

State: UTTAR PRADESH

Agriculture Contingency Plan for District: MIRZAPUR

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Moderately to Gently Sloping Chattisgarh Mahanadi Basin, Hot Moist/Dry Sub humid Transitional ESR With Deep Loamy to Clayey Red And Yellow Soils (11.0)		
	Agro-Climatic Zone (Planning Commission)	Middle Gangetic Plain Region (IV)		
	Agro Climatic Zone (NARP)	Vidhyan Zone (UP-10)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Allahabad, Ballia , Chandauli, Ghazipur, Jaunpur , Mirzapur , Sant Ravidas Nagar , Sonbhadra , Varanasi		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		25°18' N	88° 18' E	128.93 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	KVK Located at R.G.S.C. Barkachha, Mirzapur		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	-		

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset	Normal Cessation
	SW monsoon (June-Sep)	944.9	38	3 rd week of June	1 st week of October
	NE Monsoon(Oct-Dec)	59.1	2		
	Winter (Jan- March)	60.4	4	-	-
	Summer (Apr-May)	16.7	2	-	-
	Annual	1081.1	46	-	-

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) (2007-08)	452.508	191.383	109.236	48.970	0.514	13.855	29.655	9.178	39.669	10.048

1.4	Major Soils	Area ('000 ha)	Percent (%) of total
	Black soils	137.259	30.5
	Sandy Loam soils	187.576	41.7
	Red Lateritic Soils	124.918	27.8

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	191.383	142.6
	Area sown more than once	81.442	
	Gross cropped area	272.825	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	120.491		
	Gross irrigated area	162.151		
	Rainfed area	70.892		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		73.310	60.85
	Tanks	-	7.607	6.32
	Open wells	-	11.831	9.82
	Bore wells	-	24.945	20.71
	Lift irrigation schemes	-		
	Micro-irrigation			

	Other sources	-	2.798	2.33
	Total Irrigated Area		120.491	
	Pump sets	-		
	No. of Tractors	-		
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils (12 Blocks)	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	-		-
	Critical	-		-
	Semi- critical	1/12 (Rajgarh)		-
	Safe	11 /12		-
	Wastewater availability and use	1032 MCM/YR		-
	Ground water quality	Safe		Safe
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture (as per latest figures-Year: 2007-08)

1.7	Major field crops cultivated	Area ('000 ha)							Grand total
		<i>Kharif</i>			<i>Rabi</i>			Summer	
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
	Rice	77.053	20.045	97.098	-	-	-	-	97.098
	Pigeonpea	-	13.029	13.029	-	-	-	-	13.029
	Pearl millet	-	9.207	9.207	-	-	-	-	9.207
	Wheat	-	-	-	76.898	18.074	94.972	-	94.972
	Chickpea	-	-	-	0.173	14.050	14.223	-	14.223

	Horticulture crops – Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed

	Horticulture crops - Vegetables	Total	Irrigated	Rainfed
	Potato	1.981	1.969	0.012
	Onion	0.284	0.281	0.003
	Other Vegetables	4.616	3.498	1.118
	Medicinal and Aromatic crops	Total	Irrigated	Rainfed
	Plantation crops	Total	Irrigated	Rainfed
	Total fodder crop	2.562	0.638	1.924
	Grazing land	-	-	-
	Sericulture etc	-	-	-

1.8	Livestock (Year 2003)	Male ('000)	Female ('000)	M+F Bellow three years	Total ('000)
	Non descriptive Cattle (local low yielding)	95.599	147.369	179.190	422.158
	Improved cattle	-	-	-	-
	Crossbred cattle	2.309	14.845	15.408	32.562
	Non descriptive Buffaloes (local low yielding)	2.030	97.997	95.099	195.126
	Descript Buffaloes	-	-	-	-
	Goat	-	-	-	145.181
	Sheep	-	-	-	83.329
	Camel, Pig, Yak etc.	-	-	-	23.149
	Commercial dairy farms (Number)		-	-	-
1.9	Poultry	No. of farms	Total No. of birds ('000)		
	Commercial	284.032	-		
	Backyard	29.071	313.103		
1.10	Fisheries (Data source: Chief Planning Officer)				
	A. Capture				

i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets		Storage facilities (Ice plants etc.)
		Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks	
	233		19			
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)			4408.89		0.773	

1.11 Production and Productivity of major crops

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops										
	Rice	156.268	1597	-	-	-	-	156.268	1597	-
	Wheat	-	-	183.216	1821	-	-	183.216	1821	-
	Chickpea	-	-	15.026	984	-	-	15.026	984.2	-
	Pigeonpea	10.132	758	-	-	-	-	10.132	758.2	-
	Pearlmillet	10.490	1073	-	-	-	-	10.490	1073	-
Major Horticultural crops										
	-	-	-	-	-	-	-	-	-	-

1.12	Sowing window for 5 major field crops	Rice	Pigeonpea	Pearl millet	Wheat	Chickpea
	Kharif- Rainfed	3 rd week of June to 1 st week of July	1 st week July to 4 th week of July	4 th week of July to 3 rd week of August	-	-
	Kharif-Irrigated	1 st week of June to 4 th week of June (Nursery)	-	-	-	-
	Rabi- Rainfed	-	-	-	3 rd week of October to 3 rd week of November	3 rd week of October to 4 th week of October
	Rabi-Irrigated	-	-	-	3 rd week of November to 4 th week of November	4 th week of October to 3 rd week of November
	Summer irrigated	-	-	-	-	-

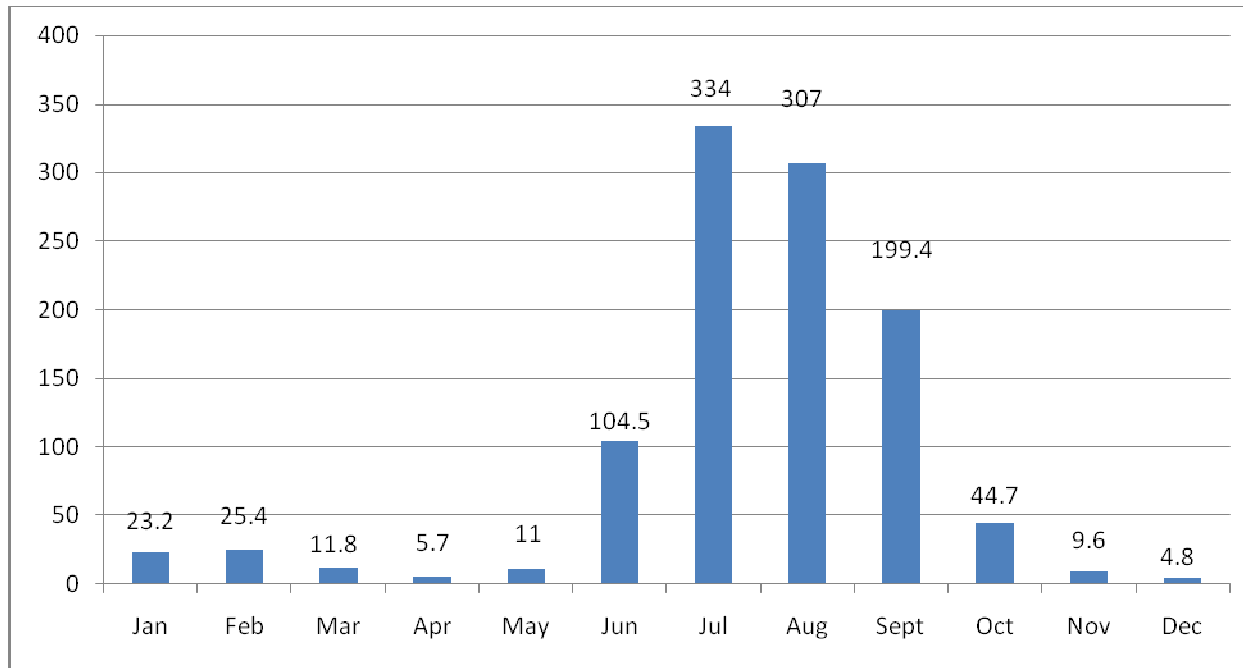
1.13	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought	✓		
	Flood		✓	
	Cyclone			✓
	Hail storm		✓	
	Heat wave		✓	
	Cold wave		✓	
	Frost		✓	
	Sea water intrusion			✓
	Pests and disease outbreak	✓		
	Fog	✓		

1.14	Include Digital maps of the district for		
		Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure II	Enclosed: Yes
		Soil map as Annexure III	Enclosed: Yes

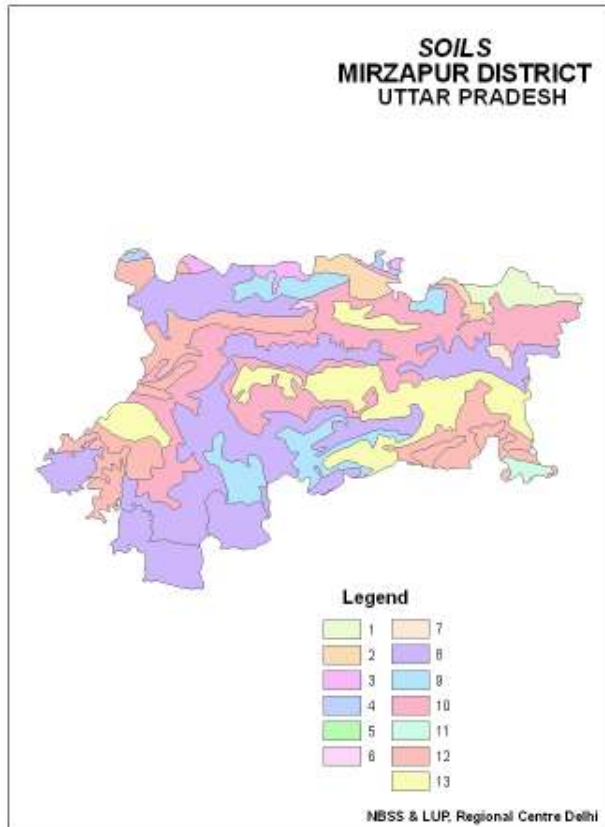
Annexure-1: Location map of Mirzapur district within State



Annexure-II: Mean Monthly Rainfall(mm)



Annexure –III : Soil fertility Map of Mirzapur District



Alluvial plain (0-1% slope)

1. Deep, loamy soils and slightly eroded .
2. Deep, fine soils and slightly eroded associated with loamy soils slightly saline and moderately sodic .

Active Flood Plain (1-3% slope)

3. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding .
4. Deep, stratified loamy soils, with severe flooding associated with loamy soils with moderate flooding .
5. Deep, sandy soils with slight flooding associated with stratified loamy soils and slight flooding

Vindhyan Ranges and Scrap Lands (Sand stone landscape)

Moderately Steep slopes (15-30% slope)

6. Shallow, loamy-skeletal soils and severely eroded associated with rock outcrops

Residual Hills (3-5% slope)

7. Rock outcrops; associated with shallow loamy soils, moderately eroded and slight stoniness.

Plateau (Sandstone on 1-3% slope)

8. Moderately shallow, loamy soils and moderately eroded
9. Deep, loamy soils and moderately eroded
10. Deep, loamy soils and moderately eroded associated with fine soils and moderately eroded
11. Deep, loamy soils and moderately eroded associated with moderately shallow loamy soils and moderately eroded
12. Deep, fine smectitic soils and moderately eroded associated with moderately shallow loamy soils and moderately eroded
13. Deep, fine smectitic soils and slightly eroded associated with loamy soils, slightly eroded

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	Remarks on Implementation
Delay by 2 weeks 1 st week of July	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum – Lentil	Rice: NDR 97, NDR 118, Barani Deep, Vandana, Govind	Sowing with seed cum ferti drills and resowing if no proper germination. Weed management through dryland weeder & also through weedicides. Thinning of population, conservation furrow, interculture. Surface water management	Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Intercropping of Pigeonpea + Sesame Pigeonpea: Bahar, Narendra Arahara-1, MalviyaVakas(MA6), Malviya Chamtkar (MA13) Sesame: Type 4, T-12, T-13, Shekhar ,GT1, TC 25 &TC 289	Sowing of pigeonpea + sesame on ridges Wider spacing of Pigeonpea at 90cm and normal spacing of sesame <i>i. e.</i> 30 cm for mono culmed and 45 cm for branched genotypes.	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks 3 rd week of July	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley	Replace rice with greengram, blackgram and sorghum	Re sowing of rice crop to have proper germination or gap filling for proper stand. Interculture, thinning,	Seed drills under RKVY Supply of seeds through NFSM

		Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum - Lentil		conservation furrow. Sowing the crops through seed cum ferti drills Split nutrient application wherever necessary	
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Pigeonpea + Sesame/ Greengram/ Blackgram Blackgram: Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3 Greengram: Pant Mung -8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, Jan Chetana & Jan Kalyani	Sowing of pigeonpea + sesame on ridges, Wider spacing of Pigeonpea at 90cm and normal spacing of sesame <i>i. e.</i> 30 cm for mono culmed and 45 cm for branched genotypes.	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)					
Delay by 6 weeks 1 st week of August	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice– Lentil Rice- Mustard Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum – Lentil	Replace rice with Greengram and Pearl millet	Sowing through seed cum ferti drills 25% enhanced nutrients Intercultivation	Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Pigeonpea + Pearl millet/ Greengram	Sowing of Pigeonpea + intercrops on ridges. Wider spacing of Pigeonpea 90cm.	Breeder seed of pigeonpea and green gram can be obtained from the University (B.H.U)

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 8 weeks 3 rd week of August	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum - Lentil	Replace rice with Pearl millet Pearl millet : WCC 75, Raj 171, Pusa 23	Wider spacing of 45cm for Pearl millet Maintain Normal population Ridge- furrow sowing	Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Intercropping of Pigeonpea + Pearl millet Pigeonpea: Bahar, Narendra Arahari-1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13)	Sowing of pigeon pea + pearl millet on ridges. Wider spacing of Pigeon pea at 90cm.	Breeder seed of pigeon pea can be obtained from the University (B.H.U.)

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea	Use of drought tolerant rice varieties: NDR 97, Tulsi, Vandana, Govind, Shushka Samrat Resowing & gap filling, Intercultivation	Use of additional N @10kg/ha Conservation furrow	

		Sorghum - Lentil			
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Thinning to maintain proper distance between the plants	Conservation tillage and spray of 2% urea as foliar application	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At vegetative stage	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum – Lentil	Life saving irrigation if possible Dust/ straw mulch Thinning Inter row harrowing	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Earthing up in Pigeonpea, Thinning to maintain proper distance between the plants. Intercultivation	Conservation tillage Spray of 2% urea as foliar application	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At flowering/ fruiting stage	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice- Lentil Rice- Mustard	Life saving irrigation if possible Dust/ straw mulch Inter row harrowing	1) Spraying of 2% urea as foliar application. 2) KCl Spray	Linkage to NREGS & CLDP in the spare time

		Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum – Lentil	Defoliate older leaves Harvesting at physiological maturity.		
		Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Life saving irrigation if possible. Harvesting of intercrops at physiological maturity. Harvesting of Pearl millet & Sorghum crops for fodder purposes.	1) Spraying of 2% urea as foliar application. 2) KCl Spray	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Upland undulating topography full of hillocks	Sequence cropping: Rice- Chickpea Rice– Lentil Rice- Mustard Rice- Barley Rice – Wheat Pearl millet- Chickpea Pearl millet- Lentil Sorghum - Chickpea Sorghum – Lentil Inter cropping: Pigeonpea+ Pearl millet Pigeonpea+ Sesame Pigeonpea+ Sorghum	Life saving irrigation if possible. Dust/ straw mulch Inter row harrowing Defoliate older leaves Harvesting at physiological maturity.	Sowing of <i>Toria</i> in the month of September (Type 9 & Bhawani) Conservation tillage Deep ploughing with rotavater.	Linkage to NREGS & CLDP in the spare time

			4) Life saving irrigation to pigeonpea if possible.		
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2.1.2 Drought - Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Medium/ Lowland	Sequence cropping: Rice – Wheat Rice – Pea Rice –Chickpea Rice – Lentil Rice – Mustard	Short duration rice varieties- NDR 97, Ratna, Narendra 118, Narendra 97, Pant Dhan 12, HUR 105, Induri Sambha, HUR 2-1, HUR-3022 to be grown under aerobic condition.	Community nursery Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	Breeder's seed will be supplied by BHU and NDUAT, Faizabad. Seed drills RKVY and supply of seeds NFSM
Limited release of water in canals due to low rainfall	Medium/ Lowland	Sequence cropping: Rice – Wheat Rice – Pea Rice –Chickpea Rice – Lentil Rice – Mustard Rice: (Early Maturity): Ratna, Narendra 118, Narendra 97, Pant Dhan 12, IR 36, HUR 105, HUR 3022, HUBR 2-1, Induri Sambha Medium Maturity: Sarju 52, Pant Dhan 4, Narendra 359, PNR 381 Late Maturity under low land: Type-3, Basmati 370, Mahsoori, GR-32, Badshahog, Adamchini	Rice\ Maize \ Sorghum Grow short duration aerobic rice such as NDR 97, NDR 118, Govind, Vandana, Varanideep, Susk Samrat , HUR 105 Maize: Malviya hybrid Makka-2, Naveen & Jaunpuri Pearl millet : WCC 75, Raj 171, Pusa 23 Sorghum: CSH-16, CHS-9, CHS-14, CSV-13 & CSV-15 should be grown on ridges for fodder/grain purposes.	Community nursery, Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	Breeders seed will be supplied by BHU and NDUAT, Faizabad. Seed drills RKVY and supply of seeds NFSM

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Medium/ Lowland	Sequence cropping: Rice – Wheat Rice – Pea Rice –Chickpea Rice – Lentil Rice – Mustard	Shift to only aerobic rice Or Rice may be replaced by pulses Greengram: Pant Mung -8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, Jan Chetana & Jan Kalyani Blackgram: Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3 Sesame :Type 4, T-12, T-13, Shekhar, GT1, TC 25 &TC 289	Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	Breeders seed will be supplied by BHU and NDUAT, Faizabad. Seed drills under RKVY and supply of seeds through NFSM

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Medium/ Lowland	Sequence cropping: Rice – Wheat Rice – Pea Rice –Chickpea Rice – Lentil Rice – Mustard	Sorghum\ Pearl millet	Conservation tillage, Sowing of Pearl millet & Sorghum for grain purposes at 45 cm on ridges. Spray of 2% urea as a foliar application. Use of mulches (straw/dust).	Breeder's seed will be supplied by BHU and NDUAT, Faizabad. Seed drills under RKVY and supply of through seeds NFSM

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Insufficient	Medium/ Lowland	Sequence cropping:	Rice should be replaced with	Direct seeding in small	Breeder's seed will be

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
groundwater recharge due to low rainfall		Rice – Wheat Rice – Pea Rice – Chickpea Rice – Lentil Rice – Mustard	pulses (green gram & black gram), oilseeds (Sesame) in <i>Kharif</i> and wheat by Chickpea & lentil in <i>Rabi</i> season.	beds.	supplied by BHU and NDAUT, Faizabad. Seed drills under RKVY and supply of seeds through NFSM

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

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Rice	Provide drainage	Proper bunding, drain out excess water	Harvesting at physiological maturity	Shift to safer place
Wheat	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Chickpea	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Pigeonpea	Provide drainage and Practice of sowing on ridges	Make inter-row furrow to Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Pearl millet	Provide drainage and Practice of sowing on ridges	Make inter-row furrow to Drain out excess water	Harvesting at physiological maturity	
Horticulture				
Vegetables (Sponge gourd, Bitter gourd, Bhendi, Cauliflower, Cabbage)	Drain out excess water, Sown on ridges	Drain out excess water, Sown on ridges	Drain out excess water, Sown on ridges	Shift to safer place
Heavy rainfall with high speed Winds in short span				
Rice	Drain out excess water	Drain out excess water , protect with vegetable barriers	Drain out excess water, and protect with vegetable barriers from wind	Keep the grains at safer place
Wheat	Drain out excess water	Drain out excess water and speed of wind may be protected	Drain out excess water and protect with vegetable	Keep the grains at safer

		with vegetable barriers	barriers from wind	place
Chickpea	Drain out excess water	Drain out excess water	Drain out excess water. Harvesting at physiological maturity	Keep the grains at safer place
Pigeonpea	Drain out excess water, sowing on ridges	Make inter-row furrow to drain out excess water	Drain out excess water through furrows	Keep the grains at safer place
Pearl millet	Drain out excess water, sowing on ridges and furrow	Make inter-row furrow to drain out excess water	Rain out excess water and tie the plants amongst them	
Horticulture (Vegetable Crops)	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
Outbreak of pests and diseases due to unseasonal rains				
Rice, Wheat, Chickpea, Pigeonpea, Pearl millet	Need based plant protection (integrated pest and disease management)	Need based plant protection (integrated pest and disease management)	Need based plant protection (integrated pest and disease management)	Safe storage against stored grain pest and diseases

2.3 Floods

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation				
Rice	Re-sowing with short duration varieties Practice community nursery in the village	Provide drainage	Provide drainage, Prevent premature seed germination	Harvesting at physiological maturity Shift produce to safer place Provision for buying / marketing of discoloured grain at the earliest to provide relief
Continuous submergence for more than 2 days				
Rice	Varieties having submergence tolerance should be grown viz. Swarana sub-1, IR-64 sub-1 Raise community nursery	Re transplanting after cessation of flood from community nursery.	Prevent premature seed germination Plan for early rabi	Harvesting at physiological maturity
Sea water intrusion	Not applicable			

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

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave				
Rice	Provide watering	Provide light irrigation	Not experienced	Not experienced
Wheat	Not experienced	Not experienced	Provide light irrigation	Harvesting at physiological maturity
Chickpea	Not experienced	Not experienced	Provide light irrigation	Harvesting at physiological maturity
Pigeonpea			Provide light irrigation	Harvesting at physiological maturity
Pearl millet	Not experienced	Provide light irrigation	Not experienced	Not experienced
Horticulture				
Sponge gourd	Provide light irrigation	Provide light irrigation	Provide light irrigation	Provide light irrigation
Bitter gourd	Provide light irrigation	Provide light irrigation	Provide light irrigation	Provide light irrigation
Bhendi	Provide light irrigation	Provide light irrigation	Provide light irrigation	Provide light irrigation
Cold wave				
Wheat	Not experienced	Provide light irrigation	Provide light irrigation	Provide light irrigation
Chickpea	Not experienced	Provide light irrigation	Provide light irrigation	Provide light irrigation
Pigeonpea	Not experienced	Not experienced	Provide light irrigation	Not experienced
Horticulture				

Cauliflower	Not experienced	Not experienced	Smoking by burning waste material to increase temperature	Harvest the crop at pre-mature stage
Cabbage	Not experienced	Not experienced	Smoking by burning waste material to increase temperature	Harvest the crop at pre-mature stage
Frost				
Wheat	Not experienced			Not experienced
Chickpea	Not experienced			Not experienced
Pigeonpea	Not experienced			
Horticulture				
Cauliflower	Not experienced	Not experienced		Pre-mature harvest
Cabbage	Not experienced	Not experienced		Pre-mature harvest
Hailstorm				
Wheat	Re-sowing of crop with suitable late sowing varieties viz. HUW 234, UP 2425, K 9162, Triveni.	Replace wheat by Vegetable crops such as Onion.	Harvest for fodder purpose and sow Green gram.	Harvest at Physiological maturity and keep at safer place.
Chickpea	Resowing of crop with suitable late sowing varieties viz. Pusa 372, PGD 84-10, Uday, Pant G186	Replace gram by Vegetable crops such as Onion.	Harvest for vegetable purpose and sow Green gram after the harvest.	Harvest at Physiological maturity and keep at safer place.
Pigeonpea	Not experienced	Not experienced	Harvest for fodder purpose.	Harvest at Physiological maturity and keep at safer place.
Horticulture				
Cauliflower	Not experienced	Not experienced	Pre-mature harvest	Pre-mature harvest
Cabbage	Not experienced	Not experienced	Pre-mature harvest	Pre-mature harvest
Cyclone	Not experienced			

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	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)	<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>Shift the live stocks at safer place.</p>	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 ones in Campaign	

Cyclone	Not Applicable
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2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
Drought	Insurance & Integration Establishing seed 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	Not Applicable			

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	During the event	After the event
1. Drought	Not Applicable		
2. Floods	Not Applicable		
3. Cyclone / Tsunami	Not Applicable		
4. Heat wave and cold wave	Not Applicable		