

## State: Uttar Pradesh

### Agriculture Contingency Plan for District: Allahabad

1.0 District Agriculture profile												
1.1	Agro-Climatic/ Ecological Zone											
	Agro-Ecological Sub Region(ICAR)			North plain zone								
	Agro-Climatic Zone (Planning Commission)			Upper Gangetic Plain Region								
	Agro-Climatic Zone (NARP)			UP-8 Vindhyan Zone & 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 Mirzapur & Sonbhadra								
	Geographical coordinates of district headquarters			Latitude			Latitude			Latitude (mt)		
				25° 28' N			81° 54' E					
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS			-								
	Mention the KVK located in the district with address			Krishi Vigyan Kendra, C/o Allahabad Agriculture Deemed University, Pin-211 007, under the Allahabad Agricultural Research Institute, Allahabad								
Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone			Allahabad Agriculture Deemed University									
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)		865.4		49		3rd week of June		4th week of September			
	Post monsoon (Oct-Dec)		51.9		10							
	Winter (Jan-March)		45.2		8		-		-			
	Pre monsoon (Apr-May)		13.4		-		-		-			
	Annual		975.9		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)	557.1	436.4	21.5	81.9	1.6	13.5	10.1	15.7	75.0	30.0	

1.4	Major Soils (common names like red sandy loam deep soils (etc.))*	Area ('000 ha)	Percent (%) of total
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1.5	Agricultural land use	Area('000 ha)	Cropping intensity (%)
	Net sown area	308.0	110. %
	Area sown more than once	171.6	
	Gross cropped area	479.6	

1.6	Irrigation	Area('000 ha)		
	Net irrigation area	240.2		
	Gross irrigated area	379.6		
	Rain fed area	67.7		
	Sources of irrigation (Gross Irr. Area)	Number	Area('000 ha)	Percentage of total irrigated area
	Canals	-	181.1	47.7
	Tanks	-	5.2	1.4
	Open wells	-	13.1	3.5
	Bore wells (Tube wells)	-	179.6	47.3
	Lift irrigation schemes	-	NA	
	Micro-irrigation	-	NA	
	Other sources	-	0.503	0.1
	Total Irrigated Area		379.574	
	No. of Pump sets (2011-12)	30357	-	
	No. of Tractors	14150	-	
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited			
	Critical	1		
	Semi-critical	6		
	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	-	-	-	209.8	5.3	215.1	-	215.1	
Rice	140.1	6.5	146.6	-	-	-	-	146.6	
Pearl millet	0	28.4	28.4	-	-	-	-	28.4	
Gram	-	-	-	0.1	15.7	15.8	-	15.8	
Pigeon pea	0	15.6	15.6	-	-	-	-	15.6	
Potato	-	-	-	12.8	0	12.8	-	12.8	

	Horticulture crops -Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Mango	0.5	0.5	-
	Guava	0.1	0.1	-
	Horticulture crops -Vegetables	Total	Irrigated	Rainfed
	Potato	11.8	11.8	-
	Onion	0.3	0.3	-
	Pea	1.3	1.3	-

1.7	Major Fodder crops cultivated	Area(ha)	Total
	Kharif	2787	2787
	Rabi	349	349
	Summer	1553	1553
	Total	4671	4671

### 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	353.6	2353	-	-	-	-	359.6	2353	NA	
Wheat	-	-	508.6	2384	-	-	508.6	2384	NA	
Pearl millet	27.7	993	-	-	-	-	27.7	993	NA	
Gram	-	-	14.0	914	-	-	14.0	914	NA	
Pigeon pea	15.0	942	-	-	-	-	15.0	942	NA	
Potato	-	-	221.6	18097	-	-	221.6	18097	NA	

1.9	Livestock(year 2007)	Male(000)	Female(000)	Total( 000)
	Non descriptive Cattle (local low yielding)	307.304	336.172	643.476
	Improved cattle	0.100	0.169	0.269
	Crossbred Cattle	26.109	65.684	91.793
	Non descriptive Buffaloes (local low yielding)	43.268	156.137	199.405
	Descript Buffaloes	76.714	293.052	369.766
	Goat	117.091	151.027	268.118
	Sheep			103.215
	Other (Camel,Pig, Yak etc)			103.397
	Commercial dairy farms (number)			0.000

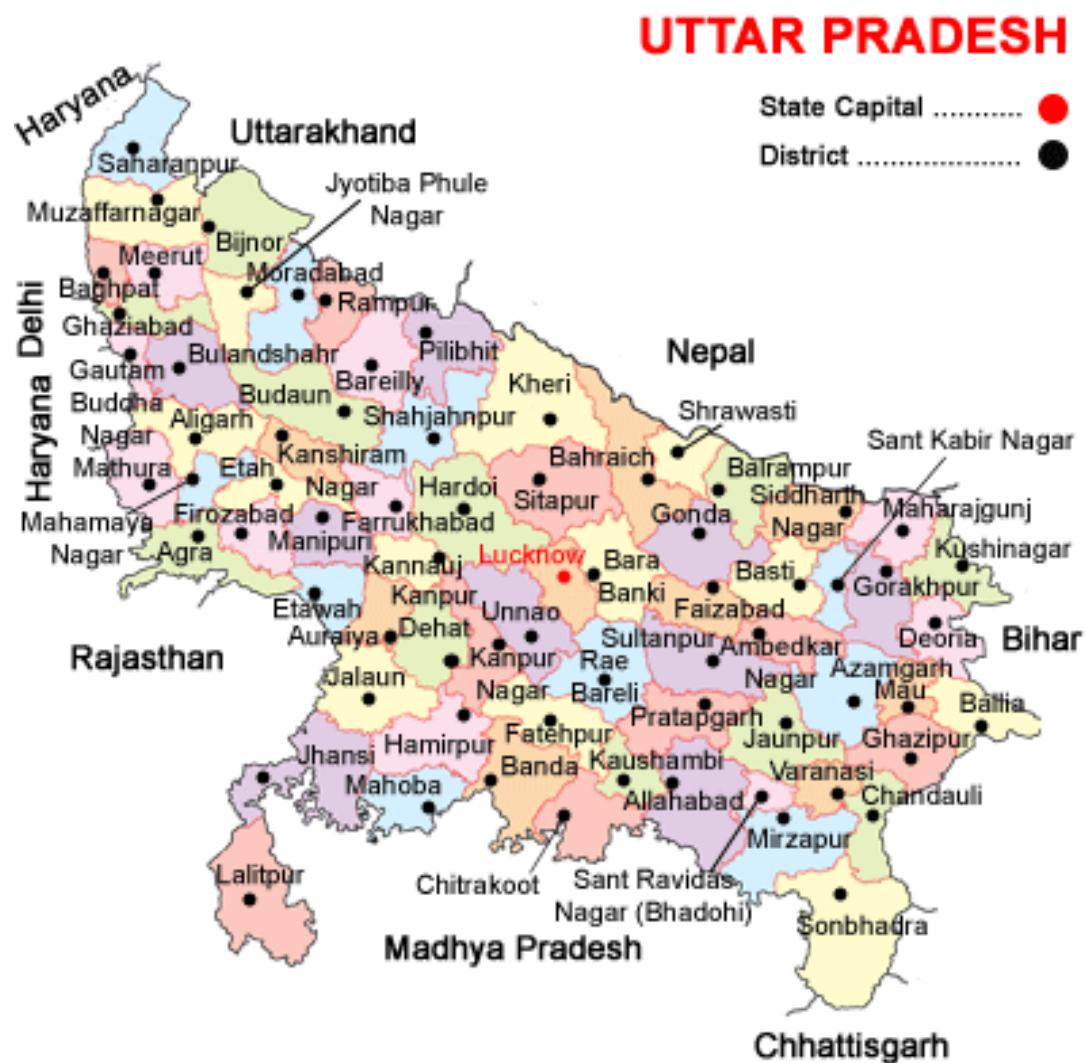
1.10	Sowing window for 5 major field crops	Pearl millet	Maize	Rice	Urd	Sorghum	Moong	Wheat	Pea	Gram	Mustard
	Kharif – Rainfed	2 <sup>nd</sup> week of July to last week of July	2 <sup>nd</sup> week of June to First week of July	-	2 <sup>nd</sup> week of July to First week of August	First week of July to 2 <sup>nd</sup> week of July	First week of July to 2 <sup>nd</sup> week of July	-	-	-	-

	Kharif - Irrigated	-	-	3rd week of June to Last week of July	2 <sup>nd</sup> week of July to First week of August	First week of July to 2 <sup>nd</sup> 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	-	-	-

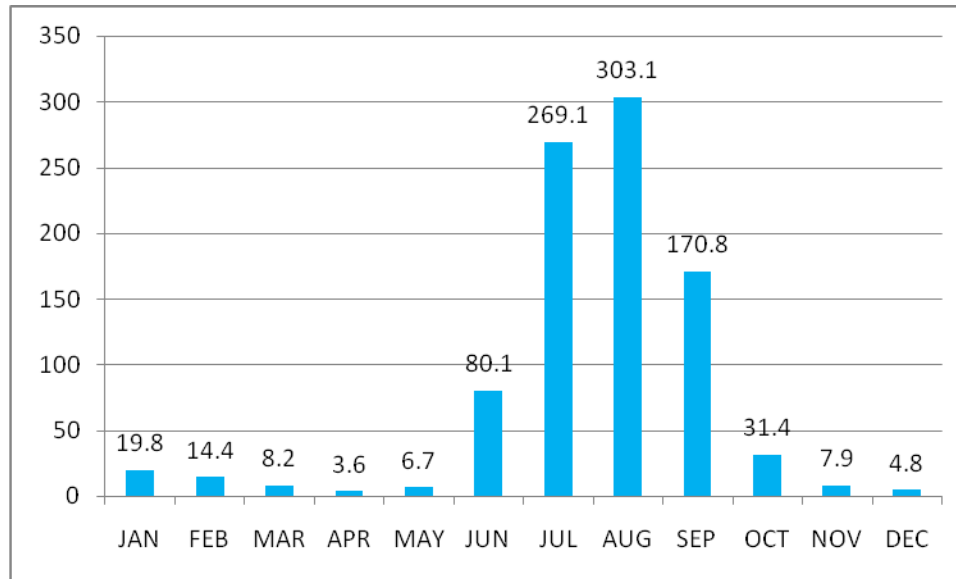
1.11	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought		√	√
	Flood			√
	Cyclone			√
	Hail storm			√
	Heat wave		√	
	Cold wave			√
	Frost		√	
	Sea water intrusion			√
	Sheath Blight, Stemborer , Pyrilla loose smut, Heliothis, Rust etc white grub.			√

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

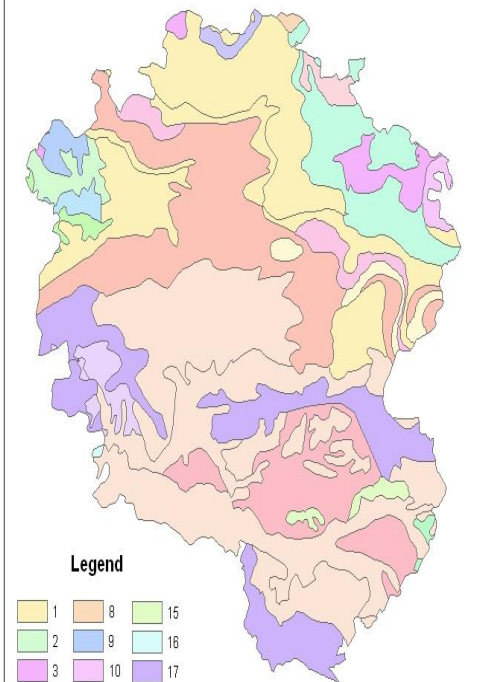
Annexure I  
Location map of Allahabad district



Annexure 2  
Average month-wise rainfall (mm) of Allahabad District



**SOILS  
ALLAHABAD DISTRICT  
UTTAR PRADESH**



**Legend**

1	8	15
2	9	16
3	10	17
4	11	18
5	12	19
6	13	20
7	14	21

NBSS & LUP Regional Centre, New Delhi

**SOILS OF ALLAHABAD DISTRICT (U.P.)**

**Alluvial plain (0-1% slope)**

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

**Active Flood Plain (1-3% slope)**

12. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding
13. Deep, stratified loamy soils, with severe flooding associated with loamy soils with moderate flooding
14. Deep, sandy soils with slight flooding associated with stratified loamy soils and slight flooding

**Vindhyan Ranges and Scrap Lands (Sand stone landscape)**

**Moderately Steep slopes (15-30% slope)**

15. Shallow, loamy-skeletal soils and severely eroded associated with rock outcrops

**Plateau (Sandstone on 1-3% slope)**

16. Moderately shallow, sandy-skeletal soils and very severely eroded associated with, loamy-skeletal soils and severely eroded
17. Moderately shallow, loamy soils and moderately eroded
18. Deep, loamy soils and moderately eroded associated with fine soils and moderately eroded
19. Deep, loamy soils and moderately eroded associated with moderately shallow loamy soils and moderately eroded
20. Deep, fine smectitic soils and moderately eroded associated with moderately shallow loamy soils and moderately eroded
21. Deep, fine smectitic soils and slightly eroded associated with loamy soils, slightly eroded.



## 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 loamy soils & Deep, silty soils	Perl millet	No change ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451	Seed Treatment & Direct seeded ,	Linked with SDC/SAUs
		Sorghum	Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23	Seed Treatment & Direct seeded ,	Linked with SDC/SAUs
		Pigeon pea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+ Perl millet (WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451)	Raised bed planting In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm + Perl millet ( 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 (3 rd week of July)	Deep loamy soils	Perl millet	No change ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451	Seed Treatment & Direct seeded ,	Linked with SDC/SAUs
		Sorghum	Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23	Seed Treatment & Direct seeded ,	
		Pigeon pea Deep, sandy soils	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+Jowar (Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23)	Raised bed planting In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm +Jwar with row ratio of 1:2	Linked with SDC/SAUs

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)					
Delay by 6 weeks (1st week of August)	Deep loamy soils	Perl millet	No change ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451	Seed Treatment & Direct seeded ,	As fodder
		Sorghum	Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23	Seed Treatment & Direct seeded ,	
		Pigeon pea Deep, sandy soils	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+ Jwar (Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23))	Raised bed planting  In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) +Jwar with row ratio of 1:2	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)					
Delay by 8 weeks (3 <sup>rd</sup> week of August)	Deep loamy soils	Perl millet	Fallow Followed by Toria/ Mustard	Conserve moisture	
		Sorghum	Fallow Followed by Toria/ Mustard	Conserve moisture	
		Pigeon pea Deep, sandy soils	Fallow	<b>conserve moisture</b>	

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 stand etc.	Deep loamy soils	Perl millet	Weed Management		
		Sorghum	Weed Management		
	Deep, sandy soils	Pigeon pea	Weed control Gap filling/thinning		

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 loamy soils	Perl millet	Weed Management		
		Sorghum	Weed Management		
	Deep, sandy soils	Pigeon pea	Weed control Thinning to maintain 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 loamy soils	Perl millet	Weed Management	-	

	Deep, sandy soils	Sorghum	Weed Management		
		Pigeon pea	Harvest at physiological maturity	-	

### 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 loamy soils	Rice: Narendra 97, Narendra 118, Narendra 80, NDR 359,	Transplanting with 3 to 4 seedlings/hill	<ul style="list-style-type: none"> <li>• Drum seeding</li> <li>• SRI method</li> <li>• Irrigation at critical stages</li> <li>• Reduce spacing plant to plant (.20x 15 cm)</li> </ul>	Linked with SDA/UP Agro

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	Deep loamy soils	Rice: Narendra 97, Narendra 118, Narendra 80, NDR 359,	Transplanting with 3 to 4	Drum seeding <ul style="list-style-type: none"> <li>• SRI method</li> <li>• Irrigation at critical stages</li> <li>• Reduce spacing plant to plant (.20x 15 cm)</li> </ul>	
			Perl millet	Weed Management	
			Sorghum	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 loamy soils	Rice:Narendra 97, Narendra 118, Narendra 80, NDR 359,	<ul style="list-style-type: none"> <li>• Transplanting with tube well irrigation</li> <li>• 2 to 3 seedlings/hill</li> </ul>	<ul style="list-style-type: none"> <li>• Drum seeding</li> <li>• SRI method</li> <li>• Irrigation at critical stages</li> <li>• Reduce spacing plant to plant ( 20x 15 cm)</li> </ul>	

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	Deep loamy soils-tube well irrigated	Paddy	<ul style="list-style-type: none"> <li>• Transplanting with tube well irrigation</li> <li>• 3 to 4 seedlings/hill</li> </ul>	<ul style="list-style-type: none"> <li>• Drum seeding</li> <li>• SRI method</li> <li>• Irrigation at critical stages</li> <li>• Reduce spacing plant to plant (20x 15 cm)</li> </ul>	

**2.2 Unusual rains (untimely, unseasonal etc)** (for both rain fed and irrigated situations)

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
<b>Continuous high rainfall in a short span leading to water logging</b>				
Rice	The field should be kept under saturated condition for a week after transplanting for establishment of roots & Simulate growth of roots afterwards follow the Alternate Wetting & Drying (AWD) method of water management till flowering.	Maintain a water level 3-5 cm for about one week during the flowering and drain out water after 15 days from the milk formation stage.	Harvest the crop when 80% of grains in panicles are ripened.	Thresh immediately after harvesting and dry gradually under shade up to 12% moisture content for seed purpose and 14% for milling.
Perl millet	Weed Management			
Sorghum	Weed Management			
Pigeon pea	Drainage of Excess water & drenching of COC (Copper Oxy chloride) @ 2.5g/Liter water to avoid incidence of wilt & root rot.	Management of pod borer after monitoring by Pheromone trap	Harvest the crop when 80% of grains in panicles are ripened.	Thresh immediately after harvesting and dry gradually under shade up to 12% moisture content for seed purpose and 14% for milling.
<b>Horticulture</b>				
Guava	Provide staking to less than 3 years aged plant to avoid lodging	Provide proper drainage to avoid water logging		
Mango	Provide staking to less than 3 years aged plant to avoid lodging	Provide proper drainage to avoid water logging		
<b>Heavy rainfall with high speed winds in a short span<sup>2</sup></b>	Not applicable			
<b>Outbreak of pests and diseases due to unseasonal rains</b>	Not applicable			

### 2.3 Floods-

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
<b>Transient water logging/ partial inundation<sup>1</sup></b>				
<b>Rice</b>	<b>Drain the Excess water</b>	<b>Foliar application of 2% Urea or Application of neem coated Urea and sulphur</b>	Maintain a water level 3-5 cm for about one week during the flowering and drain out water after 15 days from the milk formation stage.	Thresh immediately after harvesting and dry gradually under shade up to 12% moisture content for seed purpose and 14% for milling.

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

Extreme event type	Suggested contingency measure <sup>f</sup>			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
<b>Heat Wave<sup>p</sup></b>				
Rice	<ul style="list-style-type: none"> <li>• Raise the nursery near lift or other irrigation sources</li> <li>• Prepare 1-1.5 M wide raised Nursery beds with provision of 30 cm width between the beds.</li> </ul>			
<b>Horticulture</b>				
Mango	-		Light & frequent irrigation during flowering	
Guava	-			
<b>Hailstorm</b>	Not applicable			
<b>Cyclone</b>	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
<b>Drought</b>			
Feed and Fodder availability	<p>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</p> <p>Promote cultivation of short duration fodder crops of sorghum/bajra/maize suitable to the district</p> <p>Sowing of fodder crops like <i>Stylo</i> and <i>Cenchrus</i> on bunds so as to provide fodder and strengthening of bunds</p> <p>Avoid burning of wheat and paddy straw and storing as dry fodder for future use</p> <p>Proper drying, bailing and densification of harvested dry fodder for transport to the needy villages</p> <p>Complete feed preparation using red gram stalks may be exploited</p> <p>Preserving maize fodder as silage for</p>	<p>Harvest and use biomass of dried up crops (Sorghum, Bajra, Maize, Rice, Wheat, pea, chick pea etc) material as fodder.</p> <p>Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS).</p> <p>Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals</p> <p>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 &amp; minerals mixture.</p> <p>The available silage may be used as green fodder supplement for high yielders and pregnant animals</p> <p>In case of severe drought, UMMB, hay, concentrates and vitamin &amp; 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</p> <p>Herd should be split and supplementation should be given only to the highly productive and breeding animals</p> <p>Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive &amp; breeding stock)</p> <p>Available kitchen waste should be mixed with dry fodder while feeding</p> <p>Arrangements should be made for mobilization of small ruminants across</p>	<p>Green and concentrates supplementation should be provided to all the animals.</p> <p>Short duration fodder crops of should be sown in unsown and crop failed areas where no further routine crop sowing is not possible</p> <p>Promote cultivation of fodder crops during Rabi season</p>



	<p>future use</p> <p>Establishment of silvi-pastoral system in CPRs with <i>Stylosanthus hamata</i> and <i>Cenchrus ciliaris</i> as grass with <i>Leucaena leucocephala</i> as tree component</p> <p>Creation of permanent fodder, feed and fodder seed banks in all drought prone villages</p>	<p>the districts where no drought exits with subsidized road/rail transportation and temporary shelter provision for the shepherds</p> <p>Unproductive livestock should to be culled during severe drought</p> <p>Create transportation and marketing facilities for the culled and unproductive animals (10000-20000 animals) in case of severe drought</p> <p>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</p>	
<p><b>Cyclone &amp; Floods</b></p>	<p>NA</p>		
<p><b>Heat &amp; Cold wave</b></p>	<p>In villages which are chronically prone to heat waves the following permanent measures are suggested</p> <ul style="list-style-type: none"> <li>i) Plantation of trees like Neem, Pipal, Subabul around the shed</li> <li>ii) Spreading of husk/straw/coconut leaves on the roof of the shed</li> <li>iii) Water sprinklers / foggers in the animal shed</li> <li>iv) Application of white reflector paint on the roof to reduce thermal radiation effect</li> </ul> <p><b>Cold wave :</b> 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 weaves 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>

<p><b>Health and Disease management</b></p>	<p>List out the endemic diseases (species wise) in that district and store vaccines for those diseases</p> <p>Timely vaccination (as per enclosed vaccination schedule) against all endemic diseases</p> <p>Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district</p>	<p>Constitution of Rapid Action Veterinary Force</p> <p>Procurement of emergency medicines and medical kits</p> <p>Performing ring vaccination (8 km radius) in case of any outbreak</p> <p>Restricting movement of livestock in case of any epidemic</p> <p>Rescue of sick and injured animals and their treatment</p>	<p>Conducting mass animal health camps</p> <p>Conducting fertility camps</p> <p>Mass deworming camps</p>
<p><b>Insurance</b></p>	<p>Insurance policy for loss of production due to drought may be developed</p> <p>Encouraging insurance of livestock</p>	<p>Listing out the details of the dead animals and loss of production in high yielders</p>	<p>Submission for insurance claim and availing insurance benefit</p> <p>Purchase of new productive animals</p>
<p>Drinking water</p>	<p>Identification of water resources</p> <p>Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals)</p>	<p>Restrict wallowing of animals in water bodies/resources</p> <p>Provision of wholesome clean drinking water at least 3 times in a day</p>	<p>Bleach (0.1%) drinking water / water sources</p> <p>Provide clean drinking water</p>

## 2.5.2

## Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
<b>Drought</b>			
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
<b>Heat wave</b>			
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

<b>Cold wave</b>			
Shelter/environment management	Provision of proper shelter Arrangement for brooding Assure supply of continuous electricity	Close all openings with polythene sheets In severe cases, arrange heaters Don't allow for scavenging during early morning and late evening	Routine practices are followed
Health and disease management	Arrangement for protection from chilled air	Supplementation of grains Antibiotics (Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to protect birds from pneumonia	Routine practices are followed