

## State: Uttar Pradesh

### Agriculture Contingency Plan for District: Barabanki

1.0 District Agriculture profile				
1.1	Agro-Climatic/ Ecological Zone			
	Agro-Ecological Sub Region(ICAR)	Eastern plain zone		
	Agro-Climatic Zone (Planning Commission)	Upper Gangetic Plain Region		
	Agro-Climatic Zone (NARP)	UP-7 Eastern Plain Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)	Barabanki, Faizabad, Sultanpur, Pratapgarh, Jaunpur, Azamgarh, Ballia, Ghazipur and Varanasi.		
	Geographical coordinates of district headquarters	Latitude	Latitude	Latitude
		26° 56' N	81° 13' E	
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	-		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Haidargarh, Near Haidargarh Railway Station, Lilhaura Nyay Panchayat, Barabanki		
Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone	Narendra Dev University of Agriculture and Technology Faizabad			

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)	883.3	49	2 <sup>nd</sup> week of June	4th week of September
	Posy monsoon (Oct-Dec)	54.8	10		
	Winter (Jan-March)	44.4	8	-	-
	Pre monsoon (Apr-May)	120.2	-	-	-
	Annual	1002.7	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 (000' ha)	442.8	258.4	5.9	56.3	1.6	7.9	8.1	3.1	31.4	15.9

1.4	<b>Major Soils (common names like red sandy loam deep soils (etc.,))*</b>	<b>Area ('000 ha)</b>	<b>Percent (%) of total</b>
	Deep, loamy soils	100.5	39%
	Deep, fine soils with loamy soils slightly saline and moderately sodic	72.4	28%
	Deep, silty soils with moderately salinity and sodicity	41.4	16 %

1.5	Agricultural land use	Area(000' ha)	Cropping intensity (%)
	Net sown area	258.4	196.9 %
	Area sown more than once	250.6	
	Gross cropped area	509.0	

1.6	Irrigation	Area('000 ha)		
	Net irrigation area	234.2		
	Gross irrigated area	460.9		
	Rain fed area	24.3		
	Sources of irrigation (Gross Irr. Area)	Number	Area('000 ha)	Percentage of total irrigated area
	Canals	-	154.1	33.4
	Tanks	-	0.2	0.1
	Open wells	-	1.4	0.3
	Bore wells (Tube wells)	-	305.3	66.2
	Lift irrigation schemes	-	NA	
	Micro-irrigation	-	NA	
	Other sources	-	0	
	Total Irrigated Area	-	460.9	
	Pump sets (2011-12)	103691	-	
	No. of Tractors	13202	-	
	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		
Rice	174.1	3.8	177.9	-	-	-	-	177.9	
Wheat	-	-	-	164.3	1.2	165.5	-	165.5	
Rapeseed Mustard	-	-	-	18.6	0.9	19.5	-	19.5	
Masoor	-	-	-	0.1	12.6	12.7	-	12.7	
Sugarcane	8.5	1.1	9.6	-	-	-	-	9.6	
Maize	0.01	4.1	4.1	-	-	-	-	4.1	

	<b>Horticulture crops - Fruits</b>	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Mango	4.4	4.4	-
	Guava	0.1	0.1	-
	<b>Horticulture crops - Vegetables</b>	Total	Irrigated	Rainfed
	Potato	13.9	13.9	-
	Onion	0.3	0.3	-
	Pea	1.8	1.8	-

1.7	<b>Major Fodder crops cultivated</b>	Area(ha)	Total
	Kharif	3165	3165
	Rabi	1858	1858
	Summer	1765	1765
	Total	6788	6788

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

1.8	Major field crops cultivated	Area('000 ha)								Crop residue as fodder ('000 tons)
		Kharif		Rabi		Summer		Total		
		Production ('000 T)	Productivity (KG/HA)							
	Rice	384.7	2207	-	-	-	-	384.7	2207	NA
	Maize	2.5	551	-	-	-	-	2.5	551	NA
	Wheat	-	-	516.8	3179	-	-	516.8	3179	NA
	Masoor	-	-	13.0	802	-	-	13.0	802	NA
	Rapeseed Mustard	-	-	12.2	834	-	-	12.2	834	NA
	Sugarcane	550.007	53693	-	-	-	-	550.0	53693	NA

1.08	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder
		Production ('000 t)	Productivity (kg/ha)							
<b>Major Horticultural crops (Crops to be identified based on total acreage)</b>										
	Potato	-	-	182.4	13.2					-
	Onion			7.4	22.9					
	Pea			10.7	5.9					
	Others Veg.	10.1	29.8	30.2	29.8	10.1	29.8	50.4	29.8	

1.8	Major fodder crops cultivated	Total	
		Production (MT)	Productivity (Ql./HA)
	Kharif	110775	350
	Rabi	130060	700
	Summer	52950	300
	Total	293785	-

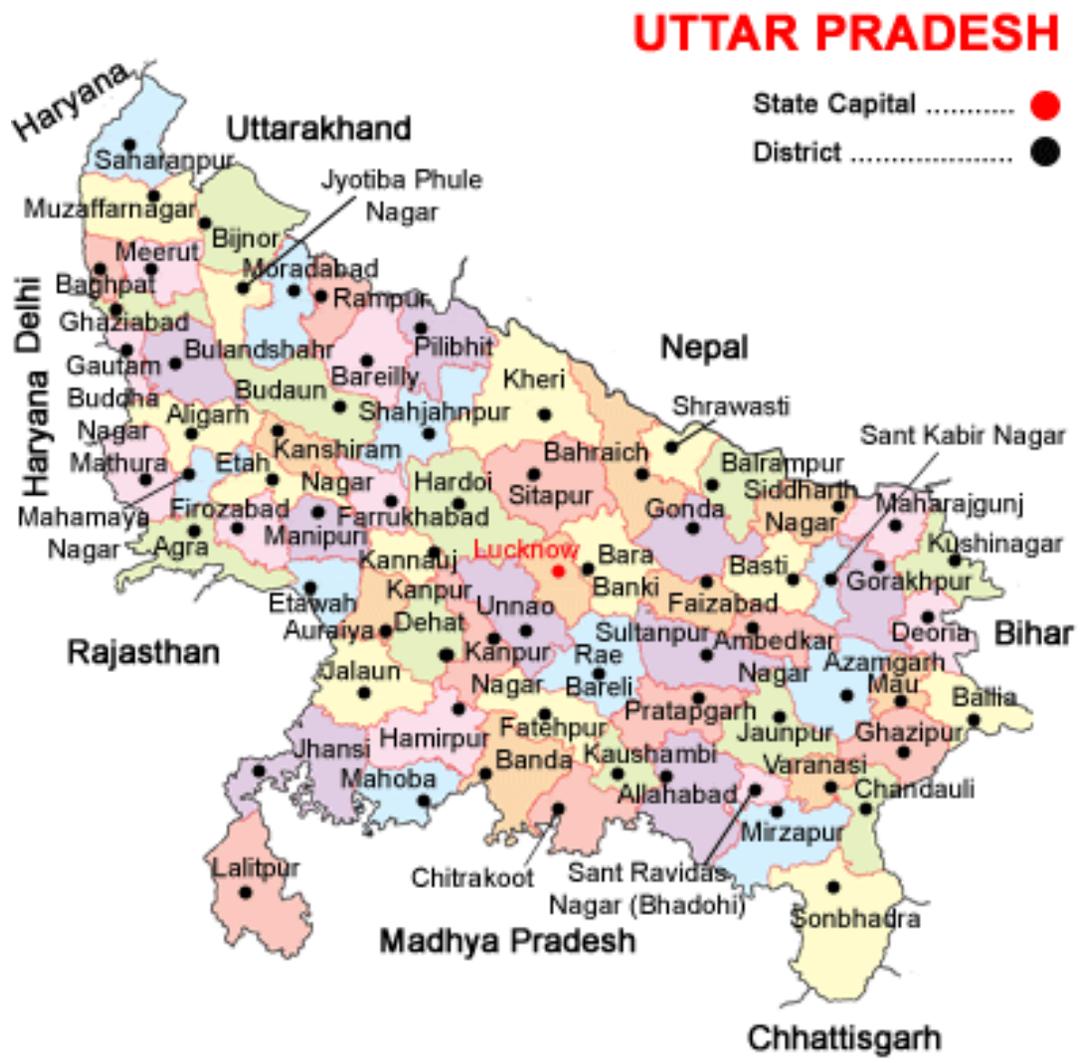
1.9	<b>Livestock(year 2007)</b>	Male(000)	Female(000)	Totat(000)
	Non descriptive Cattle (local low yielding)	148.068	242.685	390.753
	Improved cattle	0.007	0.018	0.025
	Crossbred Cattle	3.696	9.870	13.566
	Non descriptive Buffaloes (local low yielding)	32.514	117.220	149.734
	Descript Buffaloes	45.078	162.253	207.331
	Goat	119.891	167.900	287.791
	Sheep			4.532
	Other (Camel,Pig, Yak etc)			39.963
	Commerical dairy farms (number)			0.000

1.10	Sowing window for 5 major field crops	Bajra	Maize	Rice	Urd	Jowar	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	-	-	-

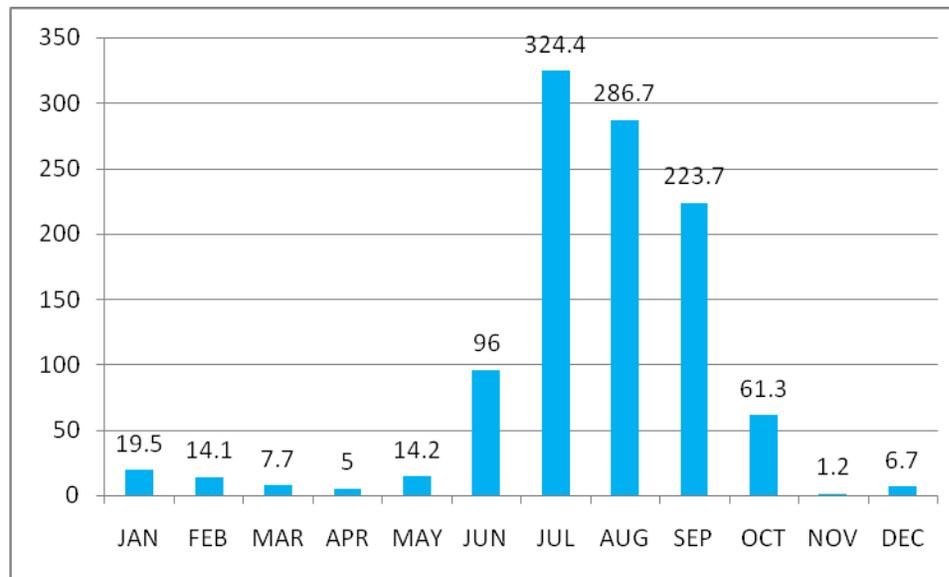
1.11	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought			√
	Flood		√	
	Cyclone			√
	Hail storm			√
	Heat wave		√	
	Cold wave			√
	Frost		√	
	Sea water intrusion			√
	Sheath Blight, Stemborer , Pyrilla loose smut, Heliothis, Rust etc white grub.			√

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

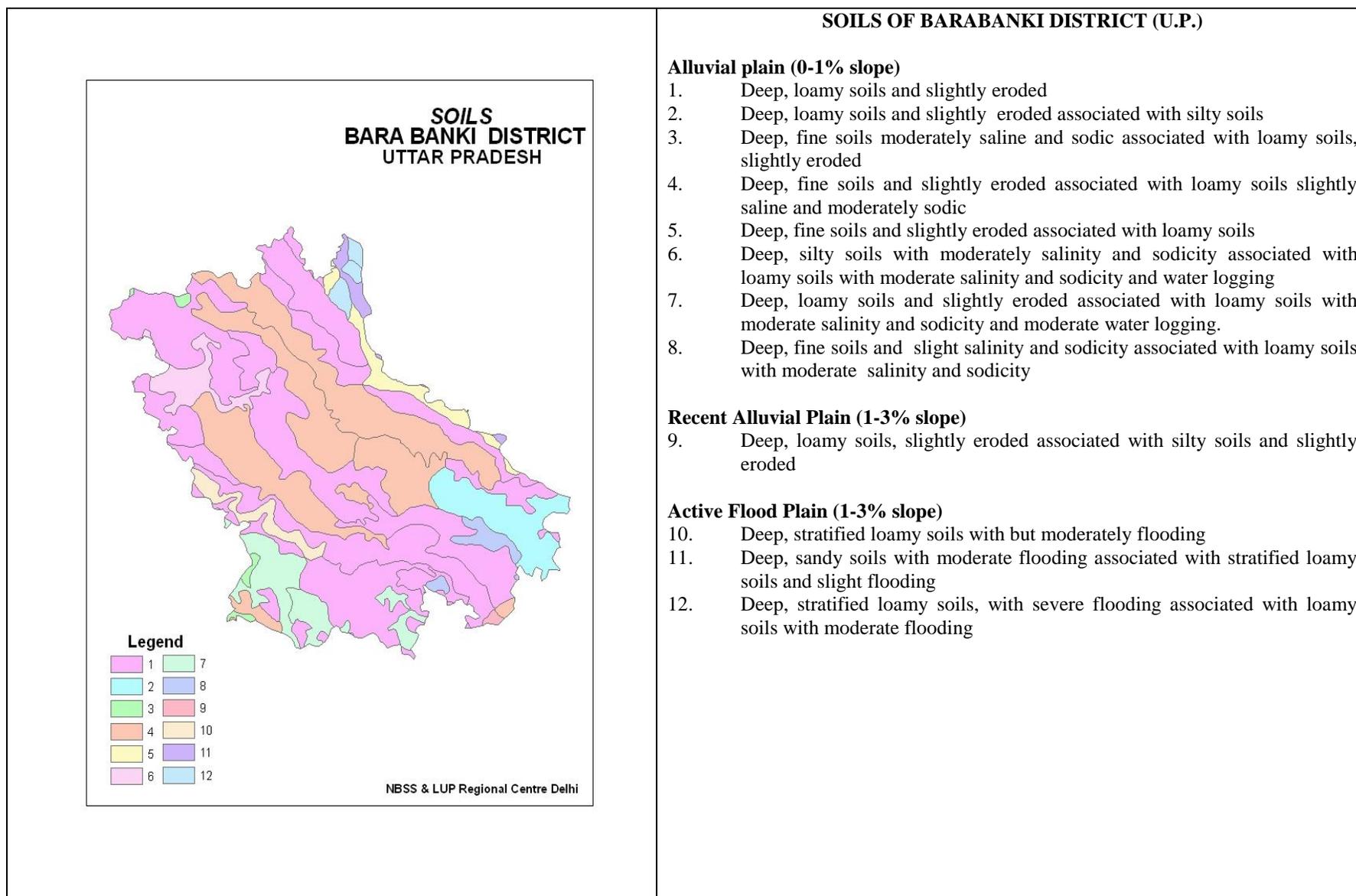
Annexure I  
Location map of Barabanki district



Annexure 2  
Average Month-wise rainfall (mm) in Barabanki District



## 1.14 Soil map



## 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	Rice	No change Narendra 97, Narendra 118, Narendra 80, NDR 359,	Direct seeded rice,	Linked with SDC/NSC/SAUs for subsidise seed in NFSM/ state sector scheme
		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/NSC/SAUs for subsidise seed in NFSM/ state sector scheme
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	Rice	Sesame(Shekhar, Pragathi)  Urdbean(Azad Urd, Uttara, Narendra Urd 1, PU31, PU 19)	Line sowing of sesame and urd bean	Linked with SDC/NSC/SAUs for subsidise seed in NFSM/ state sector scheme
		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/NSC/SAUs for subsidise seed in NFSM/ state sector scheme

<b>Condition</b>			<b>Suggested Contingency measures</b>		
<b>Early season drought (delayed onset)</b>	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Change in crop/cropping system</b>	<b>Agronomic measures</b>	<b>Remarks on Implementation</b>
<b>Delay by 6 weeks (1 st week of August)</b>	Deep loamy soils	Rice	Sesame(Shekhar,Pragathi)  Urdbean(Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Line sowing of sesame and urd bean	Linked with SDC/NSC/SAUs for subsidise seed in NFSM/ state sector scheme
		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  In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm)+urdbean with row ratio of 1:2	Linked with SDC/NSC/SAUs for subsidise seed in NFSM/ state sector scheme
<b>Condition</b>			<b>Suggested Contingency measures</b>		
<b>Early season drought (delayed onset)</b>	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Change in crop/cropping system</b>	<b>Agronomic measures</b>	<b>Remarks on Implementation</b>
<b>Delay by 8 weeks (3<sup>rd</sup> week of August)</b>	Deep loamy soils	Rice	Fallow	Conserve moisture	
		Pigeonpea	Fallow	<b>Conserve moisture</b>	

<b>Condition</b>			<b>Suggested Contingency measures</b>		
Early season drought (Normal onset)	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Crop management</b>	<b>Soil nutrient &amp; moisture conservation measures</b>	<b>Remarks on Implementation</b>
<b>Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.</b>	Deep loamy soils	Rice	Life saving irrigation if available Weed control	Mulching with locally available material/weeds	
		Pigeon pea	Weed control Gap filling/thinning		
<b>Condition</b>			<b>Suggested Contingency measures</b>		
<b>Mid season drought (long dry spell, consecutive 2 weeks rainless (&gt;2.5 mm) period)</b>	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Crop management</b>	<b>Soil nutrient &amp; moisture conservation measures</b>	<b>Remarks on Implementation</b>
<b>At vegetative stage</b>	Deep loamy soils	Rice	Life saving irrigation if available Weed control	Foliar spray with 1% MoP  Mulching with locally available material/weeds	
		Pigeon pea	Weed control Thinning to maintain optimum population	Mulching with locally available material/weeds	

<b>Condition</b>			<b>Suggested Contingency measures</b>		
<b>Terminal drought</b> (Early withdrawal of monsoon)	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Crop management</b>	<b>Rabi Crop planning</b>	<b>Remarks on Implementation</b>
	Deep loamy soils	Rice	Life saving irrigation if available Harvest at physiological maturity	-	
		Pigeon pea	Harvest at physiological maturity	-	

**2.1.2 Drought - Irrigated situation**

<b>Condition</b>			<b>Suggested Contingency measures</b>		
	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Change in crop/cropping system</b>	<b>Agronomic measures</b>	<b>Remarks on Implementation</b>
Delayed release of water in canals due to low rainfall	Deep loamy soils	Paddy	Transplanting with 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	Linked with
<b>Condition</b>			<b>Suggested Contingency measures</b>		
	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Change in crop/cropping system</b>	<b>Agronomic measures</b>	<b>Remarks on Implementation</b>
Limited release of water in canals due to low rainfall	Deep loamy soils	Paddy	Transplanting with 3 to 4	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 recharge due to low rainfall	Deep loamy soils-tube well irrigated	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	

**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
<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 after wards 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.
Groundnut	Drainage of Excess water & drenching of COC (Copper Oxy chloride) @ 2.5g/Liter water to avoid incidence of wilt & root rot.		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.
Sesame	Drainage of Excess water & drenching of COC (Copper Oxy chloride) @ 2.5g/Liter water to avoid incidence of wilt & root rot.		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.
Urd	Drainage of Excess water & drenching of COC (Copper Oxy chloride) @ 2.5g/Liter water to avoid incidence of wilt & root rot.		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.
Pigeonpea	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>				
Mango	Provide staking to less than 3 years aged plant to avoid lodging	Provide proper drainage to avoid water logging		
Guava	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</b>	Not applicable			
<b>Outbreak of pests and diseases due to unseasonal rains</b>	Need based and recommended plant protection measures			

### 2.3 Floods-

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
<b>Transient water logging/ partial inundation</b>				
Paddy	<b>Drain out excess water Transplant flood resistant toll varieties Swarna sub-1, Jallahri, jalnidhi</b>	<b>Drain out excess water</b>	<b>Drain out excess water</b>	<b>Harvest if 75% crop mature and shift to safer place</b>
<b>Continuous submergence for more than 2 days</b>	Not applicable			
<b>Sea water intrusion</b>				

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

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave	Not applicable			
Cold wave				
Frost				
Hailstorm				
Cyclone				

## 2.5 Contingent strategies for Livestock, Poultry & Fisheries

### 2.5.1 Livestock

<b>Heat &amp; Cold wave</b>	<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 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>
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## 2.5.2

## Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
<b>Heat wave</b>				<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	Shelter/environment management
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	Health and disease management
<b>Cold wave</b>				<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	Shelter/environment management

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	Health and disease management