

State: KARNATAKA

Agriculture Contingency Plan for District: RAICHUR

1.0 District Agriculture profile

1.0 District Agriculture profile					
1.1	Agro-Climatic/Ecological Zone				
	Agro Ecological Sub Region (ICAR)	Deccan Plateau , Hot Semi arid ecosubregion (6.1,6.2)			
	Agro-Climatic Region (Planning Commission)	Southern plateau and hill region (X)			
	Agro Climatic Zone (NARP)	North Eastern Dry Zone (KA-2, KA-3)			
	List all the districts or part thereof falling under the NARP Zone	Raichur, Gulbarga, Yadgir and Koppal			
	Geographic coordinates of district	Latitude	Longitude	Altitude	
		15 ⁰ 09' N	75 ⁰ 46' 'E	404 m	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Main Agricultural Research Station , University of Agricultural Sciences, Raichur - 584 102			
Mention the KVK located in the district	Krishi Vignana Kendra , University of Agricultural Sciences Campus , Raichur -584 102.				
1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	449	-	1 st week of June	4 th week of September
	NE Monsoon (Oct-Dec):	113	-	1 st week of October	2 nd week of November
	Winter (Jan- March)	8	-	-	-
	Summer (Apr-May)	52	-	-	-
	Annual	621	40	-	-

1.3	Land use pattern of the district (latest statistics)	Geographical 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)	835.8	18.2	20.6	19.8	10.7	13.7	20.1	116.4	40.8

1.4	Major Soils (common names like shallow red soils etc.,)	Area ('000 ha)	Percent (%) of total
	Deep black calcareous clayey soils	259.0	30.6
	Medium deep red gravelly clay soils	168.3	20.0
	Deep black clayey soils	135.2	16
	Shallow red loamy soils	89.3	10.5
	Very shallow red gravelly clay soils	30.1	3.6
	Others (specify):	-	-
1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	560.2	124.1
	Area sown more than once	135.0	
	Gross cropped area	695.1	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	154.9		
	Gross irrigated area	240.2		
	Rainfed area	405.3		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		133.9	72.2
	Tanks		2.8	1.5
	Open wells		17.9	0.1
	Bore wells		19.3	10.4
	Lift irrigation		11.4	0.06
	Micro-irrigation		-	
	Other sources		11.4	6.2
	Total Irrigated Area		185.0	100.0
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(% area)	
	Over exploited		5.0	
	Critical		0.2	
	Semi- critical		8.8	
	Safe		86.0	
Wastewater availability and use				
Ground water quality	Majority of the area is having fluoride concentration in the range of 0.10 mg/l to 4.70 mg/l, while the maximum permissible limit being 1.50 mg/l. Water has to be treated for fluoride before it is utilized for drinking purposes.			
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture etc. (2008-09)

1.7 Major Field Crops cultivated	Area ('000 ha)					Total
	Kharif		Rabi		Summer	
	Irrigated	Rainfed	Irrigated	Rainfed		
Paddy	94.4	-	-	-	70.7	164.4
Sunflower	-	67.8	91.3	-	3.7	162.8
Sorghum	-	0.70	-	91.2	0.4	92.3
Bengalgram	-	-	-	76.5	-	76.5
Bajra	-	53.5	-	-	08	61.5
Groundnut	10.5	-	-	-	28.7	39.2
Cotton	26.6	-	-	-	-	26.6
Redgram	-	13.5	-	-	-	13.5
Horticulture crops - Fruits	Total area (ha)					
Citrus	1226.0					
Mango	778.0					
Pomegranate	492.0					
Sapota	340.0					
Papaya	177.0					
Horticultural crops - Vegetables	Total area					
Green chillies	3,031.0					
Onion	2,278.0					
Tomato	343.7					
Brinjal	286.7					
Beans	140.0					

	Spice and Plantation crops	Total area
Coconut	5643.30	
Dry chillies	1961.30	
Fenugreek	257.70	
Coriander	239.70	
Tamarind	153.00	
Flowers		Total area
Marigold	70.70	
Jasmine	60.00	
Rose	59.70	
Chrysanthemum	52.00	
Crossandra	34.70	
Fodder crops		Total area
Total fodder crop area		
Grazing land		
Sericulture etc		
Others (Specify)		

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	176.8	217.0	393.8
	Crossbred cattle	1.5	9.7	11.2
	Non descriptive Buffaloes (local low yielding)	23.3	187.3	210.7
	Graded Buffaloes			
	Goat			377.0
	Sheep			552.0
	Others (Pigs +Dogs+Rabbits.)			10.73
	Commercial dairy farms (Number)			
1.9	Poultry	No. of farms	Total No. of birds ('000)	

	Commercial	-	368.9							
	Backyard	-	-							
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)				
	NA									
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks				
		1500		3		278				
	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)	1650			5		8250			
	Others									

1.11 Production and Productivity of major crops (Average of last 4 years: 2005, 06, 07, 08)

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)										
1	Rice	2843	3232	-	-	154.0	2518	4437.2	2922.0	

2	Sunflower	354	417	384	406	55	738	792.9	449.9	----
3	Sorghum	14.1	793	1156	1122	23	1869.0	1192.6	1137.0	
4	Bengalgram	-	--	262	515	-	-	261.6	514.5	
5	Bjra	429	752	-	-	0.13	938	428.9	790.4	
6	Groundnut	95	631	-	-	228.2	879	322.9	786.4	
7	Cotton	469.0	388	-	-	-	-	469.0	387.8	
8	Redgram	60	404	-	-	-	-	59.6	403.5	
Major Horticultural crops (Crops to be identified based on total acreage)										
1	Citrus	-	-	-	-	-	-	27	21930	-----
2	Mango	-	-	-	-	-	-	6.4	8230	
3	Pomogranite	-	-	-	-	-	-	4	8200	
4	Sapota	-	-	-	-	-	-	4.3	12720	
5	Papaya		-	-	-	-	-	11.3	63680	

1.1 2	Sowing window for 5 major field crops (start and end of normal sowing period)	Paddy	Sunflower	Sorghum	Bengalgram	Bajra
	Kharif- Rainfed	-	1 st week of June to 4 th week of August	1 st week to 4 th week of June	-	1 st week of June to 4 th week of July
	Kharif-Irrigated	1 st week to 4 th week of June	-	-	-	-
	Rabi- Rainfed	-	September to October	September 15 th to October 15 th	1 st week of October to 4 th week of November	-
	Rabi-Irrigated	-	1 st week to 4 th week of January (Summer)	-	1 st week to 4 th week of June	1 st week to 4 th week of January (Summer)

Sowing window for 5 major field crops (start and end of normal sowing period)	Groundnut	Cotton	Redgram
Kharif- Rainfed	-	-	1 st week to 4 th week of July
Kharif-Irrigated	1 st week to 4 th week of July -	1 st week of May to 3 rd week of July	1 st week of June to 4 th week of July
Rabi- Rainfed	-	-	-
Rabi-Irrigated	December end to January middle	-	-

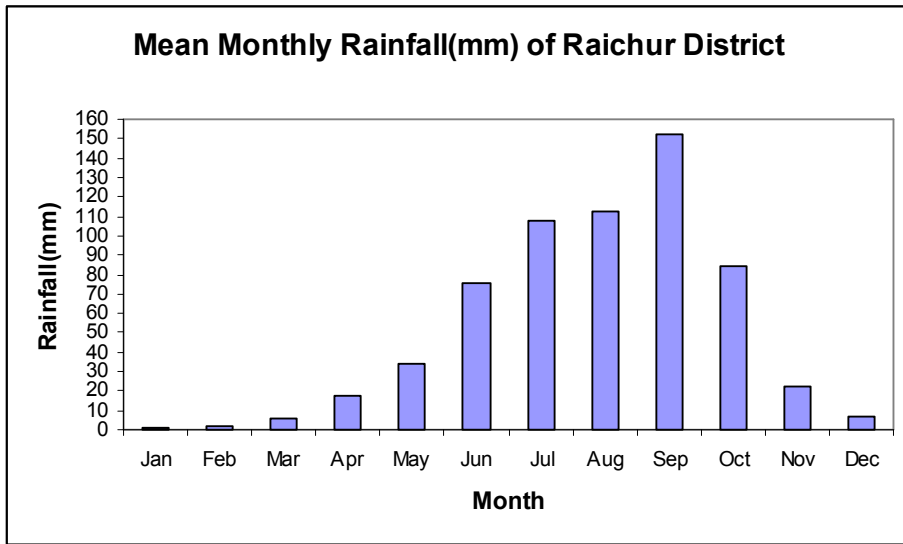
1.13	What is the major contingency the district is prone to? (Tick mark and mention years if known during the last 10 year period)	Regular	Occasional	None
	Drought	✓		-
	Flood	-	✓	-
	Cyclone	-	-	✓
	Hail storm	-	-	✓
	Heat wave	-	-	✓
	Cold wave	-	-	✓
	Frost	-	-	✓
	Sea water intrusion	-	-	✓
	Pests and diseases (specify)	-	-	-
	Others			

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-1 Location map of Raichur in Karnataka



Annexure-2 : Month-wise Rainfall -Raichur



KARNATAKA RAICHUR DISTRICT SOILS (Traditional)



Soil Units	Area in ha (Per cent)	Soil Units	Area in ha (Per cent)
2. Very shallow, red gravelly loam soils	30,117 (3.55)	19. Medium deep, black calcareous clayey soils	2,340 (0.28)
4. Shallow, red loamy soils (gravelly in patches)	80,328 (10.54)	20. Deep, black clayey soils	1,35,235 (15.90)
5. Shallow, red gravelly mixed with deep black soils	18,448 (2.16)	21. Deep, black calcareous clayey soils	2,58,804 (33.55)
7. Medium deep, red clayey soils	26,456 (3.12)	22. Deep, black calcareous clayey irrigated soils (salt affected in patches)	4,338 (0.53)
8. Medium deep, red gravelly clay soils	1,85,300 (19.80)	23. Deep, alluvial black clayey soils	778 (0.00)
10. Deep, red clayey soils	12,117 (1.43)	24. Deep, alluvial clayey soils (salt affected in patches)	38,763 (4.58)
17. Very shallow, mixed black clayey and brown loamy soils	1,930 (0.23)	31. Rocky land associated with shallow, red gravelly clay soils	41,384 (4.53)
18. Medium deep, black clayey soils	18,960 (2.24)		

Reference

- Rail
- Road
- Stream
- Tank
- Taluk boundary

Key : Depth Classes

- Very Shallow : <25 cm
- Shallow : 25 - 60 cm
- Medium deep : 50-100 cm
- Deep : >100 cm

Note : Area extent is approximate (calculated using GIS) and may not tally with revenue records
 Soil (Traditional) unit nos are as per State Legend and are Predominant in area
 Source : Shiva Prasad et al (1999). Soils of Karnataka for optimizing land use NBSS Publ. 47

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation ^a	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)	Medium deep black and red clay loamy soils (kharif and rabi)	Redgram	No change	.Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart.	-
		Bajra		.Sow bajra in 30 cm paired rows at 60 cm apart .	
		Sorghum		---	
		Sunflower			
		Groundnut			
		Redgram+Greengram (1:2 or 2:4)			
		Redgram + Bajra (1:2)			
		Redgram + Sorghum (1:2)			
	Redgram + Groundnut (2:4)				
	Medium and deep black and red clay loamy soils (kharif)	Redgram		Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart	
		Groundnut			
		Castor		.Sow castor at 90 x 45 cm with ridges and furrows	
		Redgram + Bajra(1:2)		-	
		Redgram + Sorghum (1;2)			
Groundnut+Redgram (4:2)					

		Greengram + Redgram (2:1 or 4:2)		
	Medium to deep black soils (rabi)	Rabi sorghum		Keep the land fallow in kharif by treating with compartment bunds and furrows for in-situ moisture conservation.
		Safflower		
		Bengalgram		
		Cotton		
		Rabi sorghum+Bengalgram (2:1)		
		Bengalgram+Safflower (4:2)		
		Pulses (Greengram/ <i>in situ</i> green manuring-Rabi crops		
	Shallow black soils and red soils (kharif)	Groundnut (bunch)		-----
		Groundnut (spreading)		
		Bajra		
		Sorghum		
		Sunflower		
		Bajra + Redgram (2:1)		
		Sorghum + Redgram (2:1)		

Condition			Suggested Contingency measures		
			Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures
Early season drought (delayed onset)	Major Farming situation				
Delay by 4 weeks (July 1st week)	Medium deep black and red clay loam soils (kharif and rabi)	Redgram	No change	1. Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart. 2. Use 25 % higher seed rate in redgram with 90 x 20 cm spacing 3. Transplant the 25-30 days old redgram seedlings of BSMR-736/ Asha variety 4. Grow medium duration redgram varieties eg Asha, maruti	-
		Bajra		. Sow bajra in 30 cm paired rows at 60 cm apart .	
		Sorghum		----	
		Sunflower			
		Groundnut			
		Redgram+Greengram (1:2 or 2:4)			
		Redgram + Bajra (1:2)			
		Sorghum +Redgram (2:1)			
		Redgram + Groundnut (2:4)			

Medium and deep black and red clay loam soils (kharif)	Redgram	No change	1.Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart. 2.Use 25 % higher seed rate in redgram.with 90 x 20 cm spacing 3 Transplant the 25-30 days old redgram seedlings of BSMR-736 variety 4.Grow medium duration redgram varieties	
	Greengram			---
	Groundnut			
	Castor			2.Sow castor at 90 x 45 cm with ridges and furrows
	Redgram + Bajra(1:2)			--
	Redgram + Sorghum (1:2)			
	Groundnut+Redgram (4:2)			
	Greengram + Redgram (2:1 or4:2)			
	Medium to deep black soils (rabi)			Rabi sorghum
Safflower				
Bengalgram				
Sunflower				
Cotton				
Rabi sorghum+Bengalgram (2:1)				
Bengalgram+Safflower (4:2)				
Pulses (Greengram)/ insitu green manuring-Rabi crops		Fallow-Rabi crops		

Shallow black soils and red soils (kharif)	Groundnut (Bunch)	No change	---	
	Groundnut (Spreading)			
	Bajra			
	Sorghum			
	Sunflower			
	Castor		Sow sunflower at wider spacing i.e at 90 cm x 20 cm	
	Bajra+Redgram (2:1)			
	Sorghum + Redgram (2:1)			

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 (July 4 th week)	Medium deep black and red clay loam soils (kharif and rabi)	Redgram	No change	1.Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart. 2.Use 25 % higher seed rate in redgram.with 90 x 20 cm spacing 3 Transplant the 25-30 days redgram old seedlings of BSMR-736 variety 4.Grow medium duration redgram varieties .	-
		Bajra	No change	---	
		Sorghum	Redgram/Bajra/Sunflower/ Groundnut(Spreading)		
		Sunflower	No change		
		Groundnut	Ground nut (Spreading)		
		Redgram+Greengram (1:2 or 2;4)	Redgram/Bajra/Sunflower/		

		Redgram+Bajra (1:2)	Groundnut(Spreading	
		Sorghum+Redgram (2:1)		
		Redgram + Ground nut (2:4 or)		---
Medium and deep black soils and red clay loam soils (kharif)		Redgram	No change	<p>1.Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart.</p> <p>2.Use 25 % higher seed rate in redgram.with 90 x 20 cm spacing</p> <p>3 Transplant the 25-30 days redgram old seedlings of BSMR-736 variety</p> <p>4.Grow medium duration redgram varieties .</p> <p>5.Sow sunflower and castor at 90 x 20 cm</p>
		Greengram	Red gram/Sunflower/Castor/	
		Groundnut		
		Redgram + Sorghum(1;2)		
		Greengram+Redgram (2:1 or 4:2)		
		Bajra + Redgram (2:1)		
		Groundnut + Redgram(4:2)		
Medium to deep black soils (rabi)		Rabi sorghum	No change	Follow in situ moisture conservation practices like opening of compartment bunds, tied ridges and furrows to conserve rain water for regular sowing of rabi crops
		Safflower		
		Bengalgram		
		Sunflower		
		Cotton		
		Rabi sorghum+Bengalgram (2:1)		
		Bengalgram+Safflower (4:2)		
		Pulses (Greengram/ insitu green manuring-Rabi crops	Fallow- rabi crops	

	Shallow black soils and red soils (kharif)	Groundnut (Bunch)	Groundnut (spreading)	-	
		Groundnut (Spreading)	No change		
		Sorghum	Ground nut (Spreading)/Sunflower/castor/Setaria		
		Sunflower	No change	1.Sow sunflower at wider spacing at 90 cm x 20 cm	
		Castor			
		Bajra +Redgram (2:1)	Ground nut (Spreading)/Sunflower/castor/Setaria	--	
		Sorghum + Redgram (2:1)			
		Groundnut +Redgram(4:2)			

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) (August 2 nd week)	Medium deep black and red clay loam soils (kharif and rabi)	Redgram	Sunflower/Horsegram/Foxtail millet	Sow sunflower crops at wider spacing	-
		Bajra			
		Sorghum			
		Sunflower			
		Redgram+Greengram (2:1 or 4:2)			
		Redgram+Bajra (2:1)			
		Sorghum+Redgram (2:1)			
		Redgram + Ground nut (2:4)			

	Medium and deep black soils and red clay loam (kharif)	Redgram	Sunflower /Fodder crops		
		Groundnut			
		Castor			
		Blackgram+Redgram (2:1)			
		Sorghum+Redgram (2:1)			
		Greengram+Redgram (2:1)			
		Bajra + Redgram (2:1)			
		Groundnut + Redgram(4:2)			
	Rainfed rabi cropping in medium to deep black soils (rabi)	Rabi sorghum	No change	Keep the land fallow in kharif by treating with compartment bunds and furrows for in-situ moisture conservation	
		Bengalgram			
Sunflower					
Cotton					
Rabi sorghum+Bengalgram (2:1)					
Bengalgram+Safflower (4:2)					
Pulses (Greengram/ insitu green manuring-Rabi crops)		Fallow-Rabi crops			
Shallow black soils and red soils (kharif)	Groundnut (Bunch)	Sunflower /castor/Setaria/	-		
	Groundnut (Spreading)	Niger			

		Sorghum			
		Sunflower	No change		
		Castor			
		Bajra +Redgram (2:1)	Sunflower /castor/Setaria/		
		Sorghum + Redgram (2:1)	Niger		
		Groundnut +Redgram(4:2)			

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Medium deep black and red clay loam soils (kharif and rabi)	Redgram	Thinning & intercultivation	Opening of conservation furrow	-
		Bajra	weeding		
		Sorghum	Gap filling		
		Sunflower	Re sow the crop within 15 days when population is less than 30 %		
		Redgram+Greengram (2:1)	5) Reduce population by thinning upto 25 to 66 % depending on stress upto 30-35 DAS		
		Redgram+Bajra (2:1)			

		Sorghum+Redgram (2:1)			
		Redgram + Ground nut (2:4)			
Medium and deep black soils and red clay loam (kharif)		Redgram	1) Thinning & intercultivation 2) weeding 3) gapfilling 4) Re sow the crop within 15 days when population is less than 30 %		
		Groundnut			
		Sorghum+Redgram (2:1)			
		Greengram+Redgram (2:1 or 2:4)			
		Bajra + Redgram (2:1)			
		Groundnut + Redgram(4:2)			
Medium to deep black soils (rabi)		Rabi sorghum	-	Compartment al bunding	
		Bengalgram			
		Sunflower			
		Cotton			
		Rabi sorghum+Bengalgram (2:1)			
		Bengalgram+Safflower (4:2)			
		Pulses (Greengram/insitu green manuring-Rabi crops)			
Medium to deep black soils (kharif)		Groundnut (B)	Thinning & intercultivation	Opening Conservation furrows to conserve water	
		Groundnut (S)	weeding		
		Bajra	Gapfilling		
		Sorghum	Resowing		

		Sunflower	Spraying groundnut with urea (2%) immediately after rains for quick revival.		
		Castor			
		Bajra+Redgram (2:1)			
		Sorghum+ Redgram (2:1)			
		Groundnut+Redgram (4:2)			

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	Medium deep black and red clay loam soils (kharif and rabi)	Redgram	Removal/ thinning of alternate rows	Surface mulching Spraying of antitranspirants like kaolin @ 5.0 % Provide protective irrigation	-
		Bajra			
		Sorghum	Repeated intercultivation and weeding Grazing leaf tips in bajra		
		Sunflower	Removal of weaklings in sorghum/bajra. .		
		Redgram+Greengram:(1:2 or 2:4)			
		Redgram+Bajra (2:1)			
		Sorghum+Redgram (2:1)			
		Redgram + Ground nut (2:4)			
	Medium and deep black soils and red clay loam (kharif)	Redgram			
		Groundnut			

		Sorghum+Redgram (2:1)			
		Greengram+Redgram (2:1 or 4:2)			
		Bajra + Redgram (2:1)			
		Groundnut + Redgram(4:2)			
	Medium to deep black soils (rabi)	Rabi sorghum	---	Compartment bunding	
		Bengalgram			
		Sunflower			
		Cotton			
		Rabi sorghum+Bengalgram (2:1)			
		Bengalgram+Safflower (4:2)			
		Pulses (Greengram/ insitu green manuring-Rabi crops)			
	Shallow black soils and red soils (kharif)	Groundnut (Bunch)	Removal/ thinning of alternate rows	1.Surface mulching	
		Groundnut (Spreading)	Repeated intercultivation and weeding	2.Spraying of antitranspirants like kaolin @ 5.0%	
		Bajra	Grazing leaf tips in bajra	3.Provide protective irrigation	
		Sorghum	Removal of weaklings in sorghum/bajra		
		Sunflower			
		Castor			
		Bajra+Redgram (2:1)			
		Sorghum+ Redgram (2:1)			

		Groundnut+Redgram(4:2)			
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Condition		Suggested Contingency measures			
Mid season drought (long dry spell)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measues ^d	Remarks on Implementation
At flowering/ fruiting stage	Medium deep black and red clay loam soils (kharif and rabi)	Redgram	Harvest the bajra for fodder & allow for ratooning	- Spraying of Kaolin @ 5.0 % - Protective irrigation - Surface mulching	-
		Bajra	Harvest Greengram for fodder and incorporate into soil		
		Sorghum	Harvest G'nut (B) for fodder Repeated inter cultivation		
		Sunflower	Weed control and Spraying G'nut with 2.0% urea or 0.2 % FeSo4		
		Redgram+Greengram (1:2 or 2:4)	Stripping of lower and non functional leaves in sorghum and bajra		
		Redgram+Bajra (2:1)			
		Sorghum+Redgram (2:1)			
		Redgram + Ground nut (2:4)			
	Medium and deep black soils and red day loam (kharif)	Redgram	Surface mulching Spraying of antitranspirants like kaolin @ 5% Provide supplemental irrigation		
		Groundnut			
		Sorghum+Redgram (2:1)			
		Greengram+Redgram (2:1)			
		Bajra + Redgram (2:1)			
		Groundnut + Redgram(4:2)			

	Medium to deep black soils (rabi)	Rabi sorghum	----	Compartment bunding
		Bengalgram		
		Sunflower		
		Cotton		
		Rabi sorghum+Bengalgram (2:1)		
		Bengalgram+Safflower (4:2)		
		Pulses (Greengram/insitu green manuring-Rabi crops)		
	Shallow black soils and red soils (kharif)	Groundnut (Bunch)	Harvest the bajra for fodder & allow for ratooin Harvest G'nut (B) for fodder Repeated intercultivation Weed control and Spraying G'nut with 2.0% urea or 0.2 % FeSo4 Strippig of lower and non functional leaves in sorghum and bajra	Surface mulching Spraying of antitranspirants like kaolin @ 5% Provide supplemental irrigation
		Groundnut (Spreading)		
		Bajra		
		Sorghum		
		Sunflower		
		Bajra+Redgram (2:1)		
Sorghum+ Redgram (2:1)				
Groundnut+Redgram (4:2)				

Condition			Suggested Contingency measures		
Terminal drought	Major Farming situation ^a	Normal Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
	Medium deep black and red clay loam soils	Redgram	Life saving irrigation Pigeonpea and greengram can be harvested for vegetable purpose Harvest at physiological maturity Bajra and sorghum could be harvested for fodder & allow for rabi sowing Harvest Greengram for fodder Harvest G'nut (B) for fodder	Surface mulching	---
		Bajra			
		Sorghum			
		Sunflower			
		Redgram+Greengram (1:2 or 2;4)			
		Redgram+Bajra (1;2)			
		Sorghum+Redgram (2:1)			
		Redgram + Ground nut (2:4)			
		Bajra			
		Sorghum			
		Sunflower			
		Redgram+Greengram (1:2 or 2:4)			
		Redgram+Bajra (2:1)			
		Sorghum+Redgram (2:1)			
		Redgram + Ground nut (2:4)			
medium to deep black soils	Rabi sorghum	---	Compartmental bunding	---	

		Safflower			
		Bengalgram			
		Sunflower			
		Cotton			
		Rabi sorghum+Bengalgram (2:1)			
		Bengalgram+Safflower (4:2)			
		Pulses (Greengram/ insitu green manuring-Rabi crops)			
	Shallow black soils and red soils	Groundnut (B)	Harvest the bajra for fodder & allow for ratooning	Compartmental bunding	--
		Groundnut (S)	Harvest Greengram for fodder and incorporate into soil		
		Bajra	Harvest G'nut (B) for fodder		
		Sorghum	Repeated intercultivation		
		Sunflower	Weed control and		
		Castor	Spraying G'nut with 2.0% urea or 0.2 % FeSo4		
		Niger			
		Bajra+Redgram (2:1)	Stripping of lower and non functional leaves in sorghum and bajra		
		Sorghum+ Redgram (2:1)			
		Groundnut+Redgram (4:2)			

2.1.2 Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Suggested Contingency measures	
				Agronomic measures	Remarks on Implementation ^j
Delayed release of water in canals due to low rainfall	Canal irrigated area-cropping in all seasons in all types of soils	Paddy- Paddy	Paddy- Paddy with short duration varieties	For Paddy use 35-40 days old seedlings with 4-5 seedlings per hill. Provide additional 20 % nitrogen to compensate the reduced tillering In Cotton, dibble the seeds at 90X45 cm spacing along with three spray of NAA + DAP at 45,60 and 75 DAS	---
		Cotton	No Change		
		Hybrid Jowar-Sunflower	Fallow-No change		
		Paddy-Bengalgram	No Change		
		Sunflower- Bengalgram			
		Paddy- Groundnut			
		Groundnut – Sunflower			
Sunflower-Groundnut					

Condition	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Suggested Contingency measures	
				Agronomic measures ⁱ	Remarks on Implementation ^j
Limited release of water in canals due to low rainfall	Canal irrigated area-cropping in all seasons in all types of soils	Paddy- Paddy	No Change	Irrigate Paddy when soil shows hairline cracks In Cotton ,adopt alternate/alternatively alternate/skip furrow irrigation Give irrigation at critical stages	---
		Cotton			
		Paddy-Bengalgram			
		Sunflower- Bengalgram			
		Paddy- Groundnut			
		Groundnut – Sunflower			
		Sunflower-Groundnut			

Condition			Suggested Contingency measures		
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Non release of water in canals under delayed onset of monsoon in catchment	---	---	Not applicable to Raichur District	---	---

Condition			Suggested Contingency measures		
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	1. Tank irrigated paddy areas in all soil types	Paddy- Paddy	Follow rainfed cropping system	---	---
		Cotton			
		Groundnut – Sunflower			
		Redgram			
		Vegetables and horticultural Crops			

Condition			Suggested Contingency measures		
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Insufficient groundwater recharge due to low rainfall	NA				

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				
Paddy	-	-	-	Proper drying and storage
Sunflower	Drain out excess water	Drain out excess water	Drain out excess water. Harvesting at physiological maturity stage,	
Sorghum	Top dress the crop with N & K	Earthing up		
Bengal gram	Intercultivation and weeding			
Bajra				
Horticulture -fruits				
Citrus	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope and application of 10 ppm NAA spray	Providing drainage trench (1.5 cu. ft) across the slope	Storing in Cold storage
Mango				-
Pomegranate				Storing in Cold storage
Sapota				-
5. Papaya				

Vegetables				
Green Chillies	Providing drainage trench (1.5 cu. ft) across the slope	Application of 10 ppm NAA spray	-	-
Onion	-do-	Providing drainage trench (1.5 cu. ft) across the slope	2000 ppm of MH spray 15 days before the harvest to control sprouting in storage	Store in well ventilated structure
Tomato		Application of 10 ppm	-	-

		NAA spray		
Brinjal		-do-		
Beans		-do-		
Spice and Plantation Crops				
Coconut	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope		
Dry Chillies	-do-	Application of 10 ppm NAA spray		
Fenugreek	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Coriander	-do-	-do-		
Tamarind	-do-	-do-		
Flowers				
Marigold	Providing drainage trench (1.5 cu. ft) cross the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Jasmine				
Rose				
Chrysanthemum				
Crossandra				
Heavy rainfall with high speed winds in a short span²				
Paddy	Drain out excess water -	Drain out excess water and harvest the crop and dry		Proper drying and storage
Sunflower		Drain out excess water and harvest the crop and dry the earheads		Proper drying and storage

Sorghum			Drain out excess water and harvest the crops	Proper drying and storage
Bengal gram			Drain out excess water and harvest the crop	Proper drying and storage
Bajra			Drain out excess water and harvest the crop	Proper drying and storage
Horticulture - fruits				
Citrus	Providing drainage trench (1.5 cu. ft) across the slope and providing support with locally available material at the initial stage of the crop	-do-	-do-	Storing in Cold storage
Mango	-do-	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-
Pomegranate	-do-	-do-	-do-	Storing in Cold storage
Sapota	-do-	-do-	-do-	-
Papaya	-do-	-do-	-do-	-
Vegetable crops				
Green Chillies	Providing drainage trench (1.5 cu. ft) across the slope	Application of 10 ppm NAA spray	-	-
Onion	-do-	Providing drainage trench (1.5 cu. ft) across the slope	2000 ppm of MH spray 15 days before the harvest to control sprouting in storage	Store in well ventilated structure
Tomato	-do-	Application of 10 ppm NAA spray	-	-
Brinjal	-do-	Application of 10 ppm NAA spray	-	-

Beans	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Spice and Plantation Crops				
Coconut	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Dry Chillies	-do-	Application of 10 ppm NAA spray	-	
Fenugreek	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	
Coriander	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-	
Tamarind	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-	
Flowers				
Marigold	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Jasmine	-do-	-do-	-	-
Rose	-do-	-do-	-	-
Chrysanthemum	-do-	-do-	-	-
Crossandra	-do-	-do-	-	-
Outbreak of pests and diseases due to unseasonal rains	Need based plant protection IPM and IDM	Need based plant protection measures		Safe storage against storage pest and diseases
Horticulture Fruits				
Citrus	Pruning of dried and dead	Spraying of COC 0.2 % +	Spraying of COC 0.2 % +	Removal of

Citrus canker	twigs for better aeration and sunlight Spraying of COC 0.2 % + Streptomycine sulphate 0.5 g/l. of water	Streptomycine sulphate 0.5 g/l. of water	Streptomycine sulphate 0.5 g/l. of water	the disease affected fruits form the produce and pack in well ventilated package
Leaf minor	Spraying of NSKE (5.0 %) + imidacloprid 0.5 ml/l	Spraying of NSKE (5.0 %) + imidacloprid 0.5 ml/l	-	
Mango	Powdery mildew : raying of hexaconazole @ 1.0 ml/l Mango hoppers : raying of carbaryl @ 4.0 g/l			- -
Pomegranate				
Wilt	Spraying of Chloryriphos 0.2 % + Propiconazole 0.2 %+ Bioagents (<i>P. Fluroescens</i> , <i>T. harzianum</i>)	Spraying of Chloryriphos 0.2 % + Propiconazole 0.2 %+ Bioagents (<i>P. Fluroescens</i> , <i>T. harzianum</i>)	Spraying of Chloryriphos 0.2 % + Propiconazole 0.2 %+ Bioagents (<i>P. Fluroescens</i> , <i>T. harzianum</i>)	-
Bacterial blight	Schedules of spraying consisting of UAS, Dharwad package	Schedules of spraying consisting of UAS, Dharwad package	Schedules of spraying consisting of UAS, Dharwad package Application of NSKE 5 % + spraying of cypremethrin/ imidacloprid 0.05 %	- -
	-	Schedules of spraying consisting of UAS, Dharwad package		-

Anar Butterfly		Application of NSKE 5 % + spraying of cypremethrin/ imidacloprid 0.05 %		
Sapota - Leaf spot	Spraying of Mancozeb @ 2.0 g/l	Spraying of Mancozeb @ 2.0 g/l	Spraying of Mancozeb @ 2.0 g/l	-
Papaya -	Ring spot virus :Remove affected plants and burn andSpraying systemic insecticide for the control of vectors			-
Vegetable crops				
Green Chillies -	Murda complex : Spraying systemic insecticide like dimethoate (1.7 ml/l) and imidacloprid 0.05 %			
Onion	Thrips :Spraying of dimethoate @ 1.7 ml/l Purple blotch: mSpraying of Mancozeb @ 2.0 g/l			-
Tomato	Thrips and mites : Spraying of Oxydemeton methyl @ 1.0 ml/l			-
Brinjal - Fruit and shoot borer	Application of Neem cake @ 250 kg /ha at the time of transplanting Later two applications at the same concentrations has to be applied the once in a month 2-3 Sprayings of carbaryl @ 4.0 /l with 15 days interval starting from 15 days before flowering.	Application of Neem cake @ 250 kg /ha at the time of transplanting Later two applications at the same concentrations has to be applied the once in a month 2-3 Sprayings of carbaryl @ 4.0 /l with 15 days interval starting from 15 days before flowering.	2-3 Sprayings of carbaryl* @ 4.0 /l with 15 days interval starting from 15 days before flowering. * Harvesting should be done 10-15 days after spraying	Collect the infected fruits from produce and destroy
Beans	Fruit borer - Spraying of Carbaryl @ 4.0 g/l of water Mosaic - Spraying of systemic insecticide to control vectors			-
Flowers				

Marigold -	Sucking pests :praying of systemic insecticides	-
Jasmine	Powdery mildew Spraying with Oxythioquinox (Moreston) @ 2.0 g/l Mites Spraying of Dicofole @ 2.5 ml /l of water	-
Rose	Sucking pests and Flower bud borer : praying of Systemic insecticide Powdery mildew :Spraying of Carbendizim @ 1 g/l	-
Chrysanthemum	Thrips :praying of systemic insecticides	-
Crossandra	Sucking pests: Spraying of systemic insecticide Root rot : Drenching with Carbendizim @1.0 g/l	

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹				
Crop1 (specify) Paddy	Drain out excess water	Drain out excess water	Drain out excess water	Drain out excess water and harvesting and drying
Crop2 Sunflower				
Crop3 Sorghum				
Crop4 Bengalgram				
Crop5 Bajra				
Horticulture Fruit Crops				
1. Citrus	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope and application of 10 ppm NAA spray	Providing drainage trench (1.5 cu. ft) across the slope	Storing in Cold storage
2. Mango	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-do-	-

3. Pomegranate	-do-	Providing drainage trench (1.5 cu. ft) across the slope and application of 10 ppm NAA spray	Providing drainage trench (1.5 cu. ft) across the slope	Storing in Cold storage
4. Sapota	-do-	-do-	-	-
5. Papaya	-do-	-	-	-
Vegetable Crops				
1. Green Chillies	Providing drainage trench (1.5 cu. ft) across the slope	Application of 10 ppm NAA spray	-	-
2. Onion	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	2000 ppm of MH spray 15 days before the harvest to control sprouting in storage	Store in well ventilated structure
3. Tomato	-do-	Application of 10 ppm NAA spray	-	-
4. Brinjal	-do-	Application of 10 ppm NAA spray	-	-
5. Beans	-do-	-	-	-
Spice and Plantation Crops				
1. Coconut	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
2. Dry Chillies	-do-	Application of 10 ppm NAA spray	-	-
3. Fenugreek	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-	-
4. Coriander	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-	-
5. Tamarind	-do-	-do-	-	-
Flowers				

1. Marigold	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
2. Jasmine	-do-	-do-	-	-
3. Rose	-do-	-do-	-	-
4. Chrysanthemum	-do-	-do-	-	-
5. Crossandra	-do-	-do-	-	-
Continuous submergence for more than 2 days²				
Paddy	Draining the excess water Re-sowing with seed treatment if mortality is more otherwise take up gap filling	Drain out excess water Top dressing with urea weeding	Drain out excess water Earthing up	Drain out excess water Harvesting and drying
Sunflower				
Sorghum				
Bengal gram				
Bajra				
Horticulture -fruits				
Citrus	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope and application of 10 ppm NAA spray	Providing drainage trench (1.5 cu. ft) across the slope	Storing in Cold storage
Mango	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-do-	-
Pomegranate	-do-	Providing drainage trench (1.5 cu. ft) across the slope and application of 10 ppm NAA spray	-do-	-do-
Sapota	-do-	-do-	-	-
Papaya	-do-	-	-	-
Vegetable Crops				

Green Chillies	Providing drainage trench (1.5 cu. ft) across the slope	Application of 10 ppm NAA spray	-	-
Onion	-do-	Providing drainage trench (1.5 cu. ft) across the slope	2000 ppm of MH spray 15 days before the harvest to control sprouting in storage	Store in well ventilated structure
Tomato	-do-	Application of 10 ppm NAA spray	-	-
Brinjal	-do-	Application of 10 ppm NAA spray	-	-
Beans	-do-	-	-	-
Spice and Plantation Crops				
Coconut	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Dry Chillies	Providing drainage trench (1.5 cu. ft) across the slope	Application of 10 ppm NAA spray	-	-
Fenugreek	-do-	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Coriander	-do-	-do-	-	-
Tamarind	-do-	-do-	-	-
Flowers				
Marigold	Providing drainage trench (1.5 cu. ft) across the slope	Providing drainage trench (1.5 cu. ft) across the slope	-	-
Jasmine	-do-	-do-	-	-
Rose	-do-	-do-	-	-
Chrysanthemum	-do-	-do-	-	-
Crossandra	-do-	-do-	-	-

Sea water intrusion ³	NA
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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 ^p	NA			
Cold wave ^q				
Frost				
Hailstorm				
Cyclone				

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

Condition	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Feed and Fodder availability	As the district is frequently prone for drought, it should have some feed and fodder reserves at any point of the year for mobilization to the drought affected villages Urea molasses mineral bricks (UMMB):50-100 t	Harvest and use all the failed crop (Paddy, Sorghum, Bengal gram, Bajra, Groundnut) material as fodder. Harvest all the top fodder available (Neem, Subabul, Acasia, Pipol etc) and feed the LS during drought	Flushing the stock to recoup Replenish the feed and fodder banks
Cyclone	NA		

Floods	<p>In case of early forewarning (EFW), harvest all the crops (Paddy, Sorghum, Bengal gram, Bajra, Groundnut) that can be useful as fodder in future (store properly)</p> <p>Don't allow the animals for grazing if severe floods are forewarned</p> <p>Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations</p> <p>Capacity building and preparedness of the stakeholders and official staff for the unexpected events</p>	<p>Transportation of animals to elevated areas</p> <p>Stall feeding of animals with stored hay and concentrates</p> <p>Proper hygiene and sanitation of the animal shed</p> <p>In severe floods, un-tether or let loose the animals</p> <p>Avoid soaked and mould infected feeds / fodders to livestock</p> <p>Emergency outlet establishment for required medicines or feed in each village</p> <p>Spraying of fly repellants in animal sheds</p>	<p>Repair of animal shed</p> <p>Bring back the animals to the shed</p> <p>Cleaning and disinfection of the shed</p> <p>Bleach (0.1%) drinking water / water sources</p> <p>Deworming with broad spectrum dewormers</p> <p>Vaccination against possible disease outbreaks like HS, BQ, FMD and PPR</p> <p>Proper disposal of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in</p>
Heat & Cold wave	NA		
Health and Disease management	<p>Procure and stock emergency medicines and vaccines for important endemic diseases of the area</p> <p>All the stock must be immunized for endemic diseases of the area</p> <p>Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district</p>	<p>Carryout deworming to all animals entering into relief camps</p> <p>Identification and quarantine of sick animals</p> <p>Constitution of Rapid Action Veterinary Force</p> <p>Performing ring vaccination (8 km radius) in case of any outbreak</p> <p>Restricting movement of livestock in case of any epidemic</p> <p>Rescue of sick and injured animals and their treatment</p> <p>Organize with community, daily lifting of dung from relief camps</p>	<p>Keep close surveillance on disease outbreak.</p> <p>Undertake the vaccination depending on need</p> <p>Keep the animal houses clean and spray disinfectants Farmers should be advised to breed their milch animals during July-September so that the peak milk production does not coincide with mid summer</p>
Insurance	Encouraging insurance of livestock	Listing out the details of the dead animals	<p>Submission for insurance claim and availing insurance benefit</p> <p>Purchase of new productive animals</p>

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) Construction of drinking water tanks in herding places/village junctions/relief camp locations	Restrict wallowing of animals in water bodies/resources	Bleach (0.1%) drinking water / water sources Provide clean drinking water
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Vaccination schedule in small ruminants (Sheep & Goat)

Disease	Season
Foot and mouth disease (FMD)	Preferably in winter / autumn
PPR	All seasons, preferably in June-July
Black quarter (BQ)	May / June
Enterotoxaemia (ET)	May
Haemorrhagic septicaemia (HS)	March / June
Sheep pox (SP)	December / march

Vaccination programme for cattle and buffalo:

Disease	Age and season at vaccination
Anthrax	In endemic areas only, Feb to May
HS	May to June
BQ	May to June
FMD	November to December

2.5.2

Poultry

	Suggested contingency measures		
	Before the event ^a	During the event	After the event
Drought			
Shortage of feed	Storing of house hold grain like maize, broken rice, baira etc.	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds	Supplementation to all
Drinking water	Rain water harvesting	Sanitation of drinking water	Give sufficient water as per the bird's
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	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
Floods			
Shortage of feed ingredients	In case of EFW, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc, Culling of weak birds	Use stored feed as supplement Don't allow for scavenging	Routine practices are followed
Drinking water	Provide clean drinking water	Sanitation of drinking water	Sanitation of drinking water
Health and disease management	In case of EFW, add antibiotic powder in drinking water to prevent any disease outbreak	Sanitation of poultry house Treatment of affected birds Prevent water logging surrounding the sheds Assure supply of electricity Sprinkle lime powder to prevent ammonia accumulation due to dampness	Disposal of dead birds by burning / burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed
Cyclone	NA		
Heat wave and cold wave	NA		

2.5.3 Fisheries

	Suggested contingency measures		
	Before the event*	During the event	After the event
1) Drought			
A. Capture			
Marine	NA	NA	NA
Inland			Report the loss to Revenue & Fisheries Dept.
(i) Shallow water depth due to insufficient rain/inflow	Observe water level. Advice fishermen to harvest as much as possible fish live stock	Harvest the complete fish live stock	
(ii) Changes in water quality	Observe water quality like dissolved Oxygen & pH	Report the matter to Revenue & Fisheries Dept.	
(iii) Any other	To explore the possibility of shifting the live stock to other water resources		
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rain/inflow	Observe water level. Advice for fishermen to harvest maximum fish live stock.	Addition of water, lime for tackling salt load	
(ii) Impact of salt load build up in ponds/change in water quality			
(iii) Any other			
2) Floods			
A. Capture			
Marine	NA		

(i) Average compension paid due to loss of fishermen life	Help the district administration in providing the necessary help concerned with Revenue Dept. authorities.		
(ii) Avg no.of boats/nets/damaged			
(iii)_ Avg no.of boats damaged			
Inland			
(i) Average compension paid due to loss of human life	Revenue authorities pay the compension to boats / nets / houses / fish live stock damaged	Addition of water, lime for tackling salt load	Report the loss to Revenue & Fisheries Dept.
(ii) No.of boats/nets/damaged			
(iii) No.of houses damaged			
(iv) Loss of stock		Report the matter to Revenue & Fisheries Dept.	
(v) Changes in water quality			
(vi) Health and diseases	should be reported to Revenue Dept.authorities.		
B. Aquaculture			
(i) Inundation with flood water	Monitor the floods and harvest maximum fish live stock before floods. Report the loss to Revenue and Fisheries Dept. authorities.	-----	
(ii) Water continuation and changes in water quality			
(iii) Health and Diseases			
(iv) Loss of stock and inputs (ffed, chemicals etc.)			
(v) Infrastructure damage (pumps, aerators, huts etc.)			
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Marine			