State: KARNATAKA

Agriculture Contingency Plan for District: DAKSHINA KANNADA

1.0 District Agriculture profile					
1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Western Ghats And Coastal Plain, Hot Humid-Perhumid Eco-Region (19.2)			
	Agro-Climatic Region (Planning Commission)	West Coast Plains And Ghat Region (XII)			
	Agro Climatic Zone (NARP)	Coastal Zone (KA-10)			
	List all the districts or part thereof falling under the NARP Zone	Dakshina Kannada , Udupi, Chikkamangalore			
	Geographic coordinates of district	Latitude	Longitude	Altitude	
		12º50'04.02" N	75º14'54.92" E	69 M	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Agricultural Research Station, Brahmavara, Udupi district- 576 213			
	Mention the KVK located in the district	Krishi Vigyan Kendra (D.K), Kankanady, Mangalore- 575 002			
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-September):	3072.6	91	1st week of June	4th Week of September
	NE Monsoon(October-December):	264.0	21	1st week of October	1st week of December
	Winter (January- February)	1.8	1		
	Summer (March-May)	221.0	7		
	Annual	3559.4	126		

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 (Lakh ha)	477	128	63	19	31	31	59	7	5

1. 4	**Major Soils (common names like shallow red soils etc.,)**	**Area ('000 ha)**	**Percent (%) of total**
	Red Laterite soils		60 %
	Sandy loam soils		40 %
	Others (specify):	-	-

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	130.4	121
	Area sown more than once	27.8	
	Gross cropped area	158.2	

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	72.5		
	Gross irrigated area	75.4		
	Rainfed area	57.8		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		-	-
	Tanks	147	1.7	2.4
	Open wells	40151	40.3	62.4
	Bore wells	6477	9.7	12.6
	Lift irrigation	-	2.3	3.1
	Micro-irrigation	-	-	-
	Other sources	-	18.4	19.3
	Total Irrigated Area	-	72.5	100.00
	Pump sets	-	-	-

	No. of Tractors	-	-	-
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	
	Over exploited	-	-	
	Critical	-	-	
	Semi- critical	-	-	
	Safe	-	-	
	Wastewater availability and use	-	-	
	Ground water quality			
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

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

1.7		**Major Field Crops cultivated**	**Area ('000 ha)**					
			Kharif		***Rabi***		**Summer**	**Total**
			Irrigated	***Rainfed***	***Irrigated***	***Rainfed***		
	1	Paddy	32.4		20.8		1.6	55.0
	2	Blackgram	-	-	-	1.2	0.7	2.0
	3	Greengram	-	-	-	0.1	0.7	1.0
	4	Cow pea	-	-	-	0.2	0.4	0.6
	5	Horse gram	-	-	-	0.05	-	0.05
		Horticulture crops - Fruits	**Total area**					
	1	Banana	3.2					
	2	Mango	1.6					
	3	Jack fruit	1.0					
	4	Pine apple	0.4					
	5	Sapota	0.2					
		Horticultural crops - Vegetables	**Total area**					
	1	Brinjal	0.2					
	2	Sweet potato	0.2					
	3	Bhendi	0.1					
	4	cucumber	0.1					

	5	Ash gourd,	0.04
		Medicinal and Aromatic crops	**Total area**
	1	Lemon Grass	0.1
	2	Coleus Forksholl	0.01
	3	Long Pepper	0.03
	4	Kokum	0.003
	5	Other medicinal plants	0.05
		Plantation crops	**Total area**
	1	Arecanut	27.6
	2	Coconut	16.1
	3	Cashew	31.0
	4	Pepper	2.1
	5	Cocoa	1.0
		Fodder crops	**Total area**
		Total fodder crop area	-
		Grazing land	-
		Sericulture etc	0.1
		Others (Specify)	-

1.8	**Livestock**	**Male ('000)**	**Female ('000)**	**Total ('000)**
	Non descriptive Cattle (local low yielding)	39.3	161.5	200.8
	Crossbred cattle	142.8	24.5	167.4
	Non descriptive Buffaloes (local low yielding)	10.1	4.9	15.1
	Graded Buffaloes	-	-	-
	Goat	10.1	15.5	25.6
	Sheep	0.1	0.2	0.3
	Others (Camel, Pig, Yak etc.)	-	-	5332
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**	
	Commercial	242	514.8	
	Backyard	-	774.3	

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)	
		18,108	2132	92	1912	290	51
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
		-		-		207	
	B. Culture						
		Water Spread Area (ha)		**Yield (t/ha)**		**Production ('000 tons)**	
	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)	50.3		7.8		0.1	
	ii) **Fresh water** (Data Source: Fisheries Department)	428.4		712.7		10.6	
	Others						

1.11 Production and Productivity of major crops (Average of last 5 years: 2004, 05, 06, 07, 08)

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder (‘000 tons)
		Production ('000t)	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	Paddy	73.8	2230	52.1	2380	37.6	2419	163.5	2343	-
2	Blackgram	-	-	629	565	530	568	1159	566	-
3	Greengram	-	-	19	404	330	423	349	422	-
4	Cowpea	-	-	33	379	171	505	204	490	-
5	Horsegram			33	500	-	-	33	500	-
Others	-	-	-	-	-	-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										
1	Arecanut	-	-	-	-	-	-	49323 t	1.8 t/ha	-
2	Coconut	-	-	-	-	-	-	2125 Lakh nuts	0.1 t/ha	-
3	Cashew	-	-	-	-	-	-	45289 t	1.5 t/ha	-
4	Cocoa	-	-	-	-	-	-	660 t	0.7 t/ha	
5	Black pepper	-	-	-	-	-	-	688 t	0.3 t/ha	
Others	Vanilla	-	-	-	-	-	-	94 t	0.4 t/ha	

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	Paddy	Blackgram	Greengram	Cowpea	Horsegram
	Kharif- Rainfed	1st week of June to 1st week of July	-	-	-	-
	Kharif-Irrigated	-	-	-	-	-
	Rabi- Rainfed	1st week of October to 4th week of October	1st week of October to 4th week of October	1st week of October to 4th week of October	1st week of October to 4th week of October	1st week of October to 4th week of October
	Rabi-Irrigated	-	--	-	-	-

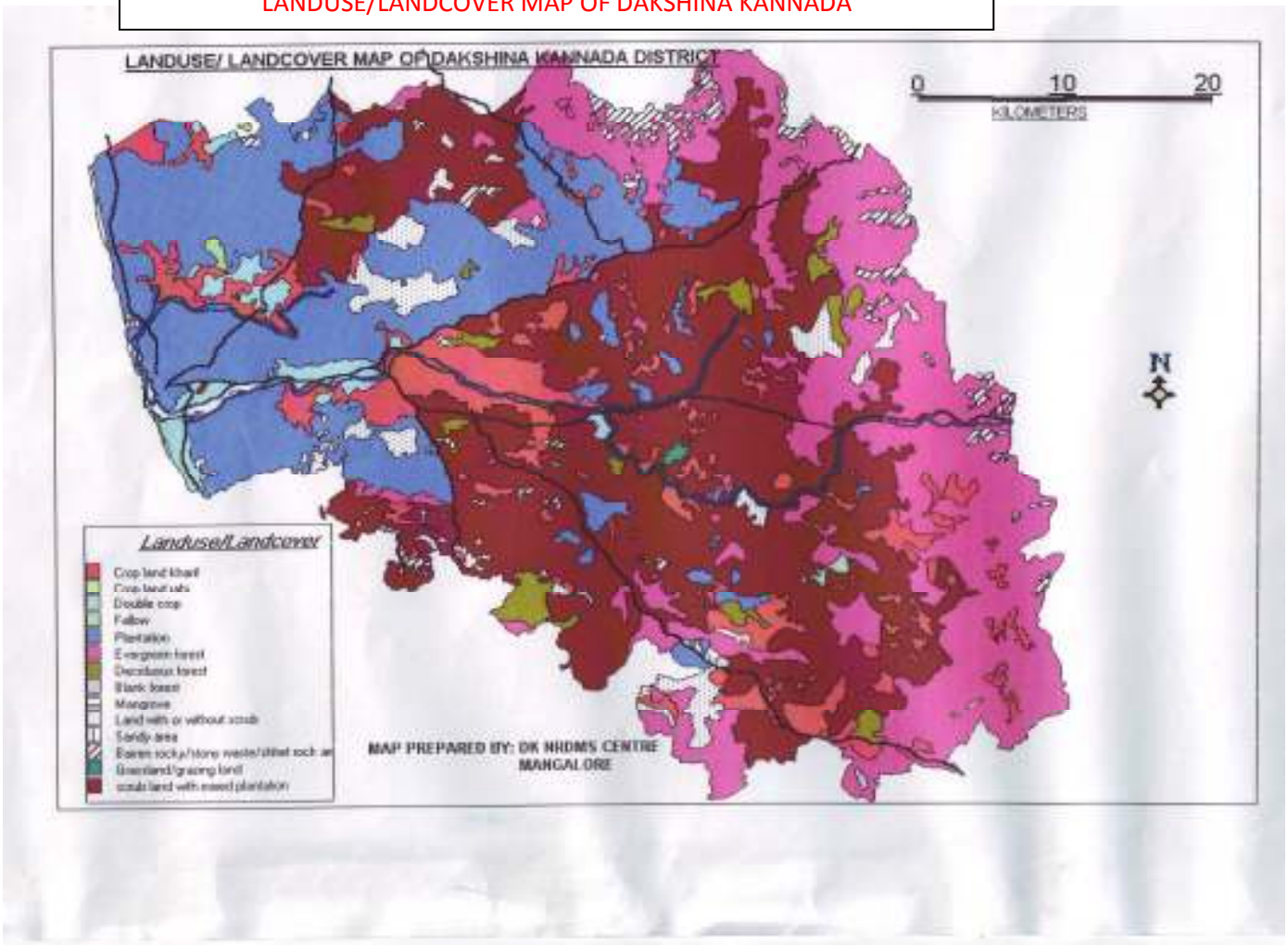
1.13	What is the major contingency the district is prone to? (Tick mark and mention years if known during the last 10 year period)	Regular	Occasional	None
	Drought		√	
	Flood		√	
	Cyclone		√	
	Hail storm			√
	Heat wave			√
	Cold wave			√
	Frost			√
	Sea water intrusion		√	
	Pests and diseases (specify)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

	Others (Wild animals)		√	

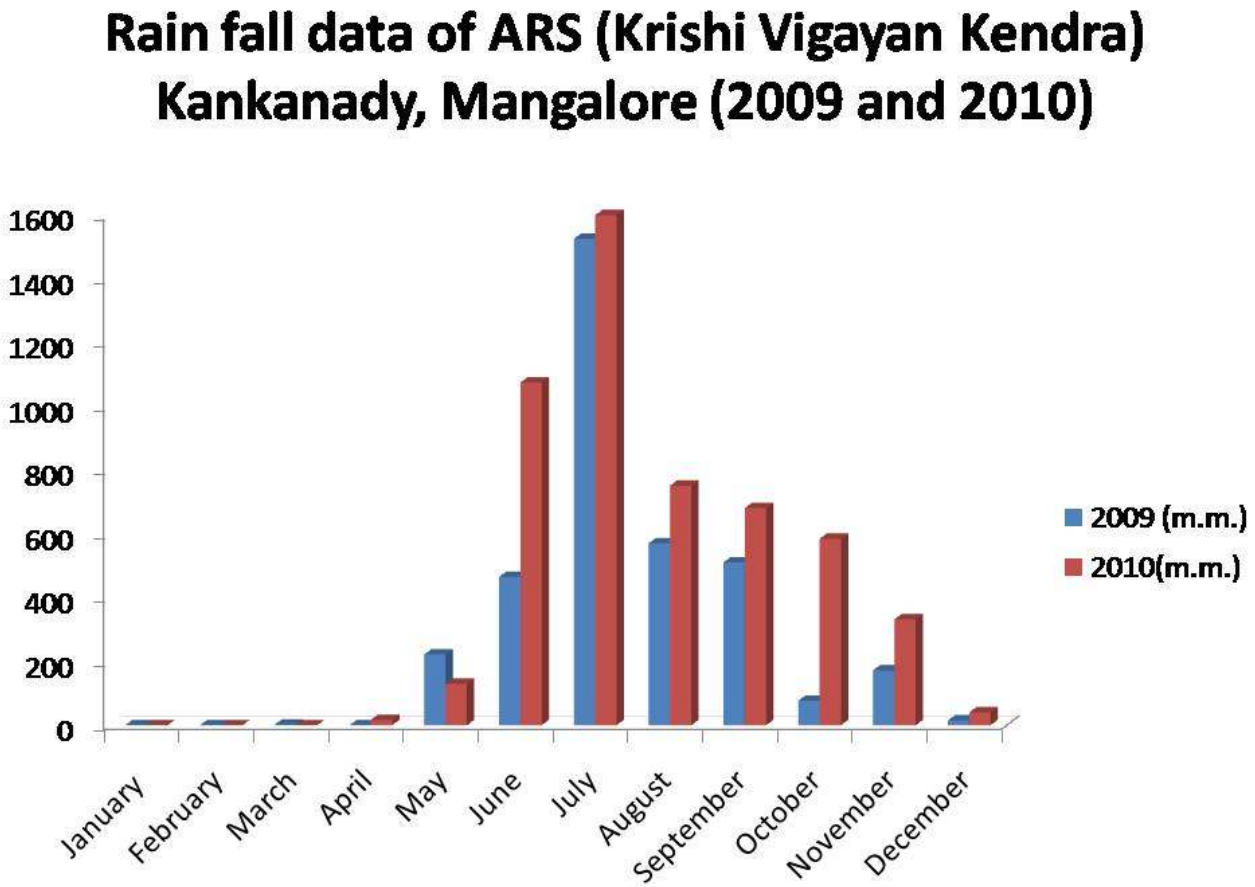
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure 1: Map Of Dakshina Kannada District

LANDUSE/LANDCOVER MAP OF DAKSHINA KANNADA



Annexure 2: Mean Annual Rainfall



Annexure 3: Soil Map

2.0 Strategies for weather related contingencies

2.1 Drought :

2.1.1 Rainfed situation:

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks (June 3rd week)	Shallow, lateritic, acid soil	Paddy	No change	No change	-
		Vegetables (Ridge gourd, Bhendi, etc)	No change	No change	
Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks (July 1st week)	Shallow, lateritic, acid soil	Paddy	Prefer Jyothi cultivar	• Drum seeded sowing • Protective irrigation	
		Vegetables (Ridge gourd, Bhendi, etc)	No change	• Protective irrigation • Mulching • Use of more organic manures	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 6 weeks (July 3rd week)	Shallow, lateritic, acid soil	Paddy	Prefer Jyothi cultivar	-do-	-
		Vegetables (Ridge gourd, Bhendi, etc)	Leafy vegetables		

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 (August 1st week)	Shallow, lateritic, acid soils	Paddy	Prefer Jyothi cultivar	• Drum seeded sowing • Protective irrigation	
		Vegetables (Ridge gourd, Bhendi, etc)	Pulses and Oilseeds Blackgram, Greengram and Sesamum	• Protective irrigation • Mulching • Use of more organic manures	

Condition			Suggested Contingency measures		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Shallow, lateritic, acid soil	Paddy	Protective irrigation Postponement of fertilizer top dress	Scooping of top soil	-
		Vegetables (Ridge gourd, Bhendi, etc)	Protective irrigation Postponement of fertilizer top dress	Mulching	

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	Shallow, lateritic, acid soil	Paddy	Insect pest management (Leaf folder) spraying of Quinolphos 2ml / litre of water Postponement of fertilizer top dress Protective irrigation	Scooping of top soil	-
		Vegetables (Ridge gourd, Bhendi, etc)	Protective irrigation	Mulching Spraying of antitranspirant (Kaolin @ 6% *w/v*)	

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	Shallow, lateritic, acid soil	Paddy	Protective irrigation	Protective irrigation using available seepage water	-
		Vegetables (Ridge gourd, Bhendi, etc)			

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**
	Shallow, lateritic, acid soi	Paddy	Protective irrigation using available seepage water	Blackgram, Cowpea, Vegetables – Coccinia, Ash gourd, Brinjal, Cucumber, Chilli	-
		Vegetables (Ridge gourd, Bhendi, etc)	Protective irrigation in alternate rows using available seepage water	-	-

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed release of water in canals due to low rainfall	NA				

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Limited release of water in canals due to low rainfall	NA				

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Non release of water in canals under delayed onset of monsoon in catchment	NA				

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	NA				

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/ cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient groundwater recharge due to low rainfall	Paddy and allied activities	Paddy –Paddy	• Paddy followed by pulses in residual soil moisture • Paddy followed by vegetables under protective irrigation	Use of recommended varieties Use of machineries and implements	

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

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Paddy	Proper drainage	Proper drainage	Proper drainage Protect the crop from grain discoloration	Transport to nearest warehouse, proper drying and storage in shade. Storage pest management
Blackgram	Green leaf hopper damage: Application of Dimethoate @ 1.75 ml/lt	-	-do-	-do-
Horticulture				
Brinjal	Proper drainage Protect the crop from wilt	Proper drainage Protect the crop from flower rot	Proper drainage	Shift to safer place and store it in shade
Ash gourd	-do-	-do-	-do-	-do-
Coccinia	Proper drainage Protect the crop from wilt	Proper drainage Protect the crop from wilt	-do-	-do-
Coconut	Proper drainage	Proper drainage	Proper drainage	Postpone the harvest
Arecanut	-do-	-do-	-do-	Shift to safer place and store it in shade
Cashew	Proper drainage if it is in mid land	Proper drainage if it is in mid land	Proper drainage if it is in mid land	Direct marketing
Pepper	Proper drainage	Proper drainage	Proper drainage	Shift to safer place and store it in shade and turn frequently
Banana	-do-	-do-	-do-	Direct marketing
Pine apple	-do-	-do-	-do-	Direct marketing
Heavy rainfall with high speed winds in a short span				
Horticulture				
Banana	Erection of temporary wind break	Erection of temporary wind break	Erection of temporary wind break	Direct marketing to consumers
Arecanut	Proper drainage	Proper drainage	Proper drainage	Shift to safer place and store it in shade and give turning

Outbreak of pests and diseases due to unseasonal rains				
Paddy	Leaf folder and Galmidge Management : leaf folder spraying of Quinolphos 2 ml/lt and Gall midge Application of Carbofuron 8 kg/ac	Gall midge : Application of Malathion dust @ 8 kg/ha	Gall midge : Application of Malathion dust @ 8 kg/ha Protect the crop from grain discoloration	Adoption of storage pest management strategies
Blackgram	Jassids and aphids (Dimethoate 30 EC @ 1.7 ml / lit), spingid moth (chlorpyriphos 20EC @ 2 ml/lit)	Pod borer (chlorpyriphos 20EC @ 2 ml/lit) Powdery mildew disease (carbendizim 1 g /lit)		
Greengram	-do-	-do-		
Sesamum	-do-	-do-		
Horticulture				
Arecanut	-	Koleroga (Phytopthera) disease : Spraying of 1 % Bordeaux mixture	-	-
Brinjal	Shoot and fruit borer damage: Spraying of Carbaryl @ 2 gm/lt	Adoption of IPDM strategies	-	-

2.3 Floods

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Paddy	Postponement of transplanting of paddy seedlings	Drain out the excess water by making water channels	Drain out the excess water by making water channels	Drain out water and post pone the harvesting activity

Blackgram / Greengram / Sesamum	Resowing of seeds	-do-	-do-	-do-
Horticulture				
Arecanut and Coconut	-	Drain out the excess water by making water channels	Drain out the excess water by making water channels	Drain out the excess water and harvest
Continuous submergence for more than 2 days				
Paddy	Drain out the excess water by making water channels	Drain out the excess water by making water channels		
Blackgram/Greengram/ Sesamum	As a preventive step open drainage channel and spray 0.05 % carbendazim for powdery mildew.	As a preventive step open drainage channel and spray 0.005% hexaconazole or 0.025 % carbendazim for leaf spot & powdery mildew.	As a preventive step open drainage channel and spray 0.005% hexaconazole or 0.025 % carbendazim for powdery mildew.	Picking of mature pods.
Horticulture				
Arecanut and Coconut		Drain out the excess water by making water channels	Drain out the excess water by making water channels	Drain out the excess water and harvest
Sea water intrusion	• Leaching • Selection of salt tolerant varieties • Sowing and insitu ploughing of green manure species (Sesbania aculeate)			

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	As the district is occasionally prone to drought the following measures to be taken to ameliorate the fodder deficiency Sowing of cereals (Sorghum/Bajra) and leguminous crops (Lucerne, Berseem, Horse gram, Cowpea) during North-East monsoon under dry land system for fodder production. Encourage silage making with available maize fodder in the villages Chopping of fodder should be made as mandatory in every village through supply and establishment of good quality chaff cutters. Harvesting and collection of perennial vegetation particularly grasses which grow during monsoon Proper drying, bailing and densification of harvested grass from previous season Creation of permanent fodder, feed and fodder seed banks in all drought prone villages	Harvest and use biomass of dried up crops (Paddy, Black gram, Green gram, Cowpea etc.,) material as fodder. Concentrate ingredients such as Grains, brans, chunnies & oilseed cakes, low grade grains etc. unfit for human consumption should be procured from Govt. Godowns for feeding as supplement for high productive animals during drought Continuous supplementation of mineral mixture to prevent infertility Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS). Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals Advise the farmers about the practice of mixing available kitchen waste with dry fodder while feeding	Training/educating farmers for feed & fodder storage. Maintenance / repair of silo pits and feed/fodder stores. Encourage progressive farmers to grow fodder crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAINT BAJRA, L-74, K-677, Ananad/African Tall etc., on their own lands & supporting them with assisting infrastructures like seeds, manure. Supply of quality fodder seed (multi cut sorghum/bajra/maize varieties) and fodder slips of Napier, guinea grass well before monsoon Replenish the feed and fodder banks

Floods	In case of early forewarning (EFW), harvest all the crops (Paddy, Black gram, Green gram, Cowpea etc.,) that can be useful as fodder in future (store properly) Don't allow the animals for grazing if severe floods are forewarned In flood prone mandals, arrange for storing minimum required quantity of hay (25-50kg) and concentrates (25kgs) per animals in farmer / LS keepers house / shed for feeding animals during floods Keep stock of bleaching powder and lime Carry out Butax spray for control of external parasites Identify the Clinical staff and trained paravets and indent for their services as per schedules Identify the volunteers who can serve in need of emergency 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 Capacity building and preparedness of the stakeholders and official staff for the unexpected events Capacity building and preparedness of the stakeholders and official staff for the unexpected events	Transportation of animals to elevated areas Stall feeding of animals with stored hay and concentrates Proper hygiene and sanitation of the animal shed In severe floods, un-tether or let loose the animals Emergency outlet establishment for required medicines or feed in each village Spraying of fly repellants in animal sheds	Repair of animal shed Bring back the animals to the shed Cleaning and disinfection of the shed Bleach (0.1%) drinking water / water sources Deworming with broad spectrum dewormers Vaccination against possible disease out breaks like HS, BQ, FMD and PPR Proper disposable 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 pit Drying the harvested crop material and proper storage for use as fodder.

Cyclone	Harvest all the possible wetted grain (Paddy, Black gram, Green gram, Cowpea etc.,) and use as animal feed. Stock of anti-diarrheal drugs and electrolytes should be made available for emergency transport Don't allow the animals for grazing in case of early forewarning (EFW) of cyclone Incase of EFW of severe cyclone, shift the animals to safer places.	Treatment of the sick, injured and affected animals through arrangement of mobile emergency veterinary hospitals / rescue animal health workers. Diarrhea out break may happen. Health camps should be organized In severe cases un-tether **or** let loose the animals Arrange transportation of highly productive animals to safer place Spraying of fly repellants in animal sheds for control of mosquitoes	Repair of animal shed Deworm the animals through mass camps Vaccinate against possible disease out breaks like HS, BQ, FMD and PPR Proper dispose 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 pit Bleach / chlorinate (0.1%) drinking water or water resources Collect drowned crop material, dry it and store for future use Sowing of short duration fodder crops in unsown and water logged areas when crops are damaged and no chance to replant Application of urea (20-25kg/ha) in the inundated areas and CPR's to enhance the bio mass production.
Heat & Cold wave	**NA**		
Health and Disease management	List out the endemic diseases (species wise) in that district Procure and stock emergency medicines and vaccines for important endemic diseases of the area All the stock must be immunized for endemic diseases of the area Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in	Constitution of Rapid Action Veterinary Force 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 Rescue of sick and injured animals and their treatment	Conducting mass animal health camps Conducting fertility camps Mass deworming camps

	the district		
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	Bleach (0.1%) drinking water / water sources Provide clean drinking water
Insurance	Encouraging insurance of livestock	Listing out the details of the dead animals	Submission for insurance claim and availing insurance benefit Purchase of new productive animals

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 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		Use water sanitizers or offer cool hygienic drinking water	
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and IBD	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			
Shortage of feed ingredients	In case of early forewarning of floods, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc,	Use stored feed as supplement Don't allow for scavenging Culling of weak birds	Routine practices are followed Deworming and vaccination against RD
Drinking water		Use water sanitizers or offer cool hygienic drinking water	
Health and disease management	In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak	Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness	Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with line powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD
Cyclone			
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 Protect from thunder storms	Routine practices are followed
Drinking water		Use water sanitizers or offer cool drinking water	
Health and disease management	In case of EFW, add antibiotic powder in drinking water to	Sanitation of poultry house Treatment of affected birds	Disposal of dead birds by burning / deep burying with lime powder in pit

	prevent any disease outbreak	Prevent water logging surrounding the sheds Assure supply of electricity Sprinkle lime powder (5-10g per square feet) to prevent ammonia accumulation due to dampness	Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against Ranikhet Disease (0.5ml S/c)
Heat & Cold wave	NA		

Fisheries Condition: Drought (Inland)

		Suggested Contingency Measures		
Particulars	Before the event	During the event	After the event	Convergence/linkages with ongoing programs, if any
Shallow water depth due to insufficient rains/inflow	Not allow to use the water for other purpose	Not allow to use the water	-	-
Changes in water quality	Harvest all the fishes and dispose	Chemically treat the water according to the need Harvest all the fishes and dispose	Remove old water and refill with fresh water	

Fisheries Condition: Drought (Aquaculture)

		Suggested Contingency Measures		
Particulars	Before the event	During the event	After the event	Convergence/linkages with ongoing programs, if any
Shallow water in ponds due to insufficient rains/inflow	Not allow to use the water from the pond for other purpose	Recycling of existing pond water	-	-

Impact of salt load build up in ponds / change in water quality	Dilution with fresh water	Dilution with fresh water	-	-

Fisheries Condition: Floods (Aquaculture)

		Suggested Contingency Measures		
Particulars	Before the event	During the event	After the event	Convergence/linkages with ongoing programs, if any
Inundation with flood water	Provide proper drainage Increase the height of pond dykes	Provide proper drainage Increase the height of pond dykes	-	-
Water continuation and changes in water quality	Safe diversion of water ways	Safe diversion of water ways	Treat the water with suitable measures	-
Health and diseases	Liming	-	Treat the water with suitable measures	-
Loss of stock and inputs (feed, chemicals etc)	Cover the net at the outlet point Increase the height of pond dykes	Cover the net at the outlet point Increase the height of pond dykes	-	-
Infrastructure damage (pumps, aerators, huts etc)	Remove pumps and aerators Construct the huts at elevated places	Remove pumps and aerators	Reinstall pumps and aerators	-

Fisheries Condition: Cyclones (Aquaculture)

		Suggested Contingency Measures		
Particulars	Before the event	During the event	After the event	Convergence/linkages with ongoing programs, if any
Overflow / flooding of ponds	Cover the net at the outlet point Increase the height of pond dykes	Cover the net at the outlet point Increase the height of pond dykes	-	-

Changes in water quality (fresh water / brackish water ratio)	Increase the height of pond dykes Safe diversion of inflow water	Increase the height of pond dykes Safe diversion of inflow water	Addition of saline/fresh water for specific salinity	-
Loss of stock and inputs (feed, chemicals etc)	Cover the net at the outlet point Increase the height of pond dykes	Cover the net at the outlet point Increase the height of pond dykes	-	-
Infrastructure damage (pumps, aerators, shelters/huts etc)	Remove pumps and aerators Construct the huts at elevated places	Remove pumps and aerators	Reinstall pumps and aerators	-