State: UTTAR PRADESH

Agriculture Contingency Plan for District : Gorakhpur

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Eastern Plain, Hot Subhumid (moist) Eco-Region (13.1)		
	Agro-Climatic Zone (Planning Commission)	Middle Gangetic Plain Region (IV)		
	Agro Climatic Zone (NARP)	North Eastern Plain Zone (UP-8)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Division – Kanpur (2) Allahabad (4) Varanasi (4), Mirzapur (3), Azamgarh (3), Gorakhpur (4), Basti (3), Lucknow (6), Faizabad (4), Devipatan (4); Total districts - 37		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		26^0 46' N	$43^0$22' E	69m
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Belipur, Gorakhpur Dist.		
	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 (specify week and month)**	**Normal Cessation (specify week and month)**
	SW monsoon (June-Sep):	1182.1	50	3rd week of June	1st week of October
	NE Monsoon(Oct-Dec):	77.0	2	-	-
	Winter (Jan- March)	46.1	4	-	-

	Summer (Apr-May)	58.9	5	-	-
	Annual	1364.1	61	-	-

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)	335.317	248.723	6.031	45.875	0.211	2.255	2.916	4.037	18.702	6.567

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area (‘000’ ha)**	**Percent (%) of total**
	Sandy loam		
	Loam		
	Clay loam		
	Sandy		
	Others (specify):		

1.5	**Agricultural land use**	**Area (‘000 ha)**	**Cropping intensity %**
	Net sown area	248.723	154.4%
	Area sown more than once	134.400	
	Gross cropped area	383.123	

1.6	**Irrigation**	Area (‘000 ha)
	Net irrigated area	210.711
	Gross irrigated area	232.765

	Rainfed area	15.958		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		5.472	
	Tanks		1.628	
	Open wells		0.608	
	Bore wells		Govt. 10.796 + Pvt. 191.883 = 202.679	
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)		0.324	
	Total Irrigated Area		210.711	
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	**No. of blocks** – 19	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited			No problem of arsenic & fluoride however, low amount of salinity is reported. In majority of the area the problems of calcium & iron are reported
	Critical			
	Semi- critical			
	Safe	Safe		
	Wastewater availability and use			
	Ground water quality			

1.7 Area under major field crops & horticulture

1.7	**Major field crops cultivated**	**Area ('000 ha)**							
		Kharif			***Rabi***				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Wheat	187.710	0.071	187.781					**187.781**
	Rice	24.261	128.660	152.921					**152.921**

	Pigeonpea				0.0	6.209	6.209		**6.209**
	Maize	0.262	3.330	3.592					**3.592**
	Sugarcane							3.312	**3.312**
	Mustard	3.054	0.023	3.077					**3.077**
	Pea	2.464	0.030	2.494					**2.494**

*: The data reported are based on Govt. official reports; however, more than 5000 hectare is cultivated under rainfed conditions (Personal Observation)

S. No	**Horticultural Crops - Fruits (2004-05)**	**Total**	**Irrigated**	**Rainfed**
	Mango	4.525	-	-
	Banana	0.724	-	-
	Guava	0.211	-	-
	Musk melon	0.046	-	-
	Horticultural Crops Vegetables			
	Potato (2007-08)	4.441	-	
	Greenpea	1.137	-	-
	Onion (2007-08)	0.151	-	-
	Cauliflower	0.134	-	-
	Okra	0.120	-	-
	Cabbage	0.061	-	-
	Medicinal and Aromatic crops	**Total (000 ha)**	**Irrigated (000 ha)**	**Rainfed (000 ha)**
	Plantation crops	**Total**	**Irrigated**	**Rainfed**
	Fodder crops	**Total**	**Irrigated**	**Rainfed**
	Total fodders	2.345	1.357	0.988
	Total fodder crop area			

	Grazing land			
	Sericulture etc			
	Others (specify)			

1.8	**Livestock* (2003)**	**Male ('000)**	**Female ('000)**	**Male + Female (>3 Yrs) ('000)**	**Total ('000)**
	Non descriptive Cattle (local low yielding)	37.362	65.577	86.346	189.285
	Improved cattle				
	Crossbred cattle	6.284	36.788	44.275	87.347
	Non descriptive Buffaloes (local low yielding)	1.192	97.915	97.025	196.132
	Descript Buffaloes				
	Goat				161.656
	Sheep				13.960
	Others (Pig)				37.161
	Commercial dairy farms (Number)				0.470

1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**
	Commercial		322.480
	Backyard		2.701

1.10 Fisheries (Data source: Chief Planning Officer) **(200708)**				
A. Capture				
i) Marine (Data Source: Fisheries	**No. of fishermen**	**Boats**	**Nets**	**Storage facilities (Ice**

Department)						**plants etc.)**
ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
			10.0 (Govt.)+725.0 (Private)			

B. Culture			
	Water Spread Area (ha)	**Yield (t/ha)**	**Production ('000 tons)**
i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)	-	-	-
ii) **Fresh water** (Data Source: Fisheries Department)	406.41 (Govt.)+ 289.0 (Private)		5.3000 (Govt.)+ 721.600 (Private) Angulikao-31171000
Others			

1.11 Production and Productivity of major crops (Average of 5 years 2003-04, 2004-05, 2005-06; 06- 07& 2007-08).

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)										
	Wheat	461.124	2470					461.124	2470	
	Rice	268.984	1781					268.984	1781	
	Pigeon pea			4.795	605			4.795	605	
	Maize	3.994	1087	0.059	1942	0.348	1418	4.378	1115	

	Sugarcane					182.782	5438	182.782	54380	
	Mustard	2.212	715					2.212	715	
	Pea	3.258	1144					3.258	1144	
Major Horticultural crops (Crops to be identified based on total acreage)										
Fruit Crop (2004-05)										
	Mango							24.328	537	
	Banana							26.331	3636	
	Guava							1.787	846	
	Musk melon							1.196	2600	
	Horticultural Crops Vegetables									
	Vegetable Crop									
	Potato (2007-08)							86.945	19481	
	Greenpea							9.329	820	
	Onion							2.085	1164	
	Cauliflower							2.697	2012	
	Okra							1.392	1160	
	Cabbage							1.385	2270	

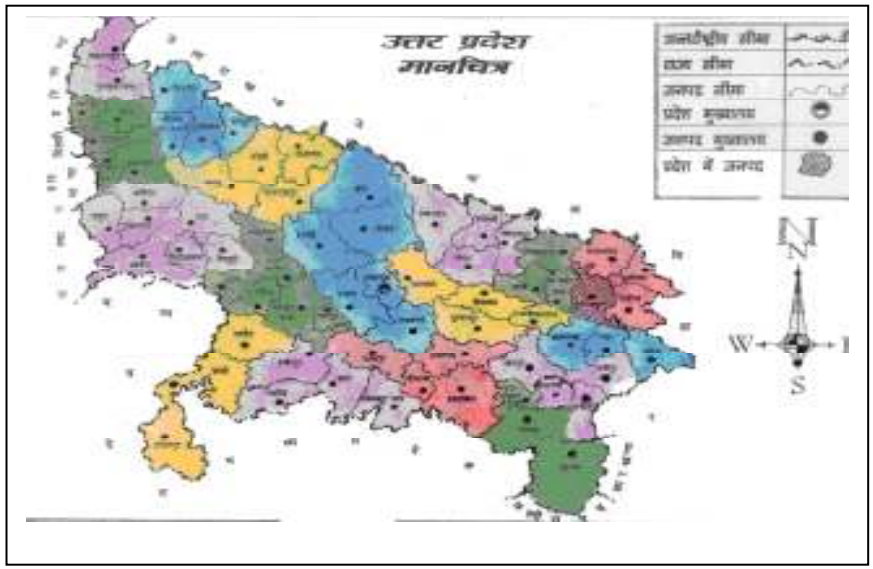
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	**Wheat**	**Rice**	**Pigeonpea**	**Maize**	**Sugarcane**	**Mustard**	**Pea**
	Kharif- Rainfed	-	4th week of June	4th week of June	4th week of June to			

			to 1st week of July	to 1st week of July	1st week of July			
	Kharif-Irrigated	-	June (nursery)	-	-		-	
	Rabi- Rainfed	3rd week of October to 4th week of October	-	-	-		3rd week of October to 4th week of October	3rd week of October to 4th week of October
	Rabi-Irrigated	3rd week of November to 4th week of November			3rd week of October to 3rd week of November	October/Nov.	3rd week of October to 3rd week of November	3rd week of October to 3rd week of November
	Summer irrigated	-	-	-	3rd week of March to 3rd week of April	February/ March		

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)			

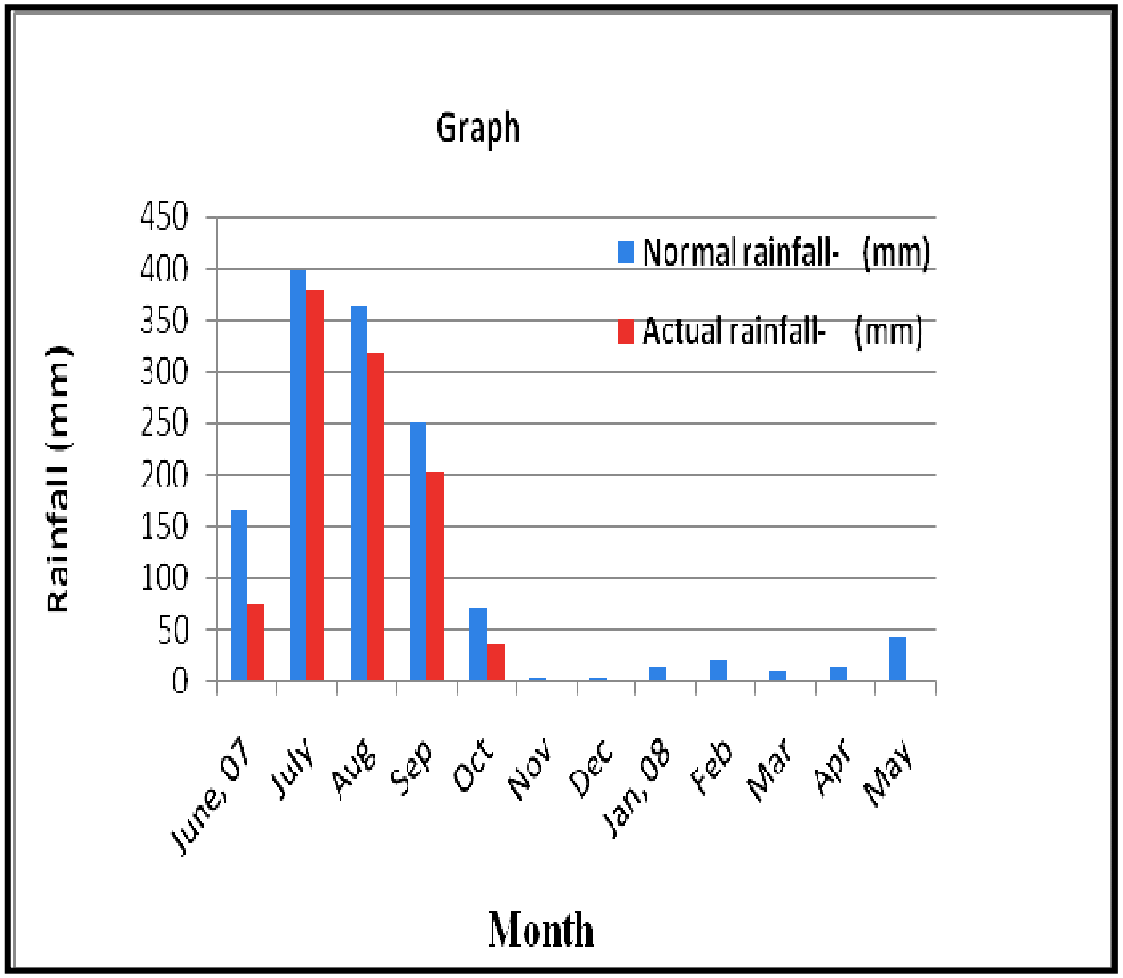
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure 1	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure 1

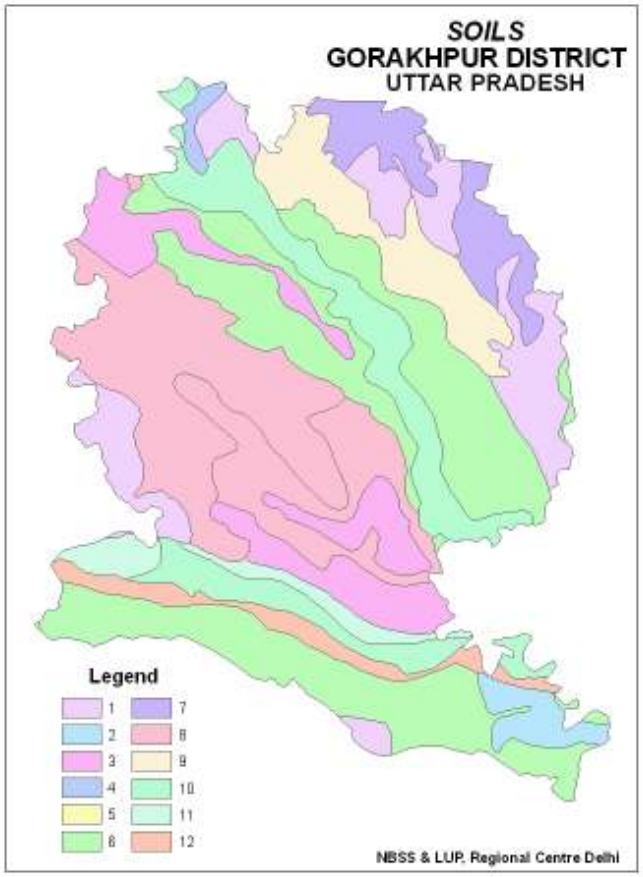


Annexure -2: Mean Annual Rainfall of Gorakhpur district (2007-08)

Month	Normal rainfall- (mm)	Actual rainfall (mm)
June 2007	167.3	75.8
July	398.6	377.8
August	364.7	318.0
September	251.5	203.9
October	69.5	36.9
November	4.2	0.0
December	3.3	0.0
January 08	14.3	0.0
February	21.0	0.0
March	10.8	0.0
April	15.1	0.0
May	43.8	0.0



Annexure-III



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[a]**	**Normal Crop / Cropping system[b]**	**Change in crop / cropping system[c] including variety**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 2 weeks 1st week of July	Upland	Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeonpea (sole crop) Rabi crops Lentil: (Malviya Vishwanath, PL406, PL639 & KLS-218) Mustard:Varuna, Ashirvad, Vardan	Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini Maize :Hybrids-:Malaviya Makka-2, Ganga 2, Ganga 11, Shaktiman 2; Composite :Naveen, Kanchan, Sweta, Prabhat, gaurav, Pragati; Desi:Jaunpuri Pigeonpea:Bahar, Narendra Arahar-1,Malviya Vakas(MA6) & Malviya Chamtkar (MA13)	Direct sowing with seed cum ferti drills across the slope and re-sowing if no proper germination.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
		Pigeonpea + Groundnut	Pigeonpea + Groundnut Groundnut: Chandra, Chitra, Kaushal, Prakash, Utkarsh	Sowing of maize between two rows of sugarcane on ridges.	
	Medium land	Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan	Early maturing, semi dwarf and HYV rice: NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant Dhan-12, HUR-105 and Pant Shankar dhan-1	Direct sowing in lines through Seed-cum Ferti drill as well as transplanting of rice seedlings after puddling the field. Community nursery may be utilized for the transplanting	
		Sugarcane + Maize/ Sugarcane + Mustard/ Pigeonpea + Groundnut	Sugarcane + Maize/ Pigeonpea + Groundnut	Sowing should be done on ridges of main as well as intercrops.	

	Lowland	Rice-Lentil Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi	Transplanting of rice seed lings should be completed before 15th of July through community base nursery	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 4 weeks 3rd week of July	Upland	Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeon pea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard:Varuna, Ashirvad, Vardan	Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini, Maize : Hybrids: Malaviya Makka-2, Ganga 2, Ganga 11, Shaktiman 2; Composite :Naveen, Kanchan, Sweta, Prabhat, gaurav, Pragati; Desi – Jaunpuri Pigeonpea: Bahar, Narendra Arahar1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13)	Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Soil moisture conservation practices such as soil mulching sugarcane leaves may be utilized.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
		Pigeonpea + Groundnut	Pigeonpea+ Groundnut Groundnut- Chandra, Chitra, Kaushal, Prakash, Utkarsh	Sowing of maize between two rows of sugarcane on ridges.	
	Medium land	Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad,	Early maturing, semi dwarf and HYV rice: NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant Dhan-12, HUR-105 and Pant Shankar dhan-1	Sowing with seed cum ferti drills and re-sowing if no proper germination. Weed management through dry land weeder & also through weedicides.	

		Vardan		Conservation furrow, inter culture Surface water management	
		Sugarcane + Maize Sugarcane + Mustard Pigeonpea + Groundnut	Sugarcane + Maize Pigeonpea + Groundnut	Sowing should be done on ridges of main as well as intercrops.	
	Lowland	Rice-Lentil Rabi Crops Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi	Transplanting of rice seedlings should be started with the onset of the monsoon through community base nursery	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 6 weeks 1st week of August	Upland	Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeon pea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard:Varuna, Ashirvad, Vardan	Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23	Under the sufficient rainfall and water stagnation transplanting of early maturing rice varieties as listed above may be done from community nursery. Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Soil moisture conservation practices such as soil mulching with sugarcane leaves may be utilized in standing sugarcane fields.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
		Pigeonpea + Groundnut	Pigeonpea+ Pearl millet *Genotypes*: as above	Sowing should be done on ridges only	

	Medium land	Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan	Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23	Sowing with seed cum ferti drills across the slope Weed management through dry land weeder & thinning of population in case of pearl millet, conservation furrow and interculture. Surface water management	
		Sugarcane + Maize Sugarcane + Mustard Pigeonpea + Groundnut	Pigeonpea + Pearl millet	Sowing should be done on ridges of main as well as intercrops.	
	Lowland	Rice-Lentil Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi	Transplanting of rice seed lings should be completed up to 10th of August through community base nursery	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks 3rd week of August	Upland	Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeon pea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard:Varuna, Ashirvad, Vardan	Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23	Sowing of Pearl millet on ridges may be recommended for upland area for grain as well as fodder crop.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

		Pigeonpea + Groundnut	Pigeonpea+ Pearl millet *Genotypes*: as above	Sowing of both Pigeonpea + Pearl millet should be done on ridges only.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
	Medium land	Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard **:**Varuna, Ashirvad, Vardan	Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23	Weed management through dryland weeder & thinning of population in case of pearl millet grown for grain purpose only Surface water management	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
		Sugarcane + Maize Sugarcane + Mustard Pigeonpea + Groundnut	Pigeonpea + Pearl millet	Sowing should be done on ridges of main as well as intercrops.	
	Lowland	Rice-Lentil Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi	Transplanting of rice seed lings should be completed before 25th of August through community base nursery	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Upland	Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop)	Use of drought tolerant varieties (NDR 97, Vandana and Govind) Shushk Samrat Gap filling or re-sowing of crop , as per need Use of dust mulch/ straw mulch Inter row harrowing	Use of additional N @10kg/ha Conservation furrow	
		Pigeonpea + Groundnut	Earthing up to main crops	Conservation tillage	

			Thinning to maintain proper distance between the plants Gap filling and re-sowing of crops as per need	Spray 2% urea as foliar application	
	Medium land	Rice-Lentil/ Rice-Mustard	Gap filling or re-sowing of crops if needed. Use of drought resistant/tolerant rice varieties. Retransplanting of rice seedlings from community nursery Use of dust mulch/straw mulch , Inter-row harrowing	Use of additional N @10kg/ha Conservation furrow	
	Lowland	Rice-Lentil	Gap filling or re-sowing of crop, as per need. Use of dust mulch/ straw mulch Retransplanting from community nursery as and when rains received.	Use of additional N @10kg/ha Conservation furrow	

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At vegetative stage	Upland	Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop)	Life saving irrigation, if possible Dust/ straw mulch Thinning Inter row harrowing	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	

		Pigeonpea + Groundnut	Earthing up and thinning of intercrops to maintain proper distance between the plants.	Conservation tillage Spray of 2% urea as foliar application	
	Medium land	Rice-Lentil/ Rice-Mustard	Life saving irrigation if possible Dust/ straw mulch Thinning Inter row harrowing	Use of additional N @10kg/ha Spray 2% urea as foliar application Conservation furrow	
	Lowland	Rice-Lentil	Life saving irrigation if possible Dust/ straw mulch Thinning Inter row harrowing	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system [b]**	**Crop Management[c]**	**Soil nutrient & moisture conservation measures [d]**	**Remarks on Implementation [e]**
At flowering/ fruiting stage	Upland	Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop)	Life saving irrigation if possible Harvest maize for fodder purposes	1) Spraying 2% urea as foliar application. 2) KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time
		Pigeonpea + Groundnut	If there is no winter rain , give light irrigation to Pigeonpea crop	Spraying 2% urea as foliar application. KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time
	Medium land	Rice-Lentil/ Rice-Mustard	Life saving irrigation to rice – one or two depending upon availability of water in canal	1) Spraying of 2% urea as foliar application. 2) KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time

	Lowland	Rice-Lentil	Life saving irrigation, if possible Dust/ straw mulch Thinning Inter row harrowing	Use of additional N @10kg/ha Spray 2% urea as foliar application Conservation furrow Use of Azotobacter/ Azospirilum Use of Blue Green Algae @12.5kg/ha after 3-4 days of transplanting of rice seedlings	

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**[a]	**Normal Crop/cropping system**[b]	**Crop Management**[c]	**Rabi Crop planning** [d]	**Remarks on Implementation** [e]
	Upland	Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop)	Life saving irrigation, if possible Dust/ straw mulch Inter row harrowing Defoliate older leaves Harvesting at physiological maturity.	Toria/Agati mustard may be sown during last week of September to middle of October.	
		Pigeonpea + Groundnut	1) Harvesting at physiological maturity 2) Life saving irrigation, if possible to Pigeonpea 3) Harvesting of pearl millet for fodder purpose if inter cropped in place of ground nut	1) Spraying 2% urea as foliar application. 2) KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time
	Medium land	Rice-Lentil/	Dust/ straw mulch	Toria/Agati mustard	

		Rice-Mustard	Inter row harrowing Defoliate older leaves Harvesting at physiological maturity.	may be sown during last week of September to middle of October.	
	Lowland	Rice-Lentil	Dust/ straw mulch Inter row harrowing Defoliate older leaves Harvesting at physiological maturity.	Use of Aztobacter/ Azospirilum Use of Blue Green Algae @12.5kg/ha after 3-4 days of transplanting of rice seedlings. Toria/Agati mustard may be sown during last week of September to middle of October.	

2.1.2 Drought - Irrigated situation

Condition			**Suggested Contingency measures**		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Delayed release of water in canals due to low rainfall	Medium land	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane(2 years)/Rice-Maize (Rabi)/Greengram Maize:Hybrids: Malaviya Makka-2, Ganga 2, Ganga 11, Shaktiman 2; Composite: Naveen, Kanchan, Sweta, Prabhat, Gaurav, Pragati; Desi:Jaunpuri Rabi crops Wheat:HUW-468, HD-2824, UP-2338, K-9107 Pea: Rachna, HUDP-15, DDR-	Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini	Community nursery, Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation.	Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
		23, KPMR-144-1 Toria: T-9, Bhavani, NDR Angati rai-4, PT-30, PT-507 Mustard :Varuna, Ashirvad, Vardan Sugarcane :CoS-96268, CoLK-94184 and Local Potato: Kufri Sadabahar, Kufri Sindhuri, Kufri Jyoti			
	Lowland	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops of as above	Tall rice varieties: Swarna, Cross-116, MTU-7029 and BPT-5204	Transplanting of rice seedlings should be completed before 15th of July through community base nursery	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
Limited release of water in canals due to low rainfall	Medium land	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above	Short duration rice varieties: NDR-118, NDR-97, Pant dhan-12, HUR-105, Vandana, Sushk samrat, Ashwini	Community nursery, Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation.	Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM
	Lowland	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-potato/ Rice-wheat-sugarcane (2 years)/ Rice-Maize(Rabi)/Green gram Genotypes of crops- as above	Tall rice varieties:Swarna, Cross-116, Mtu-7029 and BPT-5204	Transplanting of rice seed lings should be completed before 15 th of July through community base nursery	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Non release of water in canals under delayed onset of monsoon in catchment	Medium land	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above	Early maturing, semi dwarf and HYV rice: Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant Shankar Dhan-1	Direct sowing in lines through Seed-cum Ferti drill. Use of dust and straw mulch.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
	Lowland	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above	Tall rice varieties: Type-3, Type-23, Mahsoori and Swarna	After heavy rainfall transplanting may be done with seedlings from community nursery.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Lack of inflows into tanks due to insufficient /Delayed onset of monsoon	Medium & Lowland	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above	Early maturing, semi dwarf and HYV rice: Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant Shankar Dhan-1 / Sorghum (fodder) and Pearl millet	Conservation tillage.	Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Insufficient groundwater recharge due to low rainfall	Medium & Low land	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above	Pulses (Blackgram), Oilseeds (Sesame, Ground nut)	Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation.	Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM

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

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvest[n]**
Wheat	Provide drainage	Proper bunding drain out excess water	Harvesting at physiological maturity	Shift to safer place
Rice	Provide drainage	Proper bunding drain out excess water	Harvesting at physiological maturity	Shift to safer place
Pigeonpea	Provide drainage Sowing on ridges	Provide drainage Sowing on ridges	Provide drainage	Shift to safer place
Maize	Provide drainage Sowing on ridges	Provide drainage Sowing on ridges	Provide drainage harvesting of green cobs	Shift to safer place
Sugarcane	Provide drainage	Harvesting of crop before flowering	Harvesting of crops	Shift to mills
Mustard	Provide drainage	Provide drainage	Harvesting at physiological maturity	Shift to safer place
Pea	Provide drainage	Provide drainage	Harvesting of green pods	Shift to safer place
Horticulture				
Potato	Ridge an furrow method of	Digging of tubers before	Drain out excess water and	Shift to safer

	sowing Drain out excess water	flowering	digging of pre-mature tubers	place
Greenpea	Provide drainage	Provide drainage	Harvesting of green pods	Shift to safer place
Onion	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
Cauliflower	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Drain out excess water. Plucking of mature and pre-mature flowers	Shift to market
Okra	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Drain out excess water. Plucking of mature and pre-mature fruits for vegetable purpose.	Shift to market
Cabbage	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Drain out excess water.	Shift to market
Heavy rainfall with high speed Winds in short span				
Wheat	Drain out excess water	Drain out excess water and speed of wind may be protected with vegetable barriers	Drain out excess water and protect with vegetable barriers	Keep the grains at safer place
Rice	Drain out excess water	Drain out excess water protected with vegetable barriers	Drain out excess water and protect with vegetable barriers	Keep the grains at safer place
Pigeonpea	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Harvesting at physiological maturity	Keep the grains at safer place
Maize	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Harvested of green cobs	Keep the cobs at safer place
Sugarcane	Plant should be tied in a group and drain out excess water	Sugarcane is harvested on or before flowering	Plant should be tied in a group and drain out excess water Harvesting is being practiced	Transport to mills
Mustard	Drain out excess water	Drain out excess water	Drain out excess water. Harvesting at physiological maturity	Keep the grains at safer place

Pea	Drain out excess water No effect of high speed of winds	Drain out excess water Grow dwarf and erect varieties of field pea	Drain out excess water. Harvesting of green pods	Keep the grains at safer place
Horticulture				
Potato	Drain out excess water No effect of high speed of winds	Drain out excess water	Drain out excess water. Harvesting of pre-mature tubers	Keep the tubers at safer place
Greenpea	Drain out excess water No effect of high speed of winds	Drain out excess water Grow dwarf and erect varieties of field pea	Drain out excess water. Harvesting of green pods	Keep the green pods at safer place
Onion	Drain out excess water No effect of high speed of winds	Drain out excess water No effect of high speed of winds	Drain out excess water No effect of high speed of winds	Shift to safer place
Cauliflower	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges Harvesting of pre-mature flowers	Shift to market
Okra	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges Harvesting of pre-mature fruits	Shift to market as green vegetables
Cabbage	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges	Drain out excess water Sowing on ridges Harvesting of pre-mature buds	Shift to market as green vegetables
Outbreak of pests and diseases due to unseasonal rains				
Wheat	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
Rice	-do	-do	-do	-do

Pigeonpea	-do	-do	-do	-do
Maize	-do	-do	-do	-do
Sugarcane	-do	-do	-do	-do
Mustard	-do	-do	-do	-do
Pea	-do	-do	-do	-do

Horticulture				
Potato	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
Greenpea	-do-	-do-	-do-	-do-
Onion	-do-	-do-	-do-	-do-
Cauliflower	-do-	-do-	-do-	-do-
Okra	-do-	-do-	-do-	-do-
Cabbage	-do-	-do-	-do-	-do-

2.3 Floods

Condition	**Suggested contingency measure[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Wheat	Not experienced	Not experienced	Not experienced	Not experienced
Rice	Early seedling growing variety should be preferred and community nursery should be practiced	Fast growing varieties should be grown (Mahsoori)	Variety having seed dormancy should be preferred	Harvesting at physiological maturity
Pigeonpea	Resowing after flood	Resowing after flood	Harvest for fodder purpose	Harvesting at physiological maturity
Maize	Resowing after flood	Resowing after flood	Harvest for fodder purpose or harvesting of green	Harvesting at physiological maturity or harvesting of

			cobs	green cobs
Sugarcane	Not experienced	Harvest for fodder purposes	Harvesting at physiological maturity	Harvesting at physiological maturity
Mustard	Not experienced	Not experienced	Not experienced	Not experienced
Pea	Not experienced	Not experienced	Not experienced	Not experienced
Horticulture				
Potato	Not experienced	Not experienced	Not experienced	Not experienced
Green pea	Not experienced	Not experienced	Not experienced	Not experienced
Onion	Not experienced	Not experienced	Not experienced	Not experienced
Cauliflower	Not experienced	Not experienced	Not experienced	Not experienced
okra	Summer crop is not affected	Summer crop is not affected	Summer crop is not affected	Summer crop is not affected
Cabbage	Not experienced	Not experienced	Not experienced	Not experienced
Continuous submergence for more than 2 days[2]				
Wheat	Not experienced	Not experienced	Not experienced	Not experienced
Rice	Varieties having submergence resistance should be grown *viz.* Swarana sub-1, IR-64 sub-1 re transplanting after cessation of flood from community nursery	Varieties having submergence resistance should be grown *viz.* Swarana sub-1, IR-64 sub-1 re transplanting after cessation of flood from community nursery	Prior transplanting of submergence resistant varieties along with seed dormancy.	Harvesting at physiological maturity
Pigeonpea	Resowing if possible	Replace with rice	Not experienced	Not experienced
Maize	Resowing if possible	Replace with rice	Replace with rice	Replace with rice
Sugarcane	Not experienced	Harvest for fodder purposes	Harvesting at physiological maturity or harvest for fodder purposes.	Harvesting at physiological maturity
Mustard	Not experienced	Not experienced	Not experienced	Not experienced
Pea	Not experienced	Not experienced	Not experienced	Not experienced
Horticulture				
Potato	Not experienced	Not experienced	Not experienced	Not experienced
Greenpea	Not experienced	Not experienced	Not experienced	Not experienced
Onion	Not experienced	Not experienced	Not experienced	Not experienced
Cauliflower	Not experienced	Not experienced	Not experienced	Not experienced

Okra	Summer crop is not affected	Summer crop is not affected	Summer crop is not affected	Summer crop is not affected
Cabbage	Not experienced	Not experienced	Not experienced	Not experienced
Sea water intrusion[3]				

2.4 Extreme events: High temperature (heat wave) / Cold wave/Frost/ Hailstorm /Cyclone/Fog

Extreme event type	**Suggested contingency measure[r]**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave[p]				
Wheat	Not experienced	Not experienced	Proper irrigation through out stress along with growing heat resistant varieties (stay green colour varieties) Foliar application of 2% urea	Harvesting at physiological maturity
Rice	Proper irrigation	Proper irrigation throughout stress period along with growing heat resistant varieties Foliar application of 2% urea	Not experienced	Not experienced
Pigeonpea	Proper irrigation	Proper irrigation	Proper irrigation	Proper irrigation
Maize	Proper irrigation	Proper irrigation	Proper irrigation	Proper irrigation
Sugarcane	Proper irrigation	Conservation tillage - ridges & furrows	Proper irrigation	Harvesting at physiological maturity
Mustard	Not experienced	Not experienced	Proper irrigation through out stress along with growing heat resistant varieties (stay green colour varieties) Foliar application of 2% urea	Harvesting at physiological maturity
Pea	Not experienced	Not experienced	Harvesting of green pods and proper irrigation	Harvesting at physiological maturity
Horticulture				

Potato	Not experienced	Not experienced	Not experienced	Harvesting at physiological maturity
Greenpea	Not experienced	Not experienced	Not experienced	Harvesting at physiological maturity
Onion	Proper irrigation	Proper irrigation	Proper irrigation	Proper irrigation
Cauliflower	Proper irrigation	Proper irrigation	Proper irrigation	Proper irrigation
Okra	Not experienced	Not experienced	Not experienced	Proper irrigation
Cabbage	Not experienced	Not experienced	Not experienced	Proper irrigation
Cold wave[q]				
Wheat	Not experienced	Proper irrigation through out stress along with growing cold tolerant varieties	Proper irrigation through out stress along with growing cold tolerant varieties	Harvesting at physiological maturity
Rice	Not experienced	Not experienced	Not experienced	Harvesting at physiological maturity
Pigeonpea	Not experienced	Not experienced	Proper irrigation through out stress along with growing cold tolerant varieties	Harvesting at physiological maturity
Maize	Not experienced	Not experienced	Not experienced	Not experienced
Sugarcane	Not experienced	Not experienced	Crop is harvested before onset of cold waves	Crop is harvested before onset of cold waves
Mustard	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at physiological maturity
Pea	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at physiological maturity
Horticulture				
Potato	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at physiological maturity
Greenpea	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) &	Harvesting of green pods

			growing cold tolerant varieties	
Onion	Not experienced	Not experienced	Not experienced	Not experienced
Cauliflower	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at pre-mature stage
Okra	Not experienced	Not experienced	Not experienced	Not experienced
Cabbage	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at pre-mature stage
Frost				
Wheat	Not experienced	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Not experienced
Rice	Not experienced	Not experienced	Not experienced	Not experienced
Pigeonpea	Not experienced	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Not experienced
Maize	Not experienced	Not experienced	Not experienced	Not experienced
Sugarcane	Not experienced	Not experienced	Crop is harvested before the incidence of frost	Harvesting at physiological maturity
Mustard	Not experienced	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Not experienced
Pea	Not experienced	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Harvesting of green pods
Horticulture				
Potato	Not experienced	Not experienced	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Digging of tubers as pre-mature stage
Greenpea	Not experienced	Keep the surroundings warm(burning the waste materials)	Keep the surroundings warm(burning the waste materials)	Harvesting of green pods

		& growing frost tolerant varieties	& growing frost tolerant varieties	
Onion	Not experienced	Not experienced	Not experienced	Not experienced
Cauliflower	Not experienced	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties	Harvesting at pre-mature stage
Okra	Not experienced	Not experienced	Not experienced	Not experienced
Cabbage	Not experienced	Not experienced	Not experienced	Not experienced
Hailstorm				
Horticulture				
Cyclone				
Horticulture				

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the events	**During the event**	**After the event**
Drought			
Feed and fodder availability	Insurance Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, encouraging fodder crops in irrigated area Silage – using excess fodder for silage	Utilizing fodder from perennial trees and Fodder bank reserves. Utilizing fodder stored in silage. Transporting excess fodder from adjoining districts Use of feed mixtures. Allow the cattle's for grazing at barren lands.	Availing Insurance
Drinking water	Preserving water in the tank for drinking purpose Excavation of Bore wells	Using preserved water in the tanks for drinking. Wherever ground water resources are available priority for drinking purpose.	
Health and disease management	Veterinary preparedness with medicines and vaccines	Conducting mass animal Health Camps and treating the affected once in Campaign	

Floods			
Feed and fodder availability	Grow the fodder crops at safer places (non- flood prone area)	Utilizing fodder from perennial trees and Fodder bank reserves. Utilizing fodder stored in silage. Transporting excess fodder from adjoining districts Use of feed mixtures. Shift the live stocks at safer place.	Availing insurance
Drinking water		Shift the live stocks at safer place where drinking water is available.	
Health and disease management	Veterinary preparedness with medicines and vaccines	Conducting mass animal Health Camps and treating the affected once in Campaign	
Cyclone			
Feed and fodder availability			
Drinking water			
Health and disease management			
Heat wave and cold wave			
Shelter/environment management			
Health and disease management			

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	Insurance & Integration Establishing geed serve Bank	Utilizing from feed serve banks	Availing insurance Strengthening feed Reserve Banks	
Shortage of feed ingredients				
Drinking water				
Health and disease management	Emergency Veterinary preparedness with medicines vaccination to birds	Campaign and Mass Vaccination	Culling affected birds	

Heat wave and cold wave				
Shelter/environment management				
Health and disease management				

2.5.3 Fisheries/ Aquaculture

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

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

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