

State: ARUNACHAL PRADESH

Agriculture Contingency Plan for District: Tawang

1.0 District Agriculture profile*				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Eastern Himalayan Region (Zone II)		
	Agro-Climatic Zone (Planning Commission)	Eastern Himalayan Region		
	Agro Climatic Zone (NARP)	Temperate alpine zone		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Whole District		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		91 ⁰ 33'E to 92 ⁰ 26'E	27 ⁰ 29'N to 27 ⁰ 52'N	1800- 3300 m above MSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	National Research Centre on Yak, Dirang, Distt West Kameng		
	Mention the KVK located in the district with full address	KVK, Tawang, Dist. Tawang Arunachal Pradesh, Pin- 790104		
Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	ICAR Research Complex for NEH Region, Arunachal Pradesh Center, Basar, West Siang District- 791101, Arunachal Pradesh.			

***Indicate source of data while furnishing information at different places in the district profile.**

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):	1711	NA	-	-
	NE Monsoon(Oct-Dec):	187.1	NA	-	-
	Winter (Jan- February)	53.3	NA	-	-
	Summer (March-May)	537.7	NA	-	-
	Annual	2489.1	NA	-	-

1.3	Land use pattern of the district (latest statistics)	Geographical Area #	Cultivable area *	Forest area	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	217.2	10.58	-	0.60	0.39	3.3	1.58	0.73	1.05	1.33

Census of India 2011, Ministry of Home Affairs, Govt. of India

*FST: Forest Survey of India, Ministry of Environment, Forest climate change-2011

2011-12 Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India

1.4	Major Soils (common names like red sandy loam deep soils (etc.))*	Area ('000 ha)**	Percent (%) of total geographical area
	Acidic soil	NA	-
	Sandy soil	NA	-
	Alkaline soil	NA	-
	Others (specify):	-	-

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS & LUP); ** Pl. give the details of the major soils occupying more than 5% of total geographical area. Degree of soil acidity (pH) may also be indicated

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	3.33 ha	151.4
	Area sown more than once	1.71 ha	
	Gross cropped area	5.04 ha	

2011-12 states, Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	0.58		
	Gross irrigated area	0.84		
	Rainfed area	3.05		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area

canal	113	3015	Area may be indicated
Tanks	Nil	-	-
Open wells	Nil	-	-
Bore wells	Nil	-	-
Lift irrigation schemes	Nil	-	-
Micro-irrigation	Nil	-	-
Other sources (Spring water well)	Nil	-	-
Total Irrigated Area	0.84	-	-
Pump sets	-	-	-
No. of Tractors	-	-	-
Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
Over exploited	NA	-	-
Critical	NA	-	-
Semi- critical	NA	-	-
Safe	NA	-	-
Wastewater availability and use	NA	-	-
Ground water quality	-	-	-

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

Statistical Hand Book of Tawang Dist. 2011-12, Published by – Economics and Statistics Branch, Office of the DC, Tawang dist., Tawang, Arunachal Pradesh.

1.6. a.	Fertilizer and Pesticides use	Type	Total quantity (tonnes)
1	Fertilizers*	Urea DAP Potash SSP Other straight fertilizers (specify) Other complex fertilizers (specify)	NA NA NA NA
2	Pesticides*	Insecticides/ Fungicides Bio pesticide	0.185 0.300

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2013-2014)

1.7	S.No.	Major field crops cultivated	Area ('000 ha)							Summer	Grand total
			Kharif			Rabi					
			Irrigated	Rainfed	Total	Irrigated	Rainfed	Total			
1	Paddy	0.575	0.185	0.760	-	-	-	-	0.760		
2	Maize	-	0.695	0.695	-	-	-	-	0.695		
3	Millet	-	1.000	1.000	-	-	-	-	1.000		
4	Wheat	-	0.860	0.860	-	-	-	-	0.860		
5	Barley	-	0.205	0.205	-	-	-	-	0.860		
6	Buckwheat	-	0.090	0.090	-	-	-	-	0.090		
7	Local pulse	-	0.152	0.152	-	-	-	-	0.152		
8	Oilseed	-	0.155	0.155	-	-	-	-	0.155		
S.No.	Horticulture crops - Fruits	Area ('000 ha)									
		Total			Irrigated		Rainfed				
1	Apple	1.6						1.6			
2	Kiwi	0.75						0.75			
3	Pear/ Peach/plum	0.09						0.09			
4	walnut	0.55						0.55			
5	Guava	0.003						0.003			
	Horticulture crops - Vegetables	Total			Irrigated		Rainfed				
1	Garlic	0.015						0.015			
2	Potato	0.455						0.455			
3	Ginger	0.026						0.026			
4	Chilli	0.070						0.070			
5	Turmeric	0.014						0.014			
6	Others (specify)	0.008						0.008			
	Medicinal and Aromatic crops	Total			Irrigated		Rainfed				
1	NA	NA						NA			
Others (specify)		-						-			
	Plantation crops	Total			Irrigated		Rainfed				
1	NA	NA						NA			
Others (Specify)	Eg., industrial pulpwood crops etc.	-						-			
	Fodder crops	Total			Irrigated		Rainfed				
1	NA	NA						NA			
Others (Specify)		-						-			

	Total fodder crop area	-	-	-
	Grazing land, reserve areas etc	-	-	-
	Availability of unconventional feeds/by products eg., breweries waste, food processing, fermented feeds bamboo shoots, fish etc	-	-	-
	Sericulture etc Other agro enterprises (mushroom cultivation etc specify)	-	-	-
	Others (specify)	-	-	-

1.8	Livestock (18th Quinquennial Livestock Census 2007, Deptt. Of AH & Vety., Nirjuli, A.P.)	Male ('000)	Female ('000)	Total ('000)
	Indigenous cattle	6.36	15.84	22.2.
	Goat	2.41	3.53	5.94
	Sheep	-	-	8.233
	Pig	1.49	1.22	2.70
	Poultry	-	-	9.191
	Yak	-	-	4.258
	Others (Horse, mule, donkey etc., specify)	-	-	-
	Commercial dairy farms (Number)	-	-	-
Data source :Live stock Census 2007				
1.9	Poultry	No. of farms	Total No. of birds ('000)	
	Commercial	-	-	
	Backyard	-	9.21	

1.10	Fisheries (Data source: Fisheries Deptt.)						
	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)	
		-	-	-	-	-	-
ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks		
	Nil		Nil		-		
B. Culture							
				Water Spread Area (ha)	Yield (t/ha)	Production ('000 tons)	
	i) Brackish water			-	-	-	
	ii) Fresh water (Data Source: Fisheries Department)			140.85 ha	0.153	21.51	
	Others (River/Stream)			-	-	-	

1.11 Production and Productivity of major crops (Average of last 5 years 2009-10-2013-14)

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)										
Crop 1	Paddy	11.580	1550	-	-	-	-	11.580	1550	-
Crop 2	Maize	6.9	1006	-	-	-	-	6.9	1006	-
Crop 3	Millet	1.0	1000	-	-	-	-	1.0	1000	-
Crop 4	Pulse	1.2	810	-	-	-	-	1.2	810	-
Crop 5	Oil seed	1.35	870	-	-	-	-	1.35	870	-
Others	-	-	-	-	-	-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Vegetable	2.1	42500	-	-	-	-	2.1	42500	-

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Crop 1: Rice	2: Maize	3: Potato	4: Millet	5: Pulses
	Kharif- Rainfed	April-May	May-June		May-June	June-July
	Kharif-Irrigated	-	-	-	-	-
	Rabi- Rainfed	-	-	Nov-Dec	-	Oct-Nov
	Rabi-Irrigated	-	-	-	-	-
	Summer-irrigated	-	-	-	-	-
	Summer-rainfed	-	-	-	-	-

1.13	What is the major contingency the district is prone to? (Tick mark)	Regular*	Occasional	None
	Drought			
	Flood			
	Cyclone			
	Hail storm			
	Heat wave			
	Cold wave			
	Frost			
	Sea water intrusion			
	Snowfall			
	Landslides			
	Earthquake			
	Pests and disease outbreak (specify)			
	Others (like fog, cloud bursting etc.)			

*When contingency occurs in six out of 10 years

Pest and disease outbreak: **Agriculture:** - Gundhi bug in upland rice, Stem borer of rice and maize etc.

Veterinary: FMD, swine fever, Ranikhet disease etc.

1.14	Include Digital maps of the district for	Location map of district within Annexure I	Enclosed: Yes
		Mean Annual Rainfall Annexure-2	Enclosed: Yes
		Soil Map	Enclosed: No

Annexure I
Location Map of Tawang District



Annexure-2: MEAN ANNUAL RAINFALL OF TAWANG DISTRICT

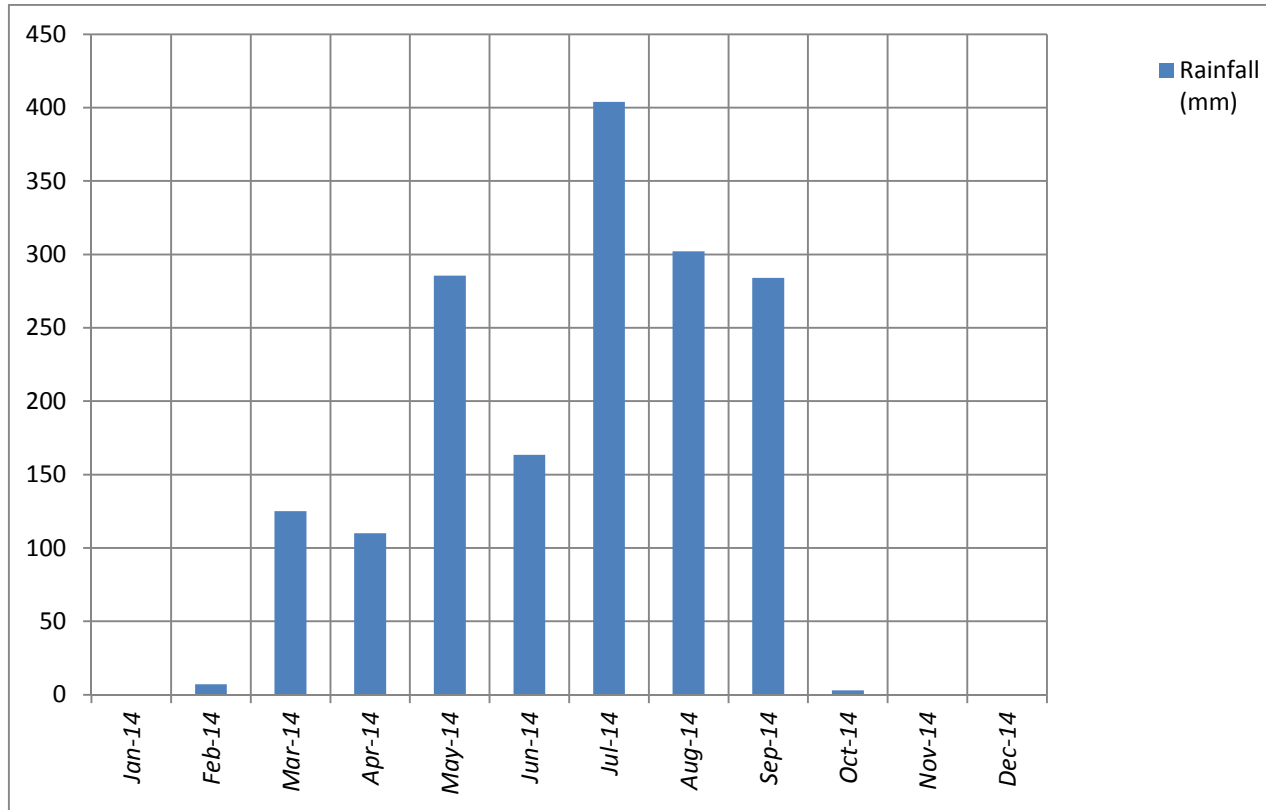


Fig. Average Rainfall map of Tawang - District

2.1 Drought (Rainfed situation)

A. Drought-Pre-Monsoon (Last week of March to First week of April) Normal

Condition	Major Farming situation	Normal Crop / Cropping system	Change in crop /cropping system including variety	Suggested Contingency measures	
				Agronomic measures	Remarks on Implementation
Delayed by 2 weeks (2 nd to 3 rd week of April)	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	Short duration crops/varieties like RCM-1-75, RCM-1-76	<ul style="list-style-type: none"> ▪ Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices ▪ Maize + groundnut/soya bean/rice bean inter cropping. ▪ Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing. ▪ Application of organic manure before sowing. 	Schemes for line department/RKVY/ ATMA
		Millet	Short duration crops/varieties of finger millet (VR-708, GPU-67)	-	-
		Black gram	Short duration crops/varieties like USJD113, KU301	-	-
	Steeply sloping hill loamy soil (>1200m MSL)	Millets	Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)	-	-

Normal onset of Pre-monsoon

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)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Millet	<ul style="list-style-type: none"> Short duration crops/varieties of finger millet (VR-708, GPU-67), 10% higher seed rate 	<ul style="list-style-type: none"> Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices Application of organic manure before sowing 	Schemes for line department/RKVY/ATMA
		Maize	<ul style="list-style-type: none"> Short duration crops/varieties like RCM-1-75, RCM-1-76 Maize + groundnut/soya bean/rice bean inter cropping. Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing. 	<ul style="list-style-type: none"> Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices Application of organic manure before sowing 	-
	Steeply sloping hill loamy soil (>1200m MSL)	Millet	<ul style="list-style-type: none"> Short duration crops/varieties of finger millet (VR-708, GPU-67), 10% higher seed rate 	<ul style="list-style-type: none"> Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices Application of organic manure before sowing 	-

Condition	Major Farming situation	Normal Crop /cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period)					
Vegetative stage	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> Weeding Interculture Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	Schemes for line department/RKVY/ATMA
		Millet	<ul style="list-style-type: none"> Weeding Interculture Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	-

		Black gram	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	-
	Steeply sloping hill loamy soil (>1200m MSL)	Millet	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	-

Condition	Major Farming situation	Normal Crop /cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period)					
Reproductive stage	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	Schemes for line department/RKVY/ATMA
		Millet (finger millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	-
		Black gram	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	-
	Steeply sloping hill loamy soil (>1200m MSL)	Millet (finger millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	-

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	Schemes for line department/RKVY/ ATMA
		Millet (finger millet)	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	-
		Black gram	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	-
	Steeply sloping hill loamy soil (>1200m MSL)	Millet (finger millet)	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	-

2.2 Drought-Normal onset of Monsoon (1st week of June) Normal

Condition	Major Farming situation	Normal Crop / Cropping system	Change in crop /cropping system including variety	Suggested Contingency measures	
				Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)					
Delayed by 2 weeks (3 rd week of June)	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	No change <ul style="list-style-type: none"> Short duration variety of maize like RCM-1-75, RCM-1-76 	<ul style="list-style-type: none"> Gap filling Weeding Foliar application of 1% MOP Application of organic manure, wherever possible Closer spacing 40x30 cm Provide irrigation from the available sources 	-
		Millet	No change	<ul style="list-style-type: none"> Gap filling Weeding Foliar application of 1% MOP Application of organic manure, wherever possible Provide irrigation from the available sources 	-

		Black gram	No change <ul style="list-style-type: none"> Short duration variety of Black gram like USJD113, KU301 	<ul style="list-style-type: none"> Weeding Foliar application of 1% MOP Application of organic manure, wherever possible Closer spacing 20x20 cm Provide irrigation from the available sources 	-
	Steeply sloping hill loamy soil (>1200m MSL)	Millet	No change	<ul style="list-style-type: none"> Gap filling Weeding Foliar application of 1% MOP Application of organic manure, wherever possible Provide irrigation from the available sources 	-

Normal onset of monsoon

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)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> If the germination is less than 30% of optimum plant population, re sowing should be done Gap filling to be done to maintain optimum plant density Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger millet)	<ul style="list-style-type: none"> If the germination is less than 30% of optimum plant population re sowing should be done Gap filling to be done to maintain optimum plant density Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA
		Black gram	<ul style="list-style-type: none"> If the germination is less than 30% of optimum plant population re sowing should be done Gap filling to be done to maintain optimum plant density Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA
	Steeply sloping hill loamy soil (>1200m MSL)	Millet (finger millet)	<ul style="list-style-type: none"> If the germination is less than 30% of optimum plant population re sowing should be done Gap filling to be done to maintain optimum plant density Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA

Condition	Major Farming situation	Normal Crop /cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period)					
Vegetative stage	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> ▪ Weeding to be done ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for Stem Borer 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
		Black gram	<ul style="list-style-type: none"> ▪ Weeding to be done ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for Yellow Mosaic virus 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
	Steeply sloping hill loamy soil (>1200m MSL)	Millet (finger millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA

Condition	Major Farming situation	Normal Crop /cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period)					
Reproductive stage	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for Stem Borer 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger millet)	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
		Black gram	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Timely plant protection of 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt.

			measures for Yellow Mosaic virus		/RKVY/ATMA
	Steeply sloping hill loamy soil (>1200m MSL)	Millet (finger millet)	<ul style="list-style-type: none"> Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Moderately sloping side slopes with deep loamy soils (600-1200m MSL).	Maize	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger millet)	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	Schemes from Line Deptt./RKVY/ATMA
		Black gram	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	Schemes from Line Deptt./RKVY/ATMA
	Steeply sloping hill loamy soil (>1200m MSL)	Millet (finger millet)	<ul style="list-style-type: none"> Harvest at physiological maturity. 	<ul style="list-style-type: none"> Planning for zero tillage cultivation of pea. Preparation for cole crops 	Schemes from Line Deptt./RKVY/ATMA

2.1.2 **Drought-irrigated situation** : NA in this district

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigation situation)

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	Drainage of excess water from the field	Immediate provision of drainage system	<ul style="list-style-type: none"> ▪ Drain out excess water ▪ Harvest at physiological maturity 	<ul style="list-style-type: none"> ▪ Shifting to a safer place ▪ Dry in shade and in well ventilated space
Maize	Provide drainage	Provide drainage	<ul style="list-style-type: none"> ▪ Drain out excess water ▪ Harvest at physiological maturity 	<ul style="list-style-type: none"> ▪ Shifting to a safer place ▪ Dry in shade and in well ventilated space
Millet	Drainage of excess water	Immediate provision of drainage system	<ul style="list-style-type: none"> ▪ Drain out excess water ▪ Harvest at physiological maturity 	Proper drying
Horticulture				
Orange	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss ▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection. ▪ Proper nutrient management to be followed. 	<ul style="list-style-type: none"> ▪ .Provide proper drainage ▪ Foliar application of micronutrient/multiplex @ 0.2% should be done to prevent flower drop ▪ Control aphids and mealy bugs etc 	<ul style="list-style-type: none"> ▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection ▪ Harvesting can be delayed upto 60-75 days by spraying pre-harvest chemical i.e. 2-4D at 20ppm + GA at 10ppm + 0.2% Kcl on maturing fruits. ▪ Harvesting can be delayed. In citrus even after full maturity, the fruits can be left on the tree for 2-3 weeks without deterioration which facilitates prolong harvesting. ▪ While picking, the stem end should be cut close to the fruit without damaging the rind. Hence avoiding fungal infection. ▪ Collect the good fruits and store 	<ul style="list-style-type: none"> ▪ Fruits are to be stored in well aerated farm shed or house to avoid loses. ▪ Storing at 8 – 10 0 C with 85 – 90 % RH is preferred.

			them. Damaged fallen fruits to be disposed off	
Apple	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss ▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection ▪ Nutrient management to be done 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Half moon terraces to be done to prevent nutrient loss ▪ Pruning of damaged branches and application of Bordeaux Paste to be done ▪ Nutrient management along with foliar application micronutrient to be done 	<ul style="list-style-type: none"> ▪ Spray 2,4,5-T @ 20ppm or 2,4,5-TCPA @ 15ppm to inhibit fruit drop ▪ Collect the good fruits and store them. Damaged fallen fruits to be separated and disposed off ▪ Necessary to maintain adequate drainage 	<ul style="list-style-type: none"> ▪ Stored the fruits for 4-8 months at -1.1 to 0°C and 85-90 % RH. ▪ Spray growth regulators Like Alar @ 1000 ppm to improve storability
Pineapple	<ul style="list-style-type: none"> ▪ Make trenches/furrows in between ridges to facilitate drainage of excess water ▪ Remove the excess suckers to maintain the quality of plant ▪ Nutrient management to be followed 	<ul style="list-style-type: none"> ▪ Application of Ethephon 2mg in 100-140mg, Bentonite or NAA @ 25ppm or 2, 4-D @ 5-10 ppm should be applied for uniform flower induction. 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Spraying of insecticides and fungicide ▪ Fruits can be protected with locally available material to protect the mature fruit from unusual rains 	<ul style="list-style-type: none"> ▪ Store fruits in well aerated farm shed or house to avoid loses. ▪ Pineapples can be stored at a temperature of 7.5-12°C and RH 70-90% for 4 weeks.
Kiwifruit	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss ▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection ▪ Nutrient management to be done 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Half moon terraces to be done to prevent nutrient loss ▪ Pruning of damaged branches and application of Bordeaux Paste to be done ▪ Nutrient management along with foliar application micronutrient to be done 	<ul style="list-style-type: none"> ▪ Heavy pruning should not done as the fruit will be affected by rain ▪ Drain out excess water 	<ul style="list-style-type: none"> ▪ Stored the fruits at 0 to 4°C and 80-90 % RH. ▪ Spray growth regulators Like Alar @ 1000 ppm to improve storability
Banana	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping or staking should be done ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done along with application of micronutrient ▪ Propping or staking should be done ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping to be done ▪ Bagging to be done to protect the bunch from unusual rains. ▪ Denavelling to be done to improve the bunch weight (removal of male bud) 	<ul style="list-style-type: none"> ▪ Store the fruits/ bunch in well aerated farm shed or house to avoid loses. ▪ Storing at 10 – 12° C with 70 – 80 % RH
Large cardamom	<ul style="list-style-type: none"> ▪ It grows luxuriantly in moist and humid climate. So continuous rain is not a problem during its vegetative growth. ▪ Provide adequate drainage ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Rain during flowering is detrimental. So water logging should be avoided. ▪ Proper drainage system should be followed. ▪ Shade regulation may be taken up providing 50-60% shade. 	<ul style="list-style-type: none"> ▪ Harvesting can be delayed ▪ Proper drainage system should be followed. 	<ul style="list-style-type: none"> ▪ Collect and dry the produce in fuel kiln overnight at 50°-60°C or in drier for 14-18 hours at 45°-50°C

Ginger	<ul style="list-style-type: none"> ▪ Provide proper drainage channels to avoid stagnation of water ▪ Earthing up to be done at proper soil moisture level ▪ Nutrient management to be followed ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up should be followed by manuring. ▪ Field bunding to prevent entry of water from surrounding areas. 	<ul style="list-style-type: none"> ▪ Dry weather before harvesting is necessary. So harvesting can be delayed. 	<ul style="list-style-type: none"> ▪ Shifting of the produce to a drier place. ▪ Drying to remove excess moisture of produce.
Turmeric	<ul style="list-style-type: none"> ▪ Provide proper drainage channels to avoid stagnation of water ▪ Earthing up to be done at proper soil moisture level ▪ Nutrient management to be followed ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up should be followed by manuring. ▪ Field bunding to prevent entry of water from surrounding areas. 	<ul style="list-style-type: none"> ▪ Dry weather before harvesting is necessary. So harvesting can be delayed. 	<ul style="list-style-type: none"> ▪ Shifting of the produce to a drier place. ▪ Drying to remove excess moisture of produce.
Vegetables (cucurbits)	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up to be done at proper soil moisture condition followed by manuring ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Staking should be properly followed. Rainy season crops can be trained on a bower made of bamboos and sticks. 	<ul style="list-style-type: none"> ▪ Spray maleic hydrazine (MH) and 2, 4-5 tri-iodobenzoic acid (TIBA) @ 50ppm for Sex expression. Boron @ 3ppm and calcium @ 20ppm is also effective. ▪ Provision of drainage to remove excess water. ▪ Earthing up followed by manuring ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Take up proper plant protection measures 	<ul style="list-style-type: none"> ▪ Fruits to be harvested immediately without causing injury to fruits ▪ Remove all damaged fruit ▪ Take up appropriate plant protection measures 	<ul style="list-style-type: none"> ▪ The fruits can be stored for 2-3 weeks at 15-20°C and RH 75% in a well-ventilated chamber
Heavy rainfall with high speed winds in a short span				
Horticulture				
Orange	<ul style="list-style-type: none"> ▪ Earthing up of young plants to avoid uprooting due to wind. ▪ Provide proper drainage facilities. ▪ Staking to avoid falling off of plants ▪ In steep slopes, prepare half moon 	<ul style="list-style-type: none"> ▪ Wind break around the orchard to protect crop from wind damage ▪ Provide proper drainage ▪ Nutrient management to be 	<ul style="list-style-type: none"> ▪ Propping heavy bearing tree and weak tree by bamboo pole. ▪ Harvesting can be delayed upto 60-75 days by spraying pre-harvest chemical i.e. 2-4D at 	<ul style="list-style-type: none"> ▪ Fruits are to be stored in well aerated farm shed or house to avoid loses. ▪ Pack the fruit in

	<p>terraces to prevent soil erosion and leaching loss</p> <ul style="list-style-type: none"> ▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection ▪ Proper nutrient management to be followed 	<p>followed along with foliar spray of micronutrient</p> <ul style="list-style-type: none"> ▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection 	<p>20ppm + GA at 10ppm + 0.2% Kcl on maturing fruits.</p> <ul style="list-style-type: none"> ▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection 	<p>perforated polythene bag, boxes, crates, etc. and store at temperature of 10-11°C & 92 % RH.</p>
Apple	<ul style="list-style-type: none"> ▪ Earthing up of young plants to avoid uprooting due to wind. ▪ Provide proper drainage facilities. ▪ Staking to be done to avoid falling off of plants. ▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss ▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection ▪ Proper nutrient management to be followed 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Wind break around the orchard ▪ Maintain the half moon terraces to avoid soil nutrient loss ▪ Proper nutrient management to be followed along with foliar application of micronutrient ▪ Prune out all damage branches with appropriate plant protection measures 	<ul style="list-style-type: none"> ▪ Harvest ripe fruits ▪ Propping heavy bearing tree and weak tree by bamboo pole. ▪ Use of plant bio-regulators to delay ripening with Daminozide or Alar @ 1000ppm sprayed before 60 days before harvest. 	<ul style="list-style-type: none"> ▪ Store fruits for 4-8 months at -1.1 to 0°C and 85-90 % RH.
Pineapple	<ul style="list-style-type: none"> ▪ Earthing up plants for better development and anchorage. ▪ Make trenches/furrows in between ridges to facilitate drainage of excess water. ▪ Nutrient management to be followed 	<ul style="list-style-type: none"> ▪ Earthing up to prevent uprooting. ▪ Provide proper drainage ▪ Nutrient management to be followed ▪ Spray NAA @ 25ppm or 2, 4-D @ 5-10 ppm should be applied for uniform flower induction. 	<ul style="list-style-type: none"> ▪ Fruits can be protected with locally available material to protect the mature fruit from unusual rains ▪ Spraying of insecticides and fungicide ▪ Earthing up plants for better development and anchorage. ▪ Make trenches/furrows in between ridges to facilitate drainage of excess water 	<ul style="list-style-type: none"> ▪ .Store fruits in well aerated farm shed or house to avoid loses. ▪ Pineapples can be stored at a temperature of 7.5-12°C and RH 70-90% for 4 weeks.
Kiwifruit	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Support the plant using T-Bar system ▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss ▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection ▪ Nutrient management to be done 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Half moon terraces to be done to prevent nutrient loss ▪ Pruning of damaged branches and application of Bordeaux Paste to be done ▪ Nutrient management along with foliar application micronutrient to be done 	<ul style="list-style-type: none"> ▪ Heavy pruning should not done as the fruit will be affected by rain ▪ Drain out excess water ▪ Maintain the plant using T-Bar trellis supporting system ▪ Nutrient management along with foliar application micronutrient to be done 	<ul style="list-style-type: none"> ▪ Stored the fruits at 0 to 4°C and 80-90 % RH. ▪ Spray growth regulators Like Alar @ 1000 ppm to improve storability

Banana	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping or staking should be done ▪ Spraying of insecticides and fungicide ▪ 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done along with application of micronutrient ▪ Propping or staking should be done ▪ Spraying of insecticides and fungicide ▪ 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping to be done ▪ Bagging to be done to protect the bunch from unusual rains. ▪ Denavelling to be done to improve the bunch weight (removal of male bud) 	<ul style="list-style-type: none"> ▪ Store the fruits/ bunch in well aerated farm shed or house to avoid loses. ▪ Storing at 10 – 12° C with 70 – 80 % RH
Large cardamom	<ul style="list-style-type: none"> ▪ For newly planted crops, staking should be provided. ▪ Provide adequate drainage ▪ Spraying of insecticides and fungicide ▪ Follow proper nutrient management ▪ Earthing up to be done 	<ul style="list-style-type: none"> ▪ Proper drainage system should be followed. ▪ Follow proper nutrient management ▪ Earthing up to prevent uprooting. 	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity stage or can be delayed ▪ Proper drainage system should be followed 	<ul style="list-style-type: none"> ▪ Collect the harvest and dry the produce in fuel kiln overnight at 50°-60°C or in drier for 14-18 hours at 45°-50°C
Ginger	<ul style="list-style-type: none"> ▪ Provide proper drainage channels to avoid stagnation of water ▪ Earthing up to be done at proper soil moisture level ▪ Nutrient management to be followed ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up should be followed by manuring. ▪ Field bunding to prevent entry of water from surrounding areas. 	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity stage. 	<ul style="list-style-type: none"> ▪ Shifting of the produce to a drier place. ▪ Drying to remove excess moisture of produce (moisture level 10%)
Turmeric	<ul style="list-style-type: none"> ▪ Provide proper drainage channels to avoid stagnation of water ▪ Earthing up to be done at proper soil moisture level ▪ Nutrient management to be followed ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up should be followed by manuring. ▪ Field bunding to prevent entry of water from surrounding areas. 	<ul style="list-style-type: none"> ▪ Dry weather before harvesting is necessary. So harvesting can be delayed. 	<ul style="list-style-type: none"> ▪ Shifting of the produce to a drier place. ▪ Drying to remove excess moisture of produce.
Vegetables (cucurbits)	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up to be followed ▪ Ensure proper staking of crop wherever required ▪ Field bunding to prevent entry of water from surrounding areas. 	<ul style="list-style-type: none"> ▪ Spray maleic Hydrazide @ 50ppm aqueous solution at 2 and 4 leaf stages to stimulate vine growth, giving more female flowers. ▪ Provision of drainage to remove excess water. ▪ Wind break around the orchard to protect crop from wind damage ▪ Earthing up and propping to 	<ul style="list-style-type: none"> ▪ Fruits to be harvested immediately without causing injury to fruits ▪ Remove all damaged fruit ▪ Take up appropriate plant protection measures 	<ul style="list-style-type: none"> ▪ The fruits can be stored for 2-3 weeks at 15-20°C and RH 75% in a well-ventilated chamber.

		<ul style="list-style-type: none"> prevent uprooting. Field bunding to prevent entry of water from surrounding areas. 		
Outbreak of pests and diseases due to unseasonal rains : NA				
Paddy (Blast)	<ul style="list-style-type: none"> Use trap crops for prediction of disease. Removal and destruction of weed hosts in the field bunds and channels 	<ul style="list-style-type: none"> Spraying of Mancozeb @ 2g/lit or spraying of Carbendazim @ 1 g/lit. 	<ul style="list-style-type: none"> Drain out excess water to avoid flooded conditions. 	<ul style="list-style-type: none"> Sun drying to prevent spoilage and sprouting of the harvested grains.
Paddy (Brown Spot)	-Do-	-Do-	-Do-	-Do-
Paddy (Bacterial leaf blight)	<ul style="list-style-type: none"> Destruction of weed hosts. 	<ul style="list-style-type: none"> Spraying of streptomycin and tetracycline. 	<ul style="list-style-type: none"> Drain out excess water to avoid flooded conditions. 	-Do-
Paddy (Yellow Stem Borer)	<ul style="list-style-type: none"> Collection and destruction of egg masses. 	<ul style="list-style-type: none"> Spraying of Chloropyriphos 20 EC @ 0.02 %. 	<ul style="list-style-type: none"> Harvesting at the right stage. 	-Do-
Paddy (Gall Midge)	<ul style="list-style-type: none"> Removal of alternate host plants including weeds and grasses and destruction of infected plants. 	<ul style="list-style-type: none"> Providing proper drainage system. 	<ul style="list-style-type: none"> Harvesting at the right stage. 	-Do-
Maize (Stalk rot)	<ul style="list-style-type: none"> Removal of accumulated water around the stalks by proper drainage. 	<ul style="list-style-type: none"> Rouging of affected plant and its destruction. 	<ul style="list-style-type: none"> Spraying of streptocycline @ 0.020 %. 	<ul style="list-style-type: none"> Sun drying of the harvested cob to prevent spoilage.
Horticulture				
Orange (Citrus Leaf miner)	<ul style="list-style-type: none"> Spraying of Fenvalerate and Cypermethrin for controlling leaf minor. 	<ul style="list-style-type: none"> Spraying of Fenvalerate and Cypermethrin for controlling leaf minor. 	<ul style="list-style-type: none"> Harvesting at the right stage and proper handling of the produce. 	<ul style="list-style-type: none"> Store in cool place in crates, boxes etc
Orange (Citrus butterfly)	<ul style="list-style-type: none"> Hand picking of caterpillars and pupae in the nursery. 	<ul style="list-style-type: none"> Spraying of Neem formulation to control citrus butterfly. 	Do	<ul style="list-style-type: none"> Store in cool place in crates, boxes etc
Orange (Powdery mildew in citrus)	<ul style="list-style-type: none"> Spraying of wettable sulphur and carbendazim to control powdery mildews. 	<ul style="list-style-type: none"> Spraying of wettable sulphur, bavistin (0.1 %) and calixin (0.1 %). 	<ul style="list-style-type: none"> Spraying of wettable sulphur and carbendazim to control powdery mildews. 	<ul style="list-style-type: none"> Store in cool place in crates, boxes etc.
Tomato	<ul style="list-style-type: none"> Removal of accumulated water by proper drainage. Destroy the heavily infested/infected plant parts. 	<ul style="list-style-type: none"> Spraying of Sulfex @ 2 g/lit of water. 	<ul style="list-style-type: none"> Harvesting at the right stage and proper handling. 	<ul style="list-style-type: none"> Store in cool/dry place packed in crates, boxes etc.
Brinjal	<ul style="list-style-type: none"> Removal of accumulated water by proper drainage. Destroy the heavily infested/infected plant parts. 	<ul style="list-style-type: none"> Spraying of Sulfex @ 2 g/lit of water. Soil dranching with captan/Tiram @ 2/lit of water 	<ul style="list-style-type: none"> Harvesting at the right stage and proper handling of the produce. 	<ul style="list-style-type: none"> Store in cool/dry place packed in crates, boxes etc.
Cabbage	<ul style="list-style-type: none"> Removal of accumulated water by proper drainage. Destroy the badly infested/infected 	<ul style="list-style-type: none"> Spraying of Sulfex @ 2 g/lit of water. Soil dranching with 	<ul style="list-style-type: none"> Harvesting at the right stage and proper handling of the produce. 	<ul style="list-style-type: none"> Store in cool/dry place

	plant parts.	captan/Tiram. @ 2/lt of water ▪ Streptocycline spray		
Cucurbits	▪ Manual collection & destruction of eggs/grubs/larvae.	▪ Spraying of carbaryl against leaf eating caterpillars, Metalaxyl against Powdery mildew, Carbendazim against leaf spot & blight	▪ Spraying of Malathion against fruit fly.	▪ Store in cool/dry place
Large Cardamom	▪ Proper drainage. ▪ Uprooting and destruction of Chirke and Foorkey infected cardamom plants.	▪ Removal of affected plant from the field.	▪ Harvesting at the right stage and proper handling of the produce.	▪ Quick drying of harvested capsule.
Ginger (Soft rot)	▪ Removal of accumulated water in the field by proper drainage.	▪ Removal and destruction of affected plants.	▪ Spraying with Blitox – 50 (3 g/lt) or Dithane – Z-78 (2.5 g / lt).	▪ Store in cool/dry place

2.3 Floods

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/partial inundation				
Rice	<ul style="list-style-type: none"> ▪ Drainage of the Nursery bed. ▪ Re -sowing if not possible 	<ul style="list-style-type: none"> ▪ Drainage of excess water. ▪ Gap filling In partially damaged field by redistributing the tillers. ▪ Management of pests & diseases 	<ul style="list-style-type: none"> ▪ Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops. ▪ Utilization of residual soil moisture and use of recharged soil profile for growing pulses 	<ul style="list-style-type: none"> ▪ Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops. ▪ Utilization of residual soil moisture and use of recharged soil profile for growing pulses
Horticulture/Plantation crops				
Banana	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping or staking should be done ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping or staking should be done ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provide proper drainage ▪ Nutrient management to be done ▪ Propping to be done 	<ul style="list-style-type: none"> ▪ Store the fruits/ bunch in well aerated farm shed or house to avoid loses. ▪ Storing at 10 – 12° C with 70 – 80 % RH
Ginger	<ul style="list-style-type: none"> ▪ Provide proper drainage channels to avoid stagnation of water ▪ Earthing up to be done at proper soil moisture level 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up should be followed by manuring. ▪ Field bunding to prevent entry of 	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity stage or can delay harvesting 	<ul style="list-style-type: none"> ▪ Shifting of the produce to drier place.

	<ul style="list-style-type: none"> ▪ Nutrient management to be followed ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ water from surrounding areas. ▪ Application of fungicide and insecticides 		
Turmeric	<ul style="list-style-type: none"> ▪ Provide proper drainage channels to avoid stagnation of water ▪ Earthing up to be done at proper soil moisture level ▪ Nutrient management to be followed ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Spraying of insecticides and fungicide 	<ul style="list-style-type: none"> ▪ Provision of drainage to remove excess water. ▪ Earthing up should be followed by manuring. ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Application of fungicide and insecticides 	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity stage or can delay harvesting 	<ul style="list-style-type: none"> ▪ Shifting of the produce to drier place
Vegetables (cucurbits)	<ul style="list-style-type: none"> ▪ Proper drainage of the nursery bed, If not possible go for re-sowing. ▪ Raised bed method should be followed in the nursery. ▪ Earthing up to be followed ▪ Ensure proper staking of crop wherever required ▪ Field bunding to prevent entry of water from surrounding areas. 	<ul style="list-style-type: none"> ▪ Proper drainage of the nursery bed, If not possible go for re-sowing. ▪ Earthing up to be followed ▪ Ensure proper staking of crop wherever required ▪ Field bunding to prevent entry of water from surrounding areas. ▪ Follow appropriate nutrient management practices 	<ul style="list-style-type: none"> ▪ Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops ▪ Growing of cole crops or winter vegetables after receding flood water and adoption of integrated farming system to obtain more income and to compensate the loss during kharif vegetables. 	<ul style="list-style-type: none"> ▪ Shifting of the produce to drier place and store fruits in a well-ventilated chamber
Continuous submergence for more than 2 days²				
Crop1	NA	NA	NA	NA
Horticulture / Plantation crops				
Crop1 (specify)	NA	NA	NA	NA
Sea water intrusion³				
Crop1	NA	NA	NA	NA

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone: Not Applicable

Extreme event type	Suggested contingency measure ^r			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Horticulture				
Heat Wave^p				
Orange	NA	NA	NA	NA
Apple	NA	NA	NA	NA
Pineapple	NA	NA	NA	NA
Kiwifruit	NA	NA	NA	NA
Banana	NA	NA	NA	NA
Large Cardamom	NA	NA	NA	NA
Ginger	NA	NA	NA	NA
Turmeric	NA	NA	NA	NA
Horticulture				
Cold wave^q				
Orange	NA	NA	NA	NA
Apple	NA	NA	NA	NA
Pineapple	NA	NA	NA	NA
Kiwifruit	NA	NA	NA	NA
Banana	<ul style="list-style-type: none"> ▪ Protect the plant by construction of wind brakes made of shade net. ▪ Maintain the seedling in polyhouse 	<ul style="list-style-type: none"> ▪ Protect the plant by construction of wind brakes made of shade net 	<ul style="list-style-type: none"> ▪ Protect the plant by construction of wind brakes made of shade net ▪ Protect the bunch by bagging with polyethylene bag or jute bag 	NA
Large Cardamom	NA	NA	NA	NA
Ginger	NA	NA	NA	NA
Turmeric	NA	NA	NA	NA
Horticulture				
Frost				
Orange	NA	NA	NA	NA
Apple	NA	NA	NA	NA
Pineapple	NA	NA	NA	NA
Kiwifruit	NA	NA	NA	NA
Banana	<ul style="list-style-type: none"> ▪ Protect the plant by construction of wind brakes made of shade net. ▪ Maintain the seedling in 	<ul style="list-style-type: none"> ▪ Protect the plant by construction of wind brakes made of shade net 	<ul style="list-style-type: none"> ▪ Protect the plant by construction of wind brakes made of shade net ▪ Protect the bunch by bagging with 	NA

	polyhouse		polyethylene bag or jute bag	
Large Cardamom	NA	NA	NA	NA
Ginger	NA	NA	NA	NA
Turmeric	NA	NA	NA	NA
Horticulture				
Hailstorm				
Orange	<ul style="list-style-type: none"> Nursery raising under polyhouse. 	<ul style="list-style-type: none"> Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection Nutrient management to be followed along with foliar spray of micronutrient 	<ul style="list-style-type: none"> Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection Nutrient management to be followed along with foliar spray of micronutrient 	<ul style="list-style-type: none"> Harvest ripe fruit
Apple	<ul style="list-style-type: none"> Nursery raising under polyhouse. 	<ul style="list-style-type: none"> Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection Nutrient management to be followed along with foliar spray of micronutrient 	<ul style="list-style-type: none"> Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection Nutrient management to be followed along with foliar spray of micronutrient 	<ul style="list-style-type: none"> Harvest ripe fruit
Pineapple	NA	<ul style="list-style-type: none"> Shade regulation may be followed 	NA	<ul style="list-style-type: none"> Harvest and value addition
Kiwifruit	<ul style="list-style-type: none"> Nursery raising under polyhouse 	<ul style="list-style-type: none"> Nutrient management to be followed along with foliar spray of micronutrient 	<ul style="list-style-type: none"> Nutrient management to be followed along with foliar spray of micronutrient 	<ul style="list-style-type: none"> Harvest ripe fruits
Banana	<ul style="list-style-type: none"> Nursery raising under polyhouse 	<ul style="list-style-type: none"> Follow nutrient management 	<ul style="list-style-type: none"> Bagging the fruit bunch with polyethylene bag or jute bag 	<ul style="list-style-type: none"> Harvest the mature bunch
Large Cardamom	<ul style="list-style-type: none"> Nursery raising under polyhouse. 	<ul style="list-style-type: none"> Shade regulation may be followed by planting trees providing 50-60% shade. Ultis cum large cardamom plantation is highly recommended 	NA	NA
Ginger	<ul style="list-style-type: none"> Nursery raising under polyhouse. 	<ul style="list-style-type: none"> Shade regulation may be followed 	NA	NA
Turmeric	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 		
Vegetables (cucurbits)	<ul style="list-style-type: none"> Nursery raising under polyhouse. Provide shade to protect 	<ul style="list-style-type: none"> Polyhouse cultivation & proper irrigation 	<ul style="list-style-type: none"> Polyhouse cultivation & proper irrigation Proper crop management for 	<ul style="list-style-type: none"> Picking of fruits at right edible stage depends upon individual varieties and

	from damage or resowing of the crops		the succeeding years	marketing requirements. Fruits are harvested, packed in baskets and transported to markets.
Horticulture				
Cyclone	NA	NA	NA	NA
Orange	NA	NA	NA	NA
Apple	NA	NA	NA	NA
Pineapple	NA	NA	NA	NA
Kiwifruit	NA	NA	NA	NA
Banana	NA	NA	NA	NA
Large Cardamom	NA	NA	NA	NA
Ginger	NA	NA	NA	NA
Turmeric	NA	NA	NA	NA
Sand deposition or heavy siltation				
Specify crop /horticulture/plantation	NA	NA	NA	NA

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event ^s	During the event	After the event
Drought			
Feed and fodder availability	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories. ▪ Awareness on fodder cultivation & identification of locally available, natural fodder of area. ▪ Excess fodder may be stored as hay/silage or converted into feed block in the flush season, for lean period. ▪ Stacking of paddy straws. 	<ul style="list-style-type: none"> ▪ Use of unconventional feed/fodders resources. ▪ Grazing in the peri peri of forest areas. ▪ Feeding according to body weight requirement ▪ Improvement of the poor quality roughages (urea treatment, soaking, poultry litter(> 37%). ▪ Use of feed additives to improve digestibility. ▪ use of stored Hay and Silage 	<ul style="list-style-type: none"> ▪ Avail the benefits of schemes under drought, from state or central for feeds and fodder. ▪ Supplementary feeding of livestock to regain the general physiological imbalanced. ▪ Proper irrigation of fodder plot and cultivation of leguminous fodders to meet the demand of green fodders
Drinking water	<ul style="list-style-type: none"> ▪ Construction of water harvesting structures. ▪ Harvesting rain water & water from natural source ▪ Developing watershed areas. 	<ul style="list-style-type: none"> ▪ Use of stored water from water harvesting structure. ▪ Fetching water from watershed areas and natural stream/river. ▪ Avail subsidy water supply through tankers from sate or central Govt. 	<ul style="list-style-type: none"> ▪ Submitting a memorandum to sate or central Govt. regarding amount of water shortfall during drought and action to be initiate accordingly. ▪ Construction of permanent water harvesting structure with a planning to fulfill the water

			requirement during drought.
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. ▪ Proper ventilation system of Housing to reduce heat stress. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ selective culling of disease animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to Drought and remedies to be taken accordingly for future. ▪ Mini vaccine unit could be establish for covering a perimeter 30-50 km.
Floods			
Feed and fodder availability	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories. ▪ Awareness on fodder cultivation & identification of locally available, natural fodder of the area. ▪ Excess fodder may be stored as hay/silage or converted into feed block in the flush season, for lean period. ▪ Stacking of paddy straws. ▪ Installation of feed block machines and creating feed/fodder block banks to be used in emergency. 	<ul style="list-style-type: none"> ▪ Avoid feeding of damp feeds and fodders ▪ Storage of feeds and fodder in high raised platform. ▪ Use of unconventional feed/fodders resources (water hyacinth) ▪ Shifting of livestock to high raised areas. ▪ Use of feed additives to improve digestibility. ▪ Provision of UMB etc. ▪ Use of stored Hay and Silage 	<ul style="list-style-type: none"> ▪ Submitting a reports, damage caused by flood to feed and standing fodder ▪ Supplementary feeding of livestock to regain the general physiological imbalanced. ▪ Proper irrigation of folder plot and cultivation of leguminous fodders to meet the demand of green fodders. ▪ Avail the benefits of schemes under flood, from state or central for feeds and fodder.
Drinking water	<ul style="list-style-type: none"> ▪ Storage of safe drinking water in community tanks / water harvesting structures which is not prone to seepage of flood water. ▪ Installation of large sized sand filters with charcoal. ▪ Tying up with PHED Deptt. of neighboring district to supply water at needy time. ▪ Creating awareness amongst public how to conserve water and judiciously use in flood situation. 	<ul style="list-style-type: none"> ▪ Chlorination of the drinking water and use of sand filter ▪ Incorporation of aquatic plants in feeds as a supplementary source of water ▪ If possible supply of fresh drinking water from nearby district. 	<ul style="list-style-type: none"> ▪ Cleaning of water storage tanks, canals and drainage system. ▪ Cleaning and disinfection of water source with suitable water purifying agent, available in the area as per the recommended dose. ▪ Relief for damaged tanks and community pipe line for reconstruction. ▪ Avoid shallow source of water
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment

	<ul style="list-style-type: none"> ▪ Vaccination of FMD, BQ and HS. ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. ▪ Construction of shelters in high raised areas. 	<p>accordingly.</p> <ul style="list-style-type: none"> ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<p>accordingly.</p> <ul style="list-style-type: none"> ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to flood and remedies to be taken accordingly for future.
Cyclone	NA	NA	NA
Feed and fodder availability	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories. ▪ Proper storage of feeds and fodder in well constructed house ▪ Planting of trees as a wind break in farm area ▪ Excess fodder may be stored as hay/silage or converted into feed block in the flush season, for lean period. ▪ Stacking of paddy straws. 	<ul style="list-style-type: none"> ▪ Avoid feeding grazing in open field ▪ Animal should be confined in well construct house. ▪ Use of feed additives to improve digestibility. ▪ Provision of UMB etc. ▪ Use of stored Hay and Silage 	<ul style="list-style-type: none"> ▪ Submitting a reports, damage caused by cyclone of standing fodder ▪ Avail the benefits of schemes under flood, from state or central for feeds and fodder.
Drinking water	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Storage of safe drinking water in community tanks / water harvesting structures ▪ Creating awareness amongst public how to conserve water and judiciously use in flood situation. ▪ Tying up with PHED Deptt. of neighboring district to supply water at needy time. 	<ul style="list-style-type: none"> ▪ Chlorination of the drinking water and use of sand filter ▪ Provide fresh potable water 	<ul style="list-style-type: none"> ▪ Cleaning of water storage tanks, canals and drainage system. ▪ Cleaning and disinfection of water source with suitable water purifying agent, available in the area as per the recommended dose. ▪ Relief for damaged tanks and community pipe line for reconstruction. ▪ Avoid shallow source of water
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ Immediate attention to the ailing animals. ▪ selective culling of injured animal ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly.

	<p>key man in each village to combat the situation if arise.</p> <ul style="list-style-type: none"> ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ selective culling of injured animal 	<ul style="list-style-type: none"> ▪ Sanitization of the shed and surrounding areas. ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to flood and remedies to be taken accordingly for future.
Heat wave			
Cattle			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Increase the concentrate feed amount and reduce the roughage diet. ▪ Adlib provision of potable water 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to heat wave ▪ reduce upto 20% of the ration ▪ provide nutretical ▪ Adlib provision of potable water ▪ Avoid movement of animal ▪ Sprinkling of water during the extreme heat to the animal ▪ Breeding should be done in morning hours. 	<ul style="list-style-type: none"> ▪ Adlib provision of potable water ▪ Analysis of the present experience and remodeling of housing structure. ▪ provide nutretical
Health and disease management	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Ensure livestock insurance ▪ Deworming and vaccination ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Life saving treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ Oral supplementation of electrolyte and medicines 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ Selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future.

Mithun			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Increase the concentrate feed amount and reduce the roughage diet. ▪ Adlib provision of potable water 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to heat wave ▪ reduce upto 20% of the ration ▪ provide nutretical ▪ Adlib provision of potable water ▪ Avoid movement of animal ▪ Sprinkling of water during the extreme heat to the animal ▪ Breeding should be done in morning hours. 	<ul style="list-style-type: none"> ▪ Adlib provision of potable water ▪ Analysis of the present experience and remodeling of housing structure. ▪ provide nutretical
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ selective culling of injured animal 	<ul style="list-style-type: none"> ▪ Immediate attention to the ailing animals. ▪ selective culling of injured animal ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Sanitization of the shed and surrounding areas. ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to flood and remedies to be taken accordingly for future.
Goat/Sheep			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Increase the concentrate feed amount and reduce the roughage diet. ▪ Adlib provision of potable water 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to heat wave ▪ reduce upto 20% of the ration ▪ provide nutretical ▪ Adlib provision of potable water ▪ Avoid movement of animal ▪ Sprinkling of water during the extreme heat to the animal ▪ Breeding should be done in morning hours. 	<ul style="list-style-type: none"> ▪ Adlib provision of potable water ▪ Analysis of the present experience and remodeling of housing structure. ▪ provide nutretical
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment 	<ul style="list-style-type: none"> ▪ Immediate attention to the ailing animals. ▪ selective culling of injured animal

	<ul style="list-style-type: none"> ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<p>accordingly.</p> <ul style="list-style-type: none"> ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ selective culling of injured animal 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Sanitization of the shed and surrounding areas. ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to flood and remedies to be taken accordingly for future.
Pig			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Increase the concentrate feed amount and reduce the roughage diet. ▪ Adlib provision of potable water 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to heat wave ▪ reduce upto 20% of the ration ▪ provide nutretical ▪ Adlib provision of potable water ▪ Avoid movement of animal ▪ Sprinkling of water during the extreme heat to the animal ▪ Breeding should be done in morning hours. 	<ul style="list-style-type: none"> ▪ Adlib provision of potable water ▪ Analysis of the present experience and remodeling of housing structure. ▪ provide nutretical
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ selective culling of injured animal 	<ul style="list-style-type: none"> ▪ Immediate attention to the ailing animals. ▪ selective culling of injured animal ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Sanitization of the shed and surrounding areas. ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to flood and remedies to be taken accordingly for future.
Cold wave			
Cattle			
Shelter/environment	<ul style="list-style-type: none"> ▪ Good shelter with well ventilation 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter 	<ul style="list-style-type: none"> ▪ Analysis of the present experience and

management	<ul style="list-style-type: none"> and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Feed balance ration to withstand the cold wave prior to occurrence. 	<ul style="list-style-type: none"> ▪ prevent them direct expose to cold wave ▪ provide extra bedding materials ▪ feed extra ration along with mineral and vitamin supplements to withstand cold wave ▪ 	remodeling of housing structure.
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future.
Mithun			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Feed balance ration to withstand the cold wave prior to occurrence. 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to cold wave ▪ provide extra bedding materials ▪ feed extra ration along with mineral and vitamin supplements to withstand cold wave ▪ 	▪ Analysis of the present experience and remodeling of housing structure.
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ 1. Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ 2. Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ 1. Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ 2. Immediate attention to the ailing animals. ▪ 3. Sanitization of the shed and surrounding areas. ▪ 4. selective culling of animal ▪ 5. Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future.
Pig			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to cold wave ▪ provide extra bedding materials 	▪ Analysis of the present experience and remodeling of housing structure.

	<p>shed areas.</p> <ul style="list-style-type: none"> ▪ Feed balance ration to withstand the cold wave prior to occurrence. 	<ul style="list-style-type: none"> ▪ feed extra ration along with mineral and vitamin supplements to withstand cold wave ▪ 	
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ Selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future.
Goat/Sheep			
Shelter/environment management	<ul style="list-style-type: none"> ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Feed balance ration to withstand the cold wave prior to occurrence. 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to cold wave ▪ provide extra bedding materials ▪ feed extra ration along with mineral and vitamin supplements to withstand cold wave ▪ 	<ul style="list-style-type: none"> ▪ Analysis of the present experience and remodeling of housing structure.
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ Selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future.
Snowfall	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas.

	<p>the situation if arise.</p> <ul style="list-style-type: none"> ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 		<ul style="list-style-type: none"> ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future.
Earthquake	NA	NA	NA
Landslides	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ immediate rescue operation ▪ Shifting of livestock to safe areas. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to landslides and remedies to be taken accordingly for future.

^s based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
Drought				
Shortage of feed ingredients	<ul style="list-style-type: none"> ▪ Awareness on maize, pea and oil seed cultivation for use of poultry feed ▪ Procurement of feed ingredients in bulk. ▪ Installation of feed mixing plant 	<ul style="list-style-type: none"> ▪ Use of stored feed ▪ Use of feeds from the local resources ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Availing insurance for the crop loss. ▪ Availing subsidiary schemes from line deptt. 	Schemes from Line Deptt./RKVY/ATMA
Drinking water	<ul style="list-style-type: none"> ▪ Construction of water harvesting structures. ▪ Harvesting rain water & water from natural source ▪ Developing watershed areas. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Provision of potable water ▪ Use of stored water from water harvesting structure. ▪ Fetching water from watershed areas and natural stream/river. ▪ Avail subsidy water supply through tankers from state or central Govt. 	<ul style="list-style-type: none"> ▪ Submitting a memorandum to state or central Govt. regarding amount of water shortfall during drought and action to be initiated accordingly. ▪ Construction of permanent water harvesting structure with a planning to fulfill the water requirement during drought. 	

Health and disease management	<ul style="list-style-type: none"> ▪ Regular deworming and vaccination against viral disease. ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. ▪ Proper ventilation system of Housing to reduce heat stress. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to reduce heat stress ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ selective culling of bird ▪ Submitting a memorandum to sate or central Govt. regarding the loss of poultry due to Drought and remedies to be taken accordingly for future. 	
Floods				
Shortage of feed ingredients	<ul style="list-style-type: none"> ▪ Awareness on maze, pea and oil seed cultivation for use of poultry feed ▪ Procurement of feed ingredients in bulk and store in raise floor. ▪ Installation of feed mixing plant 	<ul style="list-style-type: none"> ▪ Use of stored feed ▪ Use of feeds from the local resources ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Availing insurance for the crop loss. ▪ Availing subsidiary schemes from line deptt. 	
Drinking water	<ul style="list-style-type: none"> ▪ Storage of safe drinking water in community tanks / water harvesting structures which is not prone to seepage of flood water. ▪ Installation of large sized sand filters with charcoal. ▪ Tying up with PHED Deptt. of neighboring district to supply water at needy time. ▪ Creating awareness amongst public how to conserve water and judiciously use in flood situation. 	<ul style="list-style-type: none"> ▪ Chlorination of the drinking water and use of sand filter ▪ Supply of fresh drinking water from nearby district. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Cleaning of water storage tanks ▪ Relief for damaged tanks and community pipe line for reconstruction. 	
Health and disease management	<ul style="list-style-type: none"> ▪ Regular deworming and vaccination against viral disease. ▪ Stocking of veterinary 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ selective culling of bird 	

	<p>medicines, vitamin and mineral supplements.</p> <ul style="list-style-type: none"> ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. ▪ Proper ventilation system of Housing to reduce heat stress. 	<p>vitamin and mineral to reduce heat stress</p> <ul style="list-style-type: none"> ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Submitting a memorandum to state or central Govt. regarding the loss of poultry due to Drought and remedies to be taken accordingly for future. 	
Cyclone				
Shortage of feed ingredients	NA	NA	NA	NA
Drinking water	NA	NA	NA	NA
Health and disease management	NA	NA	NA	NA
Heat wave				
Shelter/environment management	<ul style="list-style-type: none"> ▪ Advance early warning system through Agromet advisories for preparedness to combat the situation. ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Increase the concentrate feed amount and reduce the roughage diet. ▪ Adlib provision of potable water 	<ul style="list-style-type: none"> ▪ Confine the animal in protected shelter ▪ prevent them direct expose to heat wave ▪ reduce upto 20% of the ration ▪ provide nutretical ▪ Adlib provision of potable water ▪ Avoid movement of animal ▪ Misting of water during the extreme heat to the animal 	<ul style="list-style-type: none"> ▪ Adlib provision of potable water ▪ Analysis of the present experience and remodeling of housing structure. ▪ provide nutretical 	
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ selective culling of injured animal 	<ul style="list-style-type: none"> ▪ Immediate attention to the ailing animals. ▪ selective culling of injured animal ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Sanitization of the shed and surrounding areas. 	

	<ul style="list-style-type: none"> if arise. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 		<ul style="list-style-type: none"> ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to flood and remedies to be taken accordingly for future. 	
Cold wave				
Shelter/environment management	<ul style="list-style-type: none"> ▪ Good shelter with well ventilation and bedding materials ▪ Construction of shelters in wind shed areas. ▪ Feed balance ration to withstand the cold wave prior to occurrence. 	<ul style="list-style-type: none"> ▪ Confine the bird in protected shelter ▪ provide extra light to keep them warm ▪ prevent them direct expose to cold wave ▪ provide extra bedding materials ▪ feed extra ration along with mineral and vitamin supplements to withstand cold wave ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> Analysis of the present experience and remodeling of housing structure. 	
Health and disease management	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load and vaccination to protect viral disease ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to cold wave and remedies to be taken accordingly for future. 	
Snowfall	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load and vaccination to protect against viral disease 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing 	NA

	<ul style="list-style-type: none"> ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> vitamin and mineral to improve general body health. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts 	<ul style="list-style-type: none"> animals. ▪ Sanitization of the shed and surrounding areas. ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to snow fall and remedies to be taken accordingly for future. 	
Earthquake, Landslides etc	<ul style="list-style-type: none"> ▪ Ensure livestock insurance ▪ Deworming to reduce worm load and vaccination to protect against viral disease ▪ Stocking of veterinary medicines, vitamin and mineral supplements. ▪ Training of paravets and identifying key man in each village to combat the situation if arise. ▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations. 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Supplementary feeding of vitamin and mineral to improve general body health. ▪ immediate rescue operation ▪ Shifting of livestock to safe areas. ▪ Regular radio/TV telecast to follow the instruction of Do & Don'ts from experts 	<ul style="list-style-type: none"> ▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly. ▪ Immediate attention to the ailing animals. ▪ Sanitization of the shed and surrounding areas. ▪ selective culling of animal ▪ Submitting a memorandum to state or central Govt. regarding the loss of animal due to landslides and remedies to be taken accordingly for future. 	NA

^a based on forewarning wherever available