State: Uttar Pradesh

Agriculture Contingency Plan for District: Santkabirnagar

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Eastern Plain, Hot Subhumid (moist) Eco-Region (13.1)		
	Agro-Climatic Zone (Planning Commission)	Middle Gangetic Plain Region (IV)		
	Agro Climatic Zone (NARP)	North Eastern Plain Zone (UP-8)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Barabanki,Ambedkarnagar,Faizabad,Sultanpur,Azamgarh,Mau,Jaunpur,Varanasi, Gazipur, Ballia, Bhadohi		
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**
		26°48' N	82°46' E	284ft
	Name and address of the concerned ZRS/ZARS/ RARS/ RRS/ RRTTS	Directorate of Research, SAU, Kumarganj, Faizabad		
	Mention the KVK located in the district with address	KVK Santkabirnagar		

1.2	**Rainfall**	**Normal RF(mm)**	**Normal Rainy days (number)**	**Normal Onset**	**Normal Cessation**
	SW monsoon (June-Sep):	987.1	40	3rd week of June	1st week of October
	NE Monsoon(Oct-Dec):	61.1	6	-	-
	Winter (Jan- Feb)	42.9	5	-	-
	Summer (March-May)	30	9	-	-
	Annual	1121.1	60	-	-

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)	174.81	121.2	4.36	28.05	0.137	2.62	5.062	1.906	8.24	3.121

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**	**Percent (%) of total Geographical area**
	Clay loam	-	82.69
	Sandy loam	-	77.96
	Sandy clay	-	41.26
	Diara soils	-	14.64

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity(%)
	Net sown area	69.9	
	Area sown more than once	-	
	Gross cropped area		

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	-		
	Gross irrigated area	-		
	Rainfed area	-		
	Sources of Irrigation	Number	Area ('000 ha) The data	Percentage of total irrigated area
	Canals		64.01	19.28

	Tanks		0.004	
	Open wells		0.133	
	Bore wells	17.54	174.05	47.25
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area		368.329	
	Pump sets		135	36.6
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			
*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) (Specify year eg., 2008-09)

1.7	**Major field crops cultivated**	**Area ('000 ha)**							
		Kharif			***Rabi***				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Rice	170.01	0.353	170.364	-	-	-	-	-
	Maize	819.0	0.377	819.377	-	-	-	-	-
	Pigeon pea	54.5	-	54.55	-	-	-	-	-

	Wheat	-	-	-	145.043	0.066	145.109	-	-
	Chickpea	-	-	-	0.186	0.968	1.154	-	-
	Lentil	-	-	-	104.70	0.003	104.703	-	-
	-	-	-	-	-	-	-	-	-

	Horticulture crops - Fruits	**Area ('000 ha)**		
		Total	**Irrigated**	**Rainfed**
	-	-	-	-
	Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
	Potato	3978**(ha)**	3978 **(ha)**	0
	Onion	0.152	0.152	0
	Others	6.908	6.684	0.224
	Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	-	-	-	-
	Plantation crops	**Total**	**Irrigated**	**Rainfed**
	-	-	-	-
	Eg., industrial pulpwood crops etc.			
	Fodder crops	**Total**	**Irrigated**	**Rainfed**
	Jowar	0.94	0	0.9
	Bajra	0.03	0	0.03
	Maize	0.42	0.05	0.37
	Total fodder crop area	**3.652**	**1.245**	**2.407**
	Grazing land	-	-	-
	Sericulture etc	-	-	-
	Others (specify)	-	-	-

1.8	**Livestock**	**Male (‘000)**	**Female (‘000)**	**Total (‘000)**
	Indigenous	224450	-	306.29
	Non descriptive Cattle (local low yielding)	-	-	-
	Improved crossbred cattle (Cow & Buffalo only)	1506	-	214.08
	Non descriptive Buffaloes (local low yielding)	-	-	-
	Buffaloes	165564	-	-
	Goat	225663	-	136.0
	Sheep	7560	-	0.82
	Others (Camel, Pig, Yak, Horse, Monkey etc.)	17005	-	10.20
	Commercial dairy farms (Number)	-	-	-
1.9	**Poultry**	**No. of farms**	**Total No. of birds (‘000) 141.295**	
	Commercial	265		
	Backyard	142	-	

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)	-	-	-
Others	-	-	-

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 (Crops to be identified based on total acreage)										
	Rice	172.90	18.50	-	-	-	-	-	-	-
	Maize	230.50	14.37	-	-	-	-	-	-	-
	Pigeon pea	222.80	7.64	-	-	-	-	-	-	-
	Wheat	-	-	240.93	26.39	-	-	-	-	-
	Pea	-	-	323.40	9.38	-	-	-	-	-
	Lentil	-	-	910.00	7.25	-	-	-	-	-
	Mustard	-	-	268.00	11.57	-	-	-	-	-
	Potato	-	-	463.03	219.76					
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	-	-	-	-	-	-	-	-	-	-

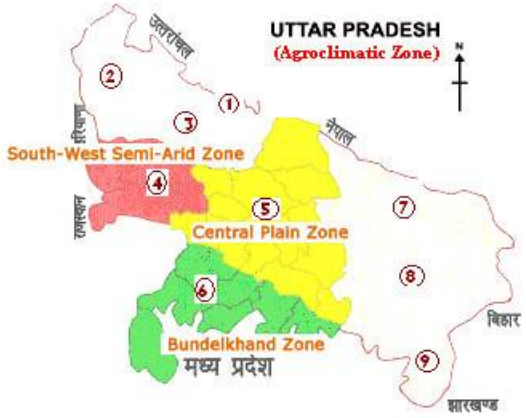
1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	Paddy	Maize	Wheat	Lentil
	Kharif- Rainfed	2nd week of June- 3rd week of July	1st week of June- 4th week of June	-	-
	Kharif-Irrigated	4th week of June- 2nd week of August	3rd week of June- 2nd week of July	-	-
	Rabi- Rainfed	-	-	2nd week of October - 2nd week of November	1st week of Oct- 4th week of October
	Rabi-Irrigated	-	-	2nd week of November- 4th week of December	-

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)	-	-	-

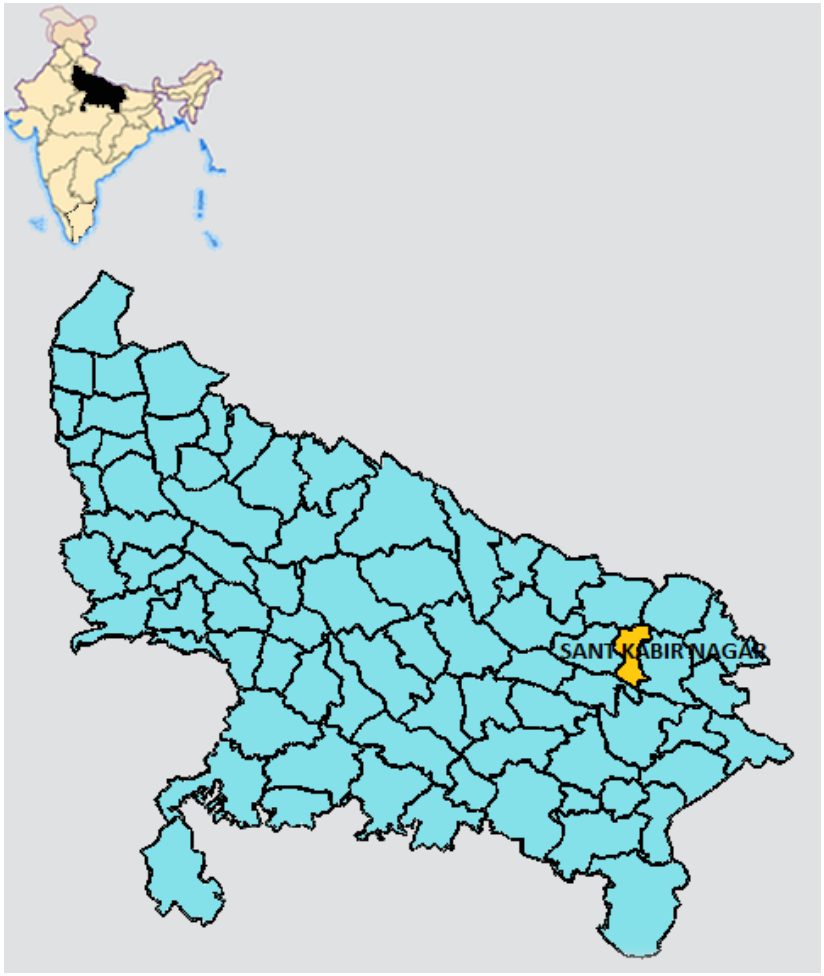
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure I



Agroclimatic Zones of U.P.

1. Bhabhar and Tarai Zone
2. Western Plain Zone
3. Mid Western Plain zone
4. South Western Plain Zone
5. Central Plain Zone
6. Bundelkhand Zone
7. North Eastern Plain Zone
8. Eastern Plain Zone
9. Vidhya Zone


SANT KABIR NAGAR


Haryana
Uttarkand
Map not to scale
N
Nepal
Rajasthan
Bihar
Jharkhand
Madhyapradesh
Saharanpur
Mujaffar Nagar
Bijnor
Bagh Path
Meerut
JRP Nagar
Ghaziabad
Rampur
Morada bad
Phlibit
GB Nagar
Buland shahr
Bareilly
Budaun
Aligarh
Shahjahanpur
Lakhimpur Kheri
Bahraich
Shravasti
Balrampur
Mathura
Mahamaya nagar
Etah
Farukha bad
Sitapur
Hardoi
Sidharth Nagar
Maharaj Ganj
Agra
Firozabad
Mainpuri
Kannauj
Lucknow
Barabanki
Gonda
Kushi nagar
Itawa
Auraiya
Unnao
Kabirnagar
Basti
Goraikh pur
Kanpur Dehat
Kanpur Nagar
Faizabad
Ambedkar Nagar
Deoria
Raebareli
Sultanpur
Jalaun
Ajamgarh
Maunath Bhanjan
Ballia
Fatehpur
Pratapgarh
Jaunpur
Hamirpur
Ghazipur
Jhansi
Banda
Kaushambi
Ravidas Nagar
Varanasi
Mahoba
Chitrakut
Allahabad
Chandauli
Mirjapur
Lalitpur
Sonbhadra
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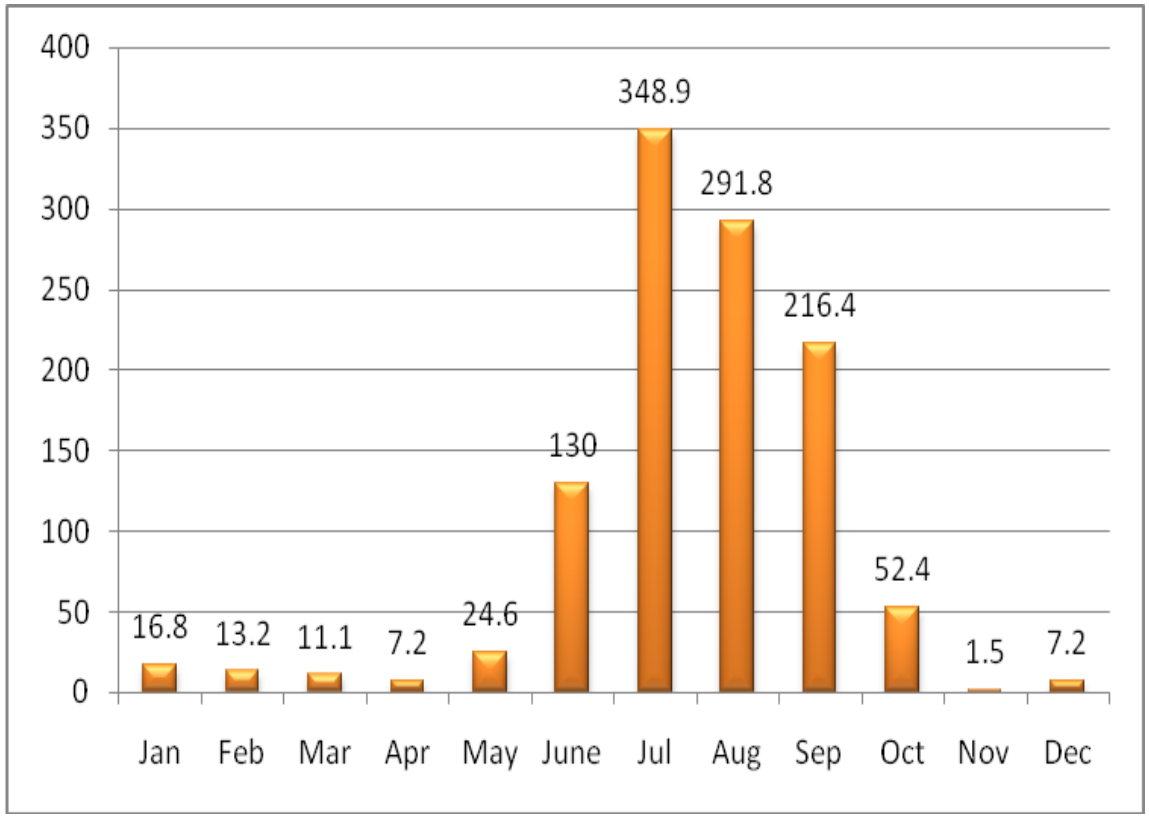
Annexure II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200
150
100
50
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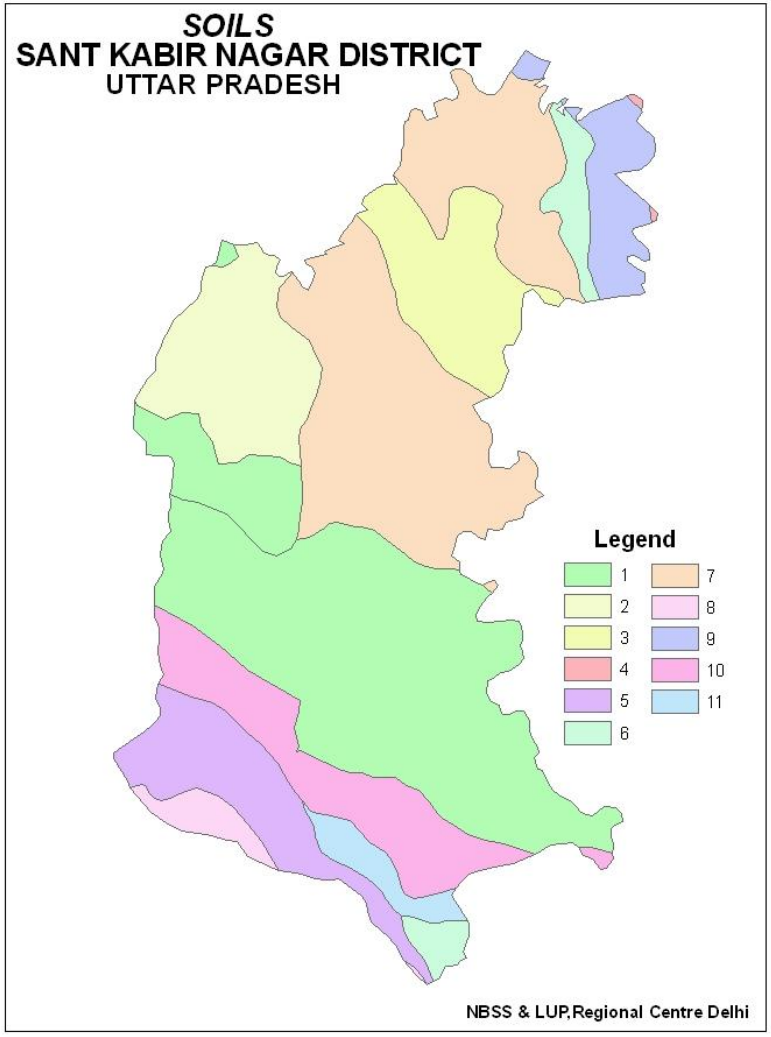
13.2
11.1
7.2
24.6
130
348.9
291.8
216.4
52.4
1.5
7.2
Jan
Feb
Mar
Apr
May
June
Jul
Aug
Sep
Oct
Nov
Dec

Annexure III



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 eroded associated with loamy soils .
4. Deep, silty soils and slightly eroded associated with loamy soils slightly saline and slightly sodic .
5. Deep, loamy soils and slightly eroded associated with loamy soils with moderate salinity and sodicity and moderate water logging.
6. Deep, silty soils associated with loamy soils slightly eroded .
7. Deep, silty soils and slightly eroded associated with fine soils .

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

8. Deep, loamy soils and slightly eroded associated with stratified loamy soils slightly eroded

Active Flood Plain (1-3% slope)

9. Deep, stratified loamy soils with but moderately flooding
10. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding .
11. 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			**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	Sandy clay loam soils	Rice	Rice Transplanting/Direct seeding of Medium and Short duration varieties of Rice Such as NDR-97, NDR-359,NDR-80,NDR-118, Baranideep etc.	Raise Staggered rice nursery should be grown at 15 days interval in small areas at least two times	• Seed-drill under RKVY • Supply of seed through govt. agencies *ie*. NFSM,RKVY
		Maize	Maize-Prakash, Sartaj, Naveen, Tarun.	Intercropping/ mixed cropping of maize/sorghum/ Pearlmillet with long duration varieties of Pigeonpea	
		Pigeonpea	No change	Sowing on raised beds Intercropping with Maize/Blackgram/Greengram	

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 4 weeks 3rd week of July	Deep clay loam soils	Rice-Wheat	Rice-Wheat Transplanting/Direct seeding of Medium and Short duration varieties of Rice Such as NDR-97, NDR-359,NDR-80,NDR-118, Baranideep, Govind,Saket-4, Ratna,IR-36 and Pant-12 etc.	• Direct seedling of short duration varieties of Rice such as NDR-97, NDR-80, NDR-118, Saket-4 • Raise Staggered rice nursery should be grown at 15 days interval in small areas at least two times • Adopt SRI system of nursery raising • Transplanting of Rice (beyond 20th July) with 3-4 seedlings/hill to increasing the plant population of 60 hills/m^2, instead of 50 hills/$m^{2.}$ • Pruning of over aged Rice seedlings for better establishment and optimum plant stand • Foliar praying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops	• Seed-drill under RKVY • Supply of seed through govt. agencies *ie*. NFSM,RKVY
		Maize	Maize-Prakash, Sartaj, Naveen, Tarun.	Intercropping/ mixed cropping of maize with long duration varieties of Pigeonpea	
		Pigeonpea	No change	Sowing on raised beds Intercropping with Maize/Blackgram/Greengram	

		Pigeonpea	No change	Sowing on raised beds Intercropping with Maize/Blackgram/Greengram	

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**	Clay loam soils	Rice-Wheat	Rice-Wheat Paddy: Short duration varieties of paddy such as NDR-97, NDR-80,NDR-118, Pant Dhan-12 should be transplanted/direct seeding.	Direct seeding of rice In case of late transplanting of rice(beyond 20th July) planting should be dense by increasing the number of seedlings/hill from 2 to 3 to 3 to 4. Adopt SRI system of nursery raising Weeding and interculture Foliar spraying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops Life saving irrigation in transplanted rice	• Seed-drill under RKVY • Supply of seed through govt. agencies *ie*. NFSM,RKVY
	Sandy loam soils	Maize	Greengram/ Blackgram Greengram: T-44, Pant mung-	Intercropping/ mixed cropping of Greengram/ Blackgram/	

			1, Narendra mung-1 Blackgram : Narendra urd-1,Pant urd-25	maize/sorghum/ Pearlmillet with long duration varieties of pigeonpea Sorghum+green gram(2:2)	
		Pigeonpea	Pigeonpea: Bahar	Maize (Tipekhiya) in Pigeonpea(Narendra Arhar-1) crop in 1:1 row ratio Sowing on raised beds Intercropping with Maize/Blackgram/Greengram Pigeonpea+ Blackgram/Greengram (1:3)	

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 (Specify month)	Clay loam soils	Rice-Wheat	Preference should be given for sowing of Pearlmillet and Sesame Pearlmillet: Pusa 322, 323(Hybrid) and WCC-75, Raj-171(Composite) Sesame: - Type-4, Type-78, Type-12 Greengram : T-44, Pant mung-1, Pant mung-2, Samrat, Malviya, Janpriya, Malviya jyoti, Narendra mung-1 Blackgram : Narendra urd-	Direct sowing In case of late transplanting of rice(beyond 20th July) planting should be dense by increasing the number of seedlings/hill from 2 to 3 to 3 to 4. Foliar praying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops Life saving irrigation in transplanted rice	• Seed-drill under RKVY • Supply of seed through govt. agencies *ie*. NFSM,RKVY
	Sandy loam soils	Maize		Intercropping/ mixed	

			1,Pant urd-25, Pant urd-19, Uttara, Type-9	cropping of Greengram/ Blackgram/maize/sorghum/ Pearlmillet with long duration varieties of pigeonpea Land preparation for sowing of early rabi crops like potato,toria,lahi and mustard	
		Pigeonpea	September Pigeonpea Varieties Bahar, PDA-11, Pusa-9 should be done till Ist week of September.	-	

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 clay loam soils	Rice	After seeding of rice if there is break of monsoon by 7 to 10 days and if seedling mortality is observed then re-sowing with the same variety Gap filling/transplanting in rice Using "Sanda" method, plant polulation can be maintainted with sufficient number of tillers in late drought condition as to minimize the production losses	Weeding at critical stages Foliar praying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops Life saving irrigation Proper electricity monitoring/rostering system should be ensured in area for regular supply of electricity for pumping of water for life saving irrigation	• Supply of inter cultural implements through RKVY • Farm ponds through IWSM programme • Pulse crop seeds supply through NFSM
		Maize	Ridge sowing Gap filling/ Thinning to maintain optimum plant population	Leaf mulching to conserve the soil moisture	
		Pigeonpea	Ridge sowing Gap filling/ Thinning to maintain optimum plant population	Leaf mulching to conserve the soil moisture	

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 clay loam soils	Rice	Gap filling/transplanting in rice Foliar spraying of 2% urea to boost up the growth	Weeding as to conserve the residual soil moisture Leaf mulching to conserve the soil moisture	

				Foliar praying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops Life saving irrigation from the stored water during the rainy season. Proper electricity monitoring/rostering system should be ensured in area for regular supply of electricity for pumping of water for life saving irrigation	
		Maize Blackgram/ Greengram Pigeonpea	Thinning to maintain proper distance between the plants. Frequent interculture Earthing up in Pigeonpea Foliar spraying of 2% urea to boost up the growth	Foliar spraying of 2% MOP to increase the resistance to drought Leaf mulching to conserve the soil moisture Conservation furrow Life saving irrigation	

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 clay loam soils	Rice	Foliar spraying of 2% urea to boost up the growth	Weeding as to conserve the residual soil moisture Leaf mulching to	

				conserve the soil moisture Foliar praying of 2.5 kg Urea + 2.5 kg Potash as to increase the drought tolerance in nursery / standing crops Life saving irrigation from the stored water during the rainy season. Proper electricity monitoring/rostering system should be ensured in area for regular supply of electricity for pumping of water for life saving irrigation	
		Maize Blackgram/ Greengram Pigeonpea	Thinning to maintain proper distance between the plants. Frequent interculture Earthing up in Pigeonpea Foliar spraying of 2% urea to boost up the growth	Foliar spraying of 2% MOP to increase the resistance to drought Leaf mulching to conserve the soil moisture Conservation furrow Life saving irrigation	

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 clay loam soils	Rice	Alternate management of irrigation should be ensured for provide life saving irrigation Proper electricity monitoring/ rostering system should be ensured in area for regular supply of electricity for pumping of water for life saving irrigation	Better pulverization should be made for conservation of soil moisture following by planking for sowing of early rabi crops like toria and potato etc.. Toria variety- type-9, type-36, PT-303, PT-30 and ageti Rai should be sown in 1st week of September while Bhawani variety can be sown in 2nd week of September. In fallow fields to sow Ageti rai, potato varieties like Kufri Ashoka, Kufri Chandra mukhi and other vegetable crops like spinach,reddish coriander etc.	
		Maize Blackgram/ Greengram	Harvesting of intercrop at physiological maturity (Maize, Blackgram and Greengram) Earthing up of Pigeonpea Harvesting of green cobs (maize) and sell in market and remaining portion will be used for fodder. Life saving irrigation to pigeonpea if possible.	Better pulverization should be made for conservation of soil moisture following by planking for sowing of early rabi crops like toria and potato etc.. Toria variety- type-9, type-36, PT-303, PT-30 and ageti Rai should be sown in 1st week of September while Bhawani variety can be	

				sown in 2nd week of September.	
		Pigeonpea		-	

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed release of water in canals due to low rainfall	Deep clay loam soils	Rice – Wheat / Pea/ Lentil	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	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	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: **C**SH-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.	

Non release of water in canals under delayed onset of monsoon in catchment	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	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.	
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	Sorghum\ Pearl millet	Conservation tillage, Sowing of Pearl millet & Sorghum for grain purposes at 45 cm on ridges. Foliar application of 2% MOP Use of mulches (straw/dust).	
Insufficient groundwater recharge due to low rainfall	Sandy clay loam soils	Rice – Wheat / Pea/ Lentil	Rice should be replaced with pulses (green gram & black gram), oilseeds (Sesame) in *Kharif* and wheat by Chickpea & lentil in *Rabi* season.	Direct seeding in small beds. .	

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
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
Heavy rainfall with high speed winds in a short span[2]	-	-	-	-
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[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Rice	• Arrangement of Drainage channel • Drainage of water from the rice fields • Raise community nursery in the village	• Removal of excess water • Drainage of excess water through drainage channel should be made.	Provide drainage • Prevent premature seed germination • Foliar spray of 5% urea	Harvesting at physiological maturity Shift produce to safer place Provision for buying / marketing of discoloured grain at the earliest to provide relief
Maize	Provide drianage , creation of surface drains at appropriate places to avoid water logging Removal of silt from contour staggered trenches Divergent drain be made to collect runoff at suitable points either in artificially Created ponds or diverting to wells.	Divergent drain be made to collect runoff at suitable points either in artificially created ponds or diverting to wells.	Divergent drain be made to collect runoff at suitable points either in artificially created ponds or diverting to wells.	

	Drainage of excess water through drainage channel should be made.			
Continuous submergence for more than 2 days[2]				
Rice	• Drainage of excess water through drainage channel • Transplanting of deep water rice –Madhupur, Jalmagn, Jalpriya, Jalnidhi, Awarodhi **In low lying areas;** 1. Water stagnation upto 30-50 cm ht.- Mahsuri, Jal lahri, Swarna, Sabha mahsuri 2. Water stagnation upto 50-100 cm height – Chakya-69, Madhukar, Jalpriya 3. >100 cm height – Jalnidhi, Jalmagna 4. Water logging- Awarodhi, Madhukar Drainage of excess water through drainage channel should be made.	• Just after finishing of floods, topdressing of urea could be ensured in the field	If crops fails due to water logging caused by excess rainfall, then resowing by end week of August or early maturing varieties of crops should be taken Drainage of excess water through drainage channel should be made. If top dressing of urea is not possible due to water stagnation/floods, then foliar spray of 5% urea solution can be done.	• Preference should be given for planting of Autumn Sugarcane in the month of Oct so that their grand growth completed to the maxi. Extent prior to floods. • Planting of Sugarcane on raised beds instead of flat bed. • Emphasis could be given for cultivation of Toria, Blackgram, Greengram/Sunflower
Sea water intrusion	Not Applicable			

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone

Extreme event type	**Suggested contingency measure**[r]			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave				
Rice	Provide watering Light and frequent irrigation during night	• Provide light irrigation • Irrigation interval should be decreased	Irrigation interval should be decreased	-

Wheat	-	-	Provide light irrigation	Harvesting at physiological maturity
Pigeonpea	• Mulching	• Irrigation interval should be decreased	• Irrigation interval should be decreased	-
Cold wave				
Wheat	Provide light irrigation	Provide light irrigation	Provide light irrigation	-
Pigeonpea	Mulching	Light irrigation for survival	Light irrigation for survival	Harvesting at physiological maturity
Frost	Not applicable			
Hailstorm	Not Applicable			
Cyclone	Not Applicable			

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability	• Storage of straw and silage in Silo pit according to population of animal	-	-
Drinking water	• Maintenance and inspection of Tubewells, Handpumps, Ponds, Tanks etc.	-	-
Health and disease management	• Vaccination of animals against FMD, HS, B.Q. and Dewarming	-	-
Floods			
Feed and fodder availability	• Increase the area of fodder	• Availability of safe place for the animals	• Sowing of rabi fodder crops - Berseems, Lucerne, Oat and other rabi crops

Drinking water	• Crops according to popu. and their storage	• Distribution of stored feed and fodders according to the popu. of affected	• Drain of infected stored water and supply of fresh water for drinking.
Health and disease management	• Arrangement of clean drinking water in sufficient water in growth	• Provide neat & clean drinking water	• Proper treatment of affected (animals vaccination & Dewarming)
Cyclone	Not applicable		
Feed and fodder availability		•	
Drinking water			
Health and disease management	-	-	-
Heat wave and cold wave			
Shelter/environment management	• Shelter house/Farm house should not face directly	• Proper availability of shelter, drinking water and feeds & fodder as per need of the animals	• Provide shelterbelts of good quality materials
Health and disease management	• Ensure the availability of drinking water and as well as electrolytes	-	• Routine health check up by veterinary doctors

[s] based on forewarning wherever available

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				
Shortage of feed ingredients	-	-	-	-
Drinking water	• Deep tubewell provide clean drinking	• Provide the drinking water	• Provide the drinking water	-
Health and disease management	• Vaccination against infectious diseases	• Vaccination	• Vaccination for infectious diseases such as- Ranikhet, infectious Coryza, IBD, ILT	-

Floods				
Shortage of feed ingredients	• Inspection of established Tubewell & other water sources	• Provide the drinking water	• Provide the drinking water	-
Drinking water	• Vaccination against infectious diseases	• Vaccination	• Vaccination for infectious diseases such as- Ranikhet, infectious Coryza, IBD, ILT	-
Health and disease management	-	-	-	-
Cyclone	Not applicable			
Shortage of feed ingredients	-	-	-	-
Drinking water	-	-	-	-
Health and disease management	-	-	-	-
Heat wave and cold wave				
Shelter/environment management	• Arrangement of proper shelter and cooler/heater to maintain the proper temp. of the shelter house	• Maintenance of surrounds temp. and prevent the birds from direct exposure of heat/ cold waves	• Heat check up	-
Health and disease management	• Vaccination	• Vaccination	• Vaccination • Availability of neat & clean water	-

[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	Arrange for alternative water resources	Sell the produce at minimum acceptable size to the consumer	Lime Application
(i) Shallow water depth due to insufficient rains/inflow	Stocking of Air breathing		
(ii) Changes in water quality		Increased water temperature	
(iii) Any other		Decrease dissolve oxygen	
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	Arrange for alternative water resources	Minimum disturbance to the fish i.e. minimum fishing activities	Maintain the pond properly by liming, manuring and fertlization
(ii) Impact of salt load build up in ponds / change in water quality	-		
(iii) Any other	-		
2) Floods			
A. Capture			
Marine			
Inland	Harvest the large size fish	Protect the escape of fish	Manage the inlet, outlet structures along with pond land
(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	Make 2.5 m high bylonnet bundry on the band of pond	Check for outlet to remain open	Close outlet and open inlet
(ii) Water contamination and changes in water quality		Close inlet and divert water receiving channel	Treatment of water with Alum and $KmnO_4$

(iii) Health and diseases			Feeding, liming, manuring and fertilization of ponds
(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		Stocking of fish sped for a period of 1-2 month	
(ii) Changes in water quality (fresh water / brackish water ratio)	Liming	Lime+alum	Harvesting and selling fish seeds
(iii) Health and diseases		Lime+alum	
(iv) Loss of stock and inputs (feed, chemicals etc)			Netting of fish+$KmnO_4$ application
(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			