State: UTTAR PRADESH

Agriculture Contingency Plan for District: Sant Ravidas Nagar

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Northern Plain (And Central Highlands) Including Aravallis, Hot Semi-Arid Eco-Region (4.3)		
	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°22'N	82°28'E	70 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, Bejwan, P.O. Ugapur, Aurai, Sant Ravidas Nagar.		
	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)	926.4	35	3rd week of June	1st week of October
	NE Monsoon(Oct-Dec)	60.2	5	-	-
	Winter (Jan- March)	48.2	4	-	-
	Summer (Apr-May)	17.5	3	-	-

	Annual	1052.3	47	-	-

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)	103.045	67.533	0.056	17.118	0.285	0.434	0.656	2.542	9.643	4.778

1. 4	**Major Soils**	**Area (‘000 ha)**	**Percent (%) of total geographical area**
	Sandy loam Soils	-	-
	Loam Soils	-	-
	Clay loam Soils	-	-
	Sandy Soils	-	-
	Clay Soils	-	-
	Rocky track Soils	-	-

1.5	**Agricultural land use**	Area (‘000 ha)	Cropping intensity %
	Net sown area	67.533	142.5%
	Area sown more than once	28.707	
	Gross cropped area	96.240	

1.6	**Irrigation**	Area (‘000 ha)		
	Net irrigated area	54.463		
	Gross irrigated area	76.479		
	Rainfed area	13.07		
	Sources of Irrigation	Number	Area (‘000 ha)	Percentage of total irrigated area
	Canals	-	7.941	-
	Tanks	-	0	-
	Open wells	-	0.793	-
	Bore wells	-	Govt. 16.776 + Pvt. 28.953 = 45.729	-
	Lift irrigation schemes	-	-	-

	Micro-irrigation	-	-	-
	Total Irrigated Area	-	54.463	
	Pump sets	-	-	
	No. of Tractors	-	-	
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks – 7	(%) area	Quality of water
	Over exploited	-	-	No problem of arsenic & fluoride however, low amount of salinity is reported.
	Critical	-	-	
	Semi- critical	-	-	
	Safe	Safe	-	
	Wastewater availability and use	-	-	
	Ground water quality	-		

1.7 Area under major field crops & horticulture

1.7	**Major field crops cultivated**	**Area ('000 ha)**							
		Kharif			***Rabi***			**Summer**	
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**		**Grand total**
	Rice	26.252	0.077	26.329					26.329
	Pearl millet	0.0	8.558	8.558					8.558
	Pigeonpea	0.0	4.135	4.135					4.135
	Sorghum	0.0	1.445	1.445					1.445
	Wheat				46.599	0.023	46.622		46.622
	Pea				0.986	0.009	0.995		0.995
	Chickpea				0.026	0.809	0.835		0.835

	Horticultural Crops(Fruit Crop) (2009-10)	Total (‘000 ha)	Irrigated (‘000 ha)	Rainfed (‘000 ha)
	Mango	3.106	-	-
	Guava	1.533	-	-
	Horticulture crops - Vegetables	-	-	-
	Tomato	1.565	-	-
	Radish	1.287	-	-
	Pumpkin	1.083	-	-
	Potato	1.078	1.078	0.0
	Onion	0.040	0.040	0.0
	Medicinal and Aromatic crops	-	-	-
	Plantation crops	-	-	-
	Total fodder crop area	1.926	0.721	1.205
	Grazing land	-	-	-
	Sericulture etc	-	-	-

1.8	Livestock (2003 Censuss)	Male (‘000)	Female (‘000)	Male + Female (<3 Yrs) (‘000)	Total (‘000)
	Non descriptive Cattle (local low yielding)	15.222	32.057	37.420	84.697
	Improved cattle	-	-	-	-
	Crossbred cattle	0.863	8.648	10.050	19.561
	Non descriptive Buffaloes (local low yielding)	2.152	46.515	42.549	91.216
	Descript Buffaloes	-	-	-	
	Goat	-	-	-	33.584
	Sheep	-	-	-	32.980

	Pig	-	-	-	8.464
	Commercial dairy farms (Number)	-	-	-	0.043

1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**
	Commercial	-	79.085
	Backyard	-	1.910

1.10 Fisheries (Data source: Chief Planning Officer)

A. Capture

i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**		Storage facilites (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**
		00(Govt.) + 437(Private)	

B. Culture

	Water Spread Area (ha)	**Yield (t/ha)**	**Production (No.)**
i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)	-	-	-
ii) **Fresh water** (Data Source: Fisheries Department)	0.0(Govt.) + 383.00(Private)		5592.0(Govt.) + 0.0(Private) Angulikao

1.11 Production and Productivity of major crops

1.11	Name of crop	**Kharif**		**Rabi**		**Summer**		**Total**		Crop residue as fodder ('000
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ ha)	

										tons)
Major Field crops (Crops identified based on total acreage)										
	Rice	71.437	1648	-	-	-	-	71.437	1648	
	Pearl millet	8.345	959	-	-	-	-	8.345	959	
	Pigeonpea	3.565	894	-	-	-	-	3.565	894	
	Sorghum	1.313	944	-	-	-	-	1.313	944	
	Wheat	-	-	71.446	2094	-	-	71.446	2094	
	Pea	-	-	1.059	1040	-	-	1.059	1040	
	Chickpea	-	-	0.802	855	-	-	0.802	855	
Major crops (Friuts) (Crops identified based on total acreage) (2009-10)										
	Mango	-	-	-	-	-	-	4.308	1387	
	Guava	-	-	-	-	-	-	2.108	1375	
	Vegetable Crop	-	-	-	-	-	-			
	Tomato	-	-	-	-	-	-	4.373	2795	
	Radish	-	-	-	-	-	-	3.298	2563	
	Pumpkin	-	-	-	-	-	-	2.376	2195	
	Potato	-	-	-	-	-	-	22.271	2055	

1.12	**Sowing window for 5 major field crops**	**Rice**	**Pearl millet**	**Pigeonpea**	**Sorghum**	**Wheat**	**Pea**	**Chickpea**
	Kharif- Rainfed	4th week of June to 1st week of July	1st week of August to 2nd week of August	4th week of June to 1st week of July	4th week of June to 1st week of July	-	-	-
	Kharif-Irrigated	June (nursery)	-	-	-	-	-	-
	Rabi- Rainfed	-	-	-	-	3rd week of October to 4th	3rd week of October to 4th	3rd week of October to

						week of October	week of October	4th week of October
	Rabi-Irrigated	-	-	-	-	3rd week of November to 4th week of November	3rd week of October to 3rd week of November	3rd week of October to 3rd week of November

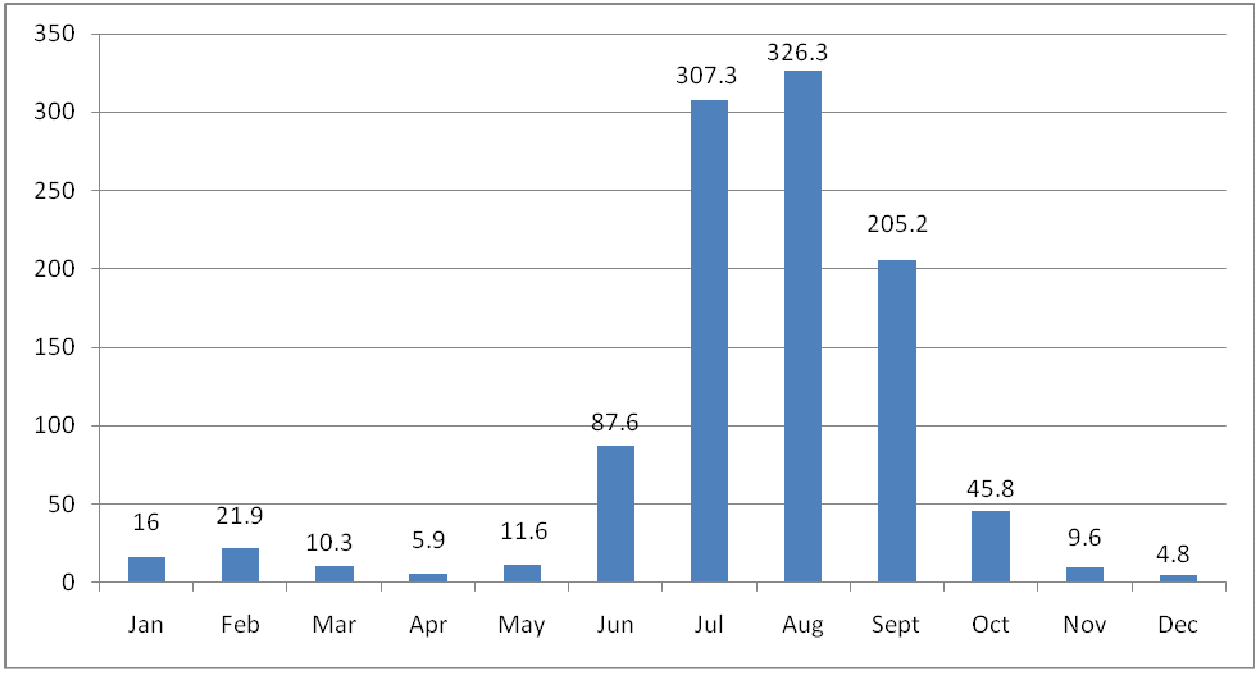
1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought	√		
	Flood		√	
	Cyclone		√	
	Hail storm		√	
	Heat wave		√	
	Cold wave		√	
	Frost		√	
	Pests and disease outbreak	√		
	Fog	√		

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 II	Enclosed: Yes
		Soil map as Annexure III	Enclosed: Yes

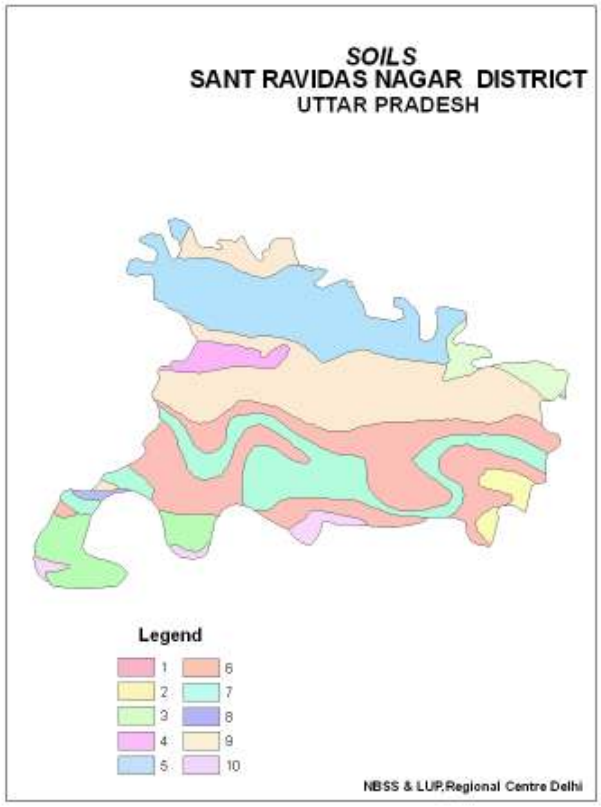
Annexure I


Shamli
Muzaffarnagar
Bijnor
Moradabad
Baghpat
Rampur
Meerut
Jyotiba Phule Nagar
Ghaziabad
Gautam Budh Nagar
Bareilly
Pilibhit
Bulandshahr
Budaun
Lakhimpur
Shrawasti
Aligarh
Sitapur
Mathura
Hathras
Etah
Balrampur
Gautam Buddh Nagar
Hardoi
Siddharth Nagar
Mainpuri
Agra
Kannauj
Gonda
Etawah
Firozabad
Farrukhabad
Basti
Auraiya
Kanpur Rural
Kanpur Urban
Unnao
Sultanpur
Deoria
Jalaun
Fatehpur
Pratapgarh
Ballia
Jhansi
Hamirpur
Mahoba
Banda
Ghazipur
Varanasi
Chitrakoot
Allahabad
Mirzapur
Lalitpur
Sant Ravidas Nagar
Sonbhadra

Annexure -II: Mean Monthly Rainfall(mm)



Annexure -III



Alluvial plain (0-1% slope)

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

Active Flood Plain (1-3% slope)

6. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding .
7. Deep, stratified loamy soils, with severe flooding associated with loamy soils with moderate flooding .
8. Deep, sandy soils with slight flooding associated with stratified loamy soils and slight flooding

Plateau (Sandstone on 1-3% slope)

9. Moderately shallow, loamy soils and moderately eroded
10. Deep, fine smectitic soils and moderately eroded associated with moderately shallow loamy soils and moderately eroded

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks 1st week of July	Deep alluvial soils Upland situation	**Sequence cropping:** Sorghum – Chickpea Blackgram-Barley Maize- Chickpea	Pearl millet/ Sorghum/ Maize Blackgram **Pearl millet:** WCC 75, Raj 171, Pusa 23 **Sorghum:** CSH-16, CHS-9, CHS-14, CSV-13 & CSV-15 **Blackgram :** Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3 **Maize:** Malviya hybrid Makka-2, Naveen , Jaunpur	Sowing with seed cum ferti drills across the slope Re sowing if no proper germination. Weed management through dry land weeder & also through weedicides. Thinning of population Conservation furrows Intercultivation Surface water management	Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping: Pigeonpea + Sorghum Pigeonpea+ Sesame	Pigeonpea+Sorghum/ Pigeonpea+ Sesame **Pigeonpea:** Bahar, Narendra Arahar-1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13) **Sesame:** T-4, T-12, T-13 & Shekhar	Sowing of Pigeonpea + Sesame on ridges Wider spacing of pigeonpea 90cm and normal spacing of sesame i. e. 30 cm for mono culmed and 45 cm for branched genotypes.	

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 4 weeks 3rd week of July	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet- Chickpea Sorghum – Chickpea Blackgram-Barley Maize- Chickpea	Pearl millet/ Sorghum/ Maize Blackgram **Pearl millet:** WCC 75, Raj 171, Pusa 23 **Sorghum:** CSH-16, CHS-9, CHS-14, CSV-13 & CSV-15 **Blackgram :** Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3 **Maize:** Malviya hybrid Makka-2, Naveen , Jaunpur	Resowing of crops to have proper germination Intercultivation Thinning Conservation furrow Sowing the crops through seed cum ferti drill Split application of nutrients wherever necessary	Seed drills under RKVY Supply of seeds through NFSM Breeder seed of pigeon pea can be obtained from the University (NDUAT)
		Inter cropping: Pigeonpea+ Sorghum/ Pigeonpea+Sesame	Pigeonpea+Sorghum/ Pigeonpea+Sesame **Pigeonpea** : Bahar, Narendra Arahar-1, Malviya Vakas(MA6) ,Malviya Chamtkar (MA13) **Sesame**: T-4, T-12, T-13 & Shekhar		

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 6 weeks 1st week of August	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet- Chickpea Blackgram-Barley	Pearl millet + Blackgram. **Pearl millet:** WCC 75, Raj 171, Pusa 23 **Blackgram :**Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3	Sowing through seed cum ferti drills Wider spacing 25% enhanced nutrients Inter cultivation	Seed drills under RKVY Supply of seeds through NFSM Breeder seed of Pigeonpea can be obtained from the University (B.H.U.)
		Inter cropping: Pigeonpea+ Pearl millet	Pigeonpea+Pearl millet **Pigeonpea** : Bahar, Narendra Arahar-1, Malviya Vakas(MA6) ,Malviya Chamtkar (MA13) **Pearl millet:** WCC 75, Raj 171, Pusa 23		
Delay by 8 weeks 3rd week of August	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet - Chickpea	Maize, Sorghum and Black gram may be replaced by Green gram and Pearl millet. However sorghum may be grown for fodder purpose. **Pearl millet:** WCC 75, Raj 171, Pusa 23 **Sorghum:** CSH-16, CHS-9, CHS-14, CSV-13 & CSV-15	Wider spacing of 45cm Maintain normal population Ridge- furrow sowing	Seed drills under RKVY Supply of seeds through NFSM Breeder seed of pigeon pea can be obtained from the University (B.H.U.)
		Inter cropping: Pigeonpea+Pearl millet	Pigeonpea+Pearl millet **Pigeonpea** : Bahar, Narendra Arahar-1, Malviya Vakas(MA6),		

			Malviya Chamtkar (MA13) **Pearl millet:** WCC -75, Raj-171, Pusa-23		

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet- Chickpea Sorghum – Chickpea Blackgram-Barley Maize- Chickpea	Use of dust mulch/ straw mulch (4 t/ha) Inter cultivation	Use of additional N @10kg/ha Conservation furrow Spray of 2% urea as foliar application	
		Inter cropping: Pigeonpea+Pearl millet Pigeonpea+Sorghum Pigeonpea+Sesame	Earthting up to maincrops, Thinning to maintain with proper distance between the plants	Conservation tillage Spray 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	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet- Chickpea Sorghum – Chickpea Blackgram-Barley Maize- Chickpea	Life saving irrigation(5 cm) if possible, Dust/ straw mulch (4 t/ha), Thinning, Inter cultivation with dryland weeder	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	
		Sequence cropping: Pigeonpea- Pearl millet	Earthing up of intercrops Thinning to maintain proper	Conservation tillage Spray 2% urea as foliar	

		Pigeonpea- Sorghum Pigeonpea- Sesame	distance between the plants	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	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet- Chickpea Sorghum – Chickpea Blackgram-Barley Maize- Chickpea	Life saving irrigation (5 cm) if possible	1) Spraying 2% urea as foliar application. 2) KCl Spray	
		Sequence cropping: Pigeonpea- Pearl millet Pigeonpea- Sorghum Pigeonpea- Sesame	Dust/ Straw mulch Inter cultivation Defoliate older leaves Harvesting at physiological maturity		

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**
	Deep alluvial soils Upland situation	**Sequence cropping:** Pearl millet- Chickpea Sorghum – Chickpea Blackgram-Barley Maize- Chickpea	Life saving irrigation (5 cm) if possible Dust/ straw mulch Inter cultivation Defoliate older leaves Harvesting of Pearl millet and sorghum for fodder purpose Harvesting at physiological maturity.	Sowing of toria in the month of September (Type 9 & Bhavani) Conservation tillage Deep ploughing with rotavater	.
		Sequence cropping: Pigeon pea- Pearl millet Pigeonpea- Sorghum Pigeonpea- Sesame	Harvesting of intercrop at physiological maturity. Earthing up of main crop		

2.1.2 Drought - Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Deep alluvial soils Medium land situation-tube well	**Sequence cropping:** Rice – Wheat Rice – Pea Rice – Chickpea Rice – Mustard Maize – Potato Blackgram-Wheat	Rice/Blackgram **Rice :** NDR 97, Ratna, Narendra 118, Narendra 97, Pant Dhan, IR 50, HUR 105, Induri Sambha, HUR 2-1 **Blackgram:** Type 9, Pant U 19, Pant U 35, Narendra Urd 1 & Azad Urd-3	Community nursery Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation. Use of dust/ straw mulches (4 t/ha)	Breeder seed will be supplied by BHU and NDAUT, Faizabad. Seed drills under RKVY and supply of seeds through NFSM
Limited release of water in canals due to low rainfall	Deep alluvial soils Medium land situation-tube well	**Sequence cropping:** Rice – Wheat Rice – Pea Rice – Chickpea Rice – Mustard Maize – Potato Blackgram-Wheat	Rice/ Maize **Rice:** NDR 97, NDR 118 Govind, Vandana, Varanideep, Shusk Samrat, HUR 105 **Maize:** Desi & Composite varieties Wheat may be replaced with Chickpea & Mustard in rabi season	Community nursery Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation.	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Deep alluvial soils Medium land situation-tube well	**Sequence cropping:** Rice – Wheat Rice – Pea Rice – Chickpea Rice – Mustard Maize – Potato Blackgram-Wheat	Rice may be replaced by pulses (Green gram, Blackgram), Oil seeds (sesame), Vegetables (Lobiya, Lady's finger, brinjal, chillies) Intercropping of Pigeonpea + Pearl millet may also be a good substitute. Wheat may be replaced by Chickpea & mustard in rabi.	Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation. Use of dust/straw mulches (4 t/ha)	Breeder seed will be supplied by BHU and NDAUT, 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**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Deep alluvial soils Medium land situation-tube well	**Sequence cropping:** Rice – Wheat Rice – Pea Rice – Chickpea Rice – Mustard Maize – Potato Black gram-Wheat	Grow fodder crops such as Sorghum and pearl millet Grow pearl millet for grain purpose. Wheat may be replaced by Chickpea & mustard in *rabi*.	Conservation tillage Additional N (10 kg/ha) Sowing of Pearl millet on ridges (45 cm apart)	Breeder seed will be supplied by BHU and NDAUT, Faizabad. Seed drills under RKVY and supply of seeds through NFSM
			Pigeonpea + Pearl millet	Conservation tillage-ridge and furrows. Use of mulches (straw & dust both).	

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient groundwater recharge due to low rainfall	Deep alluvial soils Medium land situation-tube well	**Sequence cropping:** Rice – Wheat Rice – Pea Rice – Chickpea Rice – Mustard Maize – Potato Blackgram-Wheat	Shift to pulses (greengram, blackgram), Oilseeds (Sesame) in *kharif* and Chickpea+ Mustard in *rabi*. Intercropping of pigeonpea + Pearl millet may also be a good substitute.	Direct seeding in small beds. Use of micro-irrigation systems *viz.* sprinkler & sub-surface irrigation.	Breeder seed will be 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**
Wheat	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Rice	Provide drainage	Proper bunding, drain out excess	Harvesting at physiological maturity	Shift to safer place

		water		
Pearl millet	Provide drainage	Drain out excess water	Harvesting for fodder purposes or harvest at physiological maturity	Shift to safer place
Pigeonpea	Provide drainage	Drain out excess water	Harvesting at physiological maturity	Shift to safer place
Sorghum	Provide drainage	Drain out excess water	Harvesting for fodder purposes or harvest at physiological maturity	Shift to safer place
Pea	Provide drainage	Drain out excess water	Harvesting of green pods	Shift to safer place
Chickpea	Provide drainage	Drain out excess water	Harvesting of green pods	Shift to safer place
Horticulture (vegetables)				
Tomato	Provide drainage, use the ridge and furrow method of sowing	Provide drainage, use the ridge and furrow method of sowing	Pluck the fruits at physiological maturity	Immediate marketing
Radish	Provide drainage, use the ridge and furrow method of sowing	Provide drainage, use the ridge and furrow method of sowing	Take out at pre mature stage	Immediate marketing
Pumpkin	Provide drainage, use the ridge and furrow method of sowing	Provide drainage, use the ridge and furrow method of sowing	Take out at pre mature stage	Immediate marketing
Potato	Provide drainage, use the ridge and furrow method of sowing	Provide drainage, use the ridge and furrow method of sowing	Digging at physiological maturity	Immediate marketing
Heavy rainfall with high speed Winds in short span				
Wheat	Drain out excess water	Drain out excess water, protected with vegetable barriers	Drain out excess water and protect with vegetable barriers from wind	Keep the grains at safer place
Rice	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 from wind	Keep the grains at safer place
Pearl millet	Drain out excess water, sowing on ridges and furrow	Drain out excess water, Earthing up, Harvest for fodder purpose	Drain out excess water. Harvesting at physiological maturity	Keep the grains at safer place
Pigeonpea	Drain out excess water, Earthing up	Drain out excess water	Drain out excess water	Keep the grains at safer place
Sorghum	Drain out excess water, sowing on ridges and furrow	Drain out excess water, Earthing up,	Drain out excess water, Harvesting at physiological maturity	Keep the grains at safer place

		Harvest for fodder purpose		
Pea	Drain out excess water	Drain out excess water	Green pods should be plucked	Keep the grains at safer place
Chickpea	Drain out excess water	Drain out excess water	Green pods should be plucked	Keep the grains at safer place
Horticulture (vegetable)				
Tomato	Drain out excess water, sowing on ridges and furrow.	Drain out excess water, sowing on ridges and furrow	Pluck the fruits at physiological maturity	Immediate marketing
Radish	Drain out excess water, sowing on ridges and furrow.	Drain out excess water, sowing on ridges and furrow.	Take out at premature stage	Immediate marketing
Pumpkin	Drain out excess water, sowing on ridges and furrow.	Drain out excess water, sowing on ridges and furrow.	Take out at premature stage	Immediate marketing
Potato	Drain out excess water, sowing on ridges and furrow.	Drain out excess water, sowing on ridges and furrow.	Digging at physiological maturity	Immediate marketing
Outbreak of pests and diseases due to unseasonal rains : Need based crop protection especially against diseases in millets and vegetable crops				

2.3 Floods

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Rice	Re sowing with short duration varities	Provide drainage	Prevent premature seed germination	Harvesting at physiological maturity Shift to safer place
Continuous submergence for more than 2 days				
Rice	Varieties having submergence tolerance should be grown *viz.* Swarana sub-1, IR-64 sub-1 Community nursery	Re transplanting after cessation of flood from community nursery.	Prevent premature seed germination	Harvesting at physiological maturity
Sea water intrusion	Not Applicable			

2.4 Extreme events: 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 Light irrigation to reduce temperature	Harvesting at physiological maturity
Pigeonpea	-	-	Provide Light irrigation	Harvesting at physiological maturity
Wheat	Provide irrigation	Provide Light irrigation	Provide Light irrigation	
Lentil	Pre irrigation before sowing	Provide Light irrigation	Provide Light irrigation to reduce temperature	
Pea	Pre irrigation before sowing	Provide Light irrigation	Provide Light irrigation	
Horticulture				
Potato	Provide Light irrigation	Provide Light irrigation	Provide Light irrigation	
Vegetable pea	Provide Light irrigation	Provide Light irrigation	Provide Light irrigation	
Cauliflower	Provide Light irrigation	Provide Light irrigation	Provide Light irrigation	
Tomato	Provide Light irrigation	Provide Light irrigation	Provide Light irrigation	
Chilli	Provide Light irrigation	Provide Light irrigation	Provide Light irrigation	
Cold wave				
Wheat	-	Provide irrigation to provide relief from cold wave		-
Lentil	-	Provide irrigation to provide relief from cold wave		-
Pigeonpea	-	Provide irrigation to provide relief from cold wave		-
Horticulture				
Mango	-	-	Smoking by burning waste material to increase temperature	-
Frost				

Wheat	-	-	Provide Light irrigation	
Pulse crops	-	-	Provide light irrigation	
Horticulture				
Mango	-	Provide light irrigation	Smoking in orchards to increase temperature by burning waste material	
Hailstorm	Not Applicable			
Cyclone	Not Applicable			

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 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 ones	

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 ones	
Cyclone	Not Applicable		
Heat wave and cold wave	Not Applicable		

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 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	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		