

State: Uttar Pradesh

Agriculture Contingency Plan for District: Fatehpur

1.0 District Agriculture profile				
1.1	Agro-Climatic/ Ecological Zone			
	Agro-Ecological Sub Region(ICAR)	North plain zone		
	Agro-Climatic Zone (Planning Commission)	Upper Gangetic Plain Region		
	Agro-Climatic Zone (NARP)	UP-4 Central Plain Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)	Lakhimpur, Kheri, Sitapur, Hardoi, Farrukhabad, Etawah, Kanpur, Kanpur Dehat, Unnao, Lucknow, Rae Bareilly, Fatehpur		
	Geographical coordinates of district headquarters	Latitude 25.56 N	Latitude 81.13 E	Latitude (9mt) -
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	-		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, P.O.Tharion, Fatehpur Dist., Pin-212 622		
	Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone	C.S.Azad University of Agriculture & Technology		

1.2	Rainfall	Normal RF (mm)	Normal Rainy Days (Number)	Normal Onset	Normal Cessation
	SW monsoon (June-sep)	806.3	49	2nd week of June	4th week of September
	Post monsoon (Oct-Dec)	38.1	10		
	Winter (Jan-March)	45.0	-	-	-
	Pre monsoon (Apr-May)	14.2	-	-	-
	Annual	903.6	49		

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 in (,000 ha)	422.126	351.863	7.615	49.707	2.791	10.186	5.461	10.150	32.819	14.426

1.4	Major Soils	Area('000 hac)	Percent(%) of total
	Deep, loamy soils	126.67	36 %
	Deep, silty soils	81.00	23%
	Deep, fine soils moderately saline and sodic	63.50	18 %

1.5	Agricultural land use	Area('000 hac)	Cropping intensity (%)
	Net sown area	288.971	117
	Area sown more than once	122.981	
	Gross cropped area	411.952	

1.6	Irrigation	Area('000 ha)		
	Net irrigation area	202.319		
	Gross irrigated area	290.202		
	Rain fed area	86.652		
	Sources of irrigation(Gross Irr. Area)	Number	Area('000 ha)	Percentage of total irrigated area
	Canals		70.413	24.1
	Tanks		0.952	0.3
	Open wells		0	
	Bore wells(Tube wells)		220.522	75.5
	Lift irrigation schemes		NA	
	Micro-irrigation		NA	
	Other sources		0.115	0.1
	Total Irrigated Area		292.002	
	Pump sets		34847	
	No. of Tractors		6620	
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited			
	Critical	4		
	Semi-critical	6		
	Safe			
Waste water availability and use				
Ground water quality				

*over-exploited groundwater utilization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70%

1.7 Area under major field crops & (As per latest figures 2011-12)

1.7	Major field crops cultivated	Area('000 ha)							
		Kharif			Rabi			Summer	Total
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total		
Wheat	-	-	-	168.301	1.277	169.578	-	169.578	
Rice	79.565	0.217	79.782	-	-	-	-	79.782	
Gram	-	-	-	0.094	42.806	42.900	-	42.900	
Pigeon pea	0.034	19.845	19.879	-	-	-	-	19.879	
Sorghum	0	9.787	9.787	-	-	-	-	9.787	
Sesame	0	9.681	9.681	-	-	-	-	9.681	

	Horticulture crops -Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Mango	0.289	0.289	-
	Guava	0.083	0.083	-
	Horticulture crops -			
	Potato	6.829	6.829	-
	Onion	0.919	0.919	-
	Pea	1.009	1.009	-

	Major Fodder crops cultivated	Area(ha)	Total
	Kharif	8063	8063
	Rabi	1987	1987
	Summer	669	669
	Total	10719	10719

1.8 Production and productivity of major crops (Average of last 5 years)

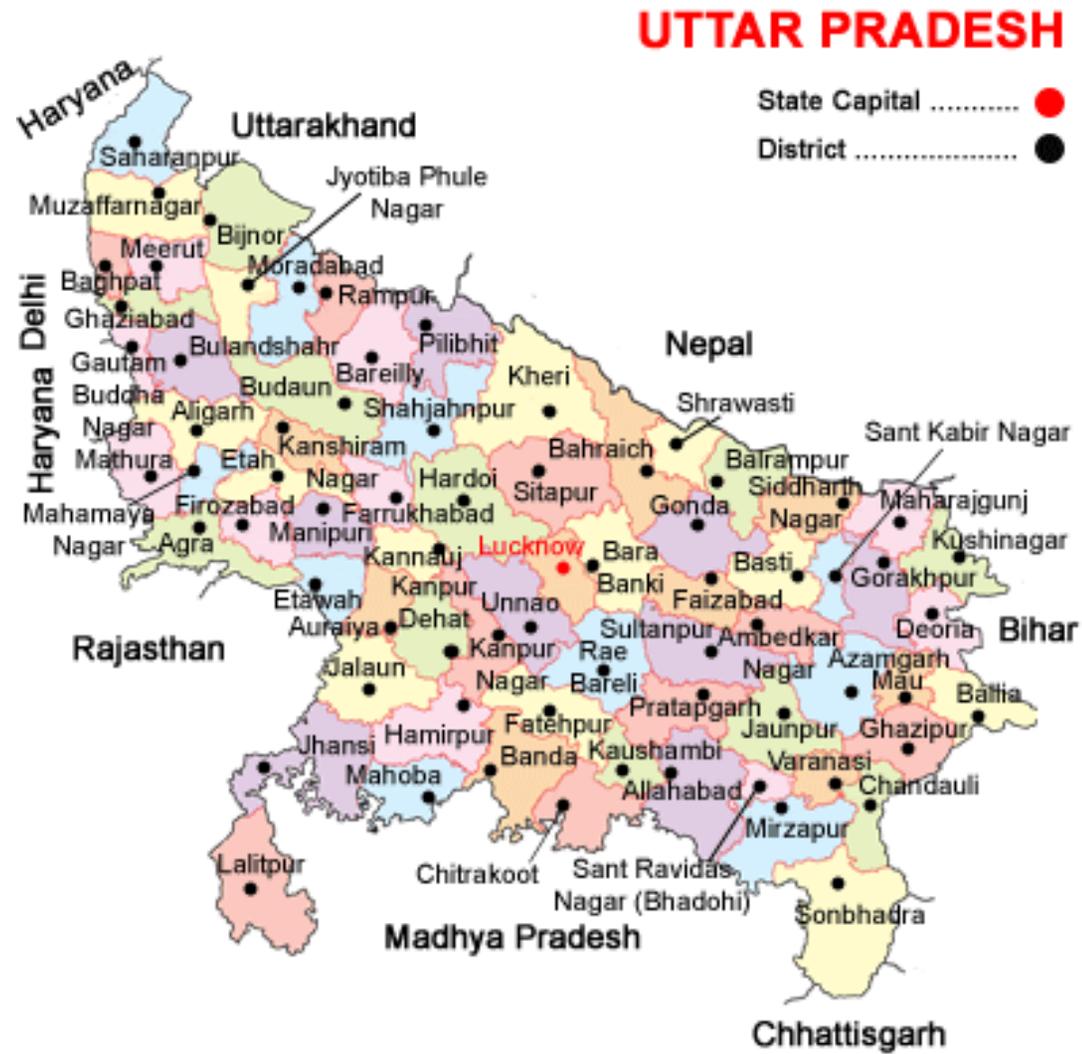
1.8	Major field crops cultivated	Area('000 ha)								
		Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (Kg/ha)	Production ('000t)	Productivity (Kg/ha)	Production ('000 t)	Productivity (Kg/ha)	Production ('000t)	Productivity (Kg/ha)	
Rice	164.595	2168	-	-	-	-	164.595	2168	NA	
Wheat	-	-	478.062	2968	-	-	478.062	2968	NA	
Gram	-	-	52.447	1153	-	-	52.447	1153	NA	
Arhar	17.737	840	-	-	-	-	17.737	840	NA	
Jawar	16.445	1529	-	-	-	-	16.445	1529	NA	
Til	1.578	192	-	-	-	-	1.578	192	NA	

1.9	Livestock(year 2007)	Male(000)	Female(000)	Total (000)
	Non descriptive Cattle (local low yielding)	143.853	158.021	301.874
	Improved cattle	0.002	0.013	0.015
	Crossbred Cattle	1.883	5.316	7.199
	Non descriptive Buffaloes (local low yielding)	39.859	159.423	199.282
	Descript Buffaloes	53.226	186.280	239.506
	Goat	117.585	231.320	348.905
	Sheep			114.163
	Other (Camel,Pig, Yak etc)			79.180
	Commerical dairy farms (number)			0.000

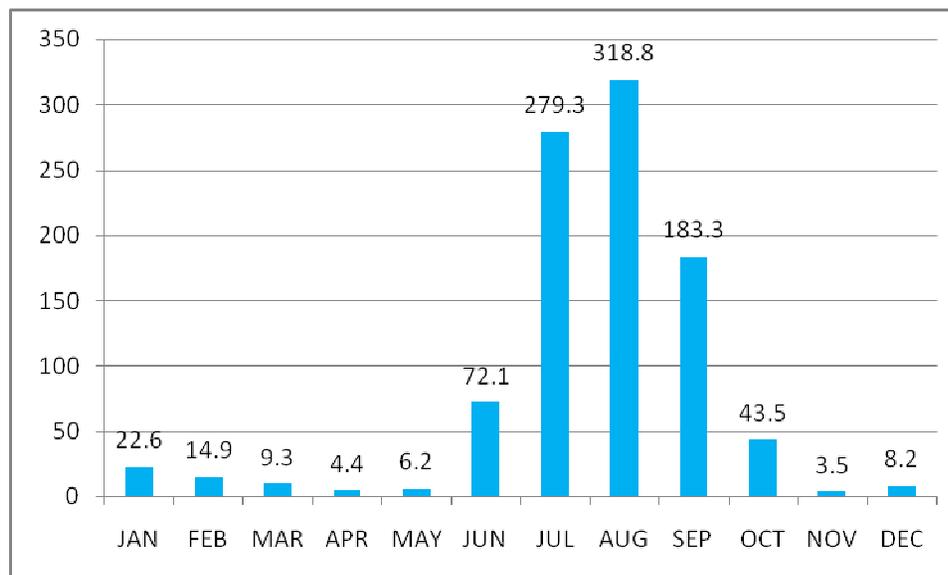
1.10	Sowing window for 5 major field crops	Pearl millet	Maize	Rice	Sorghum	Pigeon Pea	Wheat	Pea	Mustard
	Kharif –Rainfed	2 nd week of July to last week of July	3rd week of June to First week of July	-	First week of July to 2 nd week of July	First week of July to Last week of July	-	-	-
	Kharif - Irrigated	-	-	3rd week of June to Last week of July	First week of July to 2 nd week of July	-	-	-	-
	Rabi –Rain fed						Last week of Oct to 2nd week of Nov	First week of Oct to last week of Oct	First week of Sep to 2nd week of Oct
	Rabi - Irrigated						2nd week of Nov to last week of Dec	-	-

1.11	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	-	-	
	Sheath Blight, Stemborer , Pyrilla loose smut, Heliothis, Rust etc white grub.	-	-	

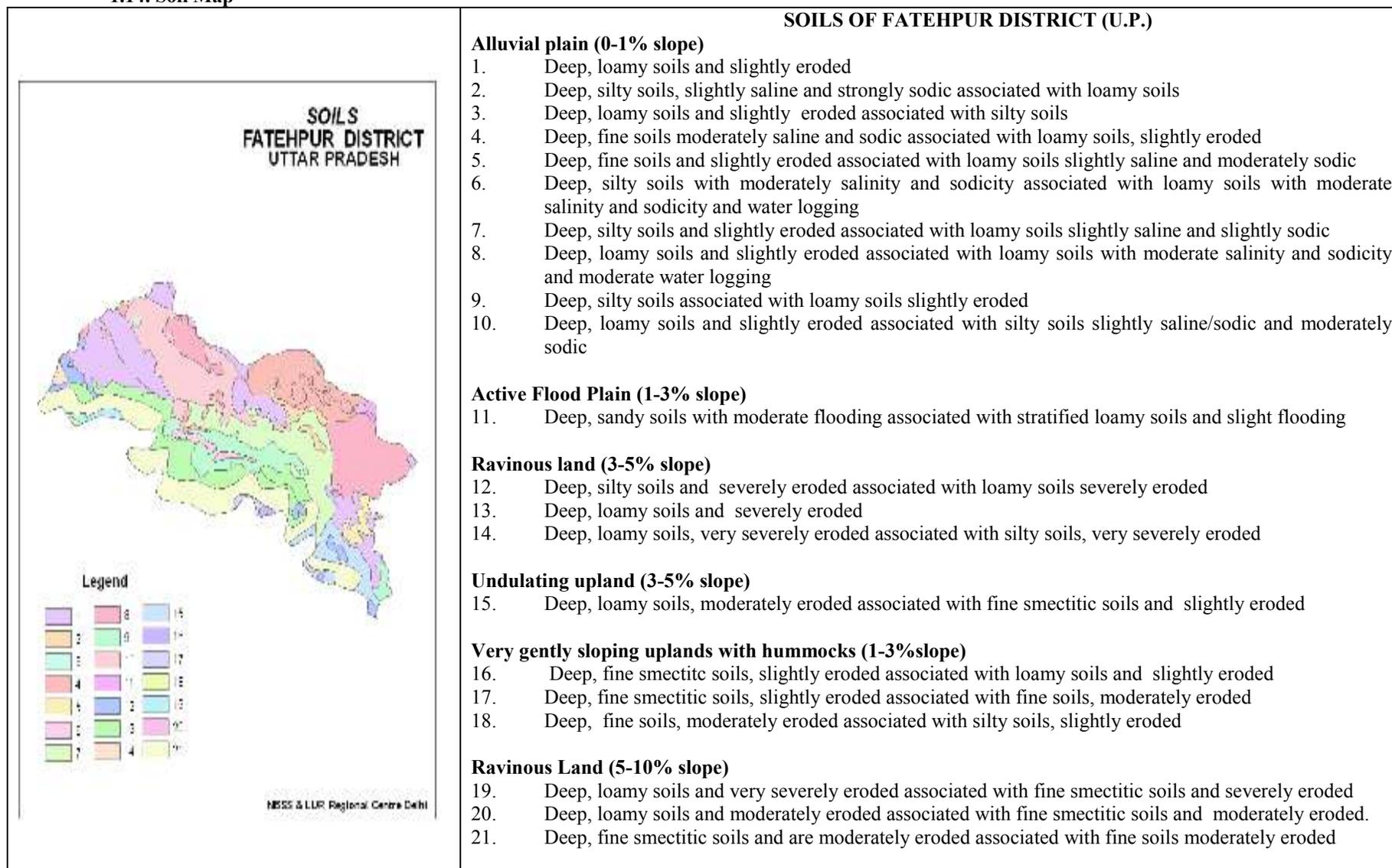
Annexure I
Location map of Fatehpur district



Annexure 2
Average Month-wise rainfall (mm) in Fatehpur District



1.14. Soil Map



Source: NBSSLUP, Regional Centre, New Delhi

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	Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
Delay by 2 weeks (1 week of July)	Deep loamy soils & Deep, silty soils	Perl millet	No change ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451	Seed Treatment	Prefer disease free certified seed from a reliable source
		Sorghum	Varsha,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23	Seed Treatment	
		Pigeon pea	No change Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+ Perl millet (WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451)	Raised bed planting 20% higher seed rate Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) + Perl millet (with row ratio of 1:2	
Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks (3 rd week of July)	Deep loamy soils & Deep, silty soils	Pearlmillet	No change ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451	Seed Treatment	Prefer disease free certified seed from a reliable source
		Sorghum	Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23	Seed Treatment	
		Pigeon pea Deep, sandy soils	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+Jwar (Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23)	Raised bed planting In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) +Jwar with row ratio of 1:2	

Condition	Major Farming situation	Normal Crop	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)	Deep loamy soils & Deep, silty soils	Pearlmillet	No change ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451	Seed Treatment	
		Sorghum	Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23	Seed Treatment	
		Pigeon pea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+ Jwar (Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23))	Raised bed planting In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) +Jwar with row ratio of 1:2	

Condition	Major Farming situation	Normal Crop	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)	Deep loamy soils & Deep, silty soils	Pearl millet	Fallow Followed by Toria/ Mustard	Conserve moisture	-
		Sorghum	Fallow Followed by Toria/ Mustard	Conserve moisture	-
		Pigeon pea	Fallow	C conserve moisture	-

Condition	Major Farming situation	Normal Crop	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 stand etc.	Deep loamy soils & Deep, silty soils	Pearl millet	Weed Management Thinning	-	
		Sorghum	Weed Management Thinning	-	---
		Pigeon pea	Weed control Gap filling/thinning		

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation	Normal Crop	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At vegetative stage	Deep loamy soils & Deep, silty soils	Perl millet	Weed Management	-	--
		Sorghum	Weed Management	-	--
		Pigeon pea	Weed control Thinning	Mulching with locally available material/weeds	-

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Normal Crop	Crop management	Rabi Crop planning	Remarks on Implementation
	Deep loamy soils & Deep, silty soils	Perl millet	Weed Management	-	-
		Jwar	Weed Management		-
		Pigeon pea	Harvest at physiological maturity	-	-

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Deep loamy soils & Deep, silty soils	Paddy Narendra 97, Narendra 118, Narendra 80, NDR 359,	Transplanting with 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	Linked with

Condition	Major Farming situation	Normal Crop	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	Deep loamy soils & Deep, silty soils	Paddy Narendra 97, Narendra 118, Narendra 80, NDR 359,	Transplanting with 3 to 4	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	
		Pearl millet	No change	Weed Management	
		Sorghum	No change	Weed Management	

Condition	Major Farming situation	Normal Crop	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Deep loamy soils & Deep, silty soils	Paddy Narendra 97, Narendra 118, Narendra 80, NDR 359,	<ul style="list-style-type: none"> Transplanting with tube well irrigation 2 to 3 seedlings/hill 	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

Condition	Major Farming situation	Normal Crop	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon		Not applicable			

Condition	Major Farming situation	Normal Crop	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Deep loamy soils-tube well irrigated	Paddy	<ul style="list-style-type: none"> • Transplanting with tube well irrigation • 3 to 4 seedlings/hill 	<ul style="list-style-type: none"> • Drum seeding • SRI method • Irrigation at critical stages • Reduce spacing plant to plant i.e.20x 15 cm 	

2.2 Unusual rains (untimely, unseasonal etc) (for both rain fed and irrigated situations)

Condition	Suggested contingency measure			
	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Rice	Strengthen the bunds	Strengthen the bunds	Drain out excess water	Shift the harvested produce to safer place
Perl millet	Drain out excess water	Drain out excess water	Drain out excess water	Shift the harvested produce to safer place
Sorghum	Drain out excess water	Drain out excess water	Drain out excess water	Shift the harvested produce to safer place
Pigeon pea	Drainage of Excess water & drenching of COC (Copper Oxy chloride) @ 2.5g/Liter water to avoid incidence of wilt & root rot.	Drain out excess water	Drain out excess water	Shift the harvested produce to safer place
Wheat	Drain out excess water	Drain out excess water	Drain out excess water	Shift the harvested produce to safer place
Chickpea	Drain out excess water	Drain out excess water	Drain out excess water	Shift the harvested produce to safer place
Mustard	Drain out excess water	Drain out excess water	Drain out excess water	Shift the harvested produce to safer place
Horticulture			--	-
Guava	Provide staking to less than 3 years aged plant to avoid lodging	Provide proper drainage to avoid water logging	-	-
Mango	Provide staking to less than 3 years aged	Provide proper drainage to	-	-

	plant to avoid lodging	avoid water logging		
Ladies finger	Drain the Excess water	Management of fruit borer	--	
Kharif onion	Drain the Excess water	Provide proper drainage to avoid water logging		-
Heavy rainfall with high speed winds in a short span²	Not applicable			
Outbreak of pests and diseases due to unseasonal rains	Adopt need based and recommended plant protection measures			

2.3 Floods - Not applicable

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

Extreme event type	Suggested contingency measure ^f			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave^p				
Rice	<ul style="list-style-type: none"> • Raised the nursery near lift or other irrigation sources • Prepare 1-1.5 M wide raised Nursery Beds with provision of 30 cm width between the beds. 	Apply irrigation at critical stages	Apply light irrigation	-
Maize	Apply light irrigation			-
Urd				
Pigeonpea				
Horticulture				
Mango	Apply light irrigation		Light & frequent irrigation during flowering	-
Guava				
Cold wave^q	Not applicable			
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	During the event	After the event
Drought			
Feed and Fodder availability	<p>Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in common property resources (CPRs) or private property resources (PPRs) like waste and degraded lands with the monsoon pattern for higher biomass production</p> <p>Promote cultivation of short duration fodder crops of sorghum/bajra/maize suitable to the district</p> <p>Sowing of fodder crops like <i>Stylo</i> and <i>Cenchrus</i> on bunds so as to provide fodder and strengthening of bunds</p> <p>Avoid burning of wheat and paddy straw and storing as dry fodder for future use</p> <p>Proper drying, bailing and densification of harvested dry fodder for transport to the needy villages</p> <p>Complete feed preparation using red gram stalks may be exploited</p> <p>Establishment of silvi-pastoral system in CPRs with <i>Stylosanthus</i></p>	<p>Harvest and use biomass of dried up crops (Sorghum, Bajra, Rice etc) material as fodder.</p> <p>Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS).</p> <p>Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals</p> <p>In case of mild drought, the available dry fodder may be enriched with urea and molasses and the productive livestock should be supplemented with vitamin & minerals mixture.</p> <p>The available silage may be used as green fodder supplement for high yielders and pregnant animals</p> <p>In case of severe drought, UMMB, hay, concentrates and vitamin & mineral mixture should be transported to the needy areas from the reserves at the district level initially and latter stages from the near by districts. All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS</p> <p>Herd should be split and supplementation should be given only to the highly productive and breeding animals</p> <p>Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive & breeding stock)</p> <p>Available kitchen waste should be mixed with dry fodder while feeding</p>	<p>Green and concentrates supplementation should be provided to all the animals.</p> <p>Short duration fodder crops of should be sown in unsown and crop failed areas where no further routine crop sowing is not possible</p> <p>Promote cultivation of fodder crops during Rabi season</p>

	<p><i>hamata</i> and <i>Cenchrus ciliaris</i> as grass with <i>Leucaena leucocephala</i> as tree component</p> <p>Creation of permanent fodder, feed and fodder seed banks in all drought prone villages</p>	<p>Arrangements should be made for mobilization of small ruminants across the districts where no drought exits with subsidized road/rail transportation and temporary shelter provision for the shepherds</p> <p>Unproductive livestock should to be culled during severe drought</p> <p>Create transportation and marketing facilities for the culled and unproductive animals (10000-20000 animals) in case of severe drought</p> <p>Subsidized loans (5-10 crores) should be provided to the livestock keepers for purchase of supplements, concentrate feed ingredients etc., in case of severe drought</p>	
Heat & Cold wave	<p>In villages which are chronically prone to heat waves the following permanent measures are suggested</p> <ol style="list-style-type: none"> i) Plantation of trees like Neem, Pipal, Subabul around the shed ii) Spreading of husk/straw/coconut leaves on the roof of the shed iii) Water sprinklers / foggers in the animal shed iv) Application of white reflector paint on the roof to reduce thermal radiation effect <p>Cold wave : Covering all the wire meshed walls / open area with gunny bags/ polyethylene sheets with a mechanism for lifting during the day time and closing during night</p>	<p>Allow the animals preferably early in the morning or late in the evening for grazing during heat waves</p> <p>Allow for grazing between 10AM to 3PM during cold waves</p> <p>Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves</p> <p>Add 25-50 ml of edible oil in concentrates per kg and fed to the animal during cold waves</p> <p>Apply / sprinkle lime powder (5-10g per square feet) in the animal shed during cold waves to neutralize ammonia accumulation</p> <p>Put on the foggers / sprinklers during heat weaves and heaters during cold waves in case of high productive animals</p> <p>In severe cases, vitamin 'C' (5-10ml per litre) and electrolytes (Electral powder @ 20g per litre) should be added in water during severe heat waves.</p>	<p>Green and concentrates supplementation should be provided to all the animals.</p> <p>Allow the animals for grazing (normal timings)</p>
Health and Disease	<p>List out the endemic diseases (species wise) in that district and store vaccines for those diseases</p>	<p>Constitution of Rapid Action Veterinary Force</p> <p>Procurement of emergency medicines and medical kits</p>	<p>Conducting mass animal health camps</p> <p>Conducting fertility</p>

management	Timely vaccination (as per enclosed vaccination schedule) against all endemic diseases Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district	Performing ring vaccination (8 km radius) in case of any outbreak Restricting movement of livestock in case of any epidemic Rescue of sick and injured animals and their treatment	camps Mass deworming camps
Insurance	Insurance policy for loss of production due to drought may be developed Encouraging insurance of livestock	Listing out the details of the dead animals and loss of production in high yielders	Submission for insurance claim and availing insurance benefit Purchase of new productive animals
Drinking water	Identification of water resources Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals)	Restrict wallowing of animals in water bodies/resources Provision of wholesome clean drinking water at least 3 times in a day	Bleach (0.1%) drinking water / water sources Provide clean drinking water

2.5.2 Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice, bajra etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds Culling of weak birds	Supplementation to all survived birds

Drinking water	Rain water harvesting	Sanitation of drinking water	Give sufficient water as per the bird's requirement
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and fowl pox	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water (5ml in one litre water)	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
Heat wave			
Shelter/environment management	Provision of proper shelter with good ventilation	In severe cases, foggers/water sprinklers/wetting of hanged gunny bags should be arranged Don't allow for scavenging during mid day	Routine practices are followed
Health and disease management	Deworming and vaccination against RD and fowl pox	Supplementation of house hold grain Provide cool and clean drinking water with electrolytes and vit. C (5-10 ml per litre) In hot summer, add anti-stress probiotics in drinking water or feed (Reestobal etc., 10-20ml per litre)	Routine practices are followed
Cold wave			
Shelter/environment management	Provision of proper shelter Arrangement for brooding Assure supply of continuous electricity	Close all openings with polythene sheets In severe cases, arrange heaters Don't allow for scavenging during early morning and late evening	Routine practices are followed
Health and disease management	Arrangement for protection from chilled air	Supplementation of grains Antibiotics (Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to protect birds from pneumonia	Routine practices are followed