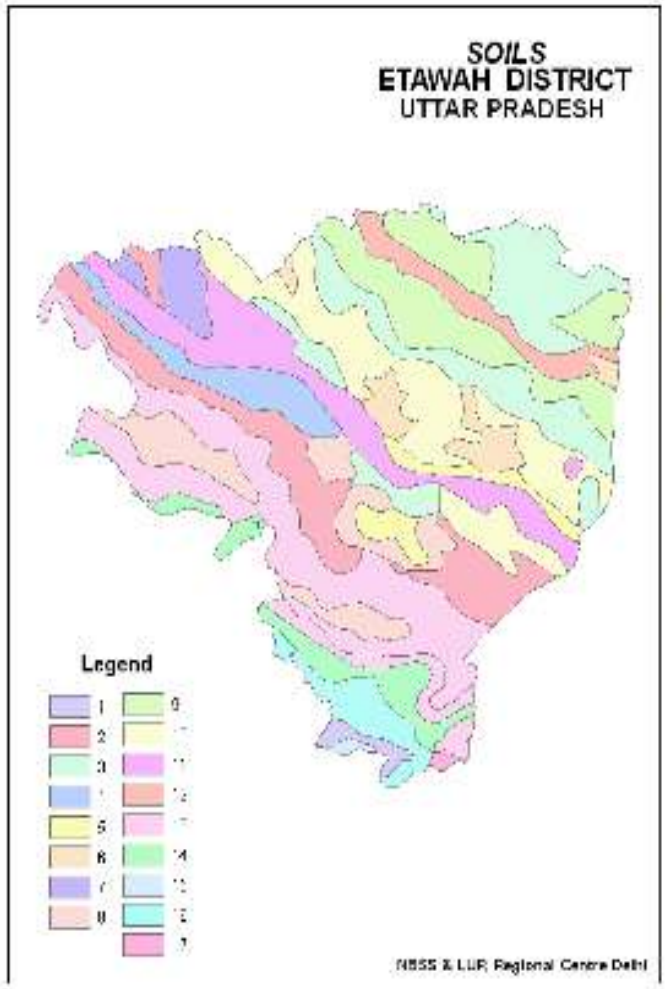


Annexure 2

Average Month-wise rainfall (mm) in Etawah District



1.14 Soil Map



SOILS OF ETAWAH DISTRICT (U.P.)

Tarai (1-3% slope)

1. Deep, loamy soils and slightly eroded associated with loamy over sandy skeletal soils

Alluvial plain (0-1% slope)

2. Deep, loamy soils and slightly eroded
3. Deep, silty soils, slightly saline and strongly sodic associated with loamy soils
4. Deep, loamy soils and slightly eroded associated with silty soils
5. Deep, fine soils and slightly eroded associated with loamy soils slightly saline and moderately sodic
6. Deep, silty soils with moderately salinity and sodicity associated with loamy soils with moderate salinity and sodicity and water logging
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, silty soils and slightly saline/ sodic
10. Deep, loamy soils, slight salinity and moderately sodicity associated with silty soils slightly eroded
11. Deep, silty soils with moderate salinity/sodicity associated with loamy soils slightly eroded
12. Deep, silty soils and slightly eroded

Ravinous land (3-5% slope)

13. Deep, loamy soils and severely eroded
14. Deep, loamy soils, very severely eroded associated with silty soils, very severely eroded
15. Deep, fine soils, slightly eroded associated with fine smectitic soils and slightly eroded

Ravinous land (5-10 % slope)

16. Deep, loamy soils and severely eroded associated with loamy soils and moderately eroded.
17. Deep, fine smectitic soils and are moderately eroded associated with fine soils moderately 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	**Normal rainfall sandy loam soils**	Pearl millet	No change **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Thinning, Inter cultivation,	Prefer disease free certified seed from a reliable source
		Maize	No change **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Pusa -5 ,Prakash and JH-3459	Thinning, Inter cultivation, Mulching	

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)	Normal rainfall sandy loam soils	Pearl millet	**No changeComposite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Thinning Inter-culture	Prefer disease free certified seed from a reliable source
		Maize	**No change** **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Pusa -5 ,Prakash and JH-3459	Thinning and Inter - culture	
		Sorghum	**No change** **Composite-** Varsha, CSV-13 & CSV-15, **Hybrid-** CSH-9, 16, and CSH-14	Thinning and Inter - culture	

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 6 weeks (Aug. 1st week)	Normal rainfall sandy loam soils	Pearl millet	**Composite-** ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322	Thinning and Inter-culture	Prefer disease free certified seed from a reliable source
		Maize	Replace with mungbean varieties like Samrat, Meha	Line sowing	
		Sorghum	Sorghum: **Composite-** CSV-13 , CSV-15 and Vijeta **Hybrid-** CSH- 16, and CSH-14	Thinning and Inter-culture	

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 (Aug. 3rd week)	Normal rainfall sandy loam soils	Pearl millet	**Composite-** ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322	Thinning and Inter-culture	Prefer disease free certified seed from a reliable source
		Maize	Prefer fodder maize or replace with Lobia Keep fallow	Thinning and Inter-culture	
		Pigeon pea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+Maize (Naveen, Surya, Ganga2,5,& Others hybrid)	Raised bed planting Intercropping of pigeon pea(inter-row spacing of 75 cm)- cm) +Maize with row ratio of 1:2	
		Sorghum	Replace with pigeon pea long duration varieties like Bahar, Amar , and PDA-11	Thinning, Inter-culture, Mulching	

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.	Normal rainfall sandy loam soils	Pearl millet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	No change	Thinning and gap filling in the existing crop. Inter-culture	
		Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	Prefer disease free certified seed from a reliable source	Thinning and gap filling in the existing crop. Inter-culture	
		Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Prefer disease free certified seed from a reliable source	Thinning and gap filling in the existing crop. Inter-culture	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation**	**Normal Crop**	**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 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Thinning and Inter-culture	Prefer disease free certified seed from a reliable source
		Maize	**Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-	Thinning and Inter-culture	

			5 and Prakash, JH-3459		
		Sorghum	Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Thinning and Inter-culture	

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		Pearl millet	Pearl millet: **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Spray 2% solution each of Urea and MOP Mulching	-
		Maize	Maize: **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	Spray 2% solution each of Urea and MOP Mulching	
		Sorghum	Sorghum: **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Spray 2% solution each of Urea and MOP Mulching	

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**
	Normal rainfall sandy loam soils	Pearl millet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	In case of severe drought, harvest every third row for green fodder		
		Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	In case of severe drought, harvest for green fodder and for green cobs		
		Sorghum Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	In case of severe drought, harvest every third row for green fodder		

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed release of water in canals due to low rainfall	**Deep loamy soils**	Paddy: (Transplanted) **Rain-fed ;** Govind, Narendra-118,97 , Ashwani, **Irrigated (**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **Irrigated (**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **Irrigated (**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	

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Limited release of water in canals due to low rainfall	**tankfed medium deep black soils**	Rice	Direct seeded rice (Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026, Ashwani and Govind	Limited irrigation, weed management	

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	Not applicable				

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 insufficient /delayed onset of monsoon	Not Applicable				

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	**Tankfed medium deep black soils**	Rice	Catch crop Toria 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.)

<table>
<tr><td>Condition</td><td colspan="4">Suggested contingency measure</td></tr>
<tr><td>Continuous high rainfall in a short span leading to water logging</td><td>Vegetative stage</td><td>Flowering stage</td><td>Crop maturity stage</td><td>Post harvest</td></tr>
<tr><td>Maize</td><td></td><td></td><td></td><td rowspan="4">Shift the produce to safer place</td></tr>
<tr><td>Rice</td><td>Banding around the field</td><td>Drain out excess water</td><td>Drain out excess water</td></tr>
<tr><td>Pigeonpea</td><td colspan="3" rowspan="3">Drain out excess water</td></tr>
<tr><td>Pearl millet</td></tr>
<tr><td>Sorghum</td><td></td></tr>
<tr><td>Horticulture</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Mango</td><td>Micro-site improvement around the plant</td><td>Drain out excess water</td><td>Drain out excess water</td><td></td></tr>
<tr><td>Guava</td><td>Micro-site improvement around the plant</td><td>Drain out excess water</td><td>Drain out excess water</td><td></td></tr>
<tr><td>Heavy rainfall with high speed winds in a short span[2]</td><td colspan="4">Not applicable</td></tr>
<tr><td>Outbreak of pests and diseases due to un seasonal rains</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Maize</td><td colspan="3" rowspan="4">Need based pant protection
Measures
--</td><td rowspan="3">Shift the produce to safer place</td></tr>
<tr><td>Rice</td></tr>
<tr><td>Pearl millet</td></tr>
<tr><td>Sorghum</td></tr>
<tr><td>Horticulture</td><td></td><td></td><td></td><td>Grade the produce and market</td></tr>
</table>

2.3 Floods :

Condition	**Suggested contingency measure**			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvest[n]**
Rice	Strengthening the bunds	Strengthening the bunds	Drain out excess water	
Maize	Drain out excess water and strengthening the bunds	Drain out excess water and strengthening the bunds	Drain out excess water	
Pearl Millet	Drain out excess water and strengthening the bunds	Drain out excess water and strengthening the bunds	Drain out excess water	
Sorghum	Drain out excess water and strengthening the bunds	Drain out excess water and strengthening the bunds	Drain out excess water	
Mango	Drain out excess water			
Heavy rainfall with high speed winds in a short span[2]	Not applicable			
Outbreak of pests and diseases due to unseasonal rains -	Need based and recommended plant protection measures			

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Horticulture				
Guava	Provide staking to less than 3 years aged plant to avoid lodging	Provide proper drainage	-	

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				
Rice	Drain out the heated water & Irrigate with fresh water	-	-	-
Horticulture				
Mango	Frequent irrigation	Frequent irrigation	Frequent irrigation	_
Guava	Frequent irrigation	Frequent irrigation	Frequent irrigation	
Cold wave				
Potato		Frequent irrigation & Preventive spraying of fungicide		
Horticulture				
Mango	-	Frequent irrigation		
Guava	-	Frequent irrigation		
Frost				
Potato	-	Frequent irrigation & Preventive spraying of fungicide		

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 wheat and 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 in CPRs with *Stylosanthus*	Harvest and use biomass of dried up crops (Sorghum, Bajra, Maize, Rice, Urd, 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	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

	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	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 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	
Floods	Minimum required quantity of hay and concentrates at house hold level should be stored for feeding the livestock a week period In case of early forewarning (EFW), harvest all the crops (Rice/maize/backgram/green gram) that can be useful as fodder in future (store properly) Protect the stored paddy straw from inundation of flood water All the large ruminants are immunized for the endemic diseases like HS and BQ during the month of	Transportation of animals to elevated areas Proper hygiene and sanitation of the animal shed In severe storms, un-tether or let loose the animals Use of unconventional and locally available cheap feed ingredients for feeding of livestock. Avoid soaked and mould infected feeds / fodders to livestock Emergency outlet establishment for required medicines or feed in each village Spraying of fly repellants in animal sheds and relief camps Carryout deworming to all animals entering into relief camps	Repair of animal shed Bring back the animals to the shed Deworm the animals through mass camps Cleaning and disinfection of the shed Bleach (0.1%) drinking water / water sources Encouraging farmers to cultivate short-term fodder crops like cow pea, horse gram, sunhemp etc. Proper disposable of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in

	May and FMD in July Procure and stock emergency medicines and vaccines for important contagious diseases. Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations	Identification and quarantine of sick animals Perform ring vaccination (8 km radius) in case of any disease outbreak Restrict movement of livestock in case of any epidemic	pit Drying the harvested crop and fodder material and proper storage
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	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	Green and concentrates supplementation should be provided to all the animals. Allow the animals for grazing (normal timings)

	mechanism for lifting during the day time and closing during night	be added in water during severe heat waves.	
Health and Disease management	List out the endemic diseases (species wise) in that district and store vaccines for those diseases 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	Constitution of Rapid Action Veterinary Force Procurement of emergency medicines and medical kits 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	Conducting mass animal health camps Conducting fertility 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	**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	Supplementation to all survived birds

		birds Culling of weak 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
Floods			
Shortage of feed ingredients	In case of early forewarning of floods, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc,	Use stored feed as supplement Don't allow for scavenging Culling of weak birds	Routine practices are followed Deworming and vaccination against RD
Drinking water	Provide clean drinking water	Sanitation of drinking water	Sanitation of drinking water
Health and disease management	In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak	Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness	Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with line powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD
Heat wave			
Shelter/environ	Provision of proper shelter with good	In severe cases, foggers/water sprinklers/wetting of	Routine practices are followed

ment management	ventilation	hanged gunny bags should be arranged Don't allow for scavenging during mid day	
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