

State: UTTAR PRADESH

Agriculture Contingency Plan for District: Deoria

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)	EASTERN PLAIN ZONE (UP-9)		
	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° 30' 16" N	83° 47' 13" E	68 m
	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, Indian Institute Of Vegetable Research (indian council of agricultural research), malhana, p.o. Bankata mishra (majhauri raj), deoria (up) - 274506		
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):	988.2	73	3 rd week of June	1 st week of October
	NE Monsoon(Oct-Dec):	66.3	06	-	-
	Winter (Jan- March)	40.9	00	-	-
	Summer (Apr-May)	49.7	02	-	-
	Annual	1145.1	81	-	-

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)	249.376	190.254	0.261	32.040	0.076	1.888	3.233	1.651	17.473	2.500

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

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	190.254	162.75%
	Area sown more than once	119.387	
	Gross cropped area	309.641	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	153.206		
	Gross irrigated area	225.467		
	Rainfed area	35.213		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		21.054	
	Tanks		0.0	
	Open wells		10.992	
	Bore wells		Govt. 8.773 + Pvt. 112.081 = 120.854	
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)		0.306	
	Total Irrigated Area		153.206	
	Pump sets			
	No. of Tractors			
Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks –16	(%) 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)							
		<i>Kharif</i>			<i>Rabi</i>			Summer Irrigated	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
Wheat				140.326	0.002	140.328		140.328	
Rice	64.607	64.801	129.408					129.408	
Sugarcane	-	-	-	-	-	-	10.875	10.875	
Maize	0.344	5.579	5.923	1.125	0.0	1.125	0.194	7.242	
Pigeo pea	0.0	6.370	6.370					6.370	
Groundnut	0.0	2.579	2.579						
Pea				1.897	0.013	1.910		1.910	

*: 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	Total	Irrigated	Rainfed
	Not applicable			
	Horticultural Crops Vegetables			
	Potato	1.726	1.726	-
	Onion	0.197	0.197	-
	Medicinal and Aromatic crops	Total (000 ha)	Irrigated (000 ha)	Rainfed (000 ha)
	Not applicable			
	Plantation crops	Total	Irrigated	Rainfed
	Not applicable			
	Fodder crops	Total	Irrigated	Rainfed
	Total fodders	0.362	0.287	0.075
	Total fodder crop area	0.362	0.287	0.075
	Grazing land	Not applicable		
	Sericulture etc	Not applicable		
	Others (specify)	Not applicable		

1.8	Livestock* (2003)	Male ('000)	Female ('000)	Male + Female (>3 Yrs) ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	20.357	62.443	63.127	145.927
	Improved cattle				
	Crossbred cattle	1.220	14.419	14.572	30.211
	Non descriptive Buffaloes (local low yielding)	0.419	87.243	81.604	169.266

	yielding)				
	Descript Buffaloes				
	Goat				210.858
	Sheep				3.912
	Others (Pig)				20.954
	Commercial dairy farms (Number)				0.078

1.9	Poultry	No. of farms	Total No. of birds ('000)
	Commercial		217.118
	Backyard		1.982

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.)
ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks	
			0.0 (Govt.) + 95.0 (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)	0.0(Govt.) + 49.0 (Private)		0.0 (Govt.)+ 193.10 (Private) Angulikao-20528000
Others			

1.11 Production and Productivity of major crops (Average of 5 years 2003-04, 2004-05, 2005-06; 2006- 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			360.208	2475			360.208	2475	
	Rice	242.412	1860					242.412	1860	
	Sugarcane					555.692	4940	555.692	4940	
	Maize							9.736	1247	
	Pigeonpea	4.278	582					4.278	5822	
	Groundnut	2.443	2053					2.443	2053	
	Pea	2.384	1144					2.384	1144	
Major Horticultural crops (Crops to be identified based on total acreage)										

Fruit Crops	Not applicable									
Vegetables										
Potato								3.627	2467	

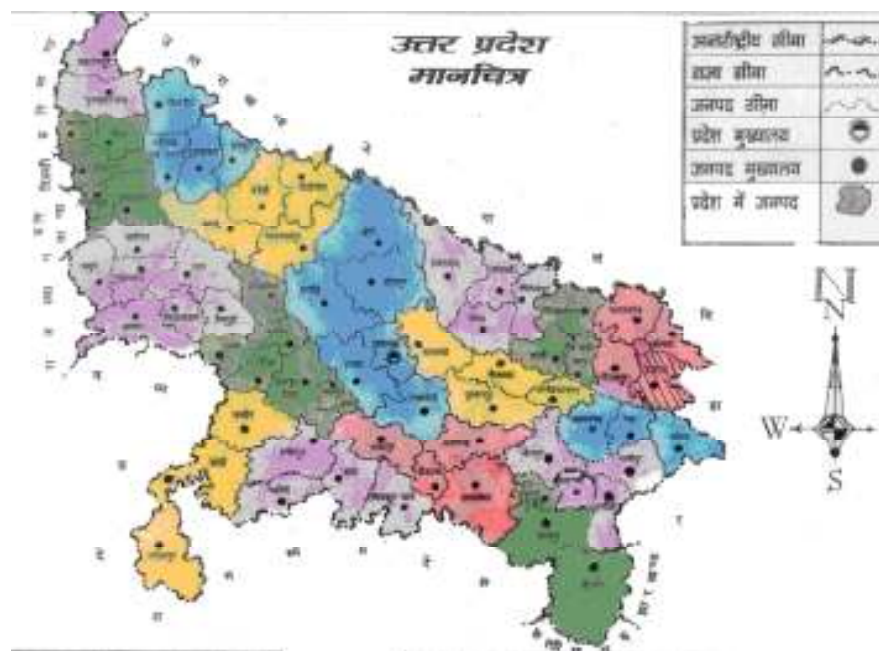
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Wheat	Rice	Sugarcane	Maize	Pigeonpea	Groundnut	Pea
	Kharif- Rainfed	-	4 th week of June to 1 st week of July		4 th week of June to 1 st week of July	4 th week of June to 1 st week of July	4 th week of June to 1 st week of July	
	Kharif-Irrigated	-	June (nursery)	-	-			-
	Rabi- Rainfed	3 rd week of October to 4 th week of October	-	-	-			3 rd week of October to 4 th week of October
	Rabi-Irrigated	3 rd week of October to 4 th week of October		October/Nov.	3 rd week of October to 3 rd week of November			3 rd week of October to 3 rd week of November
	Summer irrigated	-	-	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)			

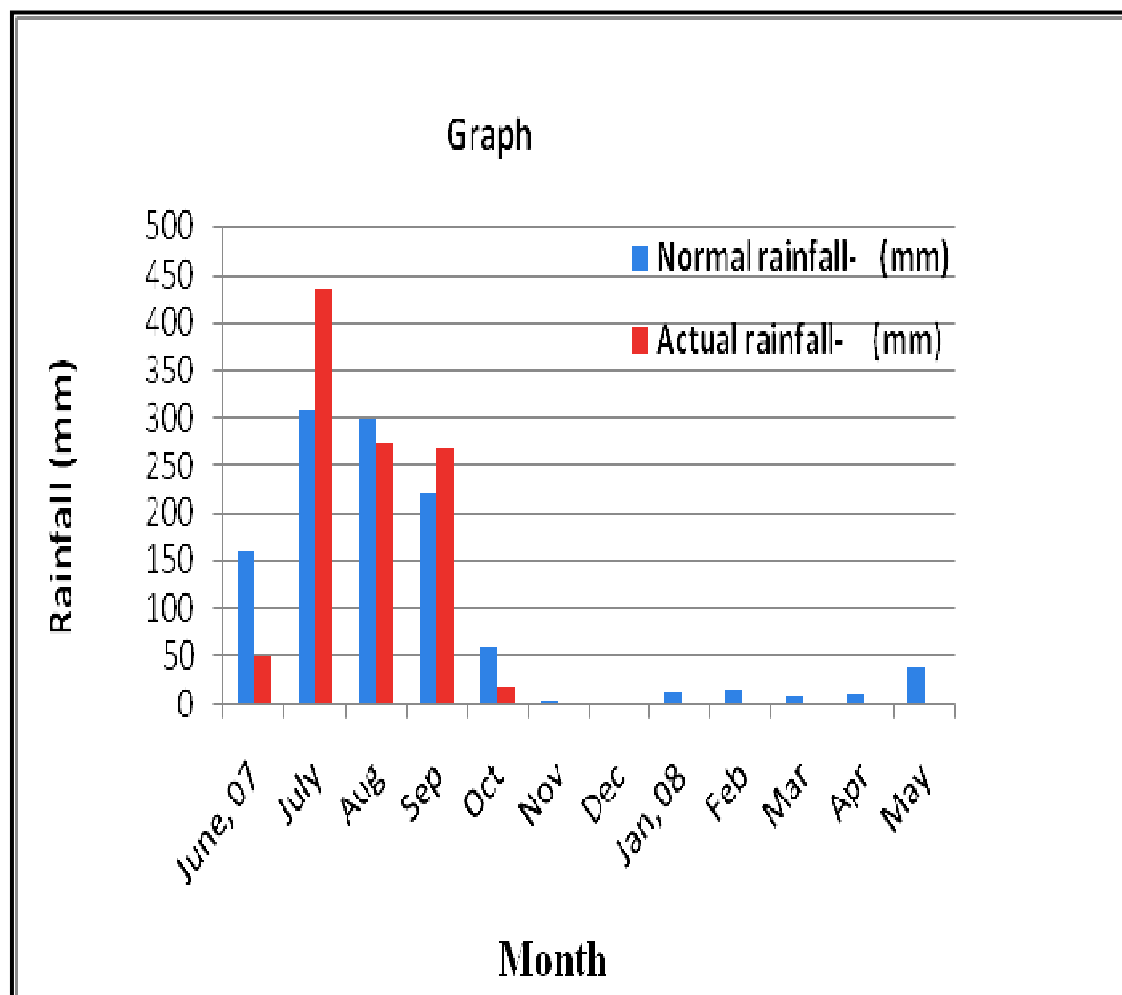
1.14	Include Digital maps of the district for	Location map of district within State as Annexure 1	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure –I

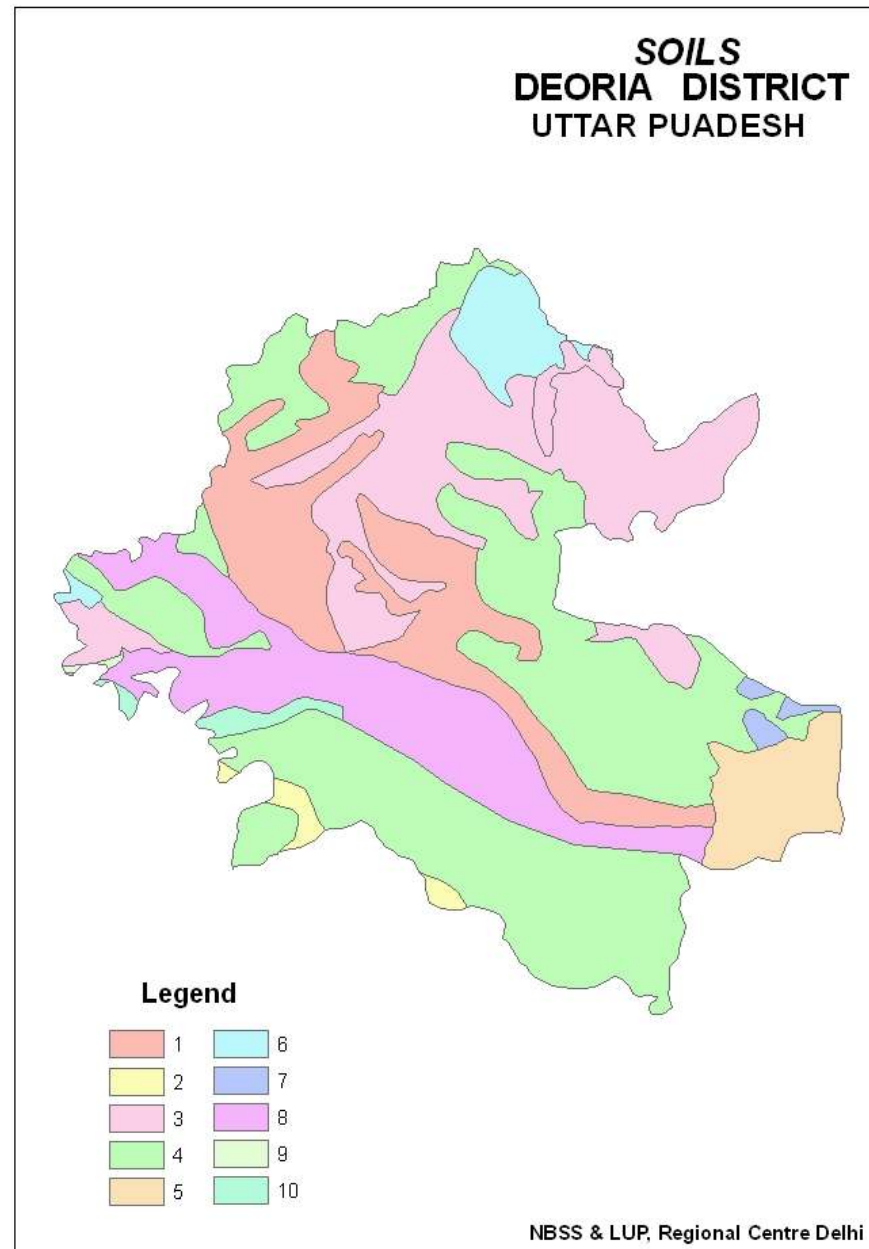


2: Mean Annual Rainfall of Deoria district (2007-08)

Month	Normal rainfall- (mm)	Actual rainfall (mm)
June 2007	159.1	50.7
July	308.2	434.0
August	299.2	273.5
September	221.7	269.6
October	59.3	18.0
November	4.0	0.0
December	3.0	0.0
January 08	14.3	0.0
February	16.8	0.0
March	9.8	0.0
April	11.6	0.0
May	38.1	0.0



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 ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset) Delay by 2 weeks 1 st week of July	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice – Barley/ Maize – Lentil/ Maize – Chickpea/ Pigeonpea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan Chickpea: Type 6 & BG -256 Barely: K 125, K 141, K 226 & K 560	Short duration Rice: 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 Arahara-1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13)	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/ Rice – Pea/ Rice – Chickpea/	Early maturing, semi dwarf and HYV rice: NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant Dhan-12, HUR-105 and Pant Shankar	Direct sowing in lines through Seed-cum Ferti drill as well as transplanting of rice seedlings after	

		Maize – Pea Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan Pea :HUDP 15, Rachana, HUP-2, HUDP-2	dhan-1	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-Pea/ Rice –Barley Rabi Crops Pea :HUDP 15, Rachana, HUP-2, HUDP-2 Barley:K 125, K 141, K 226 & K 560	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi	Transplanting of rice seed lings should be completed before 15 th of July through community base nursery	

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)					
Delay by 4 weeks 3 rd week of July	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice – Barley/ Maize – Lentil/ Maize – Chickpea/	Rice (short duration varieties) : NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini, Maize :Hybrids: Malaviya Makka-2, Ganga 2, Ganga	Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Soil moisture	Breeder seed may be obtained from the University Seed drills under RKVY

		<p>Pigeonpea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard : Varuna, Ashirvad, Vardan Chickpea: Type 6 & BG 256 Barley: K 125, K 141, K 226 & K 560</p>	<p>11, Shaktiman 2 ; Composite : Naveen, Kanchan, Sweta, Prabhat, gaurav, Pragati; Desi : Jaunpuri Pigeonpea: Bahar, Narendra Arahari, Malviya Vakas(MA6) & Malviya Chamtkar (MA13)</p>	<p>conservation practices such as soil mulching with sugarcane leaves may be utilized.</p>	Supply of seeds through NFSM
		<p>Pigeonpea + Groundnut</p>	<p>Pigeonpea+ Groundnut Groundnut: Chandra, Chitra, Kaushal, Prakash, Utkarsh</p>	<p>Sowing of maize between two rows of sugarcane on ridges.</p>	
Medium land	<p>Rice-Lentil/ Rice-Mustard/ Rice – Pea/ Rice – Chickpea/ Maize – Pea Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218) Mustard : Varuna, Ashirvad, Vardan Pea : HUDP 15, Rachana, HUP-2, HUDP-2</p>	<p>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</p>	<p>Sowing with seed cum ferti drills and re-sowing if no proper germination.</p> <p>Weed management through dry land weeder & also through weedicides. Conservation furrow, interculture, surface water management</p>		
		<p>Sugarcane + Maize/ Sugarcane + Mustard/ Pigeon pea + Ground nut</p>	<p>Sugarcane + Maize Pigeonpea + Groundnut</p>	<p>Sowing should be done on ridges of main as well as intercrops.</p>	

	Lowland	Rice-Pea/ Rice –Barley Rabi Crops Pea: HUDP 15, Rachana, HUP-2, HUDP-2 Barley: K 125, K 141, K 226 & K 560	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	
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Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)					
Delay by 6 weeks 1 st week of August	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice - Barley Maize – Lentil/ Maize - Chickpea Pigeon pea (sole crop) Rabi crops Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan Chickpea: Type 6 & BG 256 Barley:K 125, K 141, K 226 & K 560	Rice is replaced by 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	Sowing on ridges only	

			Pigeonpea: Bahar, Narendra Arahari, Malviya Vakas(MA6) & Malviya Chamtkar (MA13) Pearl millet: : WCC 75, Raj 171, Pusa 23	
Medium land	Rice-Lentil/ Rice-Mustard/ Rice – Pea/ Rice – Chickpea/ Maize – Pea Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218) Mustard :Varuna, Ashirvad, Vardan Pea : HUDP 15, Rachana, HUP-2, HUDP-2	Rice is replaced by Pearl millet: WCC 75, Raj 171, Pusa 23	Sowing with seed cum ferti drills across the slope Weed management through dry land weeder and 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-Pea/ Rice –Barley Rabi Crops Pea: HUDP 15, Rachana, HUP-2, HUDP-2 Barley: K 125, K 141, K 226 & K 560	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi	Transplanting of rice seedlings should be completed up to 10 th of August through community base nursery	

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)					
Delay by 8 weeks 3 rd week of August	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice - Barley Maize – Lentil/ Maize - Chickpea Pigeon pea (sole crop) Rabi crops Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan Chickpea: Type 6 & BG 256 Barley:K 125, K 141, K 226 & K 560	Rice is replaced by 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 Pigeonpea: Bahar, Narendra Arahari, Malviya Vakas(MA6) & Malviya Chamtkar (MA13) Pearl millet: : WCC 75, Raj 171, Pusa 23	Sowing 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/ Rice – Pea/ Rice – Chickpea/ Maize – Pea	Rice is replaced by 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	Breeder seed may be obtained from the University Seed drills under RKVY

		Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218) Mustard :Varuna, Ashirvad, Vardan Pea : HUDP 15, Rachana, HUP-2, HUDP-2		Surface water management	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-Pea/ Rice –Barley Rabi Crops Pea: HUDP 15, Rachana, HUP-2, HUDP-2 Barley: K 125, K 141, K 226 & K 560	MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi	Transplanting of rice seedlings should be completed before 25 th of August through community base nursery	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice - Barley Maize – Lentil/ Maize - Chickpea	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	Use of additional N @10kg/ha Conservation furrow	

		<p>Pigeon pea (sole crop) Rabi crops Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan Chickpea: Type 6 & BG 256 Barley:K 125, K 141, K 226 & K 560</p>	<p>mulch Inter row harrowing</p>		
		Pigeonpea + Groundnut	<p>Earthing up to main crops Thinning to maintain proper distance between the plants Gap filling and re-sowing of crops as per need</p>	<p>Conservation tillage Spray 2% urea as foliar application</p>	
	Medium land	<p>Rice-Lentil/ Rice-Mustard/ Rice – Pea/ Rice – Chickpea/ Maize – Pea Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218) Mustard :Varuna, Ashirvad, Vardan Pea : HUDP 15, Rachana, HUP-2, HUDP-2</p>	<p>Gap filling or re-sowing of crops if needed. Use of drought resistant/tolerant rice varieties. Re transplanting of rice seedlings from community nursery Use of dust mulch/straw mulch , Inter-row harrowing</p>	<p>Use of additional N @10kg/ha Conservation furrow</p>	
	Lowland	<p>Rice-Pea/ Rice –Barley</p>	<p>Gap filling or re-sowing of crop as per need.</p>	<p>Use of additional N @10kg/ha</p>	

			Use of dust mulch/ straw mulch Re transplanting from community nursery as and when rains received.	Conservation furrow	
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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 measures ^d	Remarks on Implementation ^e
At vegetative stage	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice - Barley Maize – Lentil/ Maize - Chickpea Pigeon pea (sole crop) Genotypes of crops-as given above	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	
		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/ Rice – Pea/ Rice – Chickpea/ Maize – Pea	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	

		Genotypes of crops- as above			
	Lowland	Rice-Pea/ Rice –Barley	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	

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop Management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Mid season drought (long dry spell)					
At flowering/ fruiting stage	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice - Barley Maize – Lentil/ Maize - Chickpea Pigeon pea (sole crop) Genotypes of crops-as given above	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 Pigeon pea crop	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/ Rice-Mustard/ Rice – Pea/ Rice – Chickpea/	Life saving irrigation to rice –one or two depending upon availability	1) Spraying of 2% urea as foliar application.	Farmers may be advised to work in NREGS & CLDP in

		Maize – Pea Genotypes of crops- as above	of water in canal	2) KCl Spray	the spare time
	Lowland	Rice-Pea/ Rice –Barley	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/ Azospirillum Use of Blue Green algae @12.5kg/ha after 3-4 days of transplanting of rice seedlings	

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop Management ^c	Rabi Crop planning ^d	Remarks on Implementation ^e
Terminal drought (Early withdrawal of monsoon)					
	Upland	Rice-Lentil/ Rice – Chickpea/ Rice-Mustard/ Rice - Barley Maize – Lentil/ Maize - Chickpea Pigeonpea (sole crop) Genotypes of crops-as given above	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	1) Spraying of 2% urea as foliar	Farmers may be advised to work in

			2) Life saving irrigation, if possible to Pigeonpea 3) Harvesting of pearl millet for fodder Purposes if inter cropped at the place of ground nut	application. 2) KCl Spray	NREGS & CLDP in the spare time
	Medium land	Rice-Lentil/ Rice-Mustard/ Rice – Pea/ Rice – Chickpea/ Maize – Pea Genotypes of crops- as above	Life saving irrigation 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.	
	Lowland	Rice-Pea/ Rice –Barley	Life saving irrigation Dust/ straw mulch Inter row harrowing Defoliate older leaves Harvesting at physiological maturity.	Use of Azotobacter/ Azospirillum 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	Major Farming situation ^f	Normal Crop/cropping system ^g	Suggested Contingency measures		
			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 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	Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY

Condition	Major Farming situation ^f	Normal Crop/cropping system ^g	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
		Rice-Wheat-Sugarcane (2 years) Rice-Maize (Rabi)/ Green gram 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-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 sadabahr, Kufri sindhuri, Kufri jyoti		& sub-surface irrigation.	and supply of seeds NFSM
	Lowland	Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-potato/ Rice-wheat-sugarcane/ (2 years) Rice-Maize (Rabi)/Green	Rice varieties: Swarna, Cross-116, MTU-7029, BPT-5204	Transplanting of rice seedlings 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

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
		gram Genotypes of crops- as above			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 to be grown under aerobic condition.	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	Medium land	Rice-Wheat/	Early maturing, semi dwarf	Direct sowing in lines	Breeder seed may be

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
water in canals under delayed onset of monsoon in catchment		Rice-Pea/ Rice-Mustard/ Maize-potato/ Rice-wheat-sugarcane/ (2 years) Rice-Maize (Rabi)/Green gram Genotypes of crops- as above	and HYV rice: Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant shankar dhan-1	through Seed-cum Ferti drill Use of dust and straw mulch.	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: 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
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 & lowland	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			
	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage ^m	Post harvest ⁿ
Continuous high rainfall in a short span leading to water logging				
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
Groundnut	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 sowing Drain out excess water	Digging of tubers before flowering	Drain out excess water and digging of pre-mature tubers	Shift to safer place
Onion	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
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
Pigeon pea	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
Ground nut	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
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
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
Groundnut	-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
Onion	-do-	-do-	-do-	-do-

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹				
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 cobs	Harvesting at physiological maturity or harvesting of green cobs
Sugarcane	Not experienced	Harvest for fodder purposes	Harvesting at physiological maturity	Harvesting at physiological maturity
Ground nut	Replace with rice	Replace with rice	Replace with rice	Replace with rice
Pea	Not experienced	Not experienced	Not experienced	Not experienced
Horticulture				
Potato	Not experienced	Not experienced	Not experienced	Not experienced
Onion	Not experienced	Not experienced	Not experienced	Not experienced
Continuous submergence for more than 2 days²				
Wheat	Not experienced	Not experienced	Not experienced	Not experienced
Rice	Varieties having submergence resistance should be grown viz. Swarna sub-1, IR-64 sub-1 re transplanting after cessation of flood from community nursery	Varieties having submergence resistance should be grown viz. Swarna 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
Groundnut	Replace with rice	Replace with rice	Replace with rice	Replace with rice
Pea	Not experienced	Not experienced	Not experienced	Not experienced
Horticulture				
Potato	Not experienced	Not experienced	Not experienced	Not experienced
Onion	Not experienced	Not experienced	Not experienced	Not experienced
Sea water intrusion³				

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
Groundnut	Not experienced	Not experienced	Proper irrigation through out stress along with growing heat	Harvesting at physiological maturity

			resistant varieties (stay green colour varieties) Foliar application of 2% urea	
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
Onion	Proper irrigation	Proper irrigation	Proper irrigation	Proper irrigation
Cold wave^a				
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
Groundnut	Not experienced	Not experienced	Not experienced	Not experienced
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

Onion	Not experienced	Not experienced	Not experienced	Not experienced
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
Groundnut	Not experienced	Not experienced	Not experienced	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
Onion	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 feed reserve Bank	Utilizing from feed reserve 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
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	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			