

State: UTTAR PRADESH

Agriculture Contingency Plan for District: AGRA

1.0 District Agriculture profile				
1.1	Agro-Climatic/ Ecological Zone			
	Agro-Ecological Sub Region(ICAR)	Western Plain Zone,		
	Agro-Climatic Zone (Planning Commission)	Upper Gangetic Plain Region		
	Agro-Climatic Zone (NARP)	UP-3 South-western Semi-arid Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)	Firozabad, Aligrah, Hathras, Mathura, Mainpuri, Etah		
	Geographical coordinates of district headquarters	Latitude	Longitude	Altitude
		27 ^o 10'59''N	78 ^o 01'00''E	561
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	-		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra Bichpuri, Agra		
Name and address of the nearest Agromet Field Unit(AMFU,IMD) for agro advisories in the Zone	R.B.S. College, Bichpuri, Agra			

1.2	Rainfall	Normal RF (mm)	Normal Rainy Days (Number)	Normal Onset	Normal Cessation
	SW monsoon (June-sep)	584.3	45	3 rd week of June	4 th week of September
	Post Monsoon (Oct-Dec.)	27.7	10	3 rd week of December	2 nd week of January
	Winter (Jan-March)	31.6	10	-	-
	Pre monsoon	11.9	2	-	-
	Annual	655.5	67	-	-

1.3	Land use pattern of the district (Latest statistics)	Geographical area (ha)	Cultivable area (ha)	Forest area (ha)	Land under non-agricultural use (ha)	Permanent pastures (ha)	Cultivable wasteland	Land under Misc.tree crops and groves	Barren and uncultivable land	Current fallows (Ha)	Other fallows (ha)
	Area in (000' ha)	399.0	314.0	36.7	43.5	0.9	2.5	6.9	4.0	15.5	4.9

Source: SASA U.P

1.4	Major Soils	Area('000 ha)	Percent(%) of total
	Deep loamy soil	210.0	67.0
	Deep fine moderate saline/ sodic soil	62.0	20.0
	Silty soil	32.9	10.0
	Other(Eroded)	9.0	3.0

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity (%)
	Net sown area	284.3	135 %
	Area sown more than once	139.5	
	Gross cropped area	423.8	

1.6	Irrigation	Area ('000 ha)		
	Net irrigation area	258.2		
	Gross irrigated area	283.6		
	Rain fed area	26.1		
	Sources of irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	-	27.0	9.5
	Tanks	-	0.02	
	Open wells (Well)	-	0.2	0.1
	Bore wells (Govt+Private)	-	256.3	90.4
	Lift irrigation schemes (N.A)	-	NA	
	Micro-irrigation (N.A)	-	NA	
	Other sources	-	0	
	Total Irrigated Area	-	283.5	
	Pump sets	-	54950	
	No. of Tractors	-	12877	
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited	6	-	
	Critical	1	-	
	Semi-critical	3	-	
	Safe	-	-	
	Waste water availability and use	-	-	
	Ground water quality			Saline
	*over-exploited groundwater utilization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70%			

1.7 Area under major field crops & (As per latest figures 2013-14)

1.7	Major field crops cultivated(Descending order)	Area('000 ha)							
		Kharif			Rabi			Summer	Total
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total		
Wheat	-	-	-	137.263	0.3	137.6	-	137.6	
Pearl millet	15	115.7	130.7	-	-	-	-	130.7	
Potato	-	-	-	58.1	-	58.1	-	58.1	
Rapeseed Mustard	-	-	-	47.6	4.4	52.0	-	52.0	
Paddy	5.2	0.02	5.2	-	-	-	-	5.2	
Pigeon pea	0.3	0.7	1.0	-	-	-	-	1.0	

Area under Horticulture crops -

	Crops -Fruits	Area ('000 ha)		
		Total	Irrigated	Rain fed
	Mango	4.9	4.9	-
	Guava	1.04	1.0	-
	Vegetables crops	Total	Irrigated	Rain fed
	Potato	51.8	51.8	-
	Onion	0.1	0.1	-

Area under fodder crops & (As per latest figures 2010-11)

1.7	Major Fodder crops cultivated	Area (000 ha)	Total
	Kharif	15.4	15.4
	Rabi	4.1	4.1
	Summer	6.1	6.1
	Total	25.5	25.5

1.8 Livestock

Livestock(year 2007)	Male(000)	Female(000)	Total(000)
Non descriptive Cattle (local low yielding)	84.0	82.7	166.654
Improved cattle	0.023	0.157	0.180
Crossbred Cattle	8.085	31.088	39.173
Non descriptive Buffaloes (local low yielding)	71.543	257.839	329.382
Descript Buffaloes	129.898	467.380	597.278
Goat	124.017	179.060	303.077
Sheep			93.495
Other (Camel, Pig, Yak etc)			43.542
Commercials dairy farms (number)			0.000

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

1.11	Major field crops cultivated	Area('000 ha)								Crop residue as fodder ('000 tons)
		Kharif		Rabi		Summer		Total		
		Production ('000 T)	Productivity (Kg/ha)	Production ('000 T)	Productivity (Kg/ha)	Production ('000 T)	Productivity (Kg/ha)	Production ('000 T)	Productivity (Kg/ha)	
	Wheat	-	-	475.8	3459	-	-	475.8	3459	NA
	Pearl millet	185.23	1658	-	-	-	-	185.2	1658	NA
	Paddy	9.4	2156	-	-	-	-	9.4	2156	NA
	Pigeon pea	0.9	848	-	-	-	-	0.9	848	NA
	Rapeseed Mustard	-	-	88.5	1567	-	-	88.5	1567	NA
	Potato	-	-	1363.7	249.2	-	-	1363.7	24919	NA

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (000t/ha)	Production ('000 t)	Productivity (000t/ha)	Production ('000 t)	Productivity (000t/ha)	Production ('000 t)	Productivity (000t/ha)	
Major Horticultural crops (Crops to be identified based on total acreage)										
	Potato	-	-	1310.7	25.3					-
	Onion			1.2	13.2					
	Others Veg.	10.7	11.3	31.9	11.3	10.7	11.3	53.2	11.3	

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

1.11	Major Fooder crops	Total	
		Production (MT)	Productivity (Ql./HA)
	Kharif	538685	350
	Rabi	284970	700
	Summer	182430	300
	Total	1006085	-

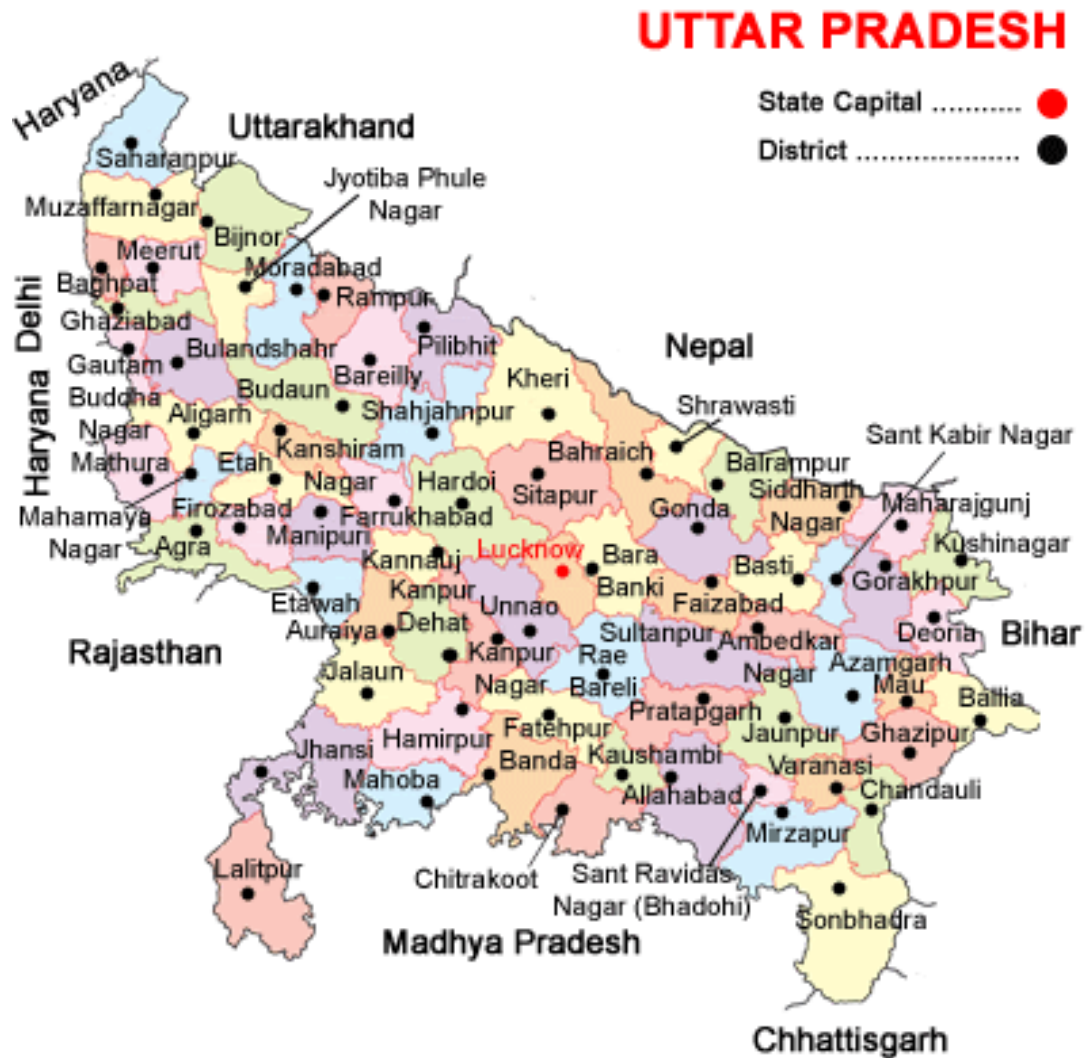
1.12	Sowing window for 5 major field crops	Pearl millet	Sesame	Rice	Black gram	Jowar	Green gram	Wheat	Barley	Gram/Pea	Mustard
	Kharif – Rainfed	2 nd week of July to last week of July	2 nd week of July to last week of July	-	2 nd week of July to First week of August	Last week of June to 2 nd week of July	2 nd week of July to First week of August	-	-	-	-
	Kharif - Irrigated	-	-	Last week of June 2 nd week	-	-	-	-	-	-	-

				of August							
	Rabi –Rainfed								Last week of October to last week of November	first week of October last week of October	2nd week of September to first week of October
	Rabi - Irrigated							first week of Novemb er last week of Novemb er	-	-	-

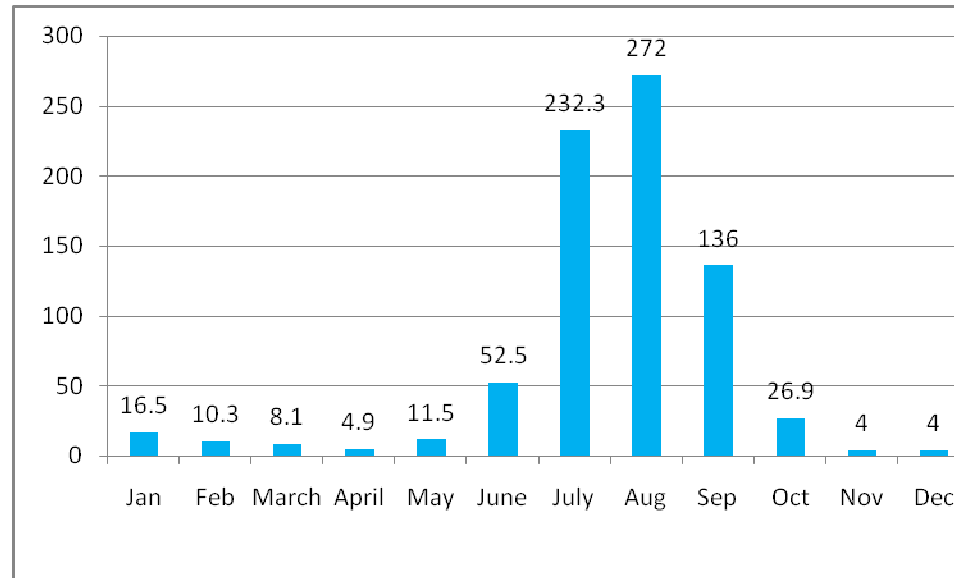
1.13	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought		√	
	Flood			√
	Cyclone			√
	Hail storm			√
	Heat wave		√	
	Cold wave		√	
	Frost	√		
	Sea water intrusion			√
	Sheath Blight, Stemborer, Pyrilla loose smut, Heliothis, Rust etc white grub.			√

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

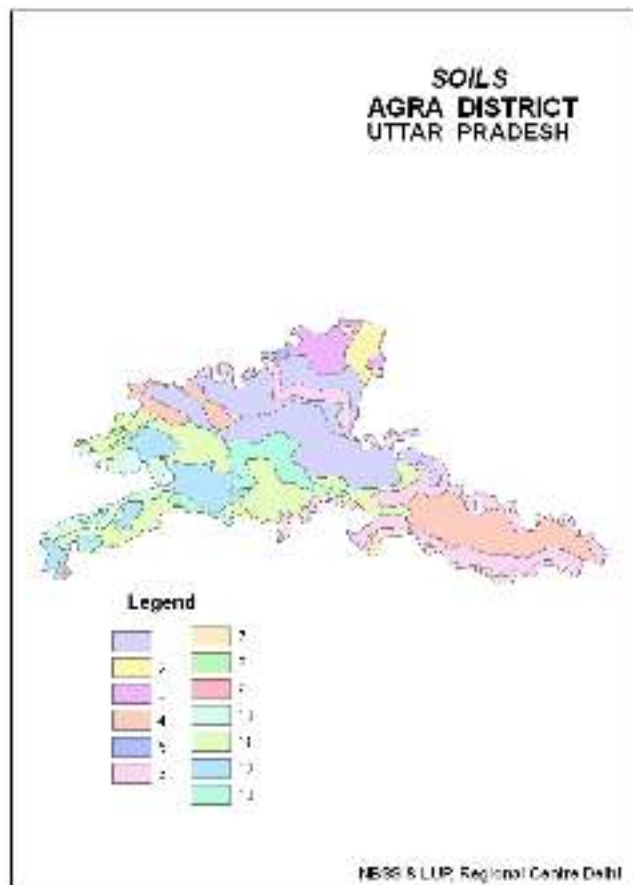
Annexure I
Location map of Agra district



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



1.14. Soil map of Agra district



Alluvial plain (0-1% slope)

1. Deep, loamy soils and slightly eroded
2. Deep, fine soils moderately saline and sodic associated with loamy soils, slightly eroded
3. Deep, fine soils and slightly eroded associated with loamy soils slightly saline and moderately sodic
4. Deep, silty soils associated with loamy soils slightly eroded
5. Deep, silty soils and slightly eroded associated with fine soils

Ravinous land (3-5% slope)

6. Deep, loamy soils and severely eroded
7. Deep, loamy soils, very severely eroded associated with silty soils, very severely eroded

Dissected uplands (3-5% slope)

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

Undulating Lands with hillocks (1-3% slope)

9. Deep, loamy soils with moderate erosion associated with sandy soils with moderate erosion

Gentle to very gentle sloping lands with monad nocks

10. Deep, loamy soils and slightly eroded associated with loamy skeletal soils, severely eroded
11. Deep, loamy soils, moderately eroded
12. Deep, loamy soils and slightly eroded associated with silty soils, slightly saline and moderately sodic
13. Deep, loamy soils and slightly eroded associated with loamy soils, moderately eroded

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 ^e
Delay by 2 weeks (1 st of July)*	Sandy Loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + Black gram (Ajad)	No Change,	Pigeon pea +Pearl millet+ black gram (1:2:1) Use multi crop planter and grow on raised bed	Dept. of Agriculture./Sadhan Sahkari samiti/UP agro
	Loamy Sand	Fallow-lentil/Mustard/Pea/Chick pea	-	Summer ploughing for conserve moisture	-

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks (3 rd weeks of July)	Sandy Loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + Urd bean (Ajad)	Change in variety with short duration like Pearl millet –WCC 75, Pusa 322, 323	20% more seed rate	-
	Loamy sand	Fallow-lentil/Mustard/Pea/Chick pea	-	-	-

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 6 weeks 1 st week of August)	Sandy loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + Black gram (Ajad)	Short duration cvs pearl millet for Fodder (NDFB 3) Prefer sole crop black gram on raised bed using raised bed planter	Recommended practices	UP Agro/ other sources for raised bed planter
		Pigeon pea (Bahar, Narendra 1	Short duration cvs pearl millet	Recommended practices	

		and 2) +Sorghum (Varsha,CSH 13 and 23, Bundela)	for Fodder (NDFB 3) Prefer sole crop black gram on raised bed using raised bed planter		UP Agro/ other sources for raised bed planter
	Loamy sand	Fallow-lentil/Mustard/Pea/Chick pea	-	-	

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)	Sandy loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + black gram (Ajad)	Planing for early rabi crops in September e.g. Toria (Type 36, Type 9, Bhavani) Mustard (Varuna, Pusa bold)	Land preparation	-
		Pigeon pea (Bahar, Narendra 1 and 2) +Sorghum (Varsha,CSH 13 and 23, Bundela)	Planning for early rabi crops in September e.g. Toria (Type 36, Type 9, Bhavani) Mustard (Varuna, Pusa bold)	Land preparation	-
	Loamy sand	Fallow-lentil/Mustard/Pea/Chick pea	-	-	-

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)	Sandy loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + black gram (Ajad)	<ul style="list-style-type: none"> • No Change • Gap filling to maintain proper plant population • Resowing if the plant population is <30% 	-	-

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	Sandy loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + black gram (Ajad)	Weeding, Mulching with removed weeds	Foliar spray with 1% KCl	-

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	Sandy loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + Black gram (Ajad)	Weeding, Mulching with removed weeds	Opening conservation furrow	-
		Pigeon pea (Bahar, Narendra 1 and 2) +Sorghum (Varsha,CSH 13 and 23, Bundela)	Weeding, Mulching with removed weeds	-	-

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
	Sandy loam	Pigeon pea (Bahar, Narendra 1 and 2) + Pearl millet(NDFB 3) + Urd bean (Ajad)	In case of Pearl Millet in severe case, Harvest for fodder	-	-
		Pigeon pea (Bahar, Narendra 1 and 2) +Sorghum (Varsha,CSH 13 and 23, Bundela)	In case of Sorghum in severe case, Harvest for fodder	-	

2.1.2 Drought - Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures ⁱ	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Sandy Loam	Rice	Short duration varieties such as Narendra 97, Susk Samrat, Shahbhagi, NDR 118, NDR 80	<ul style="list-style-type: none"> • DSR • drum seeding • SRI • Ensure application of K 	-
		Maize	HQPM 5, Naveen, Tarun, Sweta, Kanchan	<ul style="list-style-type: none"> • Ridge and furrow system • Ensure application of K 	-
		Pearl millet	PMH 1	-	-
		Sorghum	Popular hybrids	-	-

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	Sandy Loam	Rice	Short duration varieties such as Narendra 97, Susk Samrat, Shahbhagi, NDR 118, NDR 80	<ul style="list-style-type: none"> • DSR • drum seeding • SRI • Ensure application of K 	-
		Maize	HQPM 5, Naveen, Tarun, Sweta, Kanchan	<ul style="list-style-type: none"> • Ridge and furrow system • Ensure application of K 	-
		Pearl millet	PMH 1	-	-
		Sorghum	Popular hybrids	-	-

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Sandy Loam	Rice	Replace rice with Sorghum/Pearl Millet/Maize	-	-
		Maize	Prefer short duration cvs with raised bed planting	-	-
		Pearl millet	Prefer short duration	-	-

Condition	Major Farming situation	Normal Crop/cropping system	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/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Bore well irrigated Areas Upland Tube well irrigated	Rice	<ul style="list-style-type: none"> Replace with sorghum/ Pearl millet/Black gram/ Green gram 	-	-
Any other condition (specify)	-				

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	Strengthening the bunds	Strengthening the bunds	Drain out excess water	-
Maize	Drain out excess water and strengthening the bunds	Drain out excess water and strengthening the bunds	Drain out excess water	-
Pearl Millet	Drain out excess water and strengthening the bunds	Drain out excess water and strengthening the bunds	Drain out excess water	-
Sorghum	Drain out excess water and strengthening the bunds	Drain out excess water and strengthening the bunds	Drain out excess water	-
Horticulture				
Ber	Drain out excess water			
Aonla				
Mango				
Heavy rainfall with high speed winds in a short span²	Not Applicable			
Outbreak of pests and diseases due to unseasonal rains	Need based and recommended plant protection measures.			

2.3 Floods- Not applicable

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation ¹				
Continuous submergence for more than 2 days ²	-	-	-	-
Sea water intrusion ³	-	-	-	-

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	Not Applicable			
Cold wave				
Pigeon pea	-	-	Provide light irrigation if possible	-
Mustard	-	-	2% Urea spray Apply control measures for Aphids	-
Potato	-	Plant protection for early/late blight Provide light irrigation Fumigation	Plant protection for early/late blight Provide light irrigation Fumigation	-
Frost	Not Applicable			
Hailstorm	Not Applicable			
Cyclone Not Applicable	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/Pearl millet/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 Pigeon pea stalks may be exploited</p> <p>Preserving maize fodder as silage for future use</p> <p>Establishment of silvi-pastoral system in CPRs with <i>Stylosanthus hamata</i> and</p>	<p>Harvest and use biomass of dried up crops (Sorghum, pearl millet, Maize, Rice, Wheat, pea, chick pea etc) material as fodder.</p> <p>Harvest the tree fodder (Neem, Subabul, Acacia, 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>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>	
Cyclone & Floods	NA		
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 waves 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	List out the endemic diseases (species wise) in that district and store vaccines	Constitution of Rapid Action Veterinary Force	Conducting mass animal health camps

Disease management	for those diseases 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	Procurement of emergency medicines and medical kits 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	Conducting fertility 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, pearl millet 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
Floods	NA		
Cyclone	NA		
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