

State: Uttar Pradesh

Agriculture Contingency Plan for District: Sultanpur

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Northern Plain, Hot Subhumid (Dry) Eco-sub region (9.2)		
	Agro-Climatic Zone (Planning Commission)	Middle Gangetic Plain Region (IV)		
	Agro Climatic Zone (NARP)	Eastern Plain Zone (UP-9)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Faizabad,Ambedkarnaagr,Sultanpur,Barabanki,Gazipur,Ballia,Mau,Azamgarh,Jaunpur,Varanasi,Bhadohi		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		26°16' N	82°05' E	311 ft
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Directorate of Research, SAU, Kumarganj		
	Mention the KVK located in the district with address	KVK, Sultanpur(ICAR)		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	-		

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset	Normal Cessation
	SW monsoon (June-Sep):	807.9	44	3 rd week of June (24 th Week)	1 st week of October (39 th week)
	NE Monsoon(Oct-Dec):	72.0	5		
	Winter (Jan- February)	66.7	3	-	-
	Summer (March-May)	100.6	7	-	-

	Annual	1005	59	-	-
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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)	438.09	289.5	2.007	54.02	2.3	9.5	7.3	14.6	41	18.08

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Silty Loam soils	-	80%
	Gray soils	-	-

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	289.56	152.53%
	Area sown more than once	152.11	
	Gross cropped area	441.67	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	252.204		
	Gross irrigated area	368.329		
	Rainfed area			
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		71.01	19.28
	Tanks		0.004	
	Open wells		0.134	
	Bore wells	17.54	174.05	47.25

	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area		368.329	
	Pump sets		135	36.6
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			

1.7
Area under major field crops & horticulture

*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%

1.7	Major field crops cultivated	Area (*000 ha)							
		<i>Kharif</i>			<i>Rabi</i>			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
Rice	151.20	5.35	156.55					156.55	
Maize	0	4.92	4.92					4.925	
Pigeonpea	0	8.29	8.29					8.29	
Wheat				165.11	2.99	168.11		168.11	
Pea				5.81	4.06	9.88		9.88	
Chickpea				3.26	0.6	3.87		3.871	

	Rai/Mustard Sugarcane	-	-						
	Sugarcane							10.25	10.25

	Horticulture crops - Fruits	Area ('000 ha)		
		-	-	-
	Horticulture crops - Vegetables	-	-	-
	Medicinal and Aromatic crops	-	-	-
	Plantation crops	-	-	-
	Fodder crops	Total(000 ha)	Irrigated	Rainfed
	Sorghum	7.69	0	7.69
	Bajra	0.24	0	0.24
	Maize	5.25	0.32	4.92
	Total fodder crop area	11.26	2.97	8.28
	Grazing land			
	Sericulture etc			
	Others (specify)			

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)			
	Non descriptive Cattle (local low yielding)	NA	NA				
	Improved cattle						
	Crossbred cattle			565.22			
	Non descriptive Buffaloes (local low yielding)						
	Descript Buffaloes			3378.83			
	Goat			266.83			
	Sheep			47.19			
	Others (Camel, Pig, Yak etc.)			81.80			
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds ('000) 260.484				
	Commercial						
	Backyard						
1.10	Fisheries (Data source: Chief Planning Officer)						
	A. Capture						
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets		Storage facilities (Ice plants etc.)
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks	
		4750		Nil		4078	
	B. Culture						
			Water Spread Area (ha)	Yield (t/ha)	Production ('000 tons)		
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)		12558.77	3166	1.57		

	ii) Fresh water (Data Source: Fisheries Department)			
	Others			

1.11 Production and Productivity of major crops

1.11	Name of crop	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)	
Major Field crops (Crops to be identified based on total acreage)										
	Rice	330.971	189							
	Maize	4.863	1076.5							
	Pigeon pea	8.459	1205							
	Wheat	465.251	2774.5							
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	-	-	-	-	-	-	-	-	-	-

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Rice	Maize	Pigeon pea	Wheat	Pea
	Kharif- Rainfed	2 nd week of June-3 rd week of July	1 st week of June-4 th week of June	-	-	-
	Kharif-Irrigated	4 th week of June-2 nd week of August	3 rd week of June-2 nd week of July	-	-	-
	Rabi- Rainfed	-	-	2 nd week of October-2 nd week of November	1 st week of October-3 rd week of October	2 nd week of October-2 nd week of November
	Rabi-Irrigated	-	-	2 nd week of November-		-

				4 th week of December		
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1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought		✓	
	Flood		✓	
	Cyclone			✓
	Hail storm			✓
	Heat wave		✓	
	Cold wave		✓	
	Frost			✓
	Sea water intrusion			✓
	Pests and disease outbreak (specify)	✓	✓	
	Others (specify)			

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



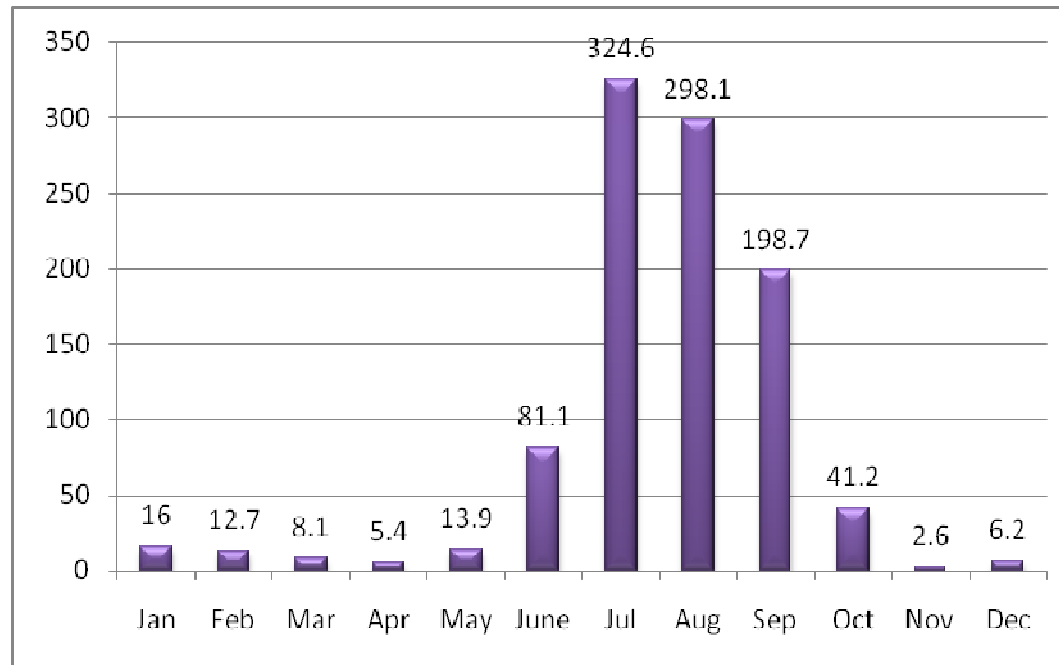
Agroclimatic Zones of U.P.

- 1. Dhabhar and Terai Zone
- 2. Western Plain Zone
- 3. Mid Western Plain Zone
- 4. South Western Plain Zone
- 5. Central Plain Zone
- 6. Bundelkhand Zone
- 7. North Eastern Plain Zone
- 8. Eastern Plain Zone
- 9. Vidhya Zone

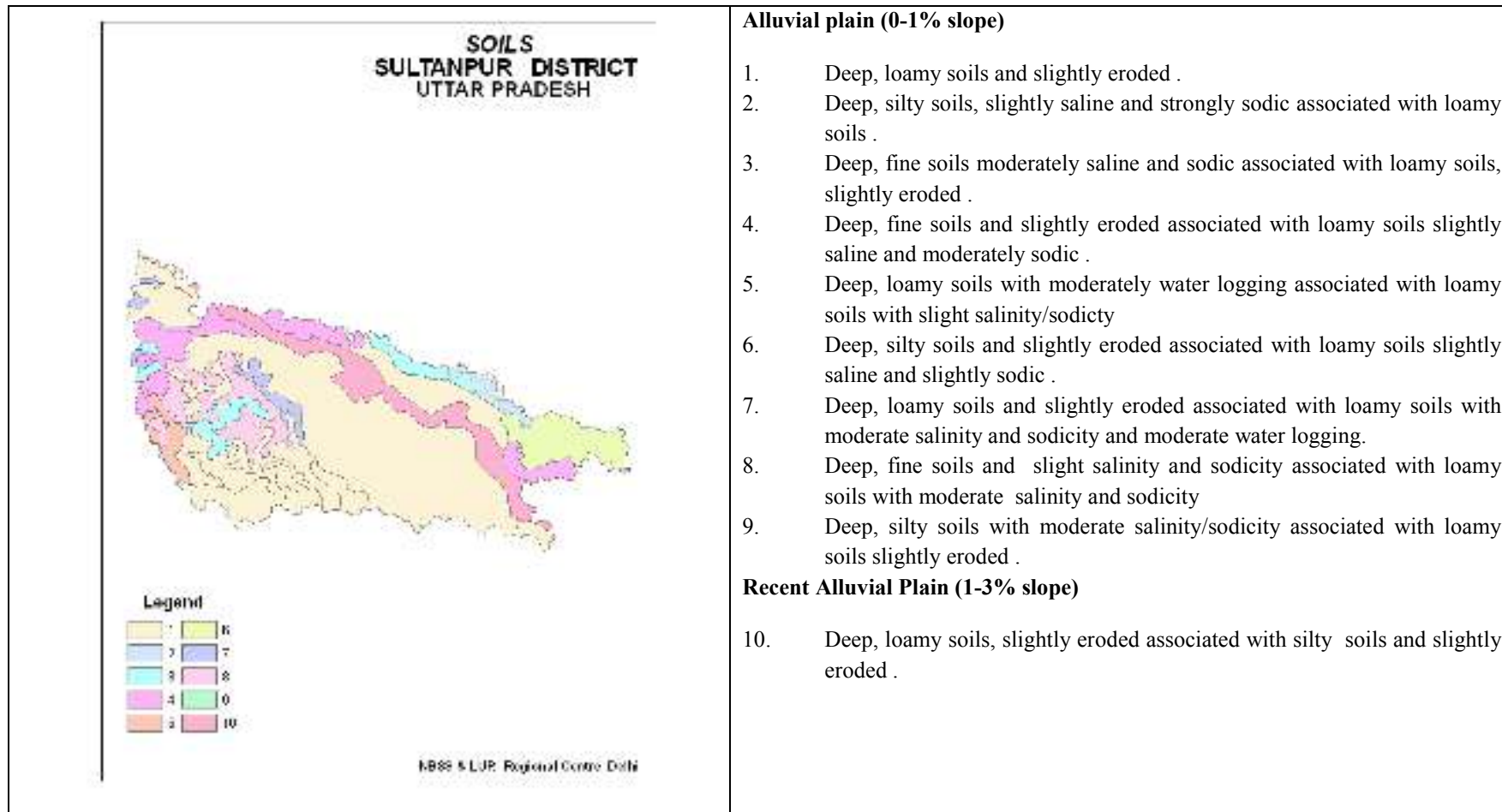
UTTAR PRADESH



Annexure II



Annexure III



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset) Delay by 2 weeks 1 st week of July	Deep loamy soils	Rice	No change Transplanting/Direct seeding of Medium and Short duration varieties of Paddy Such as NDR-97, NDR-359,NDR-80,NDR-118, Barami Deep etc.	Raise Staggered rice nursery should be grown at 15 days interval in small areas at least two times SRI system of paddy nursery/transplanting are suggested	-
	Silt loam soils	Maize	Not Change	Intercropping/ mixed cropping of maize/sorghum/ Pearlmillet with long duration varieties of Pigeonpea	
		Pigeon Pea	Not Change	Sowing on raised beds Intercropping with maize/Greengram/Blackgram	

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 4 weeks 3 rd week of July	Deep loamy soils	Rice	Direct seedling of short duration varieties of paddy such as NDR-97, NDR-80, NDR-118, Saket-4.	<ul style="list-style-type: none"> • Transplanting of paddy with 3-4 seedlings/hill to increasing the plant population 60 hills/m², instead of 50 hills/m². • Pruning of overaged paddy seedlings for better establishment and optimum plant stand. • Thinning of over aged paddy seedlings for better establishment and optimum plant stand. • Foliar spraying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance. Mulching with straw/ Grass cover.	Supply of seed through govt. agencies i.e. NFSM, RKVY Seed drill under RKVY
	Shallow silt loam soils	Maize	Maize-Prakash, Sartaj, Naveen, Tarun.	Intercropping/ mixed cropping of maize/sorghum/ Pearlmillet with long duration varieties of Pigeonpea	
		Pigeonpea	Varieties -Bahar, PDA-11, Pusa, UPAS-120.	Sowing on raised beds Intercropping with Maize/Blackgram/Greengram	

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 1 st week of August	Deep loamy soils	Rice	Rice-Wheat Paddy: Short duration varieties of paddy such as NDR-97, NDR-80,NDR-118, Pant Dhan-12 should be transplanted/direct seeding.	Direct seeding of rice In case of late transplanting of rice(beyond 20 th July) planting should be dense by increasing the number of seedlings/hill from 2 to 3 to 3 to 4. Adopt SRI system of nursery raising Weeding and interculture Foliar spraying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops Life saving irrigation in transplanted rice	Supply of seed through govt. agencies i.e. NFSM, RKVY Seed drill under RKVY
	Shallow silt loam soils	Maize	Greengram/ Blackgram Greengram: T-44, Pant mung-1, Narendra mung-1 Blackgram : Narendra urd-1,Pant urd-25	Intercropping/ mixed cropping of Greengram/ Blackgram/ maize/sorghum/ Pearl millet with long duration varieties of pigeonpea	
		Pigeon pea	Varieties -Bahar, PDA-11, Pusa, UPAS-120.		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Early season drought (delayed onset) Delay by 8 weeks 3 rd week of August	Deep loamy soils	Rice-Wheat	<p>Preference should be given for sowing of Pearlmillet and Sesame</p> <p>Pearlmillet: Pusa 322, 323(Hybrid) and WCC-75, Raj-171(Composite)</p> <p>Sesame: - Type-4, Type-78, Type-12</p> <p>Greengram : T-44, Pant mung-1, Pant mung-2, Samrat, Malviya, Janpriya, Malviya jyoti, Narendra mung-1</p>	<p>Direct sowing</p> <p>In case of late transplanting of rice(beyond 20th July) planting should be dense by increasing the number of seedlings/hill from 2 to 3 to 3 to 4.</p> <p>Foliar praying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops</p> <p>Life saving irrigation in transplanted rice</p>	<p>Supply of seed through govt. agencies i.e. NFSM, RKVY</p> <p>Seed drill under RKVY</p>
	Shallow silt loam soils	Maize	<p>Blackgram : Narendra urd-1, Pant urd-25, Pant urd-19, Uttara, Type-9</p>	<p>Intercropping/ mixed cropping of Greengram/ Blackgram/maize/sorghum/ Pearlmillet with long duration varieties of pigeonpea</p> <p>Land preparation for sowing of early rabi crops like potato,toria,lahi and mustard</p>	
		Pigeonpea	<p>September Pigeonpea Varieties Bahar, PDA-11, Pusa-9 should be done till 1st week of September.</p>	-	

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	Rice	<p>After seeding of rice if there is break of monsoon by 7 to 10 days and if seedling mortality is observed then re-sowing with the same variety</p> <p>Gap filling/transplanting in rice</p> <p>Using “Sanda” method, plant population can be maintained with sufficient number of tillers in late drought condition as to minimize the production losses</p>	<p>Weeding at critical stages</p> <p>Foliar spraying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops</p> <p>Life saving irrigation</p> <p>Proper electricity monitoring/rostering system should be ensured in area for regular supply of electricity for pumping of water for life saving irrigation</p>	-
	Shallow silt loam soils	Maize	<p>Ridge sowing</p> <p>Gap filling/ Thinning to maintain optimum plant population</p>	Leaf mulching to conserve the soil moisture	
		Pigeonpea	<p>Ridge sowing</p> <p>Gap filling/ Thinning to maintain optimum plant population</p>	Leaf mulching to conserve the soil moisture	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
At vegetative stage	Deep loamy soils	Rice	Gap filling/transplanting in rice	<p>Weeding as to conserve the residual soil moisture</p> <p>Leaf mulching to conserve the soil moisture</p> <p>Foliar spraying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops</p> <p>Life saving irrigation from the stored water during the rainy season.</p>	
	Shallow silt loam soils	Maize/ Greengram / Blackgram	<p>Thinning to maintain proper distance between the plants.</p> <p>Frequent interculture</p>	<p>Foliar spraying of 2% MOP to increase the resistance to drought</p> <p>Leaf mulching to conserve the soil moisture</p>	
		Pigeon pea	<p>Earthing up in Pigeonpea</p> <p>Foliar spraying of 2% urea to boost up the growth</p>	<p>Conservation furrow</p> <p>Life saving irrigation</p>	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At flowering/ fruiting stage	Deep loamy soils	Rice	Intercultural operations Foliar spraying of 2% urea to boost up the growth	Weeding as to conserve the residual soil moisture Leaf mulching to conserve the soil moisture Foliar spray of 2.5 kg urea +2.5 kg Potash in standing crop. Mulching Life saving irrigation from the stored water during the rainy season.	
	Loam soils	Maize/ Greengram / Blackgram/ Pigeon pea	Thinning to maintain proper distance between the plants. Frequent interculture Earthing up in Pigeonpea Foliar spraying of 2% urea to boost up the growth	Foliar spraying of 2% MOP to increase the resistance to drought Leaf mulching to conserve the soil moisture Conservation furrow Life saving irrigation	

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
		Rice	Foliar spray of 2.5 kg Potash 2.5 kg urea as to create drought	In case of fallow land sowing of Toria, Type-9, PT 303 and Ageti Rai should be sown in Ist	

			tolerance Alternate management of irrigation should be ensured for provide life saving irrigation	week of September while Bhawani variety can be sown in 2 nd week of September.	
		Maize Blackgram/ Greengram	Harvesting of intercrop at physiological maturity (Maize, Blackgram and Greengram) Earthing up of Pigeonpea Harvesting of green cobs (maize) and sell in market and remaining portion will be used for fodder. Life saving irrigation to pigeonpea if possible.	Better pulverization should be made for conservation of soil moisture following by planking for sowing of early rabi crops like toria and potato etc.. Toria variety- type-9, type-36, PT-303, PT-30 and ageti Rai should be sown in 1 st week of September while Bhawani variety can be sown in 2 nd week of September.	
		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 clay loam soils	Rice – Wheat / Pea/ Lentil	Short duration rice varieties- NDR 97, Ratna, Narendra 118, Narendra 97, Pant Dhan 12, HUR 105, Induri Sambha, HUR 2-1, HUR-3022 to be grown under aerobic condition.	Community nursery Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation. Siltting of canal water/ Govt. Tubewell for reaching the water at end tail	Breeder's seed will be supplied by BHU and NDUAT, Faizabad. Seed drills RKVY and supply of seeds NFSM
Limited release of water in canals due to low rainfall	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	Rice\ Maize \ Sorghum Grow short duration aerobic rice such as NDR 97, NDR 118, Govind, Vandana, Varanideep, Susk Samrat , HUR 105 Maize: Malviya hybrid Makka-2, Naveen & Jaunpuri Pearl millet : WCC 75, Raj 171, Pusa 23 Sorghum: CSH-16, CHS-9, CHS-14, CSV-13 & CSV-15 should be grown on ridges for fodder/grain purposes.	Community nursery, Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	

Non release of water in canals under delayed onset of monsoon in catchment	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	Shift to only aerobic rice Or Rice may be replaced by pulses Greengram: Pant Mung -8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, Jan Chetana & Jan Kalyani Blackgram: Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3 Sesame :Type 4, T-12, T-13, Shekhar, GT1, TC 25 &TC 289	Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	Sorghum\ Pearl millet	Conservation tillage, Sowing of Pearl millet & Sorghum for grain purposes at 45 cm on ridges. Foliar application of 2% MOP Use of mulches (straw/dust). Canal and tubewell channel should be kept properly cleaned(free of weeds) and should be ensured before watering as to increase the water use efficiency
Insufficient groundwater recharge due to low rainfall	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	Rice should be replaced with pulses (green gram & black gram), oilseeds (Sesame) in <i>Kharif</i> and wheat by Chickpea & lentil in <i>Rabi</i> season.	Direct seeding in small beds. .

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	Suggested contingency measure			
	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage ^m	Post harvest ⁿ
Continuous high rainfall in a short span leading to water logging				
Rice	Provide drainage	Proper bunding, drain out excess water	Harvesting at physiological maturity	Shift to safer place
Wheat	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Pigeonpea	Provide drainage and Practice of sowing on ridges	Make inter-row furrow to Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Heavy rainfall with high speed winds in a short span²	-	-	-	-
Outbreak of pests and diseases due to unseasonal rains				
Rice, Wheat, Chickpea, Pigeonpea, Pearl millet	Need based plant protection (integrated pest and disease management)	Need based plant protection (integrated pest and disease management)	Need based plant protection (integrated pest and disease management)	Safe storage against stored grain pest and diseases

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/partial inundation¹				
Rice	• Provide drainage	• Removal of excess water	• Foliar spray of 5% urea	
Maize	Provide drainage, Creation of surface drains at appropriate places to avoid water logging			
Continuous submergence for more than 2 days²				

Rice	<ul style="list-style-type: none"> • Drainage of excess water through drainage channel • Transplanting of deep water rice – Madhupur, Jalmagn, Jalpriya, Jalnidhi, Awarodhi 	<ul style="list-style-type: none"> • Just after finishing of floods, top dressing of urea could be ensured in the field 	<ul style="list-style-type: none"> • Foliar spray of 5% urea 	<ul style="list-style-type: none"> • Preference should be given for planting of Autumn Sugarcane in the month of Oct so that their grand growth completed to the maxi. Extent prior to floods. • Planting of Sugarcane on raised beds instead of flat bed. • Emphasis could be given for cultivation of Toria, Urd, Mung/Sunflower
Sea water intrusion	Not Applicable			

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

Extreme event type	Suggested contingency measure ^f			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave^p				
Rice	Provide watering Light and frequent irrigation during night	<ul style="list-style-type: none"> • Provide light irrigation • Irrigation interval should be decreased 	Irrigation interval should be decreased	-
Wheat	-	-	Provide light irrigation	Harvesting at physiological maturity
Pigeonpea	<ul style="list-style-type: none"> • Mulching 	<ul style="list-style-type: none"> • Irrigation interval should be decreased 	<ul style="list-style-type: none"> • Irrigation interval should be decreased 	-
Cold wave^q				
Wheat	Provide light irrigation	Provide light irrigation	Provide light irrigation	-
Pigeonpea	Mulching	Light irrigation for survival	Light irrigation for survival	Harvesting at physiological maturity
Frost	Not applicable			

Hailstorm	Not applicable		
Cyclone	Not applicable		

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event ^s	During the event	After the event
Drought			
Feed and fodder availability	Storage of straw and silage in silo pit according to population of animal	Properly distribution of stored feeding materials.	Sowing of seasonal fodder crops for regular fodder availability.
Drinking water	Maintenance and inspection of tubewells, hand pumps, ponds, tanks etc.	Filling of water tanks, ponds etc.	Regular watch of various resources of water and health of animals.
Health and disease management	Vaccination of animals against FMD, HS, BQ and de-worming	Health camp by veterinarians.	Health camp by veterinarians
Floods			
Feed and fodder availability	Increase the area of fodder crops according to population and their storage	Availability of safe place for the animals	Sowing of rabi fodder crops –berseem, Lucerne, oat & other rabi crops
		Distribution stored feed and fodders according to the population affected areas	
Drinking water	Arrangement of clean drinking water in sufficient amount	Provide need and clean drinking water	Drain of infected stored water and supply of fresh water for drinking
Health and disease management	Vaccination of animal and availability of veterinary medicines	Organize heath camp regularly	Proper treatment of affected animal, vaccination and dewarmig

Cyclone	-NA	-NA	-NA
Feed and fodder availability	-		
Drinking water	-		
Health and disease management	-		
Heat wave and cold wave			
Shelter/environment management	Shelter house/farm house should not face directly sunlight . Ensured the availability of drinking water and as well as electrolytes	Proper availability of shelter, drinking water and feeds & fodders as per need of animals	Provide shelter belts of good quality of materials
Health and disease management		Routine health checkup by veterinarian doctors	Routine health checkup by veterinarian doctors

^s based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event ^a	During the event	After the event	
Drought				
Shortage of feed ingredients	-	-	-	-
Drinking water	Deep tubewell provide clean drinking water	Provide the drinking water	Provide the drinking water	
Health and disease management	Vaccination against infectious diseases	Vaccination	Vaccination against infectious diseases such as Ranikhet, infections, coryza, IBD, ILT	
Floods		-		

Shortage of feed ingredients				
Drinking water	Inspection of established tubewell & other water resources	Vaccination	Vaccination against infectious diseases such as Ranikhet, infections, coryza, IBD, ILT	
Health and disease management	Vaccination against infection diseases	Vaccination		
Cyclone	-NA-			
Shortage of feed ingredients	-NA-			
Drinking water	-NA-			
Health and disease management	-NA-			
Heat wave and cold wave				
Shelter/environment management	Arrangement of proper shelter and cooler/heater to maintain the proper temp. of the shelter house	Maintenance of surrounding temp. and prevent the birds from direct exposure of heat/cold waves	Health check up	
Health and disease management	Vaccination	Vaccination	Vaccination	
			Availability of clean water	

^a based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event ^a	During the event	After the event
1) Drought			
A. Capture			

Marine	-NA-	-NA-	
Inland	Arrangement for alternative water resources	Sell the produce at minimum acceptable size to the consumer	Lime Application
(i) Shallow water depth due to insufficient rains/inflow	Stocking of Air breathing		
(ii) Changes in water quality	Turbidity	Increased water temperature	
(iii) Any other		Decrease dissolve oxygen	
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	Arrange for alternative water resources	Minimum disturbance to the fish i.e. minimum fishing activities	Maintain the pond properly by liming, manuring and fertilization
(ii) Impact of salt load build up in ponds / change in water quality	-		
(iii) Any other	-		
2) Floods			
A. Capture			
Marine			
Inland	Harvest the large size fish	Protect the escape of fish	Manage the inlet, outlet structures along with pond land
(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		Stocking of fish sped for a period of 1-2 month	

(ii) Water contamination and changes in water quality	Liming	Lime+alum	Harvesting and selling fish seeds
(iii) Health and diseases		Lime+alum	
(iv) Loss of stock and inputs (feed, chemicals etc)			Netting of fish+KmnO ₄ application
(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	Make 2.5 m high nylon net boundary on the band of pond	Check for outlet to remain open	Close outlet and open inlet
(ii) Changes in water quality (fresh water / brackish water ratio)		Close inlet and divert water receiving channel	Treatment of water with Alum and KmnO ₄
(iii) Health and diseases			Feeding, liming, manuring and fertilization of ponds
(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