

## State: UTTAR PRADESH

### Agriculture Contingency Plan for District: VARANASI

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
		25°18'N	83°03'E
		Altitude	
		75.7m	
	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, Kallipur, Varanasi	
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Institute of Agriculture Research farm	

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset	Normal Cessation
	SW monsoon (June-Sep):	944.5	39	3 <sup>rd</sup> week of June	1 <sup>st</sup> week of October
	NE Monsoon(Oct-Dec):	60.9	3	-	-
	Winter (Jan- March)	56.5	4	-	-
	Summer (Apr-May)	19.8	2	-	-

	Annual	1081.7	48	--	-
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1.3	Land use pattern of the district	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)	152.679	95.748	0	2.932	0.024	2.56	2.964	2.151	-	-

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Sandy loam	70.560	46.25%
	Loam	25.000	16.37%
	Clay loam	37.800	24.75%
	Sandy	19.320	12.63%

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	95.748	176%
	Area sown more than once	62.180	
	Gross cropped area	134.073	

1.6	Irrigation	Area ('000 ha)	
	Net irrigated area	82.206	
	Gross irrigated area	134.073	
	Rainfed area	13.542	
	Sources of Irrigation	Number	Area ('000 ha)
	Canals		8.727
	Tanks		0.005
	Open wells		0
	Bore wells	Govt. 766+	Govt. 19.977 +
			89.28

		Pvt.9751+7016 = 17533	Pvt. 53.421 = 73.398	
	Lift irrigation schemes	01		
	Micro-irrigation	14		
	Other sources (please specify)		0.076	0.092
	Total Irrigated Area		82.206	
	Pump sets	7016		
	No. of Tractors			
	<b>Groundwater availability and use* (Data source: State/Central Ground water Department /Board)</b>	No. of blocks – 8	(%) area	Quality of water
	Over exploited			No problem of arsenic & fluoride. However, salinity is reported to some extent. In majority of the area the problems of Calcium & Iron are reported
	Critical	3/8		
	Semi- critical	3/8		
	Safe			
	Wastewater availability and use			
	Ground water quality			

\* Over exploited: ground water utilization > 100%, critical: 90-100%; semi-critical: 70 - 90%; safe: < 70%.

### 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		
	Rice	50.514	-	50.514	-			50.514	
	Pearl millet	-	4.297	4.297	-			4.297	
	Pigeonpea	-	4.233	4.233	-			4.233	
	Maize	-	2.915	2.915	0.011	-	0.011	0.025	2.951
	Wheat	-	-	-	69.063	-	69.063		69.063

Pea	-	-	-	2.434	0.305	2.739		2.739
Sugarcane							4.095	4.095

	<b>Horticultural Crops - Fruits</b>	<b>Area ('000 ha)</b>		
		<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
	Mango	12.381		
	Guava	16.434		
	Lemon	5.405		
	Ber (Indian Plum)	0.310		0.310
	Papaya	0.100	0.100	
	<b>Horticulture crops - Vegetables</b>	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
	Sponge Gourd	5.550	5.200	0.350
	Bitter Gourd	3.900	3.800	0.100
	Potato	3.218	3.218	-
	Bhendi	2.440	1.620	0.820
	Cabbage	2.200	2.200	-
	Cauliflower	2.165	2.165	-
	Onion	0.164	0.164	
	<b>Medicinal and Aromatic crops</b>	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>

	Medicinal and Aromatic crops	0.500	0.500	
	<b>Plantation crops</b>	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
	Banana	0.500	0.500	
	Fodder crops	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
	Total fodder crop area	3.728	1.023	2.703
	Grazing land	-	-	-
	Sericulture etc	-	-	-

<b>1.8</b>	<b>Livestock*</b>	<b>Male ('000)</b>	<b>Female ('000)</b>	<b>Male + Female (&lt;3 Yrs) ('000)</b>	<b>Total ('000)</b>
	Non descriptive Cattle (local low yielding)	18.763	55.108	65.275	139.146
	Improved cattle				
	Crossbred cattle	1.826	15.709	19.310	175.991
	Non descriptive Buffaloes (local low yielding)	1.542	73.099	68.948	143.589
	Descript Buffaloes				
	Goat				104.912
	Sheep				16.506
	Others (Camel, Pig, Yak etc.)				8.887
	Commercial dairy farms (Number)				

<b>1.9</b>	<b>Poultry</b>	<b>No. of farms</b>	<b>Total No. of birds ('000)</b>
	Commercial		354.144
	Backyard		1.844

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	
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)				115.52		326.936
Others						

### 1.11 Production and Productivity of major crops

1.11	Name of crop	<i>Kharif</i>		<i>Rabi</i>		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)	
<b>Major Field crops</b>										
	Rice	80.477	1608							
	Pearl millet	4.832	1159							

	Pigeonpea	4.045	970							
	Maize	4.609	1546	0.094	3056	0.037	1396	4.740	1735	
	Wheat			162.115	2344					
	Pea			3.927	1391					
	Sugarcane					175.752	41264			

**Major Horticultural crops -**

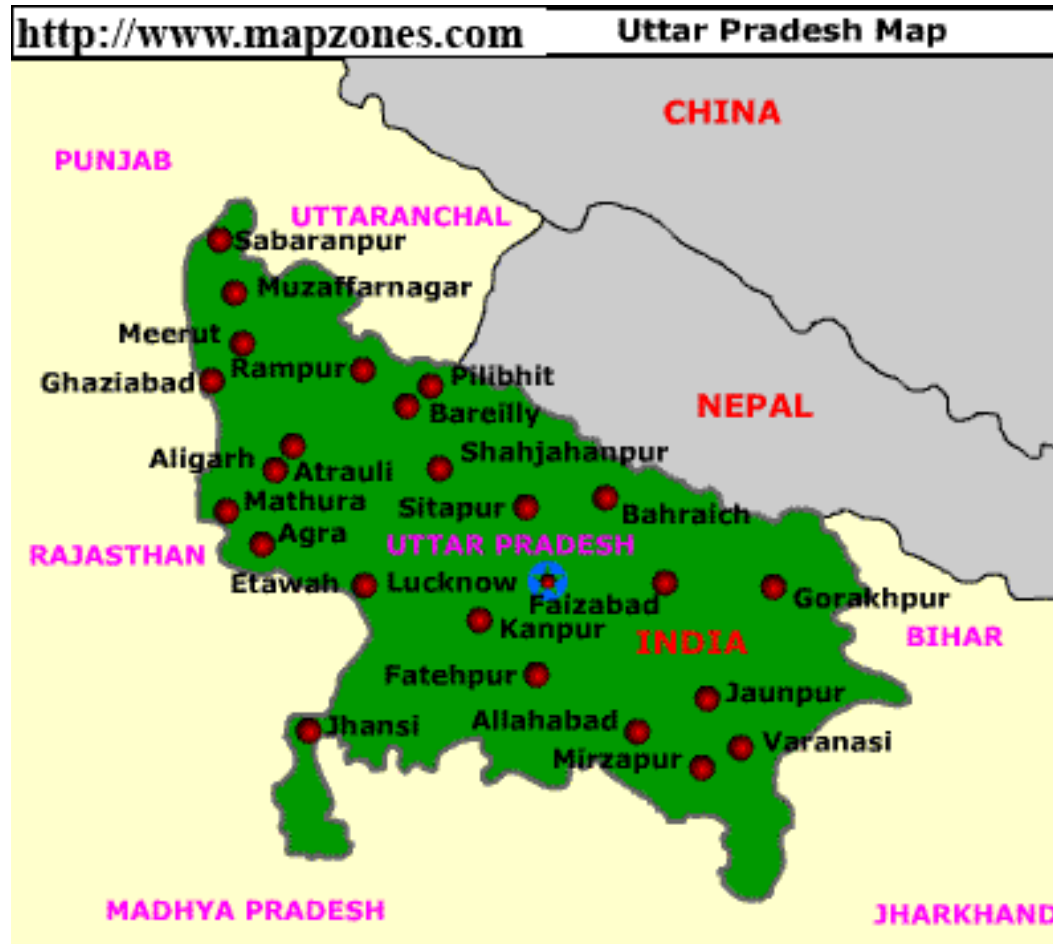
1.12	Sowing window for 5 major field crops	Rice	Pearl millet	Pigeonpea	Maize	Wheat	Pea	Sugarcane
	Kharif- Rainfed	4 <sup>th</sup> week of June to 1 <sup>st</sup> week of July	1 <sup>st</sup> week of August to 3 <sup>rd</sup> week of August	4 <sup>th</sup> week of June to 1 <sup>st</sup> week of July	4 <sup>th</sup> week of June to 1 <sup>st</sup> week of July	-		
	Kharif-Irrigated	1 <sup>st</sup> week of June to 4 <sup>th</sup> week of June (nursery)	-	-	-	-		
	Rabi- Rainfed	-	-	-	-	3 <sup>rd</sup> week of October to 4 <sup>th</sup> week of October	3 <sup>rd</sup> week of October to 4 <sup>th</sup> week of October	
	Rabi-Irrigated				3 <sup>rd</sup> week of October to 3 <sup>rd</sup> week of November	3 <sup>rd</sup> week of November to 4 <sup>th</sup> week of November	3 <sup>rd</sup> week of October to 3 <sup>rd</sup> week of November	
	Summer irrigated	-	-	-	-	-		1 <sup>st</sup> week of March to 4 <sup>th</sup> 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	√		

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

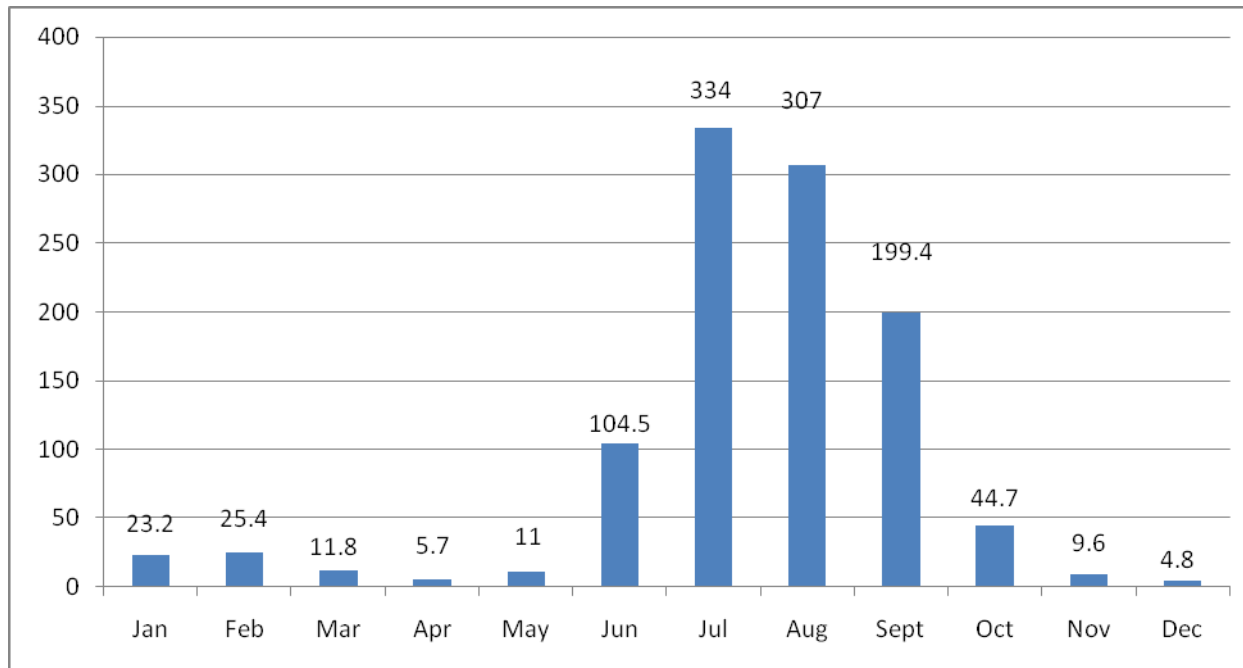


Annexure-I

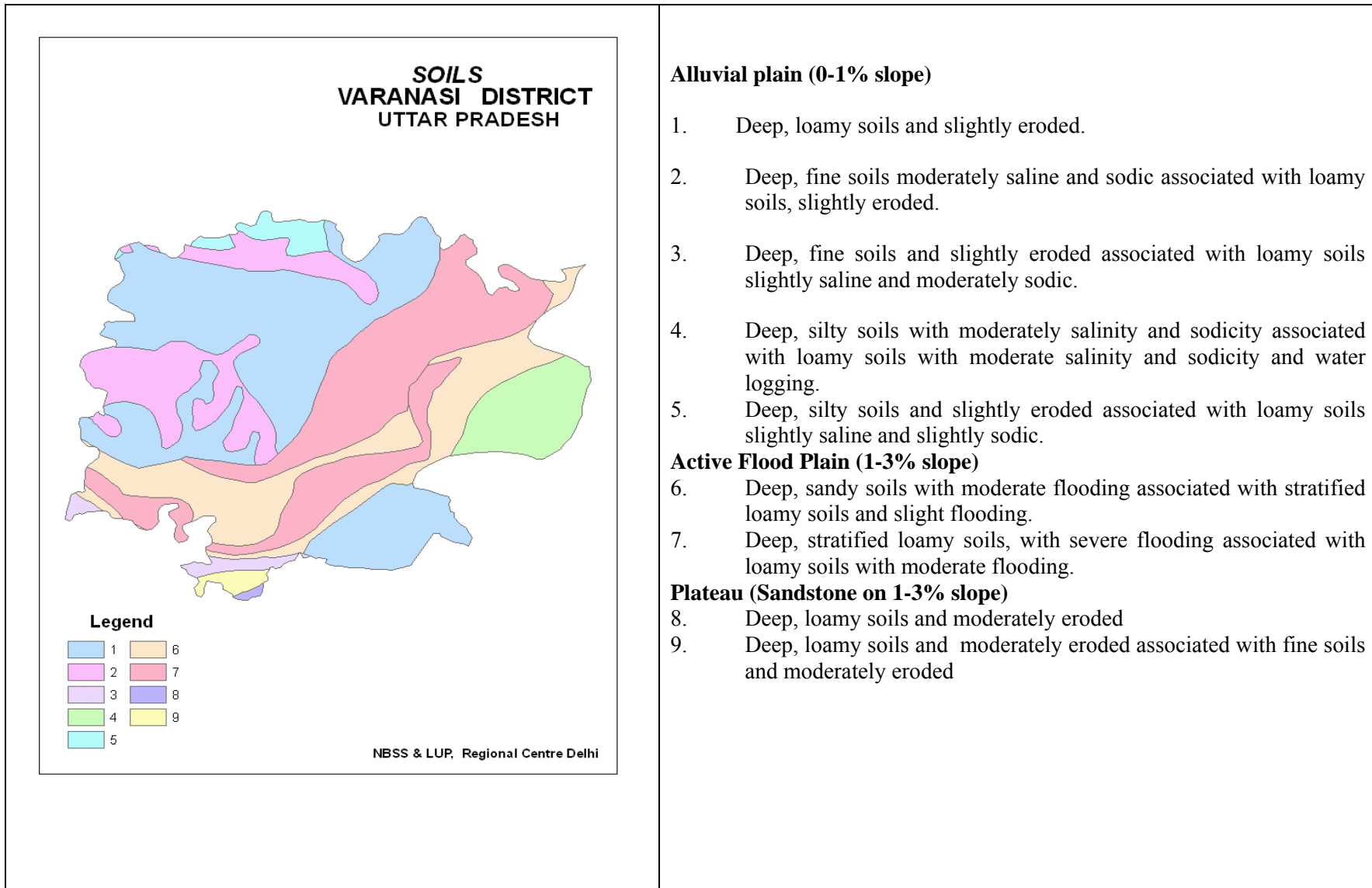


@ MapZones

**Annexure-II: Mean Monthly Rainfall(mm)**



### Annexure-III



## 2.0 Strategies for weather related contingencies

### 2.1 Drought

#### 2.1.1 Rainfed situation

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
<b>Early season drought (delayed onset)</b>  <b>Delay by 2 weeks</b>  1 <sup>st</sup> week of July	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice -Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Rice short duration varieties: NDR 97, NDR 118, Barani Deep, Vandana, Govind	Sowing with seed cum ferti drills across the slope and resowing in case of improper germination.  Weed management through dryland weeder and also through weedicides.  Thinning of population, conservation furrow and interculture. Surface water management	Breeder seed may be obtained from the University (NDUAT)  Seed drills under RKVY  Supply of seeds through NFSM
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Intercropping of Pigeonpea + Sesame <b>Pigeonpea:</b> Bahar, Narendra Arahahar-1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13)	Sowing of Pigeonpea + Sesame on ridges Wider spacing of Pigeon pea 90cm and normal spacing of Sesame i. e. 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 4 weeks  3 <sup>rd</sup> week of July	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice- Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Replace Rice with Greengram/ Blackgram/Sesame  <b>Greengram:</b> Pant Mung -8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, JanChetana & Jan Kalyani <b>Blackgram:</b> Type 9, Pant U 19, 35, Narendra Urd 1 & Azad Urd-3 <b>Sesame :</b> Type 4, 12, 13, Shekhar ,GT1 ,TC 25, 289	Resowing of crops to have proper germination  Intercultivation , thinning, conservation furrow Sowing the crops through seed cum ferti drills  Split application of nutrients wherever necessary	Seed drills under RKVY  Supply of seeds through NFSM
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Intercropping of Pigeonpea + Sesame/ Greengram/Blackgram <b>Pigeonpea:</b> Bahar, Narendra Arahara-1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13)		Breeder seed of Pigeon pea can be obtained from the University (NDUAT)

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 <sup>st</sup> week of August	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice -Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Replace rice and maize with greengram  <b>Greengram:</b> Pant Mung -8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, JanChetana and Jan Kalyani	Sowing through seed cum ferti drills  Wider spacing  25% enhanced nutrients  Intercultivation	Seed drills under RKVY  Supply of seeds through NFSM
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Intercropping of Pigeonpea + Sesame/Greengram		Breeder seed of pigeon pea can be obtained from the University (NDUAT)

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 8 weeks  3 <sup>rd</sup> week of August	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice -Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Replace rice with Pearl millet Pearl millet: WCC 75, Raj 171, Pusa 23	Wider spacing of 45cm  Normal population  Ridge- furrow sowing	Seed drills under RKVY  Supply of seeds through NFSM
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Intercropping of Pigeonpea + Pearl millet		Breeder seed of pigeon pea can be obtained from the University (B.H.U.)

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard	Use of drought tolerant rice varieties :NDR 97, Vandana, Govind Shushka Samrat and Varanideep	Use of additional N @ 10kg/ha Conservation furrow Spray of 2% urea as	

stand etc.		Rice- Barley Rice –Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Use of dust mulch/ straw mulch (4 t/ha)  Intercultivation	foliar application	
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Earthing up in maincrops.  Thinning to maintain proper distance between the plants	Conservation tillage  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	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice– Lentil Rice- Mustard Rice- Barley Rice –Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea	Life saving irrigation(5 cm) if possible  Dust/ straw mulch (4 t/ha)  Thinning  Inter cultivation	Use of additional N @10kg/ha  Spray of 2% urea as foliar application  Conservation furrow	



		Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat			
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Earthing up in intercrops  Thinning to maintain proper distance between the plants	Conservation tillage  Spray of 2% urea as foliar application	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell)					
At flowering/ fruiting stage	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice -Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Life saving irrigation(5 cm) if possible  Dust/ straw mulch (4 t/ha)  Thinning  Intercultivation	1) Spraying of 2% urea as foliar application  2) KCl Spray	Farmers may be advised to work in NREGS & CLDP

		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Earthing up in intercrops  Thinning to maintain proper distance between the plants	Conservation tillage Spray of 2% urea as foliar application	
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<b>Condition</b>			<b>Suggested Contingency measures</b>		
<b>Terminal drought</b> (Early withdrawal of monsoon)	<b>Major Farming situation</b>	<b>Normal Crop/cropping system</b>	<b>Crop management</b>	<b>Rabi Crop planning</b>	<b>Remarks on Implementation</b>
	Deep Alluvial soils  Uplands	<b>Sequence cropping</b> Rice- Chickpea Rice- Lentil Rice- Mustard Rice- Barley Rice -Wheat Pearl millet- Chickpea Pearl millet- Lentil Greengram- Barley Greengram- Wheat Maize- Chickpea Maize- Lentil Blackgram- Barley Blackgram- Wheat Sesame - Lentil Sesame- Chickpea Sesame- Barley Sesame- Wheat	Life saving irrigation (5 cm) if possible  Dust/ straw mulch Intercultivation Defoliate older leaves  Harvesting at physiological maturity.	Sowing of toria in the month of September (Type 9 & Bhavani)  Conservation tillage  Deep ploughing with rotavater	Farmers may be advised to work in NREGS & CLDP
		<b>Inter cropping system</b> Pigeonpea + Pearl millet Pigeonpea +Sesame Pigeonpea + Rice	Harvesting of intercrop at physiological maturity  Earthing up in 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 Tube well- irrigated	<b>Sequence Cropping</b> Rice – Wheat Rice - Pea Rice – Chickpea Rice – Lentil Rice – Mustard Maize – Wheat Maize – Potato Maize – Mustard Maize – Chickpea Maize – Pea Maize – Lentil	Rice short duration varieties : NDR 97, Ratna, Narendra 118, Narendra 97, Pant Dhan IR 50, HUR 105, Induri Sambha HUR 2-1, HUR-3022 to be grown under aerobic condition.  Sowing of maize on ridges	Community nursery, 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 RKVY and supply of seeds NFSM
Limited release of water in canals due to low rainfall	Deep Alluvial soils medium land Tube well- irrigated	<b>Sequence Cropping</b> Rice – Wheat Rice - Pea Rice – Chickpea Rice – Lentil Rice – Mustard Maize – Wheat Maize – Potato Maize – Mustard Maize – Chickpea Maize – Pea Maize – Lentil	Grow short duration aerobic rice such as NDR 97, NDR 118 Govind, Vandana, Varanideep, Shusk Samrat & HUR 105 Desi & Composite varieties of maize should be grown.	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	Deep Alluvial soils	<b>Sequence Cropping</b>	Shift to only aerobic rice	Direct seeding in small	Breeder seed will be

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Remarks on Implementation	
water in canals under delayed onset of monsoon in catchment	medium land Tube well- irrigated	Rice – Wheat Rice - Pea Rice – Chickpea Rice – Lentil Rice – Mustard Maize – Wheat Maize – Potato Maize – Mustard Maize – Chickpea Maize – Pea Maize – Lentil	or Rice may be replaced by Pulses (Greengram, Blackgram), Oil seeds (Sesame), Vegetables (Cowpea, Bhendi, Brinjal, Chillies)	beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	supplied by BHU and NDAUT, 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	Remarks on Implementation	
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Deep Alluvial soils medium land Tube well- irrigated	<b>Sequence Cropping</b> Rice – Wheat Rice - Pea Rice – Chickpea Rice – Lentil Rice – Mustard Maize – Wheat Maize – Potato Maize – Mustard Maize – Chickpea Maize – Pea Maize – Lentil	Grow fodder crops such as Sorghum and pearl millet  Grow pearl millet for grain purpose.	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 RKVY and supply of seeds NFSM

Condition	Suggested Contingency measures			
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Remarks on Implementation
Insufficient	Deep Alluvial soils	<b>Sequence Cropping</b>	Shift to Pulses (Greengram,	Direct seeding in small Breeder seed will be

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
groundwater recharge due to low rainfall	medium land Tube well- irrigated	Rice – Wheat Rice - Pea Rice – Chickpea Rice – Lentil Rice – Mustard Maize – Wheat Maize – Potato Maize – Mustard Maize – Chickpea Maize – Pea Maize – Lentil	Blackgram), Oilseeds (Sesame)	beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation.	supplied by BHU and NDAUT, Faizabad.  Seed drills RKVY and supply of seeds NFSM

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

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
<b>Continuous high rainfall in a short span leading to water logging</b>				
Wheat	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	Shift to safer place
Rice	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	Shift to safer place
Pearl millet	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	Shift to safer place
Pigeonpea	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	Shift to safer place
Sugarcane	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	
Maize	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	Shift to safer place
Pea	Provide drainage	Proper bunding, drain out excess water	Harvest at physiological maturity	Shift to safer place
<b>Horticulture</b>				

Vegetable crops (Sponge gourd, Bitter gourd, Bhendi, Cauliflower, Cabbage)	Drain out excess water, Sow on ridges	Drain out excess water,	Drain out excess water	Shift to safer place
<b>Heavy rainfall with high speed Winds in short span</b>				
Wheat	Drain out excess water	Drain out excess water and protect from wind speed with vegetable barriers	Drain out excess water and protect from wind speed with vegetable barriers	Keep the grains at safer place
Rice	Drain out excess water	Drain out excess water and protect from wind speed with vegetable barriers	Drain out excess water and protect from wind speed with vegetable barriers	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. Harvest 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
Sugarcane	Drain out excess water	Propping	Propping	
Maize	Drain out excess water, earthing up	Drain out excess water, earthing up	Drain out excess water. Harvest at physiological maturity	Keep the grains at safer place
Pea	Drain out excess water	Drain out excess water	Green pods should be plucked	Keep the grains at safer place
<b>Horticulture</b>				
Sponge gourd	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
Bitter gourd	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
Bhendi	Drain out excess water	Drain out excess water and protect from wind speed with vegetable barriers	Drain out excess water and protect from wind speed with vegetable barriers	Shift to safer place
Cauliflower	Drain out excess water,	Drain out excess water,	Drain out excess water	Shift to safer place
Cabbage	Drain out excess water	Drain out excess water	Drain out excess water	Shift to safer place
<b>Outbreak of pests and diseases due to unseasonal rains</b>				
Wheat , Rice, Pearl millet, Pigeonpea)	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
<b>Transient water logging/ partial inundation</b>				
Rice	Re sowing with short duration varieties	Provide drainage	Prevent premature seed germination	Harvesting at physiological maturity Shift to safer place
<b>Continuous submergence for more than 2 days</b>				
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
<b>Sea water intrusion</b>	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
<b>Heat Wave</b>				
<b>Rice</b>	-	-	Provide Light irrigation to reduce temperature	Harvesting at physiological maturity
<b>Pigeonpea</b>	-	-	Provide Light irrigation	Harvesting at physiological maturity
<b>Wheat</b>	Provide irrigation	Provide Light irrigation	Provide Light irrigation	
<b>Lentil</b>	Pre irrigation before sowing	Provide Light irrigation	Provide Light irrigation to reduce temperature	
<b>Pea</b>	Pre irrigation before sowing	Provide Light irrigation	Provide Light irrigation	
<b>Horticulture</b>				
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	
<b>Cold wave</b>				
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		-
<b>Horticulture</b>				
Mango	-	-	Smoking by burning waste material to increase temperature	-
<b>Frost</b>				
Wheat	-	-	Provide Light irrigation	
Pulse crops	-	-	Provide light irrigation	
<b>Horticulture</b>				
Mango	-	Provide light irrigation	Smoking in orchards to increase temperature by burning waste material	
<b>Hailstorm</b>	Not Applicable			
<b>Cyclone</b>	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
<b>Drought</b>			
<b>Feed and fodder availability</b>	<p>Avail Insurance</p> <p>Encourage perennial fodders on bunds and wasteland 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 for grazing at barren lands.</p>	<p>Availing Insurance</p>
<b>Drinking water</b>	<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>	
<b>Health and disease management</b>	<p>Veterinary preparedness with medicines and vaccines</p>	<p>Conducting mass animal Health Camps and treating the affected once in Campaign</p>	
<b>Floods</b>			
<b>Feed and fodder availability</b>	<p>Grow the fodder crops at safer places (non-flood prone area)</p>	<p>Utilizing fodder from perennial trees and Fodder bank reserves.</p>	<p>Availing insurance</p>

		Utilizing fodder stored in silage. Transporting excess fodder from adjoining districts Use of feed mixtures. Shift the live stocks at safer place.	
<b>Drinking water</b>		Shift the live stocks at safer place where drinking water is available.	
<b>Health and disease management</b>	Veterinary preparedness with medicines and vaccines	Conducting mass animal Health Camps and treating the affected once in Campaign	
<b>Cyclone</b>	Not Applicable		
<b>Heat wave and cold wave</b>	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	
<b>Drought</b>	Insurance & Integration Establishing feed serve Bank	Utilizing from feed serve banks	Availing insurance Strengthening feed Reserve Banks	
<b>Shortage of feed ingredients</b>				
<b>Drinking water</b>				
<b>Health and disease management</b>	Emergency Veterinary preparedness with medicines vaccination to birds	Campaign and Mass Vaccination	Culling affected birds	
<b>Heat wave and cold wave</b>	Not Applicable			

### 2.5.3 Fisheries/ Aquaculture: Not applicable