State: Uttar Pradesh

Agriculture Contingency Plan for District: Kanpur Dehat

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(mt)
		26.28 N	80.20 E	
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS			
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Zonal Agricultural Research Station, Daleep Nagar, Kanpur Dehat		
	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 (Specify week and month)	Normal Cessation (Specify week and month)
	SW monsoon (June-sep)	713.1	45	3rd week of June	4th week of September
	Post monsoon (Oct-Dec)	38.1	10		
	Winter (Jan-March)	37.1	10	-	-
	Pre monsoon (Apr-May)	13.2	2	-	-
	Annual	801.5	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 (000 ha)	315.0	262.8	5.8	29.8	0.4	4.3	2.7	16.2	21.5	12.4

1.4	Major Soils	Area(‘000 ha)	Percent(%) of total
	Deep, fine soils moderately saline and sodic	71.0	27 %
	Deep, loamy soils	55.2	21 %
	Deep, loamy soils associated with sandy soils and eroded	79.1	30 %

1.5	Agricultural land use	Area(‘000 ha)	Cropping intensity (%)
	Net sown area	221.9	132.2 %
	Area sown more than once	71.5	
	Gross cropped area	293.4	

1.6	Irrigation	Area(‘000 ha)		
	Net irrigation area	155.8		
	Gross irrigated area	201.0		
	Rain fed area	66.1		
	Sources of irrigation (gross irr. Area)	Number	Area(’000 ha)	Percentage of total irrigated area
	Canals	-	81.4	40.4
	Tanks	-	0.1	0.1
	Open wells	-	0.2	0.1
	Bore wells(Tube wells)	-	119.2	59.3
	Lift irrigation schemes	-	NA	
	Micro-irrigation	-	NA	
	Other sources	-	0	
	Total Irrigated Area	-	201.0	
	Pump sets (2011-12)	46245		
	No. of Tractors	6364		
	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		
	Rice	41.2	0	41.2	-	-	-	-	41.2
	Bajra	0.02	16.9	16.92	-	-	-	-	16.92
	Juar	0	13.4	13.4	-	-	-	-	13.4
	Wheat	-	-	-	120.5	0.03	120.53	-	120.53
	Arhar	0.07	8.3	8.37	-	-	-	-	8.37
	Rapeseed Mustard	-	-	-	16.9	6.0	22.9	-	22.9

1.7	Major Fodder crops cultivated	Area(ha)	Total
	Kharif	4368	4368
	Rabi	1723	1723
	Summer	283	283
	Total	6373	6373

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

1.8	Major field crops cultivated	Area('000 ha)								
		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)	
	Rice	106.7	23.41	-	-	-	-	106.7	2341	NA
	Bajra	31.2	1836	-	-	-	-	31.2	1836	NA
	Juar	16.9	1211	-	-	-	-	16.9	1211	NA
	Wheat	-	-	439.7	3671	-	-	439.7	3671	NA
	Arhar	12.7	1488	-	-	-	-	12.7	1488	NA
	Rapeseed Mustard	-	-	29.6	1297	-	-	29.6	1297	NA

1.9	Livestock(year 2007)	Male(000)	Female(000)	Total (000)
	Non descriptive Cattle (local low yielding)	48.765	74.839	123.604
	Improved cattle	0.000	0.000	0.000
	Crossbred Cattle	18.136	30.508	48.644
	Non descriptive Buffaloes (local low yielding)	16.621	66.431	83.052
	Descript Buffaloes	27.578	96.703	124.281
	Goat	156.700	239.368	396.068
	Sheep			16.652
	Other (Camel,Pig, Yak etc)			22.225
	Commerical dairy farms (number)			0.000

1.8	**Sowing window for 5 major field crops**	**Bajra**	**Maize**	**Rice**	**Urd**	**Jowar**	**Pigeon Pea**	**Wheat**	**Pea**	**Gram**	**Mustard**
	Kharif – Rainfed	2nd week of July to last week of July	2nd 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 – Rainfed							First week of Nov to 3rd week of Dec	First week of Oct to first week of Nov	First week of Oct to first week of Nov	First week of Sep to 2nd week of Oct

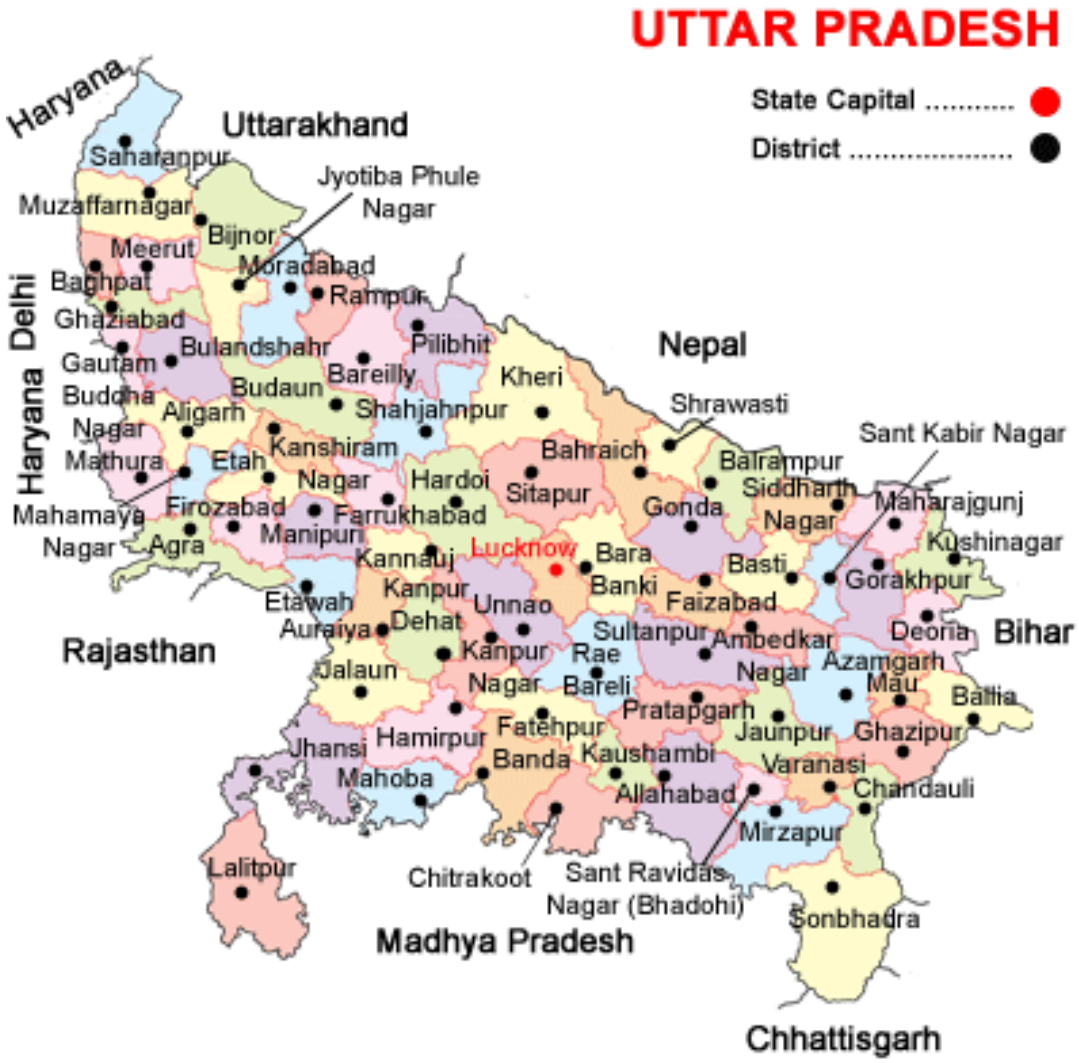
	Rabi - Irrigated							2nd week of Nov to 2th week of Dec	-	-	-

1.9	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.			√

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

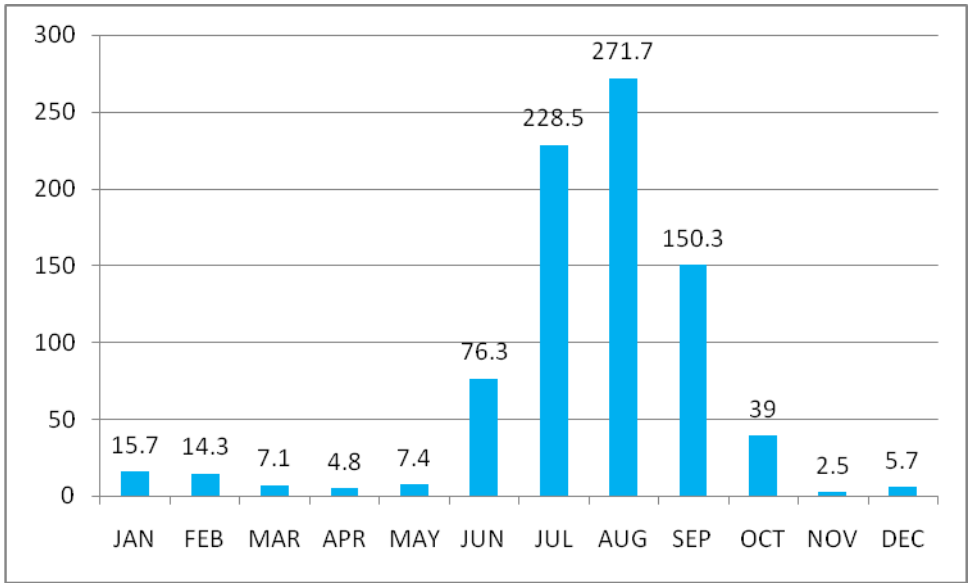
Annexure I

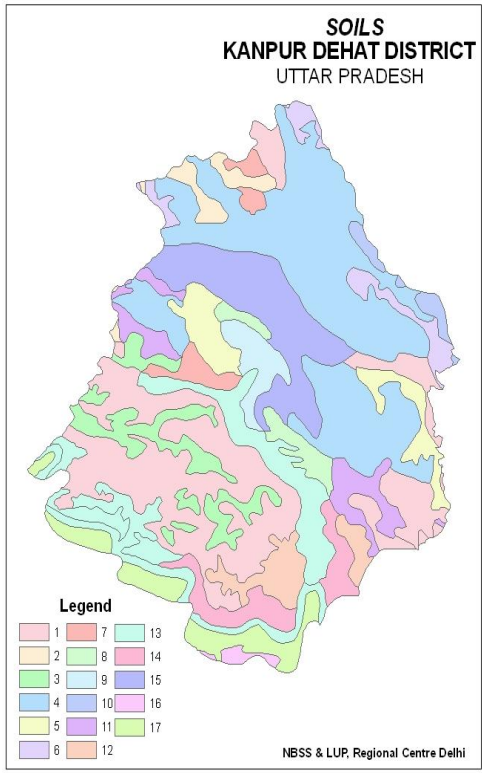
Location map of Kanpur Dehat district



Annexure 2

Average Month-wise rainfall (mm) in Kanpur Dehat District





SOILS OF KANPUR DEHAT DISTRICT (U.P.)

Alluvial plain (0-1% slope)

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

Ravinous land (3-5% slope)

12. Deep, silty soils and severely eroded associated with loamy soils severely eroded
13. Deep, loamy soils and severely eroded
14. Deep, loamy soils, very severely eroded associated with silty soils, very severely eroded

Gentle to very gentle sloping lands with monad nocks

15. Deep, loamy soils and slightly eroded associated with sandy soils, 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

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rain fed 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 First week of July	Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13 & CSV-15, **Hybride-** CSH-9, 16, and CSH-14	Use medium maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Use medium maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Pusa -5 , Prakash and JH-3459	Use medium maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
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 July 3rd week	Deep, fine soils moderately saline and sodic, Deep, loamy soils	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13 & CSV-15, **Hybrid-** CSH-9, 16, and CSH-	Use medium maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs

	And Deep, loamy soils associated with sandy soils and eroded	and CSH-23	14		
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Use medium maturing varieties, Thinning, Interculture, Mulching	
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	-	-	Linked with SDC/ SAUs

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 6 weeks Aug. 1st week	Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Cropping system 1: Sorghum **Composite-** CSV-13 , CSV-15 and Vijeta **Hybrid-** CSH- 16, and CSH-14	Use early maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Cropping system 2:Perlmillet **Composite-** ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322	Use early maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510, HQPM-5 and Prakash **Hybrid-** Ganga-11, JH-3459	-	-	-

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 8 weeks Aug. 3rd week	Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Pigeon pea (Late sown) : Bahar, Amar , and PDA-11	Late maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Cropping system 2:Perlmillet **Composite-** ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322	Use early maturing varieties, Thinning, Interculture, Mulching	Linked with SDC/ SAUs
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, , and Prakash, JH-3459	-	-	-

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor	Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Life saving irrigation Resowing	Spray of 2%MOP. Mulching	-

germination/crop stand etc.	with sandy soils and eroded	Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybride-** Pusa-23 & 322 and ICMH-451	Life saving irrigation Resowing	Spray of 2%MOP. Mulching	-
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybride-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	Life saving irrigation Resowing	Spray of 2%MOP. Mulching	-
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	1) **Farming situation:** * Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23	Life saving irrigation	Spray of 2%MOP. Mulching	
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	Life saving irrigation	Spray of 2%MOP. Mulching	
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510	Life saving irrigation	Spray of 2%MOP. Mulching	

		Hybrid- Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459			

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[e]**
At flowering/ fruiting stage	Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybride-** CSH-9, 16,14,18,13 and CSH-23	Spray 2% solution of Urea , Life saving irrigation	Mulching	-
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybride-** Pusa-23 & 322 and ICMH-451	Spray 2% solution of Urea , Life saving irrigation	Mulching	-
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybride-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	Life saving irrigation	Mulching	-
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, fine soils moderately saline and sodic,	Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta	If crop not reviving use the crop as fodder.	Prepare Field for rabi sowing	-

	Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	**Hybrid-** CSH-9, 16,14,18,13 and CSH-23			
		Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451	If crop not reviving use the crop as fodder.	Prepare Field for rabi sowing	-
		Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybride-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459	If crop not reviving use the crop as fodder. Use green cobs.	Prepare Field for rabi sowing	-

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, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1:Paddy (Transplanted) Govind, Narendra-118,97 , Ashwani, **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064	Direct seeded Paddy Saket-4, Ratna, Pant-12, Narendra-80, 2026 NDR-118	Wet and dry irrigation, weed management	Linked with SDC/SAU's

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	1) Farming situation: Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1:Paddy (Transplanted) Govind, Narendra-118,97 , Ashwani, **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064	Direct seeded Paddy (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	Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	Cropping system 1:Paddy (Transplanted) Govind, Narendra-118,97 , Ashwani, **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064	-	Irrigation through Deep Bore well	-

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	1) Farming situation: Deep, fine soils moderately saline and sodic, Deep, loamy soils And Deep, loamy soils associated with sandy soils and eroded	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	Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:Paddy (Transplanted) Govind, Narendra-118,97 , Ashwani, **(**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **(**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064	Replace with Pulses & oilseed crop	Limited irrigation, Weeding and Management of Pest and Disease	Seed supply through Govt. approved seed centers

2.2 Unusual rains (untimely, un seasonal etc) (for both Rain fed and irrigated situations)

Condition	**Suggested contingency measure**			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Paddy	Bunding around the field	Drain out excess water	Drain out excess water	Shift to safer place
Sorghum	Drainage	Drainage	Drainage	Shift to safer place
Pearl millet	Drainage	Drainage	Drainage	Shift to safer place
Pigeon pea	Drainage	Drainage	Drainage	Shift to safer place
Urdbean	Drainage	Drainage	Drainage	Shift to safer place
Horticulture	Not applicable			
Heavy rainfall with high speed winds in a short span[2]	Not applicable			
Horticulture				
Outbreak of pests and diseases due to un seasonal rains				
Paddy	Need based and recommended plant protection Measures			
Sorghum				
Pearl millet				
Pigeon pea				
Urdbean				

2.3 Floods : Occasional event/ Not experienced

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Horticulture	Not Applicable			
Continuous submergence for more than 2 days[2]	Not Applicable			
Sea water intrusion[3]	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				
Paddy	Remove hot water and irrigate at evening	-	-	-
Cold wave	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**
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	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	Green and concentrates supplementation should be provided to all the animals. Allow the animals for grazing (normal timings) Bleach (0.1%) drinking water / water sources Provide clean drinking water

	during night	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 and provision of wholesome clean drinking water at least 3 times in a day	
Insurance	Insurance policy for loss of production due to heat wave or cold wave 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

2.5.2 Poultry

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
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

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine			
Inland			
(i) Shallow water depth due to insufficient rains/inflow			
(ii) Changes in water quality			
(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow			
(ii) Impact of salt load build up in ponds / change in water quality			
(iii) Any other			
2) Floods			
A. Capture			
Marine			
Inland			
(i) No. of boats / nets/damaged			
(ii) No.of houses damaged			
(iii) Loss of stock			
(iv) Changes in water quality			

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

(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			
4. Heat wave and cold wave			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			
(iii) Any other			

[a] based on forewarning wherever available