

State: Uttar Pradesh

Agriculture Contingency Plan for District: Unnao

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	Latitude	Latitude (Mt)
		26.35N	80.30E	
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	-		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra Dariyapur Raibraily		
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)	742.3	47	2 nd week of June	4th week of September
	Post monsoon (Oct-Dec)	41.0	10		
	Winter (Jan-March)	41.2	-	-	-
	Pre monsoon (Apr-May)	16.3	-	-	-
	Annual	840.8	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)	460.2	372.8	17.0	55.4	3.4	11.0	2.7	11.7	27.0	23.14

1.4	Major Soils	Area('000 ha)	Percent(%) of total
	Deep, sandy soils	78.3	21 %
	Deep, stratified loamy soils,	67.1	18 %
	Deep, fine soils,	52.2	14 %
1.5	Agricultural land use	Area('000 ha)	Cropping intensity (%)
	Net sown area	309.0	132.4%
	Area sown more than once	184.6	
	Gross cropped area	493.6	

1.6	Irrigation	Area('000 ha)		
	Net irrigation area	292.501		
	Gross irrigated area	393.489		
	Rain fed area	16.478		
	Sources of irrigation (Gross Irr. Area)	Number	Area('000 ha)	Percentage of total irrigated area
	Canals	-	113.728	28.8
	Tanks	-	0.320	0.1
	Open wells	-	0.590	0.2
	Bore wells (Tube wells)	-	278.467	70.8
	Lift irrigation schemes	-	NA	
	Micro-irrigation	-	NA	
	Other sources	-	0.384	0.1
	Total Irrigated Area	-	393.489	
	Pump sets (2011-12)	96136		
	No. of Tractors	11154		
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited			
Critical				
Semi-critical				
Safe				
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 2011-12)

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	239.8	0.03	239.8	0	239.8	
Rice	96.8	0.004	96.8	0	0	0	0	96.8	
Maize	0.02	30.6	30.6	-	-	-	-	30.6	
Rapeseed Mustard	-	-	-	12.2	0.8	13.0	-	13.0	
Potato	-	-	-	7.9	0	7.9	-	7.9	
Pigeon pea	0.001	26	2.6	-	-	-	-	2.6	

1.7	Major Fodder crops cultivated	Area(ha)	Total
	Kharif	4771	4771
	Rabi	2023	2023
	Summer	488	488
	Total	7242	7242

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	163.9	1853	-	-	-	-	163.9	1853	NA	
Wheat	-	-	674.499	28.7	-	-	674.5	2870	NA	
Maize	35.1	1119	-	-	-	-	35.1	1119	NA	
Pigeon pea	3.6	1148	-	-	-	-	3.6	1148	NA	
Rapeseed Mustard	-	-	12.0	918	-	-	12.0	918	NA	
Potato	-	-	169.4	21467	-	-	169.4	21467	NA	

1.9 Livestock

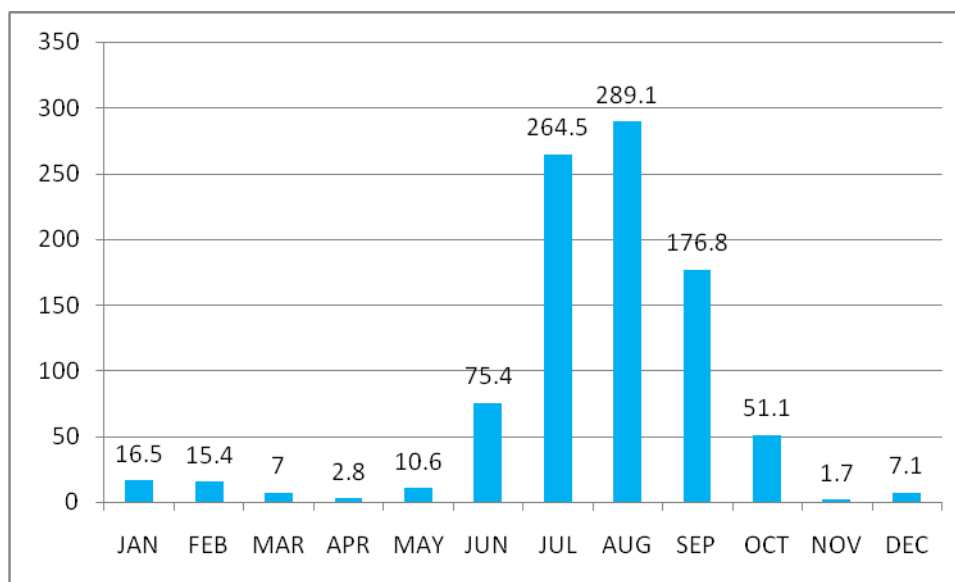
Livestock(year 2007)	Male(000)	Female(000)	Totat(000)
Non descriptive Cattle (local low yielding)	182.192	203.467	385.659
Improved cattle	0.024	0.022	0.046
Crossbred Cattle	0.585	2.080	2.665
Non descriptive Buffaloes (local low yielding)	57.794	167.080	224.874
Descript Buffaloes	68.001	215.361	283.362
Goat	144.415	232.319	376.734
Sheep			34.858
Other (Camel,Pig, Yak etc)			78.076
Commerical dairy farms (number)			0.000

1.9	Sowing window for 5 major field crops	Rice	Jowar	Maize	Urd	Bajra	Pigeon Pea	Wheat	Lentil	Gram	Sugarcane	Mustard
	Kharif – Rainfed	-	First week of July to 3rd week of July	First week of July to 3 rd week of July	2 nd week of July to First week of August	First week of July to 3rd week of July	First week of July to Last week of August	-	-	-	-	-
	Kharif - Irrigated	First week of July to First week of August	-	First week of June to First week of July	-	-	-	-	-	-	2nd week of Feb to last week of March	-
	Rabi – Rainfed							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 Oct to 3rd week of Oct
	Rabi - Irrigated							2nd week of Nov to 2th week of Dec	-	-	First week of Oct to last week of Oct	-

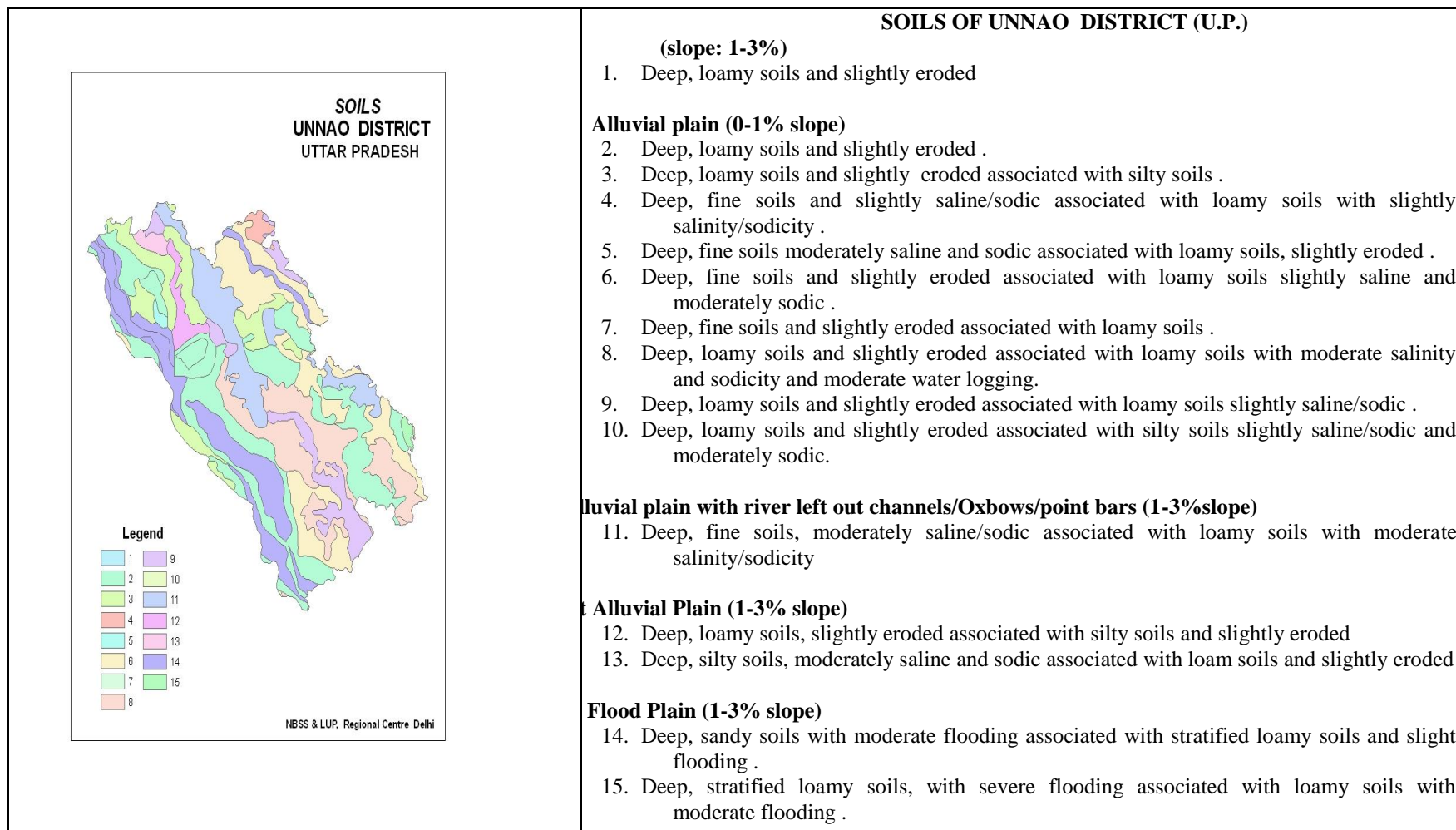
1.10	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought	-	-	
	Flood	-	-	
	Cyclone	-	✓	
	Hail storm	-	✓	
	Heat wave	-	-	
	Cold wave	✓	-	
	Frost	✓	-	
	Sea water intrusion	-	-	
	Sheath Blight, Stemborrer , Pyrilla loose smut, Heliiothis, Yellow Rust etc white grub.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

1.14	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 2
Average Month-wise rainfall (mm) in Unnao District



Soil map of Unnao District



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 (1 week of July)	Deep, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Sorghum, Bajra,	No change Sorghum-CSV-13,CSV-15,CSV-23,Bundelaand Versa Bajra- ICMV-221,JBV-2, ICTP-8203, and Hybrids	Weeding,	Linked with SDC/SAUs
		Maize+ Pigeonpea+Urd	Maize-Kausal,Kanchan, Ganga1, Ganga-2 and hybrids Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Weeding	Linked with SDC/SAUs
		Pigeonpea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Raised bed planting Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) +urdbean with row ratio of 1:2	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	Deep, sandy soils Deep, stratified	Sorghum, Bajra,	No change Sorghum-CSV-13,CSV-15,CSV-	Weeding,	Linked with SDC/SAUs

(3 rd week of July)	loamy soils and Deep, fine soils,		23,Bundelaand Versa Bajra- ICMV-221,JBV-2, ICTP-8203, and Hybrids		
		Maize+ Pigeonpea+Urd	Maize-Kausal,Kanchan, Ganga1, Ganga-2 and hybrids Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Weeding and Resowing	Linked with SDC/SAUs
		Pigeonpea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Weeding and Resowing	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 (1 st week of August)	Deep, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Sorghum, Bajra,	No change Sorghum-CSV-13,CSV-15,CSV-23,Bundelaand Versa Bajra- ICMV-221,JBV-2, ICTP-8203, and Hybrids	Spray of 2% MOP +2% Urea	-
		Maize+ Pigeonpea+Urd	Maize-Kausal,Kanchan, Ganga1, Ganga-2 and hybrids Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6	Spray of 2% MOP	-

			Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)		
		Pigeonpea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Spray of 2% MOP	-

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 (3 rd week of August)	Deep, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Sorghum, Bajra,	No change	Spray of 2%MOP Urea each	-
		Maize+ Pigeonpea+Urd	No change	Spray of 2%MOP Urea each	-
		Pigeonpea	No change	Spray of 2%MOP Urea each	-

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	Major Farming situation	Normal Crop/cropping system	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	Deep, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Sorghum, Bajra,	Life saving irrigation if available Weeding/Resowing	Mulching with locally available material/weeds	
		Maize+ Pigeonpea+Urd	Life saving irrigation if available Weeding/ Resowing	Mulching with locally available material/weeds	

stand etc.					
		Pigeonpea	Life saving irrigation if available Weeding/ Resowing	Mulching with locally available material/weeds	

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	Deep, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Sorghum, Bajra,	Life saving irrigation if available Weed control	Foliar spray with 1% MoP Mulching with locally available material/weeds	
		Maize+ Pigeonpea+Urd	Weed control	-	
		Pigeonpea	Weed control Thinning to ,aintain optimum population	Mulching with locally available material/weeds	

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, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Sorghum, Bajra,	Life saving irrigation if available Use as fodder crop Harvest at physiological maturity	Field prepare for rabi sowing	
		Maize+ Pigeonpea+Urd	Harvest Urd If 75% mature	-	
		Pigeonpea		-	

2.1.2

Drought - Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Deep, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Paddy	Transplanting with 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages	
		Sorghum, Bajra,	No change Sorghum-CSV-13,CSV-15,CSV-23,Bundelaand Versa Bajra- ICMV-221,JBV-2, ICTP-8203, and Hybrids	Weeding	
		Maize+ Pigeonpea+Urd	Maize-Kausal,Kanchan, Ganga1, Ganga-2 and hybrids Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Weeding	
		Pigeonpea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+urdbean (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Weeding	

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, sandy soils Deep, stratified loamy soils and Deep, fine soils,	Paddy	Transplanting with 3 to 4 /hil transplanting seedlings	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

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	Paddy	Transplanting with tube well irrigation 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

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	Deep loamy soils- tube well irrigated	Paddy	Transplanting with tube well irrigation	Drum seeding SRI method	

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
recharge due to low rainfall			3 to 4 seedlings/hill	Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	
		Groundnut	No change	Weed control and interculture before pegging	
Any other condition (specify)					

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
Continuous high rainfall in a short span leading to water logging				
Rice	Maintenance of damage bunds	Maintenance of damage bunds	Drain out of excess water	Shifting of produce to safer place for drying
Maize	Drain out of excess water			
Bajra/Jowar				
Urd				
Pigeonpea				
Heavy rainfall with high speed winds in a short span	Not applicable			
Outbreak of pests and diseases due to unseasonal rains	Need based and recommended plant protection measures			

2.3 Floods- Not applicable

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation ¹				
Field crops	Not applicable			
Horticulture				
Continuous submergence for more than 2 days				
Sea water intrusion				

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

Extreme event type	Suggested contingency measure ^r			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave				
Rice	Drain out hot water and Add fresh water at evening	-	-	-
Maize	-	-	-	-
Bajra/Jowar	-	-	-	-
Urd	-	-	-	-
Pigeonpea		-	Moisture should be maintain	
Cold wave				
Pigeonpea	-	Light irrigation	Light irrigation -	
Frost				
Pigeonpea	-	Light irrigation	Light irrigation -	

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
Cyclone	<p>As the district is chronically prone for cyclone, store minimum required quantity of hay and concentrates at house hold level for feeding the livestock a week period</p> <p>Harvest all the possible wetted grain/stover (Rice/maize/Jowar/Bajra/backgram/green gram etc) and use as animal feed.</p> <p>Protect the stored paddy/wheat straw from continuous rains</p> <p>Stock of anti-diarrheal drugs and electrolytes should be made available for emergency transport</p> <p>Keep stock of bleaching powder and lime</p> <p>Arrange for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations</p>	<p>Stall fed all the animals with stored feed and fodder</p> <p>Treatment of the sick, injured and affected animals through arrangement of mobile emergency veterinary hospitals / rescue animal health workers.</p> <p>Diarrhea out break may happen. Health camps should be organized</p> <p>In severe cases un-tether or let loose the animals</p> <p>Arrange transportation of highly productive animals to safer place</p> <p>Spraying of fly repellants in animal sheds</p> <p>Sprinkle lime in the shed</p>	<p>Repair of animal shed</p> <p>Bring back the animals to the shed</p> <p>Deworm the animals through mass camps</p> <p>Bleach / chlorinate (0.1%) drinking water or water resources</p> <p>Perform ring vaccination (8 km radius) in case of any disease outbreak</p> <p>Proper dispose 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 pit</p> <p>Collect drowned crop and fodder material, dry it and store properly</p> <p>Sowing of short duration fodder crops in unsown and water logged areas when crops are damaged and no chance to replant</p> <p>Application of urea (20-25kg/ha) in the inundated areas and CPR's to enhance the bio mass production.</p>
Insurance	<p>Insurance policy for loss of life due to cyclone may be developed</p>	<p>Listing out the details of the dead animals</p>	<p>Submission for insurance claim and availing insurance benefit</p>

	Encouraging insurance of livestock		Purchase of new productive animals
Heat & Cold wave	<p>In villages which are chronically prone to heat waves the following permanent measures are suggested</p> <ul style="list-style-type: none"> 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 <p>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</p>	<p>Allow the animals preferably 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 per kg and fed to the animal during cold waves</p> <p>Apply / sprinkle lime powder (5-10g per square feet) in the animal shed during cold waves to neutralize ammonia accumulation</p> <p>Put on the foggers / sprinklers during heat waves and heaters during cold waves in case of high productive animals</p> <p>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.</p>	<p>Green and concentrates supplementation should be provided to all the animals.</p> <p>Allow the animals for grazing (normal timings)</p>

2.5.2

Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
Cyclone			
Shortage of feed ingredients	In case of EFW, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc, Culling of weak birds	Use stored feed as supplement Don't allow for scavenging Protect from thunder storms	Routine practices are followed
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 in drinking water to prevent any disease outbreak	Sanitation of poultry house Treatment of affected birds Prevent water logging surrounding the sheds Assure supply of electricity Sprinkle lime powder (5-10g per square feet) to prevent ammonia accumulation due to dampness	Disposal of dead birds by burning / deep burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against Ranikhet Disease (0.5ml S/c)
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	Deworming and vaccination against RD	Supplementation of house hold grain	Routine practices are followed

management	and fowl pox	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)	
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