

State: UTTAR PRADESH

Agriculture Contingency Plan for District: GHAZIPUR

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Northern Plain, Hot Subhumid (Dry) Eco-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)	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
		25°35'N	83°34'E	44' 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, P.G. College, Ravindrapuri, Ghazipur		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Agromet Unit, Ghazipur		

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):	927.7	36	3 rd week of June	1 st week of October
	NE Monsoon(Oct-Dec):	0.0	00	-	-
	Winter (Jan- March)	14.0	01	-	-
	Summer (Apr-May)	35.0	03	-	-

	Annual	976.7	40	-	-
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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)	333.214	254.711	0.121	48.667	0.803	3.539	3.382	3.015	15.341	3.635

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000' ha)	Percent (%) of total
	1. Loam	79560.70	
	2. Silt loam/silty clay loam	129174.34	
	3. Clay loam	43485.82	
	4. Sandy loam/Loamy sand	13650.78	
	Others (specify):	35932.23	

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	254.711	161.45 %
	Area sown more than once	157.023	
	Gross cropped area	411.734	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	218.402		
	Gross irrigated area	350.281		
	Rainfed area	36.309		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		50.465	
	Tanks		0.00	
	Open wells		0.00	

Bore wells		Govt.8.695 + Pvt. 159.242 = 167.937	
Lift irrigation schemes			
Micro-irrigation			
Other sources (please specify)		0.00	
Total Irrigated Area		218.402	
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	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
Wheat				168.978	0.680	169.658		169.658	
Rice	149.113	2.541	151.654					151.654	

	Pearl millet	0.00	13.890	13.890					13.890
	Lentil				0.114	10.734	10.848		10.848
	Barley				3.621	3.422	7.043		7.043
	Sugarcane							7.422	7.422

S. No	Horticultural Crops	Total	Irrigated	Rainfed
	- Fruits			
	Mango	22.150		
	Guava	7.230		
	Awala	0.200		
	Other	0.250		
	Horticultural Crops Vegetables			
	Potato	7.854	7.854	0.00
	Tomato	3.500		
	Cucurbits	3.100		
	Cauliflower	2.700		
	Brinjal	2.500		
	Cabbage	1.500		
	Onion	0.865	0.865	0.00

	Medicinal and Aromatic crops	Total (000 ha)	Irrigated (000 ha)	Rainfed (000 ha)
		-	-	-
	Plantation crops	Total	Irrigated	Rainfed
		-	-	-
	Fodder crops	Total	Irrigated	Rainfed
	Fodder	13.636	4.140	9.496
	Total fodder crop area	13.636	4.140	9.496
	Grazing land			
	Sericulture etc			
	Others (specify)			

1.8	Livestock*	Male ('000)	Female ('000)	Male + Female (>3 Yrs) ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	77.934	112.275	130.177	320.386
	Improved cattle				
	Crossbred cattle	0.911	15.607	15.960	32.478
	Non descriptive Buffaloes (local low yielding)	1.610	174.871	169.401	345.882
	Descript Buffaloes	1.610	174.871	169.401	345.882
	Goat				250.194
	Sheep				46.528
	Others (Pig)				15.232
	Commercial dairy farms (Number)				

1.9	Poultry	No. of farms	Total No. of birds ('000)
	Commercial		449.974
	Backyard		19.623

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	
			4(Govt.)+ 798(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)	5.70(Govt.)+598.00(Private)		54.00(Govt.)-Angulikao 3.414(Private)
Others			

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

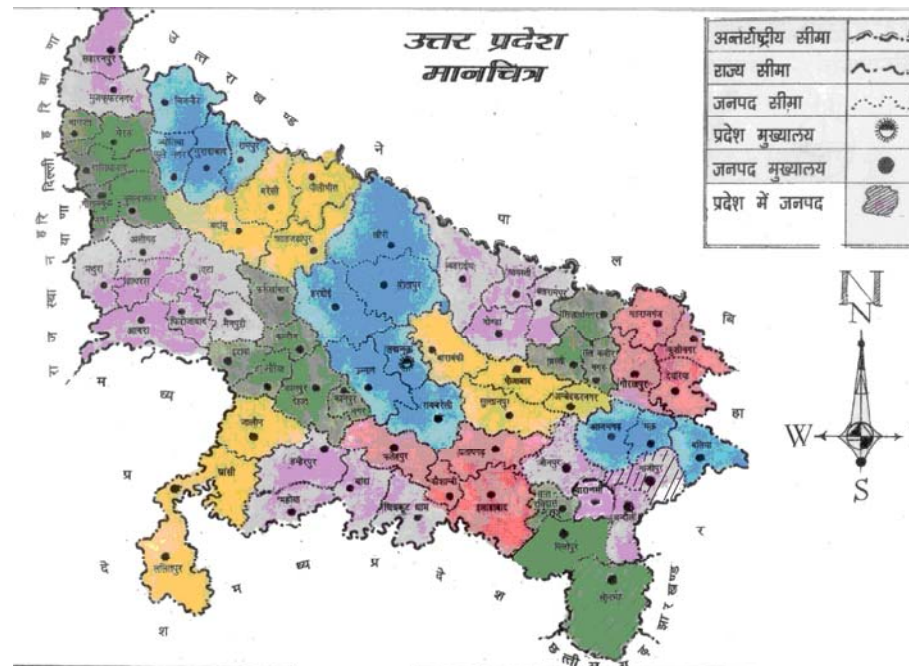
1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Wheat			373.025	2224			373.025	2224	
	Rice	283.102	1853					283.102	1853	
	Pearl millet	176.348	1325					176.348	1325	
	Lentil			130.566	905			130.566	905	
	Barley			11.374	1665			11.374	1665	
	Sugarcane					340.413	45523	340.413	45523	
Major Horticultural crops (Crops to be identified based on total acreage)										
Fruit Crop										
Vegetable Crop	Potato			555.000	20000			555.000	20000	
	Tomato			14.000	40000			14.000	40000	
	Cucurbits					85.000	24000	85.000	24000	
	Cauliflower			73.000	30000			73.000	30000	
	Brinjal			75.000	30000			75.000	30000	
	Cabbage			28.000	18000			28.000	18000	
	Onion					-	-			

1.12	Sowing window for 5 major field crops	Wheat	Rice	Pearl millet	Lentil	Barley	Sugarcane
	Khariif- Rainfed	-	4 th week of June to 1 st week of July	1 st week of August to 3 rd week of August			
	Khariif-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	3 rd week of October to 4 th week of October	-
	Rabi-Irrigated	3 rd week of November to 4 th week of November				1 st week of Nov. to 2 nd week of Nov.	
	Summer irrigated	-	-	-	-		1 st week of March to 4 th week of 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)			

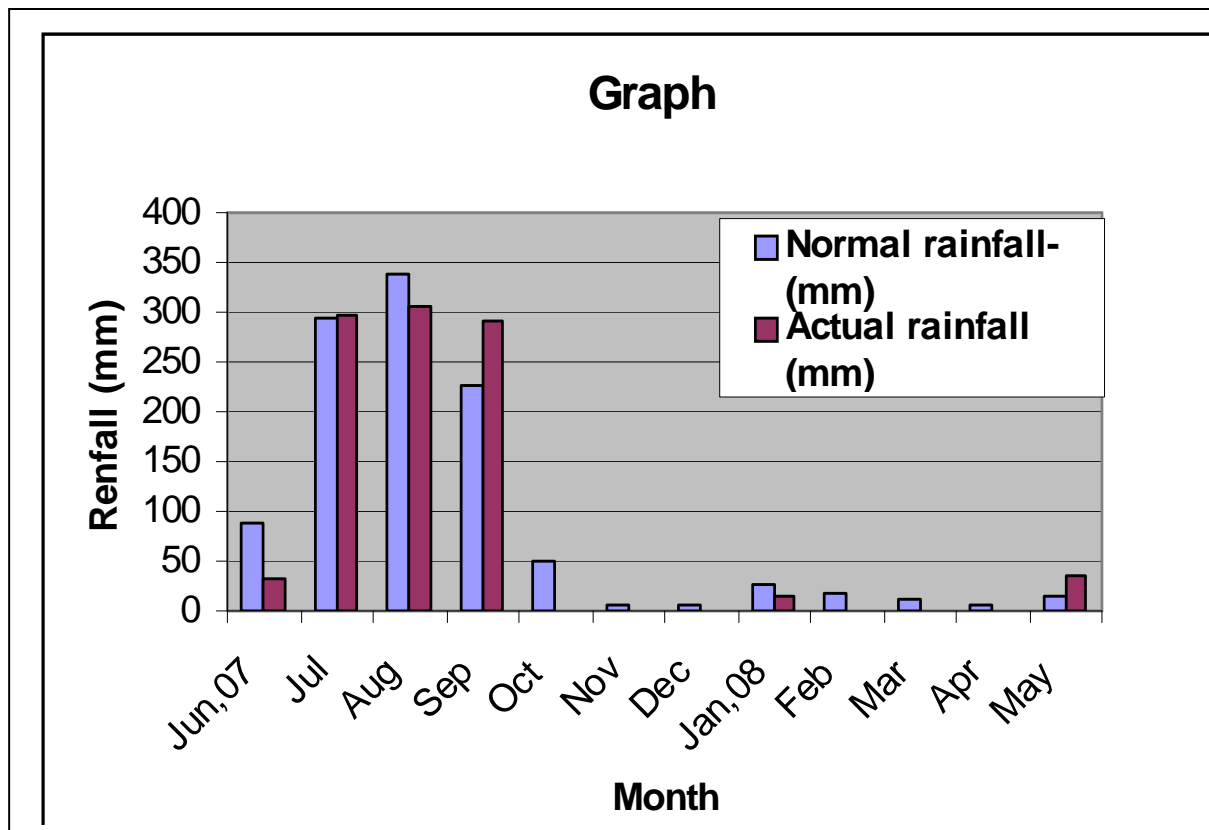
1.14	Include Digital maps of the district for	Location map of district within State as Annexure 1	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure 1



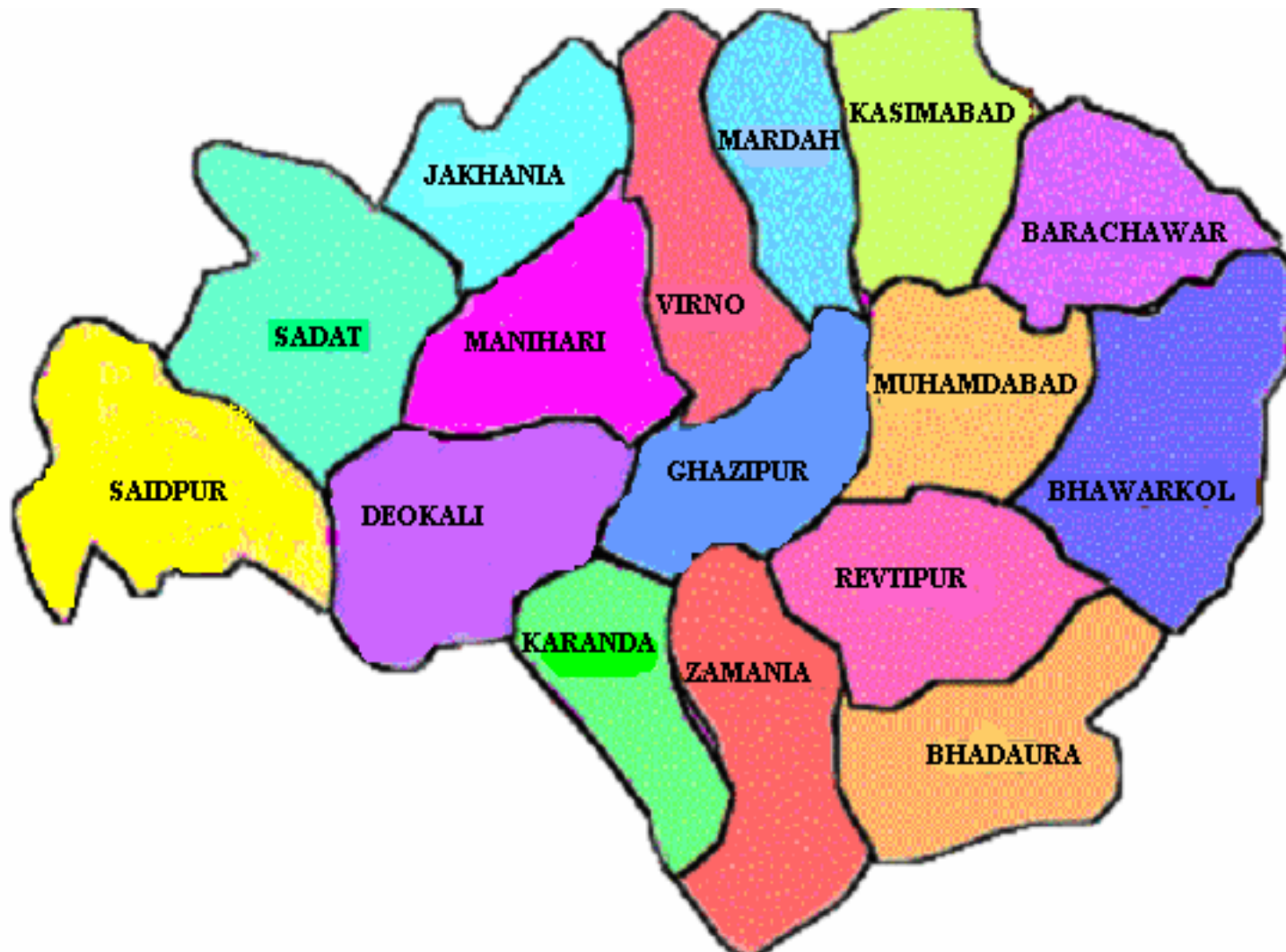
Annexure -2: Mean Annual Rainfall of Ghazipur district

Month	Normal rainfall-(mm)	Actual rainfall (mm)
June ,2007	86.8	33.0
July	293.3	298.0
August	336.9	305.2
September	227.5	291.5
October	49.1	0.0
November	7.2	0.0
December	4.6	0.0
January 08	25.9	14.0
February	18.1	0.0
March	12.5	0.0
April	5.4	0.0
May	14.4	35.0

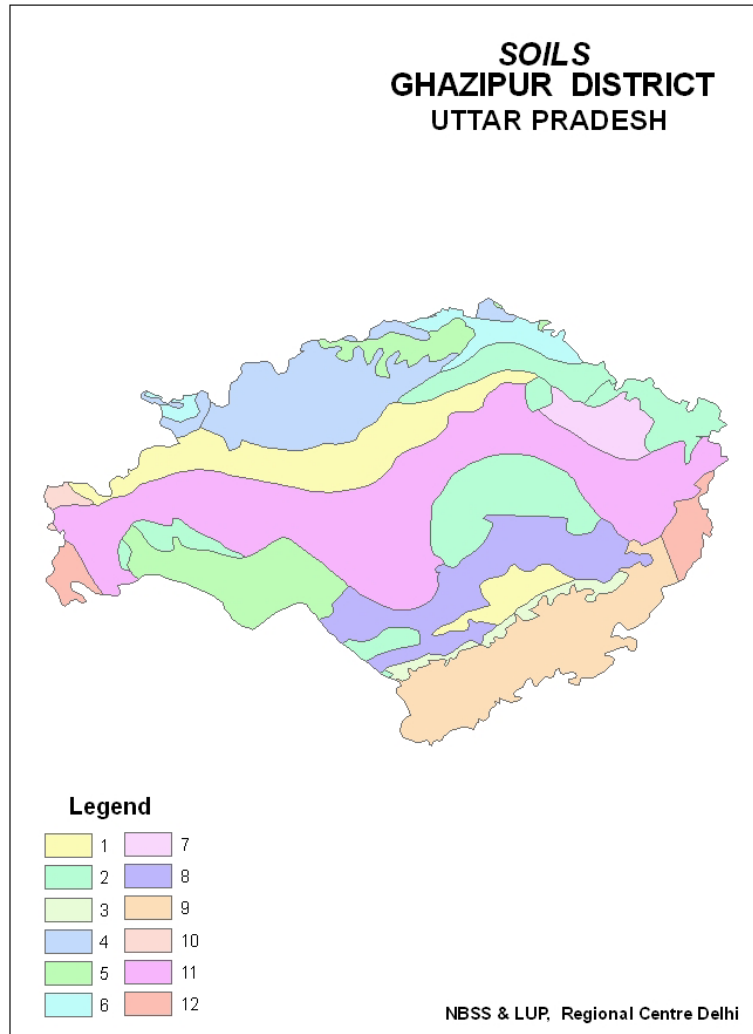


Annexure-III

Annexure-3 : Soil map of the district Gazhipur



**SOILS
GHAZIPUR DISTRICT
UTTAR PRADESH**



Alluvial plain (0-1% slope)

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

Old Alluvial plain with river left out channels/Oxbows/point bars (1-3% slope)

9. Deep, fine soils with moderate water logging associated with fine soils with slight salinity/moderate sodicity

Recent Alluvial Plain (1-3% slope)

10. Deep, loamy soils, slightly eroded associated with silty soils and slightly eroded

Active Flood Plain (1-3% slope)

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

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	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	Entisols (alluvial) with very deep Uplands	Rice-Lentil/ Rice- Chickpea/ Pearl millet-Lentil/ Pearl millet-Chickpea Sorghum-Lentil Sorghum- Chickpea Blackgram-Mustard Blackgram- Barley Rice:-Local, Sathi & Kuwari, Saket-4 Blackgram:- Local and Type-9 Lentil: Local and Rani & Malaviya Vishwanath Chickpea: Local, Type-6 & Awrodhi Mustard- Varuna	Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini, HUR 3022 Blackgram:Type-9, Pant U.-19, Pant U.-30, Pant U.-31, Shekhar-1, Shekhar-2, Shekhar-3 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali Mustard: Varuna, Sanjukta, Ashirvad, Vardan	Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Weed management through dry land weeder & also through weedicides. Interculture. Surface water management	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
		Pigeonpea + Pearl millet/ Pigeon pea+ Sorghum/ Pigeonpea+Blackgram/	Pigeonpea+ Blackgram/ Pigeonpea + Sesame/ Pigeonpea + Rice	Pigeonpea+Black gram/ Pigeon pea + Sesame	Breeder seed may be obtained from the University

		Pigeonpea+Sesame Pigeonpea: Local and Bahar Blackgram :Local and Type-9 Sesame : Local and Type 4	Pigeonpea: Bahar, Narendra Arahar-1 and Malviya Chamatkar(MAL-13) Sesame : Type 4, T-12, T-13, Shekhar, GT1	on Flat beds and Pigeonpea + rice on ridge and furrow system Wider spacing of Pigeonpea 90cm and normal spacing of sesame and black gram i. e. 45 cm and 30 cm, respectively	Seed drills under RKVY Supply of seeds through NFSM
Rainfed medium land	Rice– Lentil/ Rice- Chickpea/ Rice –Wheat/ Rice- Barley Rice:Saket-4, NDR-97, Govind Lentil: Local, Rani and Malaviya vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat:C-306	Early maturing, semi dwarf and HYV rice : Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant shankar dhan-1 Lentil: Malviya Viswanath, PL-406, PL-639 & KLS- 218 Chickpea: Type-6, Awrodhi, BG-256, KWR- 108, KGD-1168) Wheat:C-306, K-9644, K- 9351) Barley:K-125, K-141, K- 560, K-226, K-603 & Gitanjali	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	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM	
Rainfed lowland	Rice– Lentil / Rice –Wheat/ Rice- Chickpea/ Rice- Barley Rice: Mahsoori Lentil: Local, Rani &	Tall rice varieties: Jal Lahari, Cross- 116, Mahsoori, Jal Priya & Jal Nidhi Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218	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	

		Malaviya vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat :C-306	Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Wheat:C-306, K-9644, K-9351 Mustard: Varuna,Sanjukta, Ashirvad,Vardan		Supply of seeds through NFSM
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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 4 weeks 3 rd week of July	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil/ Pearl millet – Chickpea/ Sorghum – Lentil/ Sorghum – Chickpea/ Blackgram-Mustard/ Blackgram- Barley Rice:Local, Sathi & Kuwari, Saket-4 Blackgram: Local and Type-9 Lentil:Local and Rani & Malaviya Vishwanath Chickpea: Type-6 & Awrodhi Mustard: Varuna	Rice: Govind, NDR-97, Narendra-118, Varani deep, Ashwani & Sushk samrat Blackgram in place of rice Pearl millet: Hybrids- Pusa 23, Pusa 322, Composite-Raj 171, ICTP-8203, WCC-75 Sorghum: Hybrids- CSH-9,CHS-13,CHS-14,CHS-16,CHS-18, Composite-Vijeta, CSB-1315,Varsa Blackgram: Type-9, Pant U.-19, Pant U.-30, Pant	Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Weed management through dry land weeder & also through weedicides. Thinning of population in case of blackgram, conservation furrow, inter culture Surface water management	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

			U.-31, Shekhar-1, Shekhar-2, Shekhar-3 Lentil :Malviya Vishwanath, PL406, PL639 & KLS-218 Barley: K-125, K-141, K- 560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR- 108, KGD-1168 Mustard: Varuna, Sanjukta, Ashirvad, Vardan		
		Pigeonpea+ Pearl millet/ Pigeonpea+ Sorghum/ Pigeon pea+Blackgram/ Pigeonpea+Sesame/ Pigeonpea+ Rice Rice:Local, Sathi & Kuwari, Saket-4 Blackgram: Local and Type-9) Sesame : Local and Type 4	Pigeonpea+ Pearl millet, Pigeonpea+ Sorghum, Pigeonpea+Blackgram, Pigeonpea + Sesame, and Pigeonpea +rice with improved varieties under upland conditions only	Sowing of Pigeonpea +Pearl millet, Pigeonpea+ Sorghum, Pigeonpea+Blackgram, Pigeonpea + Sesame, on ridges and Pigeon pea + Rice on ridge and furrow system Wider spacing of Pigeon pea 90cm and normal spacing of sesame, black gram i. e. 45 cm and 30 cm respectively and for pearl millet and sorghum 45 cm.	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
	Rainfed medium land	Rice– Lentil/ Rice- Chickpea/	Early maturing, semi dwarf and HYV rice: Saket-4, NDR97, NDR	Sowing with seed cum ferti drills and re- sowing if no proper	Breeder seed may be obtained from the University

		<p>Rice –Wheat/ Rice- Barley Rice:Saket-4,NDR-97, Govind Lentil: Local, Rani and Malaviya vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat: C-306</p>	<p>118, Govind, Ashwini, Pant shankar dhan-1 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6, Awrodhi, BG-256, KWR- 108, KGD-1168 Wheat: C-306, K-9644, K- 9351 Barley: K-125, K-141, K- 560, K-226, K-603 & Gitanjali</p>	<p>germination. Weed management through dry land weeder & also through weedicides. Thinning of population in case of blackgram, conservation furrow, inter culture Surface water management</p>	<p>Seed drills under RKVY Supply of seeds through NFSM</p>
	Rainfed lowland	<p>Rice– Lentil/ Rice –Wheat/ Rice- Chickpea/ Rice- Barley Rice: Mahsoori Lentil: Local, Rani and Malaviya-vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat:C-306 Barley: Local</p>	<p>Tall rice varieties: Jal Lahri, Cross- 116, Mahsoori, Jal Priya & Jal Nidhi ,NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 Barley: K-125, K-141, K- 560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR- 108, KGD-1168 Wheat : C-306, K-9644, K-9351) Mustard: Varuna, Sanjukta, Ashirvad, Vardan</p>	<p>Transplanting of rice seed lings should be started with the onset of the monsoon through community base nursery</p>	<p>Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM</p>

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
<p>Early season drought (delayed onset)</p>					
<p>Delay by 6 weeks</p> <p>1st week of August</p>	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil/ Pearl millet - Chickpea/ Sorghum – Lentil/ Sorghum – Chickpea/ Blackgram-Mustard/ Blackgram- Barley Rice: Local, Sathi & Kuwari, Saket-4 Blackgram:Local and Type-9 Lentil: Local and Rani & Malaviya Vishwanath Barley: Local Chickpea: Type-6 & Awrodhi Mustard: Varuna	Replace rice with black gram, pearl millet and sorghum under upland condition only Pearl millet: Hybrids- Pusa 23, Pusa 322, Composite- Raj 171, ICTP-8203, WCC-75 Sorghum : Hybrids- CSH-9,CHS-13,CHS-14,CHS-16,CHS-18, Composite-Vijeta, CSB-1315,Varsa Blackgram:Type-9, Pant U.-19, Pant U.-30, Pant U.-31, Shekhar-1, Shekhar-2, Shekhar-3 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Mustard:Varuna,Sanjukta, Ashirvad,Vardan	Sowing with seed cum ferti drills across the slope Weed management through dry land weeder & thinning of population in case of pearl millet and black gram, conservation furrow, interculture. Surface water management	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM

		<p>Pigeonpea+ Pearl millet/ Pigeonpea+ Sorghum/ Pigeonpea+Blackgram/ Pigeonpea+Sesame Pigeonpea: Bahar and local Blackgram: Local and Type-9</p>	<p>Pigeonpea+ Pearl millet/ Pigeonpea+ Sorghum/ Pigeonpea+ Blackgram</p>	<p>Sowing of Pigeonpea +Pearl millet, Pigeonpea+ Sorghum, Pigeonpea+ Blackgram in flat beds as well as on ridges. Wider spacing of Pigeonpea 90cm and normal spacing of blackgram i. e. 30 cm and 45 cm for pearl millet and sorghum (2-3 dose)</p>	<p>Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM</p>
	Rainfed medium land	<p>Rice– Lentil/ Rice- Chickpea/ Rice –Wheat/ Rice- Barley Rice:Saket-4, NDR-97, Govind Lentil: Local Chickpea: Type-6 and Awrodhi Wheat: C-306 Barley: Local</p>	<p>Replace rice with black gram and pearl millet and sorghum under upland condition only Pearl millet:Hybrids- Pusa 23, Pusa 322, Composite- Raj 171, ICTP-8203, WCC-75 Sorghum: Hybrids- CSH-9,CHS-13,CHS-14,CHS-16,CHS-18, Composite-Vijeta, CSB-1315,Varsha Blackgram: Type-9, Pant U.-19, Pant U.-30, Pant U.-31, Shekhar-1, Shekhar-2, Shekhar-3 Lentil :Malviya Vishwanath, PL406, PL639 & KLS-218</p>	<p>Sowing with seed cum ferti drills across the slope Weed management through dry land weeder & thinning of population in case of pearl millet, sorghum and black gram, conservation furrow, interculture. Surface water management</p>	<p>Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM</p>

			<p>Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali</p> <p>Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168</p> <p>Wheat:C-306, K-9644, K-9351</p> <p>Mustard: Varuna, Sanjukta, Ashirvad, Vardan</p>		
	Rainfed lowland	<p>Rice– Lentil/ Rice –Wheat/ Rice- Chickpea/ Rice- Barley Rice : Mahsoori Lentil: Local, Rani and Malaviya-vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat:C-306</p>	<p>Tall rice varieties: Jal Lahri, Cross- 116, Mahsoori, Jal Priya & Jal Nidhi Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Wheat:C-306, K-9644, K-9351 Mustard: Varuna, Sanjukta, Ashirvad, Vardan</p>	<p>Transplanting of rice seedlings should be completed up to 10th of August through community base nursery</p>	<p>Breeder seed may be obtained from the University</p> <p>Seed drills under RKVY</p> <p>Supply of seeds through NFSM</p>

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	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil/ Pearl millet - Chickpea/ Sorghum - Lentil Sorghum – Chickpea/ Blackgram-Mustard Blackgram- Barley Rice :Local, Sathi & Kuwari, Saket-4 Blackgram:Local &Type-9 Lentil:Local, Rani & Malaviya -vishwanath Chickpea:Local, Type-6 & Awrodhi Mustard: Varuna	Sowing of pearl millet for grain and sorghum for fodder purposes under upland condition Only Pearl millet : Hybrids- Pusa 23, Pusa 322, Composite-Raj 171, ICTP-8203, WCC-75 Sorghum : Hybrids- CSH-9,CHS-13,CHS-14,CHS-16,CHS-18, Composite-Vijeta, CSB-1315,Varsa Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Mustard: Varuna,Sanjukta, Ashirvad,Vardan	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
		Pigeonpea+ Pearl millet/ Pigeonpea+ Sorghum Pigeonpea: Local &Bahar	Pigeonpea + Pearl millet/ Pigeonpea + Sorghum Pigeonpea: Bahar, Narendra Arahara-1 and Malviya	Sowing of pigeonpea + pearl millet on ridges. Wider spacing of Pigeonpea 90cm and Pearl millet at 45 cm	Breeder seed may be obtained from the University Seed drills under RKVY

			<p>Chamatkar(MAL-13)</p> <p>Pearl millet:Hybrids- Pusa 23, Pusa 322, Composite-Raj 171, ICTP-8203, WCC-75</p> <p>Sorghum:Hybrids- CSH-9,CHS-13,CHS-14,CHS-16,CHS-18, Composite-Vijeta, CSB-1315,Varsa</p>		Supply of seeds through NFSM
	Rainfed medium land	<p>Rice– Lentil/ Rice- Chickpea/ Rice –Wheat/ Rice- Barley Rice: Saket-4, NDR-97, Govind Lentil: Local, Rani and Malaviya-vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat:C-306</p>	<p>Pearl millet/ Sorghum(fodder) under upland condition only</p> <p>Pearl millet:Hybrids- Pusa 23, Pusa 322, Composite-Raj 171, ICTP-8203, WCC-75</p> <p>Sorghum: Hybrids- CSH-9,CHS-13,CHS-14,CHS-16,CHS-18, Composite-Vijeta, CSB-1315,Varsa</p> <p>Lentil :Malviya Vishwanath, PL406, PL639 & KLS-218</p> <p>Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168</p> <p>Wheat: C-306, K-9644, K-9351</p> <p>Barley: K-125, K-141, K-560, K-226, K-603 & Gitanjali</p>	<p>Weed management through dryland weeder & thinning of population in case of pearl millet grown for grain purpose only</p> <p>Surface water management</p>	<p>Breeder seed may be obtained from the University</p> <p>Seed drills under RKVY</p> <p>Supply of seeds through NFSM</p>

	Rainfed lowland	Rice– Lentil/ Rice –Wheat Rice- Chickpea/ Rice- Barley Rice: Mahsoori Lentil: Local, Rani and Malaviya-Vishwanath Chickpea: Local, Type-6 and Awrodhi Wheat:C-306	Tall rice varieties: Jal Lahri, Cross- 116, Mahsoori, Jal Priya & Jal Nidhi Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 Barley: K-125, K-141, K- 560, K-226, K-603 & Gitanjali Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD- 1168 Wheat: C-306, K-9644, K- 9351) Mustard: Varuna, Sanjukta, Ashirvad, Vardan	Transplanting of rice seed lings should be completed before 25 th of August through community best nursery	Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM
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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.	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil/ Pearl millet - Chickpea/ Sorghum – Lentil/ Sorghum – Chickpea/ Blackgram-Mustard/ Blackgram- Barley Varieties of the crops as above	Use of drought tolerant variety (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+ Pearl millet Pigeonpea+ Sorghum	Earthing to main crops Thinning to maintain	Conservation tillage Spray of 2% urea as	

		Pigeonpea+ Blackgram Pigeonpea+ Sesame Varieties of the crops as above	proper distance between the plants Gap filling and re-sowing of crops as per need	foliar application	
	Rainfed medium land	Rice– Lentil/ Rice- Chickpea/ Rice –Wheat/ Rice- Barley Varieties of the crops as above	Gap filling or re-sowing of crops if needed. Transplanting of rice seedlings from community nursery Use of dust mulch/straw mulch , Inter-row harrowing	Use of additional N @10kg/ha Conservation furrow	
	Rainfed lowland	Rice– Lentil/ Rice –Wheat/ Rice- Chickpea/ Rice- Barley Varieties of the crops as above	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	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, consecutive 2 weeks rainless (>2.5 mm) period)					
At vegetative stage	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil/ Pearl millet - Chickpea/ Sorghum – Lentil/ Sorghum – Chickpea/ Blackgram-Mustard/ Blackgram- Barley Varieties of the crops as above	Life saving irrigation, if possible Dust/ straw mulch Thinning Interrow tilthing	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	
		Pigeonpea+ Pearl millet Pigeonpea+ Sorghum Pigeonpea+Blackgram Pigeonpea+Sesame Varieties of the crops as above	Earthing to intercrops Thinning to maintain proper distance between the plants	Conservation tillage Spray of 2% urea as foliar application	
	Rainfed medium land	Rice– Lentil/ Rice- Chickpea/ Rice –Wheat/ Rice- Barley Varieties of the crops as above	Life saving irrigation if possible Dust/ straw mulch Thinning Interrow tilthing	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	
	Rainfed lowland	Rice– Lentil/ Rice –Wheat/ Rice- Chickpea/ Rice- Barley Varieties of the crops as	Life saving irrigation possible if Dust/ straw mulch Thinning Interrow tilthing	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	

		above		
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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	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil Pearl millet - Chickpea/ Sorghum - Lentil Sorghum – Chickpea/ Blackgram-Mustard/ Blackgram- Barley Varieties of the crops as above	Life saving irrigation if possible	1) Spraying 2% urea as foliar application. 2) KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time
		Pigeonpea+ Pearl millet/ Pigeonpea+ Sorghum/ Pigeonpea+Blackgram/ Pigeonpea+Sesame Varieties of the crops as above	Harvest Pearl millet and Sorghum for fodder purposes Harvest Blackgram after first picking If there is no winter rain, give light irrigation to Pigeonpea crop	1) Spraying of 2% urea as foliar application. 2) KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time
	Rainfed medium land	Rice– Lentil/ Rice- Rice –Wheat Rice- Barley Varieties of the crops as	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

		above			
	Rainfed lowland	Rice- Lentil/ Rice -wheat/ Rice- Chickpea/ Rice- Barley Varieties of the crops as above	Life saving irrigation, if possible Dust/ straw mulch Thinning Interrow tilthing	Use of additional N @10kg/ha Spray of 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)					
	Entisols (alluvial) with very deep Upland	Rice-Lentil/ Rice- Chickpea/ Pearl millet – Lentil/ Pearl millet - Chickpea/ Sorghum - Lentil Sorghum – Chickpea/ Black gram-Mustard Black gram- Barley Varieties of the crops as above	Dust/ straw mulch Interrow tilthing Defoliate older leaves Harvesting at physiological maturity.	Toria/Agati mustard may be sown during last week of September to middle of October.	
		Pigeon pea+ pearl millet Pigen pea+ sorghum Pigen pea+black gram Pigeonpea+Sesame	1) Harvesting of Pearl millet Sorghum and Blackgram at physiological maturity 2) Life saving irrigation, if possible to Pigeonpea	1) Spraying of 2% urea as foliar application. 2) KCl Spray	Farmers may be advised to work in NREGS & CLDP in the spare time

		Varieties of the crops as above above	3) Harvesting of pearl millet for fodder purposes		
	Rain fed medium land	<u>Sequence of cropping</u> Rice– Lentil Rice- Gram Rice –Wheat Rice- Barley	Dust/ straw mulch Interrow tilthing Defoliate older leaves Harvesting at physiological maturity.	Toria/Agati mustard may be sown during last week of September to middle of October.	
	Rainfed lowland	Rice– Lentil/ Rice –Wheat/ Rice- Chickpea/ Rice- Barley	Dust/ straw mulch Interrow tilthing 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	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	Entisols (alluvial) with very deep medium land	Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard Rice: Ratna, IR-50, NDR-80,	Short duration rice: 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

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
		<p>NDR-118, NDR-97, Pant dhan-12, HUR-105, Suraju-52, Sita, Pant dhan-4 & NDR-359</p> <p>Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107</p> <p>Pea: Rachna, HUDP-15, DDR-23, KPMR-144-1</p> <p>Lentil :Malviya Vishwanath, PL406, PL639 & KLS-218)</p> <p>Chickpea:Type-6, Awrodhi, BG-256, KWR-108, KGD-1168</p> <p>Mustard:Varuna, Sanjukta, Ashirvad,Vardan</p>			
	Entisols (alluvial) with very deep Low land	<p>Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard Rice:Type-23, Mahsoori, Swarna and Type-3 Wheat:HUW-468, HD-2824, UP-2338, K-307, K-9107 Pea:Rachna, HUDP-15, DDR-23, KPMR-144-1 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6,</p>	Tall rice varieties Type-23, Mahsoori, Swarna and Type-3 may be transplanted with the onset of first shower in the area where natural water logging is expected up to 1m in depth.	Transplanting of rice seed lings should be completed before 15 th of July through community base nursery	<p>Breeder seed may be obtained from the University</p> <p>Seed drills under RKVY</p> <p>Supply of seeds through NFSM</p>

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
		Awrodhi, BG-256, KWR-108, KGD-1168 Mustard: Varuna, Sanjukta, Ashirvad, Vardan)			
Limited release of water in canals due to low rainfall	Entisols (alluvial) with very deep Low land	Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard Rice: Ratna, IR-50, NDR-80, NDR-118, NDR-97, Pant dhan-12, HUR-105, Suraju-52, Sita, Pant dhan-4 & NDR-359 Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107 Pea: Rachna, HUDP-15, DDR-23, KPMR-144-1 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Mustard: Varuna, Sanjukta, Ashirvad, Vardan	In place of irrigated varieties, short duration rice varieties NDR-118, NDR-97, Pant dhan-12, HUR-105, Vandana, Sushk samrat, Ashwini to be grown under aerobic condition. During rabi season, varieties may be selected depending upon the water availability in the canals.	Community nursery, Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	Breeder's seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM
	Entisols (alluvial) with very deep Low land	Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/	Tall rice varieties: Type-3, 23, Mahsoori, Swarna	Transplanting of rice seed lings should be completed before 15 th of July through	Breeder seed may be obtained from the University

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
		Rice- Mustard Rice: Type-23, Mahsoori, Swarna and Type-3 Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107 Pea: Rachna, HUDP-15, DDR-23, KPMR-144-1 Lentil : Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Mustard: Varuna, Sanjukta, Ashirvad, Vardan		community base nursery	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	Entisols (alluvial) with very deep Low land	Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard Rice: Ratna, IR-50, NDR-80, NDR-118, NDR-97, Pant dhan-12, HUR-105, Suraju-52, Sita, Pant dhan-4 & NDR-359	Early maturing, semi dwarf and HYV rice: Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant Shankar Dhan-1. Shift to black gram, pearl millet, sorghum and sesame.	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

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
		<p>Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107</p> <p>Pea :Rachna, HUDP-15, DDR-23, KPMR-144-1</p> <p>Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218</p> <p>Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168</p> <p>Mustard :Varuna,Sanjukta, Ashirvad,Vardan</p>			
	Entisols (alluvial) with very deep Low land	<p>Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard</p> <p>Rice: Ratna, IR-50, NDR-80, NDR-118, NDR-97, Pant dhan-12, HUR-105</p> <p>Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107</p> <p>Pea: Rachna, HUDP-15, DDR-23, KPMR-144-1</p> <p>Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218</p> <p>Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168</p>	Direct sowing of tall rice varieties such as Type-23, Mahsoori, Swarna and Type-3 with the onset of monsoon.	After heavy rainfall transplanting may be done with seedlings from community nursery.	<p>Breeder seed may be obtained from the University</p> <p>Seed drills under RKVY</p> <p>Supply of seeds through NFSM</p>

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
		Mustard: Varuna, Sanjukta, Ashirvad, Vardan			

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	Entisols (alluvial) with very deep Low land	Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard Rice: Ratna, IR-50, NDR-80, NDR-118, NDR-97, Pant dhan-12, HUR-105, Suraju-52, Sita, Pant dhan-4 & NDR-359 Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107 Pea: Rachna, HUDP-15, DDR-23, KPMR-144-1 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Mustard: Varuna, Sanjukta, Ashirvad, Vardan	Grow fodder crops such as Sorghum and pearl millet Grow pearl millet for grain purpose.	Conservation tillage.	Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM

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
Insufficient groundwater recharge due to low rainfall	Entisols (alluvial) with very deep Low land	Rice-Wheat/ Rice-Pea/ Rice-Lentil/ Rice- Chickpea/ Rice- Mustard Rice: Ratna, IR-50, NDR-80, NDR-118, NDR-97, Pant dhan-12, HUR-105, Suraju-52, Sita, Pant dhan-4 & NDR-359 Wheat: HUW-468, HD-2824, UP-2338, K-307, K-9107 Pea: Rachna, HUDP-15, DDR-23, KPMR-144-1 Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Chickpea: Type-6, Awrodhi, BG-256, KWR-108, KGD-1168 Mustard: Varuna, Sanjukta, Ashirvad, Vardan	Shift to pulses (black gram), oilseeds (Sesame, Soybean) Blackgram: Type-9, Pant U.-19, Pant U.-30, Pant U.-31, Shekhar-1, Shekhar-2, Shekhar-3 Sesame: Type-4, Type-12, Type-13, Shekhar, GT-1	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
		Pigeon pea + Pearl millet Pigeon pea + Sesame	Pigeon pea + Pearl millet Pigeon pea + Sesame	Conservation tillage – ridge furrows. Use of mulches (straw & dust both).	As above

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	Proper bunding	Proper bunding drain out excess water	Harvesting at physiological maturity	Shift to safer place
Pearl millet	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Lentil	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Barley	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Horticulture				
Potato	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	Shift to safer place
Tomato	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	Shift to safer place
Cucurbits	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges, stacking of plants (Follow Bower system)	Drain out excess water Sow on ridges, stacking of plants (Follow Bower system)	Shift to safer place
Cauliflower	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	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
Pearl millet	Drain out excess water, do earthing up	Drain out excess water If damaged, harvest for fodder purpose	Drain out excess water harvest at physiological maturity	Keep the grains at safer place
Lentil	Drain out excess water	Drain out excess water	Drain out excess water. Harvesting at physiological maturity	Keep the grains at safer place
Barley	Drain out excess water	Drain out excess water	Drain out excess water. Harvesting at physiological maturity	Keep the grains at safer place
Horticulture				
Potato	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
Tomato	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
Cucurbits	Drain out excess water	Drain out excess water protect with vegetable barriers, do stacking (Follow Bower system)	Drain out excess water protected with vegetable barriers, do stacking (Follow Bower system)	Shift to safer place
Cauliflower	Drain out excess water Sow on ridges	Drain out excess water Sow on ridges	Drain out excess water, harvesting within events	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
Pearl millet	-do	-do	-do	-do
Lentil	-do	-do	-do	-do
Barley	-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
Tomato	-do-	-do-	-do-	-do-
Round gourd	-do-	-do-	-do-	-do-
Cauliflower	-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 inundation ¹				
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

Pearl millet	Harvest for fodder purposes	Harvest for fodder purposes	Harvesting at physiological maturity or harvest for fodder purposes.	Harvesting at physiological maturity
Lentil	Not experienced	Not experienced	Not experienced	Not experienced
Barley	Not experienced	Not experienced	Not experienced	Not experienced
Horticulture				
Potato	Not experienced	Not experienced	Not experienced	Not experienced
Tomato	Not experienced	Not experienced	Not experienced	Not experienced
Cucurbits	Resowing	Resowing	-	Drain excess water plucking of fruits during the events
Cauliflower	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 <i>viz.</i> Swarana sub-1, IR-64 sub-1 re transplanting after cessation of flood from community nursery	Varieties having submergence resistance should be grown <i>viz.</i> 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

Pearl millet	Replace Pearl millet with submerged rice varieties.	Replace Pearl millet with submerged rice varieties.	Replace Pearl millet with submerged rice varieties.	Replace Pearl millet with submerged rice varieties.
Lentil	Not experienced	Not experienced	Not experienced	Not experienced
Barley	Not experienced	Not experienced	Not experienced	Not experienced
Horticulture				
Potato	Not experienced	Not experienced	Not experienced	Not experienced
Tomato	Not experienced	Not experienced	Not experienced	Not experienced
Cucurbits	Drain excess water	Drain excess water and prior sowing on ridges, staking.	Drain excess water and prior sowing on ridges, staking.	Drain excess water plucking of fruits during the events
Cauliflower	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	Not experienced	Not experienced

		throughout stress period along with growing heat resistant varieties Foliar application of 2% urea		
Pearl millet	Proper irrigation	Conservation tillage - ridges & furrows	Proper irrigation	Harvesting at physiological maturity
Lentil	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
Barley	Not experienced	Proper irrigation	Not experienced	Harvesting at physiological maturity
Horticulture				
Potato	Not experienced	Not experienced	Proper irrigation	Proper irrigation
Tomato	Not experienced	Proper irrigation	Proper irrigation	Proper irrigation
Cucurbits	Not experienced	Proper irrigation	Proper irrigation	Proper irrigation
Cauliflower	Not experienced	Not experienced	Not experienced	Not experienced
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
Pearl millet	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at physiological maturity
Lentil	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at physiological maturity
Barley	Not experienced	Not experienced	Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties	Harvesting at physiological maturity
Horticulture				
Potato	Not experienced	Proper irrigation through out stress along with growing cold tolerant varieties	Proper irrigation through out stress along with growing cold tolerant varieties	Digging of tubers at pre mature stage
Tomato	Proper irrigation through out stress along with growing cold tolerant varieties	Proper irrigation through out stress along with growing cold tolerant varieties	Proper irrigation through out stress along with growing cold tolerant varieties	Proper irrigation through out stress along with growing cold tolerant varieties
Cucurbits	Not experienced	Not experienced	Not experienced	Not experienced
Cauliflower	Proper irrigation through out stress along with growing cold tolerant varieties	Proper irrigation through out stress along with growing cold tolerant varieties	Keep the surroundings warm(burning the waste materials) & growing cold tolerant varieties	Harvest the crop 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
Pearl millet	Not experienced	Not experienced	Not experienced	Not experienced
Lentil	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
Barley	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
Horticulture				
Potato	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	Digging of tubers at pre mature stage

Tomato	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
Cucurbits	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
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	Pre-mature harvest
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	<p>Insurance</p> <p>Encourage perennial fodder on bunds and waste land on community basis</p> <p>Establishing fodder banks, encouraging fodder crops in irrigated area</p> <p>Silage – using excess fodder for silage</p>	<p>Utilizing fodder from perennial trees and Fodder bank reserves.</p> <p>Utilizing fodder stored in silage.</p> <p>Transporting excess fodder from adjoining districts</p> <p>Use of feed mixtures.</p> <p>Allow the cattle's for grazing at barren lands.</p>	Availing Insurance
Drinking water	<p>Preserving water in the tank for drinking purpose</p> <p>Excavation of Bore wells</p>	<p>Using preserved water in the tanks for drinking.</p> <p>Wherever ground water resources are available priority for drinking purpose.</p>	
Health and disease management	Veterinary preparedness with medicines and vaccines	<p>Conducting mass animal Health Camps and treating the affected once in Campaign</p>	
Floods			
Feed and fodder availability	Grow the fodder crops at safer places (non- flood prone area)	<p>Utilizing fodder from perennial trees and Fodder bank reserves.</p> <p>Utilizing fodder stored in silage.</p> <p>Transporting excess fodder from adjoining</p>	Availing insurance

		districts Use of feed mixtures. Shift the live stocks at safer place.	
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				

^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			
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			