

State: UTTAR PRADESH

Agriculture Contingency Plan for District : Maharajganj

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Eastern Plain, Hot Subhumid (moist) Eco-Region (13.2)		
	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)	Bahraich, Basti, Deoria, Faizabad, Gonda, Gorakhpur, Kushi Nagar, Maharajgunj, Sant Kabir Nagar, Shrawasti, Sidharth Nagar		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		27 ⁰ 09'N	83 ⁰ 34'E	66m
	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 Vignan Kendra, Basuli, Siswa Bazar, Maharajganj Dist.		
	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)	1182.1	50	3 rd week of June	1 st week of October
	NE Monsoon(Oct-Dec)	77.0	2	-	-
	Winter (Jan- March)	46.1	4	-	-
	Summer (Apr-May)	58.9	5		
	Annual	1364.1	61		

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)	290.548	202.262	49.988	30.817	0.188	0.558	0.238	1.283	3.183	1.401

1.4	Major Soils	Area ('000' ha)	Percent (%) of total geographical area
	Alluvial Loam Soils	198.521	-
	Bhat Soils	10.341	-
	Clay Loam Soils	-	-
	Loam Soils	-	-
	Sandy Loam Soils	-	-

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	202.262	177.0%
	Area sown more than once	155.784	
	Gross cropped area	358.046	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	163.799		
	Gross irrigated area	178.053		
	Rainfed area	38.463		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area (%)
	Canals		31.295	-
	Tanks		1.686	-
	Open wells		2.831	-
	Bore wells		Govt. 4.843 + Pvt. 123.128 = 127.971	-
	Lift irrigation schemes			-
	Micro-irrigation			-
	Other sources		0.016	-
	Total Irrigated Area		163.799	-

Pump sets			
No. of Tractors			
Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks – 12	(%) area	Quality of water
Over exploited			No problem of arsenic & fluoride however, low amount of salinity is reported. In majority of the area the problems of calcium & iron are reported
Critical			
Semi- critical			
Safe	Safe		
Wastewater availability and use			
Ground water quality			

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

1.7 Area under major field crops & horticulture (2007-08)

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	4.293	160.041	164.334	-	-	-	0.155	164.489	
Wheat	-	-	-	146.275	0.440	146.715	-	146.715	
Lentil	-	-	-	0.467	9.543	10.010	-	10.010	
Mustard	-	-	-	3.299	0.308	3.607	-	3.607	
Pea	-	-	-	1.080	0.183	1.263	-	1.263	
Sugarcane	-	-	-	-	-	-	19.194	19.194	

S. No	Horticultural Crops - Fruits (2004-05)	Total	Irrigated	Rainfed
	Banana	0.181	-	-

	Musk melon	0.069	-	-
	Guava	0.028	-	-
	Jack Fruit	0.004	-	-
	Litchi	0.004	-	-
	Horticultural Crops Vegetables (2004-05)			
	Onion	0.314	-	-
	Sweet Potato	0.0105	-	-
	Bottle Gourd	0.024	-	-
	Bitter Gourd	0.022	-	-
	Toria	0.011	-	-
	Medicinal and Aromatic crops	Total (000 ha)	Irrigated (000 ha)	Rainfed (000 ha)
	Plantation crops	-	-	-
	Fodder crops	0.518	0.407	0.111
	Grazing land	-	-	-
	Sericulture etc	-	-	--

1.8	Livestock	Male ('000)	Female ('000)	Male + Female (>3 Yrs) ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	78.233	44.796	38.877	161.906
	Improved cattle	-	-	-	-
	Crossbred cattle	1.673	6.654	6.831	15.158
	Non descriptive Buffaloes (local low yielding)	0.553	79.396	79.938	159.887
	Descript Buffaloes	-	-	-	-
	Goat	-	-	-	236.456
	Sheep	-	-	-	2.940
	Pig	-	-	-	34.752
	Commercial dairy farms (Number)	-	-	-	0.260

1.9	Poultry	No. of farms	Total No. of birds ('000)
	Commercial		298.521

	Backyard		7.157
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1.10 Fisheries					
A. Capture					
i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets	Storage facilities (Ice plants etc.)
ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks
			1(Govt.) + 0.0(Private)		
B. Culture					
		Water Spread Area (ha)		Yield (t/ha)	Production ('000 tons)
i) Brackish water (Data Source: MPEDA/ Fisheries Department)		-		-	-
ii) Fresh water (Data Source: Fisheries Department)		60.05(Govt.) + 0.0(Private)			70.00 (Govt.)+ 0.0 (Private) No. of Angulikao- 200.00

1.11 Production and Productivity of major crops

1.11	Name of crop	<i>Kharif</i>		<i>Rabi</i>		<i>Summer/Rabi</i>		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops										
	Rice	395.196	2369	-	-	-	-	395.196	2369	
	Wheat	-	-	358.727	2441	-	-	258.727	2441	
	Sugarcane	-	-	-	-	1043.447	5438	1043.447	5438	
	Lentil	-	-	7.527	686	-	-	7.527	686	

	Mustard	-	-	2.541	588	-	-	2.541	588	
	Pea	-	-	1.541	1039	-	-	1.541	1039	
Major Horticultural crops										
Fruit Crop (2004-05)										
	Banana	-	-	-	-	-	-	6.583	36300	
	Musk melon	-	-	-	-	-	-	1.794	26000	
	Jack Fruit	-	-	-	-	-	-	0.100	25000	
	Guava	-	-	-	-	-	-	0.278	9900	
Horticultural Crops Vegetables (2004-05)										
	Bottle Gourd	-	-	-	-	-	-	0.661	27500	
	Onion	-	-	-	-	-	-	3.828	12190	
	Bitter Gourd	-	-	-	-	-	-	0.341	15500	
	Torai	-	-	-	-	-	-	0.171	15500	
	Sweet Potato	-	-	-	-	-	-	0.105	11600	

1.12	Sowing window for 5 major field crops	Rice	Wheat	Sugarcane	Lentil	Mustard	Pea
	<i>Kharif</i> - Rainfed	4 th week of June to 1 st week of July	-	-	-	-	-
	<i>Kharif</i> -Irrigated	June (nursery)	-	-	-	-	-
	<i>Rabi</i> - Rainfed		2 nd week of October to 4 th week of October	-	2 nd week of October to 4 th week of October	2 nd week of October to 4 th week of October	2 nd week of October to 4 th week of October
	<i>Rabi</i> -Irrigated		2 nd week of November to 4 th week of November	October/November	-	1 st week of November to 2 nd week of November	2 nd week of October to 2 nd week of November
	Summer irrigated	-	-	February/March	-		

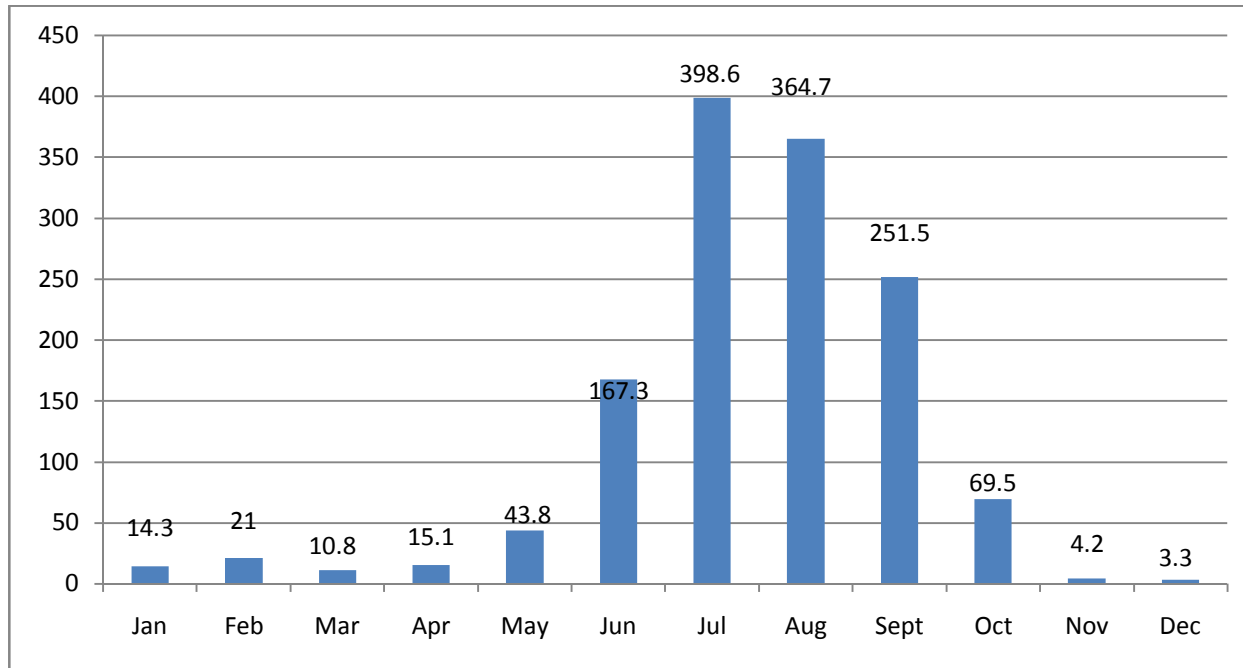
1.13	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought	✓		
	Flood		✓	
	Cyclone		✓	
	Hail storm		✓	
	Heat wave		✓	
	Cold wave		✓	
	Frost		✓	
	Sea water intrusion			✓
	Pests and disease outbreak	✓		

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 1

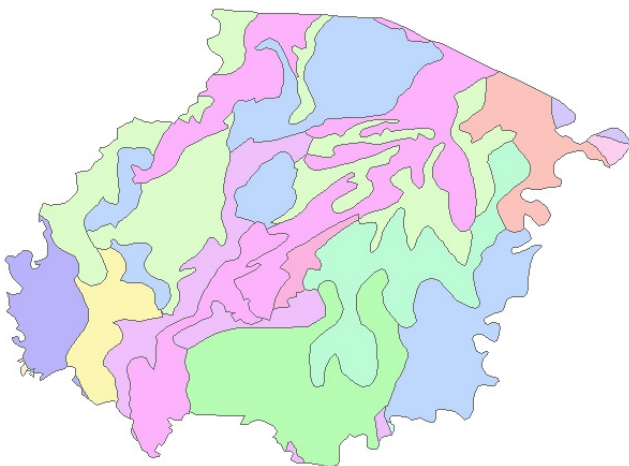


Annexure – II : Mean Monthly Rainfall(mm)



Annexure III

SOILS MAHARAJGANJ DISTRICT UTTAR PUADESH



Legend

1	8
2	9
3	10
4	11
5	12
6	13
7	14

NBSS & LUP, Regional Centre Delhi

Piedmont Plains (1-3% slope)

1. Deep, loamy over sandy soils and moderately eroded associated with sandy soils and moderately eroded.

Alluvial plain (0-1% slope)

2. Deep, loamy soils and slightly eroded.
3. Deep, loamy soils and slightly eroded associated with silty soils.
4. Deep, fine soils and slightly eroded associated with loamy soils.
5. Deep, silty soils and slightly eroded associated with loamy soils slightly saline and slightly sodic .
6. Deep, silty soils associated with loamy soils slightly eroded.
7. Deep, loamy soils and slight water logging associated with loamy soils slightly eroded.
8. Deep, silty soils and slightly eroded associated with fine soils .

Recent Alluvial Plain (1-3% slope)

9. Fine soils with slight erosion, water logging
10. Deep, silty soils with moderate water logging
11. Deep, loamy soils and slightly eroded associated with fine soils and moderate flooding
12. Deep, loamy soils with slight flooding.

Active Flood Plain (1-3% slope)

13. Deep, stratified loamy soils with but moderately flooding.
14. Deep, stratified loamy soils, with moderate flooding associated with sandy soils with moderate flooding.

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
Early season drought (delayed onset) Delay by 2 weeks 1 st week of July	Very deep alluvial soils Upland situation	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Rice short duration varieties such as NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini under upland condition for direct sowing	Sowing with seed cum fertilizer drills across the slope and re-sowing if no proper germination.	Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping : Pigeonpea + Groundnut	Intercropping of Pigeonpea+ Groundnut Pigeonpea: Bahar, Narendra Arahahar-1, Malviya Vakas(MA6), Malviya Chamtkar (MA-13) Groundnut: Chandra, Chitra, Kaushal, Prakash, Utkarsh		
		Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Early maturing, semi dwarf and high yielding rice varieties such as NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant Dhan-12, HUR-105 and Pant Shankar dhan-1 may be direct sown.	Direct sowing in lines through Seed cum Ferti drill as well as transplanting of rice seed lings after puddling the field. Use of rice seedlings from Community nursery for the transplanting	
	Rainfed medium land	Inter cropping : Sugarcane + Maize Sugarcane + Mustard (Already sown sugarcane crop) Pigeonpea + Groundnut	Sugarcane + Maize (Already sown sugarcane crop) Pigeonpea + Groundnut	Sowing should be done on ridges of sugarcane as well as intercrops.	

	Rainfed lowland	Sequence of cropping : Rice-Lentil Rice-Pea Rice-Mustard	Water stagnation is up to 1m depth: Transplanting with tall rice varieties MTU- 7029 and BPT-5204 may be transplanted with the onset of first shower Water stagnation is more than 1m: Transplanting with NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi	Transplanting of rice seed lings should be completed before 15 th of July through community base nursery	
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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 3 rd week of July	Very deep alluvial soils Upland situation	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Rice short duration varieties such as NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini under upland condition as direct sowing	Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Soil moisture conservation practices such as soil mulching with sugarcane leaves may be utilized.	Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping : Pigeonpea + Groundnut	Intercropping of Pigeonpea+ Groundnut Pigeonpea: Bahar,Narendra Arahar-1, Malviya Vakas(MA6) , Malviya Chamtkar (MA13) Groundnut- Chandra, Chitra, Kaushal, Prakash, Utkarsh		
	Rainfed medium land	Sequence cropping : Rice-Lentil Rice-Pea	Early maturing, semi dwarf and high yielding rice varieties such as NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant	Sowing with seed cum ferti drills and re-sowing if no proper germination.	

		Rice-Mustard	Dhan-12, HUR-105 and Pant Shankar dhan-1 may be direct sown.	Weed management through dry land weeder & also through weedicides.	
		Inter cropping : Sugarcane + Maize Sugarcane + Mustard (Already sown sugarcane crop) Pigeonpea + Groundnut	Sugarcane + Maize (Already sown sugarcane crop) Pigeonpea + Groundnut	Sowing should be done on ridges of main as well as intercrops.	
	Rainfed low land	Sequence cropping: Rice-Lentil Rice-Pea Rice-Mustard	Water stagnation is up to 1m depth: Transplanting with tall rice varieties MTU- 7029 and BPT-5204 may be transplanted with the onset of first shower Water stagnation is more than 1m: Transplanting with NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi	Transplanting of rice seed lings should be started with the onset of the monsoon through community base nursery	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)					
Delay by 6 weeks 1 st week of August	Very deep alluvial soils Upland situation	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	The area of Maharajganj comes under tarai belt where rainfall is not delayed upto this extant. However, under the delayed situation pearl millet could be sown as a substitute for rice. Pearl millet: WCC 75, Raj 171, Pusa 23		Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping system Pigeonpea + Groundnut	Intercropping of Pigeonpea+ Pearl millet	Sowing of both Pigeonpea + Pearl millet should be done on	

				ridges only.	
	Rainfed medium land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	The area of Maharajanj comes under tarai belt where rainfall is not delayed upto this extent. However, under the delayed situation pearl millet could be sown as a substitute for rice. Pearl millet: WCC 75, Raj 171, Pusa 23		Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping: Sugarcane + Maize Sugarcane + Mustard (Already sown sugarcane crop) Pigeonpea + Groundnut	Pigeonpea + Pearl millet	Sowing should be done on ridges of main as well as intercrops.	
	Rainfed low land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Water stagnation is up to 1m depth: Transplanting with tall rice varieties MTU- 7029 and BPT-5204 may be transplanted with the onset of first shower Water stagnation is more than 1m: Transplanting with NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi	Transplanting of rice seed lings should be completed up to 10 th of August through community base nursery	

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 rd week of August	Very deep alluvial soils Upland situation	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	The area of Maharajganj comes under tarai belt where rainfall is not delayed up to this extent. However, under the delayed situation pearl millet could be sown as a substitute for rice. Pearl millet: WCC 75, Raj 171, Pusa 23	Sowing of pearl millet on ridges may be recommended for upland area for grain as well as fodder crop.	Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
		Inter cropping : Pigeonpea + Groundnut	Intercropping of Pigeonpea+ pearl millet	Sowing of both Pigeonpea + pearl millet should be done on ridges only.	
	Rainfed medium land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	The area of Maharajganj comes under tarai belt where rainfall is not delayed upto this extent. However, under the delayed situation pearl millet could be sown as a substitute for rice. Pearl millet : WCC 75, Raj 171, Pusa 23	Weed management through dryland weeder & Thinning of population in case of pearl millet grown for grain purpose only , Surface water management	
		Inter cropping : Sugarcane + Maize Sugarcane + Mustard (Already sown sugarcane crop) Pigeonpea + Groundnut	Pigeonpea + Pearl millet	Sowing should be done on ridges of main as well as intercrops.	
	Rainfed low land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Water stagnation is up to 1m depth: Transplanting with tall rice varieties MTU- 7029 and BPT- 5204 may be transplanted with the onset of first shower Water stagnation is more than 1m: Transplanting with NDR-	Transplanting of rice seed lings should be completed before 25 th of August through community based nursery	

			8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi, Bar Avarodhi		
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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.	Very deep alluvial soils Upland situation	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Use of drought tolerant varieties (NDR 97, Vandana and Govind) Shushk Samrat, Gap filling or re-sowing of crop , as per need Use of dust mulch/ straw mulch, Intercultivation	Use of additional N @10kg/ha, Conservation furrow	
		Inter cropping: Pigeonpea + Groundnut	Earthing up in Pigeonpea, Thinning to maintain proper distance between the plants, Gap filling and re-sowing of crops as per need	Conservation tillage, Spray of 2% urea as foliar application	
	Rainfed medium land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Gap filling or re-sowing of crops if needed. Use of drought resistant/tolerant rice varieties. Re transplanting of rice seedlings from community nursery Use of dust mulch/straw mulch , Intercultivation	Use of additional N @10kg/ha Conservation furrow	
	Rainfed low land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Gap filling or re-sowing of crop, as per need. Use of dust mulch/ straw mulch	Use of additional N @10kg/ha Conservation furrow	

			Re transplanting from community nursery as and when rains received.		
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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	Very deep alluvial soils Uplands situation	Sequence cropping: Rice-Lentil Rice-Pea Rice-Mustard	Life saving irrigation, if possible, Dust/ straw mulch, Thinning, Intercultivation	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow	
		Inter cropping: Pigeonpea + Groundnut	Earthing up in Pigeonpea and thinning of Groundnut to maintain proper distance between the plants.	Conservation tillage, Spray of 2% urea as foliar application	
	Rainfed medium land	Sequence cropping: Rice-Lentil Rice-Pea Rice-Mustard	Life saving irrigation possible if Dust/ straw mulch, Thinning, Intercultivation	Use of additional N @10kg/ha, Spray of 2% urea as foliar application, Conservation furrow	
	Rainfed low land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Life saving irrigation, Dust/ straw mulch, Thinning, Intercultivation	Use of additional N @10kg/ha, Spray of 2% urea as foliar application, Conservation furrow	

Condition			Suggested Contingency measures		
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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	Very deep alluvial soils Upland situation	Sequence cropping ; Rice-Lentil Rice-Pea Rice-Mustard	Life saving irrigation, If possible	1) Spraying of 2% urea as foliar application. 2) KCl Spray	Linkage to NREGS & CLDP
		Inter cropping : Pigeonpea + Groundnut	If there is no winter rain , give light irrigation to Pigeonpea crop	1) Spraying of 2% urea as foliar application. 2) KCl Spray	
	Rainfed medium land	Sequence cropping: Rice-Lentil Rice-Pea Rice-Mustard	Life saving irrigation to rice – one or two depending upon availability of water in canal	1) Spraying of 2% urea as foliar application. 2) KCl Spray	
	Rainfed low land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Life saving irrigation, if possible, Dust/ straw mulch, Thinning, Intercultivation	Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow Use of Azetobactor/ Azospirilum Use of Blue Green Algee @12.5kg/ha after 3-4 days of transplanting of rice seedlings	

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

	Very deep alluvial soils Uplands situation	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Dust/ straw mulch, Intercultivation , Defoliate older leaves, Harvesting at physiological maturity.	Toria (Bhavani& Type-9)/Agati mustard may be sown during last week of September to middle of October.	Linkage to NREGS & CLDP
		Inter cropping: Pigeonpea + Groundnut	1) Harvesting at physiological maturity 2) Life saving irrigation, if possible to Pigeonpea	1) Spraying of 2% urea as foliar application. 2) KCl Spray	
	Rainfed medium land	Sequence cropping : Rice-Lentil Rice-Pea Rice-Mustard	Dust/ straw mulch, Intercultivation, Defoliate older leaves, Harvesting at physiological maturity.	Toria(Bhavani& Type-9) /Agati mustard may be sown during last week of September to middle of October.	
	Rainfed low land	Sequence cropping ; Rice-Lentil Rice-Pea Rice-Mustard	Dust/ straw mulch, Intercultivation, Defoliate older leaves, Harvesting at physiological maturity.	Use of Azetobactor/ Azospirillum, Use of Blue Green Algee @12.5kg/ha after 3-4 days of transplanting of rice seedlings, Toria/Agati mustard may be sown during last week of September to middle of October.	

2.1.2 Drought - Irrigated situation

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Very deep to medium land alluvial soils	Sequence cropping : Rice-Wheat Rice-Pea Rice-Mustard	Rice short duration varieties such as NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini may be transplanted	Community nursery, Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface	Breeder seed will be supplied by BHU and NDAUT, Faizabad. Seed drills under

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation
			from community nursery.	irrigation.	RKVY and supply of seeds through NFSM
	Very deep to low land alluvial soils	Sequence cropping : Rice-Wheat Rice-Pea Rice-Mustard	Tall rice varieties such as Swarna, Cross-116, Mtu-7029 and BPT-5204 may be transplanted with the onset of first shower or with the availability of first irrigation water from the canal.	Transplanting of rice seed lings should be completed before 15 th of July through community base nursery	

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Very deep alluvial soils	Sequence cropping ; Rice-Wheat Rice-Pea Rice-Mustard	Early maturing, semi dwarf and high yielding rice varieties such as Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant shankar dhan-1 may be direct sown under aerobic conditions with the onset of monsoon.	Direct showing in lines through Seed-cum Ferti drill use of dust and straw mulch.	Breeder seed may be obtained from the University (NDUAT) Seed drills under RKVY Supply of seeds through NFSM
	Medium land, canal irrigated				
	Very deep alluvial soils	Sequence cropping : Rice-Wheat Rice-Pea Rice-Mustard	Direct sowing of tall rice varieties such as Type-3, Type-23, Mahsoori and Swarna with the onset of monsoon.	After heavy rainfall transplanting may be done with seedlings from community nursery.	
	Low land, canal irrigated				

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Very deep alluvial soils Medium & low land, canal irrigated	Sequence cropping: Rice-Wheat Rice-Pea Rice-Mustard	Early maturing, semi dwarf and high yielding rice varieties such as Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant shankar dhan-1 may be direct sown under aerobic conditions with the onset of monsoon. If sowing of rice is not possible than grow fodder crops such as Sorghum and pearl millet.	Conservation tillage.	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	Agonomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Very deep alluvial soils Medium & low land, canal irrigated	Sequence cropping : Rice-Wheat Rice-Pea Rice-Mustard	Shift to pulses (black gram), oilseeds (Sesame, Ground nut)	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			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Rice	Provide drainage	Proper bunding, drain out excess water	Harvesting at physiological maturity	Shift to safer place
Wheat	Provide drainage	Proper bunding, drain out excess water	Harvesting at physiological maturity	Shift to safer place
Lentil	Provide drainage	Drain out excess water	Harvesting at physiological	Shift to safer place

			maturity	
Mustard	Provide drainage	Proper bunding, drain out excess water	Harvesting at physiological maturity	Shift to safer place
Pea	Provide drainage	Proper bunding, drain out excess water	Harvesting of green pods	Shift to safer place
Sugarcane	Provide drainage	Harvesting of crop before flowering	Harvesting of crop	Shift to mills
Horticulture				
Onion	Drain out excess water, Sow on ridges	Drain out excess water	Drain out excess water	Shift to safer place
Bottle gourd	Drain out excess water, Sown on ridges	Drain out excess water, Sow on ridges	Drain out excess water, Plucking of mature and pre-mature fruits for vegetable purpose.	Shift to market
Bitter gourd	Drain out excess water, Sown on ridges	Drain out excess water Sown on ridges	Drain out excess water, Plucking of mature and pre-mature fruits for vegetable purpose.	Shift to market
Torai	Drain out excess water Sown on ridges	Drain out excess water, Sown on ridges	Drain out excess water, Plucking of mature and pre-mature fruits for vegetable purpose.	Shift to market
Sweet Potato	Drain out excess water Sown on ridges	Drain out excess water, Sown on ridges	Drain out excess water, Digging out tubers at mature of pre-mature stage.	Shift to safer place
Heavy rainfall with high speed Winds in short span				
Rice	Drain out excess water	Drain out excess water and protected with vegetable barriers	Drain out excess water and protect with vegetable barriers	Keep the grains at safer place
Wheat	Drain out excess water	Drain out excess water and speed of wind may be protected with vegetable barriers	Drain out excess water and protect with vegetable barriers	Keep the grains at safer place
Sugarcane	Plant should be tied in a group and drain out excess water	Sugarcane is harvested on or before flowering	Plant should be tied in a group and drain out excess water	Transport to mills

			Harvesting is being practiced	
Lentil	Drain out excess water	Drain out excess water	Drain out excess water, Harvesting at physiological maturity	Keep the grains at safer place
Mustard	Drain out excess water	Drain out excess water	Drain out excess water, Harvesting at physiological maturity	Keep the grains at safer place
Pea	Drain out excess water, No effect of high speed of winds	Drain out excess water , Grow dwarf and erect varieties of field pea	Drain out excess water. Harvesting of green pods	Keep the grains at safer place
Horticulture				
Onion	Drain out excess water, No effect of high speed of winds	Drain out excess water No effect of high speed of winds	Drain out excess water No effect of high speed of winds	Shift to safer place
Bottle gourd	Drain out excess water,	Drain out excess water,	Drain out excess water	Shift to market as green vegetables
Bitter gourd	Drain out excess water	Drain out excess water	Drain out excess water	Shift to market as green vegetables
Torai	Drain out excess water	Drain out excess water	Drain out excess water	Shift to market as green vegetables
Sweet Potato	Drain out excess water, Sowing on ridges	Digging of tubers before flowering, Drain out excess water	Digging of tubers before flowering, Drain out excess water	Shift to safer place
Outbreak of pests and diseases due to unseasonal rains				
Rice	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
Wheat	-do	-do	-do	-do
Lentil	-do	-do	-do	-do
Sugarcane	-do	-do	-do	-do
Mustard	-do	-do	-do	-do
Pea	-do	-do	-do	-do

Horticulture				
Onion	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
Bottle gourd	-do-	-do-	-do-	-do-
Bitter gourd	-do-	-do-	-do-	-do-
Torai	-do-	-do-	-do-	-do-
Sweet Potato	-do-	-do-	-do-	-do-

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 varieties	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's 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 once in Campaign	
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 once in Campaign	
Cyclone	Not Available		
Heat wave and cold wave	Not Available		

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 Available			

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		