

**STATE: Arunachal Pradesh**

**Agriculture Contingency Plan for District: West Siang District**

**1.0 District Agriculture Profile**

<b>1.1</b>	<b>Agro-Climatic/ Ecological Zone</b>			
	Agro Ecological Sub Region (ICAR)	16.3 Arunachal Pradesh (Subdued Eastern Himalayas), warm to hot, perhumid eco-subregion (C1A10)		
	Agro-Climatic Region (Planning Commission)	Eastern Himalayan Zone (Zone No. 2)		
	Agro Climatic Zone (NARP)	Humid Eastern Himalayan Region { Alpine (AZ48), Temperate Sub Alpine (AZ49)}		
	List all the districts or part thereof falling under the NARP Zone	Alpine (AZ48) – Tawang, West Kameng, Dibang Valley, Kurung Kumey Temperate Sub Alpine (AZ49) – Rest of the districts.		
	Geographic coordinates of district	<b>Latitude</b>	<b>Longitude</b>	<b>Altitude</b>
		93°57' - 95°23' E	27°69' - 29°27' E	150-6000 m above msl
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ICAR Research Complex for NEH region, AP Centre, Basar, Arunachal Pradesh- 791101		
	Mention the KVK located in the district	Krishi Vigyan Kendra, West Siang, ICAR Research Complex for NEH Region, Arunachal Pradesh Centre, Basar-791101		
Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	ICAR Research Complex for NEH Region, Basar, Arunachal Pradesh			

<b>1.2</b>	<b>Rainfall</b>	<b>Normal RF (mm)</b>	<b>Normal Rainy days (number)</b>	<b>Normal Onset (specify week and month)</b>	<b>Normal Cessation (specify week and month)</b>
	<b>SW monsoon (June-Sep):</b>	1542.7	70	1 <sup>ST</sup> week of June	Last week of September
	<b>NE monsoon (Oct-Dec):</b>	198.3	15	1 <sup>st</sup> week of October	Last week of December
	Winter (Jan-March)	232.4	27	Sporadic rain & erratic in behavior	
	Summer (Apr-May)	365.2	27	1 <sup>st</sup> week of April	Last week of May
	<b>Annual</b>	<b>2338.6</b>	<b>138</b>		

1.3	Land use pattern of the district (latest statistics)	Geographical area	Forest area *	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows	Extent of cultivable land
	Area ('000 ha)	832.5	678.4	5.07	2.68	2.99	5.55	1.73	3.78	4.21	NA

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

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

**Source of Data : Statistical Abstract of Arunachal Pradesh, 2013 & India State of Forest Report, 2011**

1.4	Major Soils (common names like shallow red soils, etc.)	Area ('000 ha)	Percent (%) of total
	1. Laterite soil	516.2	62
	2. Alluvial	174.8	21
	3. Black	141.5	17

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %: 148.8
	Net sown area	26.3	122.1%
	Area sown more than once	5.8	
	Gross cropped area	32.1	

1.6	Irrigation	Area ('000 ha)	
	Net irrigated area	0.1	
	Gross irrigated area	0.1	
	Rainfed area	32.0	
	<b>Sources of Irrigation</b>	<b>Number</b>	<b>Area ('000 ha)</b>
	Canals	NA	-
	Channels	9	-
	Tanks	NA	-
	Open wells	3	-
	Bore wells	NA	-
	Lift irrigation	NA	-
	Micro-irrigation	NA	-
	Streamflow	NA	-
	Total Irrigated Area	NA	3.294
	Pump sets	NA	-
	No. of Tractors	NA	-
	<b>Groundwater availability and use* (Data source : State/ Central Ground water Department/Board)</b>		
	Over exploited		
	Critical		
	Semi- critical		
	Safe		

Wastewater availability and use			
Ground water quality	Safe		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical:70-90%; safe: <70%			

1.6. a.	Fertilizer and Pesticides use	Type	Total quantity (000'tonnes) in 2006-07
1	Fertilizers*	Urea	38.85
		DAP	12.35
		Potash (MOP)	9.75
		SSP	-
		Other straight fertilizers (specify)	-
		Other complex fertilizers (specify)	-
		Biofertilizers	-
2	Chemical Pesticides*	Insecticides	NA
		Fungicides	NA
		Weedicides	NA
		Others (specify)	NA

Source : *Statistical Abstracts of Arunachal Pradesh,2007*

**1.7 Area under major field crops & horticulture etc.**

Source: 1) Statistical Handbook of West Siang district

1.7a		Major Field Crops cultivated	Area ('000 ha)						Total
			Pre- Kharif		Kharif		Rabi		
			Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	
1.	Rice	-	-	-	-	-	-	<b>25.528</b>	
2.	Maize	-	-	-	-	-	-	<b>3.319</b>	
3.	Millet	-	-	-	-	-	-	<b>2.449</b>	
4.	Wheat	-	-	-	-	-	-	<b>-</b>	
5.	Oilseeds	-	-	-	-	-	-	<b>1.747</b>	
6.	Pulses	-	-	-	-	-	-	<b>0.656</b>	

2012-13 Statistical Abstract of Arunachal Pradesh  
NEDFI Databank website

1.7b		Horticulture crops - Fruits	Total Area ('000 ha)	Irrigated	Rainfed
1.	Citrus		8.40		8.40
2.	Pineapple		4.14		4.14
3.	Banana		0.77		0.77
4.	Apple		0.17		0.17
5.	Walnut		0.07		0.07
6.	Kiwi		0.03		0.03
1.7c		Horticulture crops-Vegetables	Total Area ('000 ha)	Irrigated	Rainfed
1.	Potato		0.395		0.39
2.	Chilli		0.158		0.15
3.					
4.					

2012-13 Statistical Abstract of Arunachal Pradesh						
<b>1.7d</b>		<b>Medicinal and Aromatic crops</b>	<b>Total Area ('000 ha)</b>	<b>Irrigated</b>	<b>Rainfed</b>	
	1.	Ginger	0.947		0.31	
	2.	Large cardamom	0.454			
	3.	Black pepper	0.212			
	4.	Turmeric	<b>0.06</b>		0.06	
<b>1.7e</b>		<b>Plantation crops</b>	<b>Total Area</b>	<b>Irrigated</b>	<b>Rainfed</b>	
	1.	Arecanut	0.149 ha			
<b>1.7f</b>		<b>Fodder crops</b>	<b>Total Area</b>	<b>Irrigated</b>	<b>Rainfed</b>	
	1.					
	2.					
	3.					
	4.					
	5.					
		Total fodder crop area				
<b>1.7g</b>		Grazing land				
<b>1.7h</b>		Sericulture etc				
<b>1.7i</b>		Others (specify)				

<b>1.8</b>	<b>Livestock</b>	<b>Male ('000)</b>	<b>Female ('000)</b>	<b>Total ('000)</b>
	Non descriptive Cattle (local low yielding)	12.954	18.895	<b>31.849</b>
	Crossbred cattle	0.044	0.228	<b>0.272</b>
	Non descriptive Mithun (local low yielding)	9.953	12.852	<b>22.805</b>
	Graded Mithun	-	-	-
	Goat	8.661	12.290	<b>20.951</b>
	Sheep	0.009	0.010	<b>0.019</b>
	Others (Camel, Pig, Yak, etc.)	0.145	0.057	<b>202</b>
	Pig ( Indigenous non descript)	18.682	19.795	<b>38.477</b>
	Pig crossbreed	1.394	0.845	<b>2.239</b>
	Rabbit	0.018	0.057	<b>0.075</b>
	Commercial dairy farms (Number)			
<b>1.9</b>	<b>Poultry</b>	<b>No. of farms</b>	<b>Total No. of birds ('000)</b>	
	Commercial	-	-	<b>97.794</b>
	Backyard	20.272	28.800	<b>181.417</b>
	Ducks (Deshi)	1.496	1.320	<b>2.816</b>
	Duck (Improved)	0.267	0.276	<b>0.543</b>

Source: State Report on 19<sup>th</sup> Quinquennial Livestock Census 2012, Govt. of Arunachal Pradesh

<b>1.10</b>	<b>Fisheries</b> (Data source: Chief Planning Officer)						
	<b>A. Capture</b>						
	<b>i) Marine</b> (Data Source: Fisheries Department)	<b>No. of fisherman</b>	<b>Boats</b>		<b>Nets</b>		<b>Storage facilities (Ice plants etc.)</b>
			<b>Mechanized</b>	<b>Non- mechanized</b>	<b>Mechanized (Trawl nets, Gill nets)</b>	<b>Non- mechanized (Shore seines, stake &amp; trap net)</b>	
	<b>ii) Inland</b> (Data source: Fisheries Department)	<b>No. Farmer owned ponds</b>		<b>No. of Reservoirs</b>		<b>No. of Village tanks</b>	
	<b>B. Culture</b>						
		<b>Water Spread Area (ha)</b>		<b>Yield (t/ha)</b>		<b>Production ('000 tons)</b>	
	<b>i) Brackish water</b> (Data source: MPEDA/ Fisheries Department)						
<b>ii) Fresh water</b> (Data source: Fisheries Department)							
<b>Others</b>							

#### 1.11 Production and Productivity of major crops (Average of last 4 years)

1.11	Name of crop	<i>Pre- Kharif</i>		<i>Kharif</i>		<i>Rabi</i>		Total		Crop Residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)							
<b>Major Field crops (Crops to be identified based on total acreage)</b>										
Crop 1	Rice			269.79	2141			33.233	1320	
Crop 2	Maize			65.12	1519			4.384	1270	
Crop 3	Potato			40.38	8393			1.890	9000	
Crop 4	Millet					24.67	1004			
	Pulses							0.395	960	
Crop 5	Oilseeds							1.667	950	
<b>Major Horticultural crops (Crops to be identified based on total acreage)</b>										
Crop 1	Khasi mandarin							9.901	1180	
Crop 2	Pineapple							22.283	5460	
Crop 3	Banana							1.475	120	
Crop 4	Apple							0.046	0.31	
Crop 5	Pear							1.344	194	
Crop 6	Ginger	56.26	8150					4.961	5240	
Crop 7	Turmeric	10.94	4534					1.65	3.93	
Crop 8	Potato							1.89	9000	

Source : Statistical Handbook of West Siang District

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Crop 1: Jhum Paddy	Crop 2: WRC Paddy	Crop 3: Maize	Crop 4: Potato	Crop 5: Ginger
	Pre-kharif-Rainfed	Feb-March	Feb-March	Feb-March	Feb-March -	-
	Pre-kharif-Irrigated	-	-	-	-	-
	Kharif-Rainfed	-	May-June	May-June	-	March-April
	Kharif-Irrigated	-	-	-	-	-
	Rabi-Rainfed	-	-	Sept-Oct	Oct-Nov	-
	Rabi-Irrigated	-	-	-	-	-

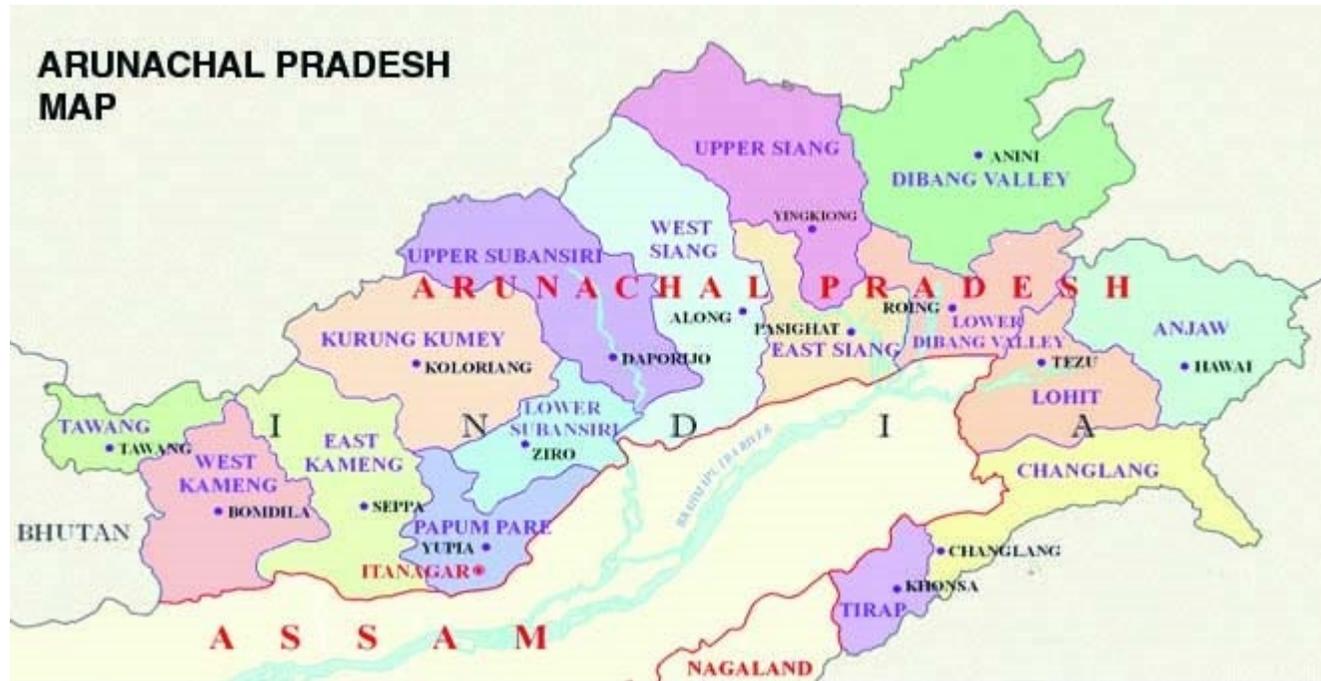
1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought		✓	
	Flood			✓
	Cyclone			✓
	Hail storm		✓	
	Heat wave			✓
	Cold wave			✓
	Frost		✓	
	Sea water intrusion			✓
	Pests and disease outbreak (specify)		✓	
	Others (specify)			
	Landslide	✓		

**6 out of 10 years = Regular**

1.14	Include Digital maps of the district for		
		Location map of district within State as Annexure 1	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: No
		Soil map as Annexure 3	Enclosed: No

Annexure 1

Location map of West Siang



## 2.0 Strategies for weather related contingencies

### 2.1 Drought-Pre-Monsoon (Last week of March to First week of April) Normal

#### Drought (Rainfed situation)

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/ Cropping system	Change in crop /cropping system <sup>c</sup> including variety	Agronomic measures	Remarks on Implementation
Delay by 2 weeks ( 2 <sup>nd</sup> to 3 <sup>rd</sup> week of April)	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	Jhum paddy	No change	<ul style="list-style-type: none"> <li>▪ Incorporation of organic manure</li> <li>▪ Growing of drought tolerant varieties</li> </ul>	Line dept schemes /RKVY/NFSM
		Maize	No change <ul style="list-style-type: none"> <li>▪ Short duration crops/varieties like RCM-1-75, RCM-1-76</li> <li>▪ Maize + groundnut/soy a bean/rice bean inter cropping.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices</li> <li>▪ Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing.</li> <li>▪ Application of organic manure before sowing.</li> </ul>	
		Soybean	No change	<ul style="list-style-type: none"> <li>▪ Incorporation of organic manure</li> <li>▪ Growing of short duration varieties</li> </ul>	
		Millet (finger/foxtail millet)	No Change Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)		
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)	No Change Punjab Round, Pusa Sandesh, Narendra Shishir, Punjab Komal.	<u>Bottle gourd</u> <ul style="list-style-type: none"> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha)</li> <li>▪ Raise crop on ridge-furrow or raised bed planting system</li> <li>▪ Conservation of soil moisture through soil/straw/grass mulching practices.</li> </ul> <u>Chilli</u> <ul style="list-style-type: none"> <li>▪ Kashi Anmol, Arka Lohit, Kashi Early, IIHR -Sel. 132</li> <li>▪ Raise crop on ridge-furrow raised bed planting system</li> </ul>	

				<ul style="list-style-type: none"> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) to enhance water holding capacity of soil</li> <li>▪ Conservation of soil moisture through soil/straw/grass mulching practices.</li> <li>▪ Do not allow weeds to grow during plant's early growth stage.</li> <li>▪ Mixed cropping of various vegetable crops.</li> </ul>		
		Ginger	No change	Application of organic manures before sowing & deep ploughing 2-3 times. Mulching with locally available materials	Line dept schemes /RKVY/MIDH	
		Turmeric	No change	Application of organic manures before sowing & deep ploughing 2-3 times. Mulching with locally available materials	Line dept schemes /RKVY/MIDH	
	<b>Above 1000 m MSL Shallow coarse loamy Soils</b>	Jhum paddy	No change	Growing of drought tolerant varieties	Line dept schemes /RKVY/NFSM	
		Maize	No change <ul style="list-style-type: none"> <li>▪ Short duration crops/varieties like RCM-1-75, RCM-1-76, Allrounder, HQPM-1, DA-61 A</li> <li>▪ Maize + groundnut/soya bean/rice bean inter cropping.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices</li> <li>▪ Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing.</li> <li>▪ Application of organic manure before sowing.</li> </ul>		
		Millet	No Change Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)			
		Vegetable	No change <ul style="list-style-type: none"> <li>▪ Punjab Round, Pusa Sandesh,</li> </ul>	<u>Bottle gourd (round)</u> <ul style="list-style-type: none"> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha)</li> <li>▪ Raise crop on ridge-furrow or raised bed</li> </ul>		

			Narendra Shishir, Punjab Komal. <ul style="list-style-type: none"> <li>Mixed cropping of various vegetable crops.</li> </ul>	<ul style="list-style-type: none"> <li>planting system</li> <li>Conservation of soil moisture through soil/straw/grass mulching practices.</li> <li><u>Chilli</u></li> <li>Kashi Anmol, Arka Lohit, Kashi Early, IIHR -Sel. 132</li> <li>Raise crop on ridge-furrow raised bed planting system</li> <li>Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) to enhance water holding capacity of soil</li> <li>Conservation of soil moisture through soil/straw/grass mulching practices.</li> <li>Do not allow weeds to grow during plant's early growth stage.</li> </ul>	
		Jhum paddy	No change Short duration varieties like SARS-1, 2		Line dept schemes /RKVY/NFSM

#### Normal onset of pre- monsoon

Early season drought (Normal onset )	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	Maize	<ul style="list-style-type: none"> <li>If the germination is less than 30% of optimum plant population, re sowing should be done</li> <li>Gap filling to be done to maintain optimum plant density</li> <li>Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>If the germination is less than 30% of optimum plant population re sowing should be done</li> <li>Gap filling to be done to maintain optimum plant density</li> <li>Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)	<ul style="list-style-type: none"> <li>Gap filling with available seedlings.</li> <li>Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Prefer Drip/sprinkler irrigation</li> <li>Mulching with locally available material</li> </ul>	Protected cultivation to be promoted
	Above 1000 m	Maize	<ul style="list-style-type: none"> <li>If the germination is less than 30% of</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the</li> </ul>	Schemes from Line

	<b>MSL Shallow coarse loamy Soils</b>		<p>optimum plant population, re sowing should be done</p> <ul style="list-style-type: none"> <li>▪ Gap filling to be done to maintain optimum plant density</li> <li>▪ Foliar application of 1% MoP</li> </ul>	<p>available sources</p> <ul style="list-style-type: none"> <li>▪ Mulching with locally available material</li> </ul>	Deptt. /RKVY/ATMA
		Millet	<ul style="list-style-type: none"> <li>▪ If the germination is less than 30% of optimum plant population re sowing should be done</li> <li>▪ Gap filling to be done to maintain optimum plant density</li> <li>▪ Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> <li>▪ Mulching with locally available material</li> </ul>	
		Vegetable	<ul style="list-style-type: none"> <li>▪ Gap filling with available seedlings.</li> <li>▪ Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> <li>▪ Prefer Drip/sprinkler irrigation</li> <li>▪ Mulching with locally available material</li> </ul>	Protected cultivation to be promoted Promoted rain water harvesting structure

<b>Condition</b>			<b>Suggested Contingency measures</b>		
<b>Mid season drought (long dry spell, consecutive 2 weeks rainless (&gt;2.5 mm)period)</b>	<b>Major Farming situation</b>	<b>Normal Crop /cropping system</b>	<b>Crop management</b>	<b>Soil nutrient &amp; moisture conservation measures</b>	<b>Remarks on Implementation</b>
Vegetative stage	<b>600-1000 m MSL Shallow to moderately deep coarse loamy Soils</b>	Maize	<ul style="list-style-type: none"> <li>▪ Weeding</li> <li>▪ Interculture</li> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> <li>▪ Mulching with locally available material</li> </ul>	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>▪ Weeding</li> <li>▪ Interculture</li> <li>▪ Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> <li>▪ Mulching with locally available material</li> </ul>	
		Soybean	<ul style="list-style-type: none"> <li>▪ Weeding</li> <li>▪ Interculture</li> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> <li>▪ Mulching with locally available material</li> </ul>	
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)		<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> <li>▪ Prefer Drip/sprinkler irrigation</li> </ul>	
	<b>Above 1000 m MSL</b>	Maize	<ul style="list-style-type: none"> <li>▪ Weeding</li> <li>▪ Interculture</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	

	<b>Shallow coarse loamy Soils</b>		<ul style="list-style-type: none"> <li>Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>Mulching with locally available material</li> </ul>	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>Weeding</li> <li>Interculture</li> <li>Foliar application of 1% MoP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)		<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Prefer Drip/sprinkler irrigation</li> </ul>	

<b>Condition</b>		<b>Suggested Contingency measures</b>			
<b>Mid season drought (long dry spell, consecutive 2 weeks rainless (&gt;2.5 mm)period)</b>	<b>Major Farming situation</b>	<b>Normal Crop /cropping system</b>	<b>Crop management</b>	<b>Soil nutrient &amp; moisture conservation measures</b>	<b>Remarks on Implementation</b>
Reproductive stage	<b>600-1000 m MSL Shallow to moderately deep coarse loamy Soils</b>	Maize	<ul style="list-style-type: none"> <li>Weeding</li> <li>Interculture</li> <li>Foliar application of 1% MoP</li> <li>Application of Organic NPK (liquid formulation)</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>Weeding</li> <li>Interculture</li> <li>Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	
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	<b>Above 1000 m MSL Shallow coarse loamy Soils</b>	Maize	<ul style="list-style-type: none"> <li>Weeding</li> <li>Interculture</li> <li>Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>Weeding</li> <li>Interculture</li> <li>Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Mulching with locally available material</li> </ul>	
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)		<ul style="list-style-type: none"> <li>Provide irrigation from the available sources</li> <li>Prefer Drip/sprinkler irrigation</li> </ul>	

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)					
	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	Harvest at physiological maturity.	Planning for zero tillage cultivation of pea, toria etc. Preparation for cole crops	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger/foxtail millet)	Harvest at physiological maturity.	Planning for zero tillage cultivation of pea, toria etc. Preparation for cole crops	
		Soybean	Harvest at maturity	Planning for cole crops	
	Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	Harvest at physiological maturity.	Planning for zero tillage cultivation of pea, toria etc. Preparation for cole crops	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger/foxtail millet)	Harvest at physiological maturity.	Planning for zero tillage cultivation of pea, toria etc. Preparation for cole crops	

#### 2.2 Drought- Normal onset of monsoon (1<sup>st</sup> 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)					
Delay by 2 weeks ( 3 <sup>rd</sup> week of June)	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	No change Short duration vars. RCM-9, RCM-10, RCM 11, CAU-R-1, TTB-404, TTB-303,	<ul style="list-style-type: none"> <li>▪ Closer spacing of 15x15 cm and 4-5 seedlings/hill</li> <li>▪ Weeding is to be done 15 and 35 days after transplanting.</li> </ul>	
		Millet (finger/foxtail millet)	No Change Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail		

			millet (SR-16, Arjuna, Prasad) 10% higher seed rate		
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)	<p><b><u>Bottle gourd</u></b></p> <ul style="list-style-type: none"> <li>▪ Punjab Round, Pusa Sandesh, Narendra Shishir, Punjab Komal.</li> </ul> <p><b><u>Chilli</u></b></p> <ul style="list-style-type: none"> <li>▪ Kashi Anmol, Arka Lohit, Kashi Early, IIHR -Sel. 132</li> <li>▪ Mixed cropping of various vegetable crops.</li> </ul>	<p><b><u>Bottle gourd</u></b></p> <ul style="list-style-type: none"> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha)</li> <li>▪ Raise crop on ridge-furrow or raised bed planting system</li> <li>▪ Conservation of soil moisture through soil/straw/grass mulching practices.</li> </ul> <p><b><u>Chilli</u></b></p> <ul style="list-style-type: none"> <li>▪ Raise crop on ridge-furrow raised bed planting system</li> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) to enhance water holding capacity of soil</li> <li>▪ Conservation of soil moisture through soil/straw/grass mulching practices.</li> <li>▪ Do not allow weeds to grow during plant's early growth stage.</li> </ul>	
Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	No change	<ul style="list-style-type: none"> <li>▪ Short duration vars. Megha Rice 1 and Megha Rice 2,</li> </ul>	<ul style="list-style-type: none"> <li>▪ Closer spacing of 10x10 cm and 4-5 seedlings/hill</li> <li>▪ Weeding is to be done 15 and 35 days after transplanting.</li> </ul>	
	Millet	No Change	Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)	<ul style="list-style-type: none"> <li>▪</li> </ul>	
	Off season vegetable crop	No change		<p><b><u>Cabbage</u></b></p> <p><b><u>Cauliflower</u></b></p> <p><b><u>Chilli</u></b></p>	

**Note: Generally the delay in onset of monsoon by 4 weeks is not applicable.**

**Normal onset of monsoon**

Condition			Suggested Contingency measures		
Early season drought (Normal onset )	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> <li>▪ Gap filling</li> <li>▪ Weeding to be done</li> <li>▪ Foliar application of 1% MOP</li> <li>▪ Application of organic manure, wherever possible</li> <li>▪ Timely plant protection of measures for brown spot, thrips</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>▪ Gap filling</li> <li>▪ Weeding</li> <li>▪ Foliar application of 1% MOP</li> <li>▪ Application of organic manure, wherever possible</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	
		Off season vegetable crop	<ul style="list-style-type: none"> <li>▪ Mulching with locally available material</li> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	Protected cultivation to be promoted
	Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> <li>▪ Weeding to be done</li> <li>▪ Foliar application of 1% MOP</li> <li>▪ Application of organic manure, wherever possible</li> <li>▪ Timely plant protection of measures for brown spot, thrips</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>▪ Gap filling</li> <li>▪ Weeding</li> <li>▪ Foliar application of 1% MOP</li> <li>▪ Application of organic manure, wherever possible</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	
		Off season vegetable crop	<ul style="list-style-type: none"> <li>▪ Mulching with locally available material</li> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	Protected cultivation to be promoted Promoted rain water harvesting structure

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	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> <li>▪ Weeding to be done</li> <li>▪ Foliar application of 1% MOP</li> <li>▪ Timely plant protection of measures for brown spot, thrips</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>▪ Weeding</li> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	
	Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> <li>▪ Weeding to be done</li> <li>▪ Foliar application of 1% MOP</li> <li>▪ Timely plant protection of measures for brown spot, thrips</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>▪ Weeding</li> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	

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	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> <li>▪ Foliar application of 1% MOP</li> <li>▪ Timely plant protection of measures for gundhi bug,</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	
	Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> <li>▪ Foliar application of 1% MOP</li> <li>▪ Timely plant protection of measures for gundhi bug</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	
		Millet (finger /foxtail millet)	<ul style="list-style-type: none"> <li>▪ Foliar application of 1% MOP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide irrigation from the available sources</li> </ul>	

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)					
	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	Harvest at physiological maturity.	<ul style="list-style-type: none"> <li>Planning for zero tillage cultivation of pea, toria etc.</li> <li>Preparation for cole crops</li> </ul>	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger/foxtail millet)	Harvest at physiological maturity.	<ul style="list-style-type: none"> <li>Planning for zero tillage cultivation of pea, toria etc.</li> <li>Preparation for cole crops</li> </ul>	
	Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	Harvest at physiological maturity.	<ul style="list-style-type: none"> <li>Planning for zero tillage cultivation of pea, toria etc.</li> <li>Preparation for cole crops</li> </ul>	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger/foxtail millet)	Harvest at physiological maturity.	<ul style="list-style-type: none"> <li>Planning for zero tillage cultivation of pea, toria etc.</li> <li>Preparation for cole crops</li> </ul>	

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

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Paddy	Drainage of excess water from the field	Immediate provision of drainage system	<ul style="list-style-type: none"> <li>Drain out excess water</li> <li>Harvest at physiological maturity</li> </ul>	<ul style="list-style-type: none"> <li>Shifting to a safer place</li> <li>Dry in shade and in well ventilated space</li> </ul>
Maize	Provide drainage	Provide drainage	<ul style="list-style-type: none"> <li>Drain out excess water</li> <li>Harvest at physiological maturity</li> </ul>	<ul style="list-style-type: none"> <li>Shifting to a safer place</li> <li>Dry in shade and in well ventilated space</li> </ul>
Millet	Drainage of excess water	Immediate provision of drainage system	<ul style="list-style-type: none"> <li>Drain out excess water</li> <li>Harvest at physiological maturity</li> </ul>	Proper drying
Soybean	Drainage of excess water from the field	Immediate provision of drainage system	<ul style="list-style-type: none"> <li>Drain out the excess water</li> <li>Harvest at maturity</li> </ul>	Proper drying
<b>Horticulture</b>				
Crop 1 Orange	<ul style="list-style-type: none"> <li>In hills and humid region, terrace method of plantation should be followed.</li> <li>Irrigation system such as ring</li> </ul>	<ul style="list-style-type: none"> <li>Cover crops (such as rape, mustard, sunhemp, cowpea, etc) can be followed to develop organic matter in the orchard</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting can be delayed upto 60-75 days by spraying pre-harvest chemical i.e. 2-4D at 20ppm + GA at 10ppm + 0.2%</li> </ul>	<ul style="list-style-type: none"> <li>Fruits are to be stored in well aerated farm shed or house to avoid losses.</li> </ul>

	method, furrow method and basin method with good drainage facilities should be adopted.	soil. Usually should be done during pre-bearing stage of citrus trees. <ul style="list-style-type: none"> <li>Green manuring can also be practiced.</li> <li>Proper drainage system</li> <li>Application of chemicals in inducing flowering in orange. Ex Paclobuterazol @2.5-10gm/tree or CCC @ 1000-3000ppm.</li> </ul>	KCl on maturing fruits. <ul style="list-style-type: none"> <li>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.</li> <li>Harvesting of ripe fruit should be followed before rain.</li> <li>While picking, the stem end should be cut close to the fruit without damaging the rind. Hence avoiding fungal infection.</li> </ul>	<ul style="list-style-type: none"> <li>Storing at 8 – 10 0 C with 85 – 90 % RH is preferred.</li> </ul>
Crop 2 Pineapple	<ul style="list-style-type: none"> <li>Good drainage system should be adopted because its roots are sensitive to water logging.</li> <li>Make trenches/furrows in between ridges to facilitate drainage of excess water</li> </ul>	<ul style="list-style-type: none"> <li>Application of chemicals in inducing flowering. Ex Ethephon 2mg in 100-140mg Bentonite gives 90-100% floral induction. Or NAA @ 25ppm or 2, 4-D @5-10ppm is also used as forcing agent.</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting can be delayed</li> <li>Water logging at this stage affects the fruit quality. So proper drainage system should be installed.</li> </ul>	<ul style="list-style-type: none"> <li>Fruits are to be stored in well aerated farm shed or house to avoid loses.</li> <li>Pineapples can be stored at a temperature of 7.5-12°C and RH 70-90% for 4 weeks.</li> </ul>
Crop 3 Ginger	<ul style="list-style-type: none"> <li>Prevalence of high humidity throughout the crop period is desirable.</li> <li>Proper Drainage channels are to be provided when there is stagnation of water.</li> <li>Mulching the beds with green mulch or organic waste is an important operation for ginger.</li> </ul>	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> <li>Earthing up should be followed by manuring.</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>Dry weather before harvesting is necessary. So harvesting can be delayed.</li> </ul>	<ul style="list-style-type: none"> <li>Shifting of the produce to a drier place.</li> <li>Harvesting should be done before rain as far as possible</li> <li>Drying to remove excess moisture of produce.</li> </ul>
Crop 4 Turmeric	<ul style="list-style-type: none"> <li>Prevalence of high humidity throughout the crop period is desirable.</li> <li>Proper Drainage channels are to be provided when there is stagnation of water.</li> <li>Mulching the beds with green mulch or organic waste is an important operation for ginger.</li> </ul>	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> <li>Earthing up should be followed by manuring.</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>Dry weather before harvesting is necessary. So harvesting can be delayed.</li> </ul>	<ul style="list-style-type: none"> <li>Shifting of the produce to a drier place.</li> <li>Harvesting should be done before rain as far as possible</li> <li>Drying to remove excess moisture of produce.</li> </ul>
Crop 5Vegetables (cucurbits)	<ul style="list-style-type: none"> <li>Grow crop on ridge-furrow (25-30 cm high) or furrow irrigated raised bed (90 cm wide and 20 cm high) planting system to avoid water</li> </ul>	<ul style="list-style-type: none"> <li>Application of effective plant regulators for sex expression are maleic hydrazine (MH) and 2, 4-5 tri-iodobenzoic acid (TIBA) @</li> </ul>	<ul style="list-style-type: none"> <li>Cucurbits are usually harvested when it's tender and young. So harvesting can be done early and marketed immediately.</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting of the produce before the rain occurs.</li> <li>Shifting of the</li> </ul>

	<p>logging situation</p> <ul style="list-style-type: none"> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Earthing up of plants.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> <li>▪ Staking should be properly followed. Rainy season crops can be trained on a bower made of bamboos and sticks.</li> </ul>	<p>50ppm. Boron @ 3ppm and calcium @ 20ppm is also effective.</p> <ul style="list-style-type: none"> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Earthing up of plants.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>		<p>produce to drier place or Cold storage</p>
	▪	▪	▪	▪
Crop 5 Apple	<ul style="list-style-type: none"> <li>▪ Trees can't tolerate wet soil during growing season. So, proper drainage system should be installed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Continuous supply of irrigation with proper drainage.</li> <li>▪ Pollinizer varieties should be more planted. Ex Granny Smith, Golden Delicious, Mc Intosh, etc.</li> <li>▪ Flood irrigation can be used only when abundant water is available.</li> <li>▪ Sod culture can also be adopted in between rows.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spray of chemicals to inhibit fruit drop. Ex 2,4,5-T @ 20ppm or 2,4,5-TCPA @ 15ppm</li> <li>▪ Use of plant bio-regulators to delay ripening and improve storability. Ex Daminozide or commonly called Alar @ 1000ppm sprayed before 60 days before harvest.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Apples can be successfully stored for 4-8 months at -1.1 to 0°C and 85-90 % RH.</li> </ul>
<b>Heavy rainfall with high speed winds in a short span<sup>2</sup></b>				
Crop1	NA	NA	NA	NA
<b>Horticulture</b>				
Crop1 Orange	<ul style="list-style-type: none"> <li>▪ Intercropping with cover crop or sod culture to prevent soil erosion.</li> <li>▪ Earthing up of young plants to avoid uprooting due to wind.</li> <li>▪ Provide proper drainage facilities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wind break around the orchard to protect crop from wind damage</li> <li>▪ Provide drainage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest ripe fruit before windstorm.</li> <li>▪ Propping heavy bearing tree and weak tree by bamboo pole.</li> <li>▪ 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.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fruits are to be stored in well aerated farm shed or house to avoid loses.</li> <li>▪ Packed the fruit in perforated polythene bag, boxes, crates, etc. and store at temperature of 10 -11 0 C &amp; 92 % RH.</li> </ul>
Crop 2 Pineapple	<ul style="list-style-type: none"> <li>▪ Earthing up plants for better development and anchorage.</li> <li>▪ Make trenches/furrows in between ridges to facilitate drainage of excess water.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Earthing up to prevent uprooting.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Delay harvesting</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fruits are to be stored in well aerated farm shed or house to avoid loses.</li> </ul>
Crop 3 Ginger	<ul style="list-style-type: none"> <li>▪ For newly planted crops, staking should be provided.</li> <li>▪ Plant base need to be covered by</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proper drainage system should be followed.</li> <li>▪ Earthing up to prevent</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest at physiological maturity stage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting should be done before rain as far as possible,</li> </ul>

	suitable planting material.	uprooting.		<ul style="list-style-type: none"> <li>▪ Drying to remove excess moisture of produce. (desirable moisture level 10%)</li> </ul>
Crop 4 Turmeric	<ul style="list-style-type: none"> <li>▪ For newly planted crops, staking should be provided.</li> <li>▪ Plant base need to be covered by suitable planting material.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proper drainage system should be followed.</li> <li>▪ Earthing up to prevent uprooting.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest at physiological maturity stage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting should be done before rain as far as possible,</li> <li>▪ Drying to remove excess moisture of produce. (desirable moisture level 10%)</li> </ul>
Crop 5 Vegetables (cucurbits)	<ul style="list-style-type: none"> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Earthing up of plants.</li> <li>▪ Ensure proper staking of crop wherever required</li> <li>▪ Intercropping with cover crop or sod culture to prevent soil erosion.</li> <li>▪ Green manuring can also be practiced</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spray maleic Hydrazide @ 50ppm aqueous solution at 2 and 4 leaf stages to stimulate vine growth, giving more female flowers.</li> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Wind break around the orchard to protect crop from wind damage</li> <li>▪ Earthing up and propping to prevent uprooting.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Picking of fruits at right edible stage depends upon individual varieties and marketing requirements. Fruits are harvested, packed in baskets and transported to markets.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The fruits can be stored for 2-3 weeks at 15-20°C and RH 75% in a well-ventilated chamber.</li> </ul>
<b>Outbreak of pests and diseases due to unseasonal rains</b>				
Paddy (Blast)	<ul style="list-style-type: none"> <li>▪ Use trap crops for prediction of disease.</li> <li>▪ Removal and destruction of weed hosts in the field bunds and channels</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Mancozeb @ 2g/lit or spraying of Carbendazim @ 1 g/lit.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drain out excess water to avoid flooded conditions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sun drying to prevent spoliage and sprouting of the harvested grains.</li> </ul>
Paddy (Brown Spot)	-Do-	-Do-	-Do-	-Do-
Paddy (Bacterial leaf blight)	<ul style="list-style-type: none"> <li>▪ Destruction of weed hosts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of streptomycin and tetracycline.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drain out excess water to avoid flooded conditions.</li> </ul>	-Do-
Paddy (Yellow Stem Borer)	<ul style="list-style-type: none"> <li>▪ Collection and destruction of egg masses.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Chloropyriphos 20 EC @ 0.02 %.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage.</li> </ul>	-Do-
Paddy (Gall Midge)	<ul style="list-style-type: none"> <li>▪ Removal of alternate host plants including weeds and grasses and destruction of infected plants.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Providing proper drainage system.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage.</li> </ul>	-Do-
Maize (Stalk rot)	<ul style="list-style-type: none"> <li>▪ Removal of accumulated water around the stalks by proper drainage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rouging of affected plant and its destruction.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of streptocycline @ 0.020 %.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sun drying of the harvested cob to prevent spoliage.</li> </ul>
<b>Horticulture</b>				
Orange (Citrus Leaf)	<ul style="list-style-type: none"> <li>▪ Spraying of Fenvalerate and</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Fenvalerate and</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool place in</li> </ul>

miner)	Cypermethrin for controlling leaf minor.	Cypermethrin for controlling leaf minor.	and proper handling of the produce.	crates, boxes etc
Orange (Citrus butterfly)	<ul style="list-style-type: none"> <li>Hand picking of caterpillars and pupae in the nursery.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of Neem formulation to control citrus butterfly.</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool place in crates, boxes etc</li> </ul>
Orange (Powdery mildew in citrus)	<ul style="list-style-type: none"> <li>Spraying of wettable sulphur and carbendizim to control powdery mildews.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of wettable sulphur, bavistin (0.1 %) and calixin (0.1 %).</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of wettable sulphur and carbendizim to control powdery mildews.</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool place in crates, boxes etc.</li> </ul>
Tomato	<ul style="list-style-type: none"> <li>Removal of accumulated water by proper drainage.</li> <li>Destroy the heavily infested/infected plant parts.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of Sulfex @ 2 g/lit of water.</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting at the right stage and proper handling.</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool/dry place packed in crates, boxes etc.</li> </ul>
Brinjal	<ul style="list-style-type: none"> <li>Removal of accumulated water by proper drainage.</li> <li>Destroy the heavily infested/infected plant parts.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of Sulfex @ 2 g/lit of water.</li> <li>Soil dranching with captan/Tiram @ 2/lit of water</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool/dry place packed in crates, boxes etc.</li> </ul>
Cabbage	<ul style="list-style-type: none"> <li>Removal of accumulated water by proper drainage.</li> <li>Destroy the badly infested/infected plant parts.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of Sulfex @ 2 g/lit of water.</li> <li>Soil dranching with captan/Tiram. @ 2/lit of water</li> <li>Streptocycline spray</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool/dry place</li> </ul>
Cucurbits	<ul style="list-style-type: none"> <li>Manual collection &amp; destruction of eggs/grubs/larvae.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of carbaryl against leaf eating caterpillars, Metalaxyl against Powdery mildew, Carbendazim against leaf spot &amp; blight</li> </ul>	<ul style="list-style-type: none"> <li>Spraying of Malathion against fruit fly.</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool/dry place</li> </ul>
Large Cardamom	<ul style="list-style-type: none"> <li>Proper drainage.</li> <li>Uprooting and destruction of Chirke and Foorkey infected cardamom plants.</li> </ul>	<ul style="list-style-type: none"> <li>Removal of affected plant from the field.</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>Quick drying of harvested capsule.</li> </ul>
Ginger (Soft rot)	<ul style="list-style-type: none"> <li>Removal of accumulated water in the field by proper drainage.</li> </ul>	<ul style="list-style-type: none"> <li>Removal and destruction of affected plants.</li> </ul>	<ul style="list-style-type: none"> <li>Spraying with Blitox – 50 (3 g/lit) or Dithane – Z-78 (2.5 g / lit).</li> </ul>	<ul style="list-style-type: none"> <li>Store in cool/dry place</li> </ul>

## 2.2 Drought-Normal onset of Monsoon (1<sup>st</sup> 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)	600-1000 m MSL Shallow to moderately deep coarse loamy Soils	WRC/TRC (Paddy)	No change	<ul style="list-style-type: none"> <li>▪ Short duration vars. RCM-9, RCM-10, RCM 11, CAU-R-1, TTB-404, TTB-303, Mulagavaru, Kanaklata.</li> <li>▪ Closer spacing of 15x15 cm and 4-5 seedlings/hill</li> <li>▪ Weeding is to be done 15 and 35 days after transplanting.</li> </ul>	
		Millet (finger/foxtail millet)	No Change	<ul style="list-style-type: none"> <li>▪ Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16,Arjuna, Prasad)</li> <li>▪ 10% higher seed rate</li> </ul>	
		Vegetable crops (Bottle gourd, Chilli, beans, okra, brinjal)	No Change	<p><b><u>Bottle gourd</u></b></p> <ul style="list-style-type: none"> <li>▪ Punjab Round, Pusa Sandesh, Narendra Shishir, Punjab Komal.</li> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha)</li> <li>▪ Raise crop on ridge-furrow or raised bed planting system</li> <li>▪ Conservation of soil moisture through soil/straw/grass mulching practices.</li> </ul> <p><b><u>Chilli</u></b></p> <ul style="list-style-type: none"> <li>▪ Kashi Anmol, Arka Lohit, Kashi Early, IIHR -Sel. 132</li> <li>▪ Raise crop on ridge-furrow raised bed planting system</li> <li>▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) to enhance water holding capacity of soil</li> <li>▪ Conservation of soil moisture through soil/straw/grass mulching practices.</li> <li>▪ Do not allow weeds to grow during plant's early growth stage.</li> <li>▪ Mixed cropping of various vegetable crops.</li> </ul>	
	Above 1000 m MSL Shallow coarse loamy Soils	WRC/TRC (Paddy)	No change	<ul style="list-style-type: none"> <li>▪ Short duration vars. Megha Rice 1 and Megha Rice 2,</li> <li>▪ Closer spacing of 10x10 cm and 4-5 seedlings/hill</li> <li>▪ Weeding is to be done 15 and 35 days after transplanting.</li> </ul>	
		Millet	No Change	<ul style="list-style-type: none"> <li>▪ Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)</li> </ul>	
		Off season vegetable crop	No change	Short duration varieties of the vegetable crops which are suitable in the district should be grown	

**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"> <li>▪ Drain out excess water</li> <li>▪ Harvest at physiological maturity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shifting to a safer place</li> <li>▪ Dry in shade and in well ventilated space</li> </ul>
Maize	Provide drainage	Provide drainage	<ul style="list-style-type: none"> <li>▪ Drain out excess water</li> <li>▪ Harvest at physiological maturity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shifting to a safer place</li> <li>▪ Dry in shade and in well ventilated space</li> </ul>
Millet	Drainage of excess water	Immediate provision of drainage system	<ul style="list-style-type: none"> <li>▪ Drain out excess water</li> <li>▪ Harvest at physiological maturity</li> </ul>	Proper drying
<b>Horticulture</b>				
Orange	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss</li> <li>▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection.</li> <li>▪ Proper nutrient management to be followed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ Foliar application of micronutrient/multiplex @ 0.2% should be done to prevent flower drop</li> <li>▪ Control aphids and mealy bugs etc</li> </ul>	<ul style="list-style-type: none"> <li>▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ 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.</li> <li>▪ 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.</li> <li>▪ While picking, the stem end should be cut close to the fruit without damaging the rind. Hence avoiding fungal infection.</li> <li>▪ Collect the good fruits and store them. Damaged fallen fruits to be disposed off</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fruits are to be stored in well aerated farm shed or house to avoid loses.</li> <li>▪ Storing at 8 – 10 0 C with 85 – 90 % RH is preferred.</li> </ul>
Apple	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spray 2,4,5-T @ 20ppm or 2,4,5-</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stored the fruits for 4-8</li> </ul>

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

	<ul style="list-style-type: none"> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Spraying of insecticides and fungicide</li> </ul>	water from surrounding areas.		
Turmeric	<ul style="list-style-type: none"> <li>Provide proper drainage channels to avoid stagnation of water</li> <li>Earthing up to be done at proper soil moisture level</li> <li>Nutrient management to be followed</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> <li>Earthing up should be followed by manuring.</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>Dry weather before harvesting is necessary. So harvesting can be delayed.</li> </ul>	<ul style="list-style-type: none"> <li>Shifting of the produce to a drier place.</li> <li>Drying to remove excess moisture of produce.</li> </ul>
Vegetables (cucurbits)	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> <li>Earthing up to be done at proper soil moisture condition followed by manuring</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Staking should be properly followed. Rainy season crops can be trained on a bower made of bamboos and sticks.</li> </ul>	<ul style="list-style-type: none"> <li>Spray maleic hydrazine (MH) and 2, 4-5 tri-iodobenzoic acid (TIBA) @ 50ppm for Sex expression. Boron @ 3ppm and calcium @ 20ppm is also effective.</li> <li>Provision of drainage to remove excess water.</li> <li>Earthing up followed by manuring</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Take up proper plant protection measures</li> </ul>	<ul style="list-style-type: none"> <li>Fruits to be harvested immediately without causing injury to fruits</li> <li>Remove all damaged fruit</li> <li>Take up appropriate plant protection measures</li> </ul>	<ul style="list-style-type: none"> <li>The fruits can be stored for 2-3 weeks at 15-20°C and RH 75% in a well-ventilated chamber</li> </ul>
<b>Heavy rainfall with high speed winds in a short span</b>				
<b>Horticulture</b>				
Orange	<ul style="list-style-type: none"> <li>Earthing up of young plants to avoid uprooting due to wind.</li> <li>Provide proper drainage facilities.</li> <li>Staking to avoid falling off of plants</li> <li>In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss</li> <li>Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>Proper nutrient management to be followed</li> </ul>	<ul style="list-style-type: none"> <li>Wind break around the orchard to protect crop from wind damage</li> <li>Provide proper drainage</li> <li>Nutrient management to be followed along with foliar spray of micronutrient</li> <li>Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> </ul>	<ul style="list-style-type: none"> <li>Propping heavy bearing tree and weak tree by bamboo pole.</li> <li>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.</li> <li>Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> </ul>	<ul style="list-style-type: none"> <li>Fruits are to be stored in well aerated farm shed or house to avoid loses.</li> <li>Pack the fruit in perforated polythene bag, boxes, crates, etc. and store at temperature of 10-11°C &amp; 92 % RH.</li> </ul>
Apple	<ul style="list-style-type: none"> <li>Earthing up of young plants to avoid uprooting due to wind.</li> </ul>	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> </ul>	<ul style="list-style-type: none"> <li>Harvest ripe fruits</li> <li>Propping heavy bearing tree and</li> </ul>	<ul style="list-style-type: none"> <li>Store fruits for 4-8 months at -1.1 to 0°C and 85-90 %</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Provide proper drainage facilities.</li> <li>▪ Staking to be done to avoid falling off of plants.</li> <li>▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss</li> <li>▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ Proper nutrient management to be followed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wind break around the orchard</li> <li>▪ Maintain the half moon terraces to avoid soil nutrient loss</li> <li>▪ Proper nutrient management to be followed along with foliar application of micronutrient</li> <li>▪ Prune out all damage branches with appropriate plant protection measures</li> </ul>	<ul style="list-style-type: none"> <li>▪ weak tree by bamboo pole.</li> <li>▪ Use of plant bio-regulators to delay ripening with Daminozide or Alar @ 1000ppm sprayed before 60 days before harvest.</li> </ul>	RH.
Pineapple	<ul style="list-style-type: none"> <li>▪ Earthing up plants for better development and anchorage.</li> <li>▪ Make trenches/furrows in between ridges to facilitate drainage of excess water.</li> <li>▪ Nutrient management to be followed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Earthing up to prevent uprooting.</li> <li>▪ Provide proper drainage</li> <li>▪ Nutrient management to be followed</li> <li>▪ Spray NAA @ 25ppm or 2, 4-D @ 5-10 ppm should be applied for uniform flower induction.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fruits can be protected with locally available material to protect the mature fruit from unusual rains</li> <li>▪ Spraying of insecticides and fungicide</li> <li>▪ Earthing up plants for better development and anchorage.</li> <li>▪ Make trenches/furrows in between ridges to facilitate drainage of excess water</li> </ul>	<ul style="list-style-type: none"> <li>▪ .Store fruits in well aerated farm shed or house to avoid loses.</li> <li>▪ Pineapples can be stored at a temperature of 7.5-12°C and RH 70-90% for 4 weeks.</li> </ul>
Kiwifruit	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ Support the plant using T-Bar system</li> <li>▪ In steep slopes, prepare half moon terraces to prevent soil erosion and leaching loss</li> <li>▪ If there is physical damage, pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ Nutrient management to be done</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ Half moon terraces to be done to prevent nutrient loss</li> <li>▪ Pruning of damaged branches and application of Bordeaux Paste to be done</li> <li>▪ Nutrient management along with foliar application micronutrient to be done</li> </ul>	<ul style="list-style-type: none"> <li>▪ Heavy pruning should not done as the fruit will be affected by rain</li> <li>▪ Drain out excess water</li> <li>▪ Maintain the plant using T-Bar trellis supporting system</li> <li>▪ Nutrient management along with foliar application micronutrient to be done</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stored the fruits at 0 to 4°C and 80-90 % RH.</li> <li>▪ Spray growth regulators Like Alar @ 1000 ppm to improve storability</li> </ul>
Banana	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ Nutrient management to be done</li> <li>▪ Propping or staking should be done</li> <li>▪ Spraying of insecticides and fungicide</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ Nutrient management to be done along with application of micronutrient</li> <li>▪ Propping or staking should be done</li> <li>▪ Spraying of insecticides and fungicide</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide proper drainage</li> <li>▪ Nutrient management to be done</li> <li>▪ Propping to be done</li> <li>▪ Bagging to be done to protect the bunch from unusual rains.</li> <li>▪ Denavelling to be done to improve the bunch weight (removal of male bud)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store the fruits/ bunch in well aerated farm shed or house to avoid loses.</li> <li>▪ Storing at 10 – 12° C with 70 – 80 % RH</li> </ul>
Large cardamom	<ul style="list-style-type: none"> <li>▪ For newly planted crops, staking should be provided.</li> <li>▪ Provide adequate drainage</li> <li>▪ Spraying of insecticides and fungicid</li> <li>▪ Follow proper nutrient management</li> <li>▪ Earthing up to be done</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proper drainage system should be followed.</li> <li>▪ Follow proper nutrient management</li> <li>▪ Earthing up to prevent uprooting.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest at physiological maturity stage or can be delayed</li> <li>▪ Proper drainage system should be followed</li> </ul>	<ul style="list-style-type: none"> <li>▪ 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</li> </ul>

Ginger	<ul style="list-style-type: none"> <li>▪ Provide proper drainage channels to avoid stagnation of water</li> <li>▪ Earthing up to be done at proper soil moisture level</li> <li>▪ Nutrient management to be followed</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> <li>▪ Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Earthing up should be followed by manuring.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest at physiological maturity stage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shifting of the produce to a drier place.</li> <li>▪ Drying to remove excess moisture of produce (moisture level 10%)</li> </ul>
Turmeric	<ul style="list-style-type: none"> <li>▪ Provide proper drainage channels to avoid stagnation of water</li> <li>▪ Earthing up to be done at proper soil moisture level</li> <li>▪ Nutrient management to be followed</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> <li>▪ Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Earthing up should be followed by manuring.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dry weather before harvesting is necessary. So harvesting can be delayed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shifting of the produce to a drier place.</li> <li>▪ Drying to remove excess moisture of produce.</li> </ul>
Vegetables (cucurbits)	<ul style="list-style-type: none"> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Earthing up to be followed</li> <li>▪ Ensure proper staking of crop wherever required</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spray maleic Hydrazide @ 50ppm aqueous solution at 2 and 4 leaf stages to stimulate vine growth, giving more female flowers.</li> <li>▪ Provision of drainage to remove excess water.</li> <li>▪ Wind break around the orchard to protect crop from wind damage</li> <li>▪ Earthing up and propping to prevent uprooting.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fruits to be harvested immediately without causing injury to fruits</li> <li>▪ Remove all damaged fruit</li> <li>▪ Take up appropriate plant protection measures</li> </ul>	<ul style="list-style-type: none"> <li>▪ The fruits can be stored for 2-3 weeks at 15-20°C and RH 75% in a well-ventilated chamber.</li> </ul>
<b>Outbreak of pests and diseases due to unseasonal rains : NA</b>				
Paddy (Blast)	<ul style="list-style-type: none"> <li>▪ Use trap crops for prediction of disease.</li> <li>▪ Removal and destruction of weed hosts in the field bunds and channels</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Mancozeb @ 2g/lit or spraying of Carbendazim @ 1 g/lit.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drain out excess water to avoid flooded conditions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sun drying to prevent spoilage and sprouting of the harvested grains.</li> </ul>
Paddy (Brown Spot)	-Do-	-Do-	-Do-	-Do-
Paddy (Bacterial leaf blight)	<ul style="list-style-type: none"> <li>▪ Destruction of weed hosts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of streptomycin and tetracycline.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drain out excess water to avoid flooded conditions.</li> </ul>	-Do-
Paddy (Yellow Stem Borer)	<ul style="list-style-type: none"> <li>▪ Collection and destruction of egg masses.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Chloropyriphos 20 EC @ 0.02 %.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage.</li> </ul>	-Do-
Paddy (Gall Midge)	<ul style="list-style-type: none"> <li>▪ Removal of alternate host plants including weeds and grasses and destruction of infected plants.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Providing proper drainage system.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage.</li> </ul>	-Do-
Maize (Stalk rot)	<ul style="list-style-type: none"> <li>▪ Removal of accumulated water around the</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rouging of affected plant and its</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of streptomycin @ 0.020</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sun drying of the</li> </ul>

	stalks by proper drainage.	destruction.	%.	harvested cob to prevent spoilage.
<b>Horticulture</b>				
Orange (Citrus Leaf miner)	<ul style="list-style-type: none"> <li>▪ Spraying of Fenvalerate and Cypermethrin for controlling leaf minor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Fenvalerate and Cypermethrin for controlling leaf minor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool place in crates, boxes etc</li> </ul>
Orange (Citrus butterfly)	<ul style="list-style-type: none"> <li>▪ Hand picking of caterpillars and pupae in the nursery.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Neem formulation to control citrus butterfly.</li> </ul>	Do	<ul style="list-style-type: none"> <li>▪ Store in cool place in crates, boxes etc</li> </ul>
Orange (Powdery mildew in citrus)	<ul style="list-style-type: none"> <li>▪ Spraying of wettable sulphur and carbendazim to control powdery mildews.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of wettable sulphur, bavistin (0.1 %) and calixin (0.1 %).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of wettable sulphur and carbendazim to control powdery mildews.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool place in crates, boxes etc.</li> </ul>
Tomato	<ul style="list-style-type: none"> <li>▪ Removal of accumulated water by proper drainage.</li> <li>▪ Destroy the heavily infested/infected plant parts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Sulfex @ 2 g/lit of water.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage and proper handling.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool/dry place packed in crates, boxes etc.</li> </ul>
Brinjal	<ul style="list-style-type: none"> <li>▪ Removal of accumulated water by proper drainage.</li> <li>▪ Destroy the heavily infested/infected plant parts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Sulfex @ 2 g/lit of water.</li> <li>▪ Soil dranching with captan/Tiram @ 2/lit of water</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool/dry place packed in crates, boxes etc.</li> </ul>
Cabbage	<ul style="list-style-type: none"> <li>▪ Removal of accumulated water by proper drainage.</li> <li>▪ Destroy the badly infested/infected plant parts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Sulfex @ 2 g/lit of water.</li> <li>▪ Soil dranching with captan/Tiram. @ 2/lit of water</li> <li>▪ Streptocycline spray</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool/dry place</li> </ul>
Cucurbits	<ul style="list-style-type: none"> <li>▪ Manual collection &amp; destruction of eggs/grubs/larvae.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of carbaryl against leaf eating caterpillars, Metalaxyl against Powdery mildew, Carbendazim against leaf spot &amp; blight</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying of Malathion against fruit fly.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool/dry place</li> </ul>
Large Cardamom	<ul style="list-style-type: none"> <li>▪ Proper drainage.</li> <li>▪ Uprooting and destruction of Chirke and Foorkey infected cardamom plants.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Removal of affected plant from the field.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvesting at the right stage and proper handling of the produce.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quick drying of harvested capsule.</li> </ul>
Ginger (Soft rot)	<ul style="list-style-type: none"> <li>▪ Removal of accumulated water in the field by proper drainage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Removal and destruction of affected plants.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spraying with Blitox – 50 (3 g/lit) or Dithane – Z-78 (2.5 g / lit).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Store in cool/dry place</li> </ul>

### 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"> <li>▪ Drainage of the Nursery bed.</li> <li>▪ Re -sowing if not possible</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drainage of excess water.</li> <li>▪ Gap filling In partially damaged field by redistributing the tillers.</li> <li>▪ Management of pests &amp; diseases</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops.</li> </ul>

			<ul style="list-style-type: none"> <li>Utilization of residual soil moisture and use of recharged soil profile for growing pulses</li> </ul>	<ul style="list-style-type: none"> <li>Utilization of residual soil moisture and use of recharged soil profile for growing pulses</li> </ul>
<b>Horticulture/Plantation crops</b>				
Banana	<ul style="list-style-type: none"> <li>Provide proper drainage</li> <li>Nutrient management to be done</li> <li>Propping or staking should be done</li> <li>Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>Provide proper drainage</li> <li>Nutrient management to be done</li> <li>Propping or staking should be done</li> <li>Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>Provide proper drainage</li> <li>Nutrient management to be done</li> <li>Propping to be done</li> </ul>	<ul style="list-style-type: none"> <li>Store the fruits/ bunch in well aerated farm shed or house to avoid loses.</li> <li>Storing at 10 – 12° C with 70 – 80 % RH</li> </ul>
Ginger	<ul style="list-style-type: none"> <li>Provide proper drainage channels to avoid stagnation of water</li> <li>Earthing up to be done at proper soil moisture level</li> <li>Nutrient management to be followed</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> <li>Earthing up should be followed by manuring.</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Application of fungicide and insecticides</li> </ul>	<ul style="list-style-type: none"> <li>Harvest at physiological maturity stage or can delay harvesting</li> </ul>	<ul style="list-style-type: none"> <li>Shifting of the produce to drier place.</li> </ul>
Turmeric	<ul style="list-style-type: none"> <li>Provide proper drainage channels to avoid stagnation of water</li> <li>Earthing up to be done at proper soil moisture level</li> <li>Nutrient management to be followed</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Spraying of insecticides and fungicide</li> </ul>	<ul style="list-style-type: none"> <li>Provision of drainage to remove excess water.</li> <li>Earthing up should be followed by manuring.</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Application of fungicide and insecticides</li> </ul>	<ul style="list-style-type: none"> <li>Harvest at physiological maturity stage or can delay harvesting</li> </ul>	<ul style="list-style-type: none"> <li>Shifting of the produce to drier place</li> </ul>
Vegetables (cucurbits)	<ul style="list-style-type: none"> <li>Proper drainage of the nursery bed, If not possible go for re-sowing.</li> <li>Raised bed method should be followed in the nursery.</li> <li>Earthing up to be followed</li> <li>Ensure proper staking of crop wherever required</li> <li>Field bunding to prevent entry</li> </ul>	<ul style="list-style-type: none"> <li>Proper drainage of the nursery bed, If not possible go for re-sowing.</li> <li>Earthing up to be followed</li> <li>Ensure proper staking of crop wherever required</li> <li>Field bunding to prevent entry of water from surrounding areas.</li> <li>Follow appropriate nutrient management practices</li> </ul>	<ul style="list-style-type: none"> <li>Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops</li> <li>Growing of cole crops or winter vegetables after receding flood water and adoption of integrated farming system to</li> </ul>	<ul style="list-style-type: none"> <li>Shifting of the produce to drier place and store fruits in a well-ventilated chamber</li> </ul>

	of water from surrounding areas.		obtain more income and to compensate the loss during kharif vegetables.	
<b>Continuous submergence for more than 2 days<sup>2</sup></b>				
Crop1	NA	NA	NA	NA
<b>Horticulture / Plantation crops</b>				
Crop1 (specify)	NA	NA	NA	NA
<b>Sea water intrusion<sup>3</sup></b>				
Crop1	NA	NA	NA	NA

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

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

<b>Frost</b>				
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"> <li>▪ Protect the plant by construction of wind brakes made of shade net.</li> <li>▪ Maintain the seedling in polyhouse</li> </ul>	<ul style="list-style-type: none"> <li>▪ Protect the plant by construction of wind brakes made of shade net</li> </ul>	<ul style="list-style-type: none"> <li>▪ Protect the plant by construction of wind brakes made of shade net</li> <li>▪ Protect the bunch by bagging with polyethylene bag or jute bag</li> </ul>	NA
Large Cardamom	NA	NA	NA	NA
Ginger	NA	NA	NA	NA
Turmeric	NA	NA	NA	NA
<b>Horticulture</b>				
<b>Hailstorm</b>				
Orange	<ul style="list-style-type: none"> <li>▪ Nursery raising under polyhouse.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ Nutrient management to be followed along with foliar spray of micronutrient</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ Nutrient management to be followed along with foliar spray of micronutrient</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest ripe fruit</li> </ul>
Apple	<ul style="list-style-type: none"> <li>▪ Nursery raising under polyhouse.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ Nutrient management to be followed along with foliar spray of micronutrient</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pruning of damage branches and application of Bordeaux paste should be done to prevent secondary infection</li> <li>▪ Nutrient management to be followed along with foliar spray of micronutrient</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest ripe fruit</li> </ul>
Pineapple	NA	<ul style="list-style-type: none"> <li>▪ Shade regulation may be followed</li> </ul>	NA	<ul style="list-style-type: none"> <li>▪ Harvest and value addition</li> </ul>
Kiwifruit	<ul style="list-style-type: none"> <li>▪ Nursery raising under polyhouse</li> </ul>	<ul style="list-style-type: none"> <li>▪ Nutrient management to be followed along with foliar spray of micronutrient</li> </ul>	<ul style="list-style-type: none"> <li>▪ Nutrient management to be followed along with foliar spray of micronutrient</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest ripe fruits</li> </ul>
Banana	<ul style="list-style-type: none"> <li>▪ Nursery raising under polyhouse</li> </ul>	<ul style="list-style-type: none"> <li>▪ Follow nutrient management</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bagging the fruit bunch with polyethylene bag or jute bag</li> </ul>	<ul style="list-style-type: none"> <li>▪ Harvest the mature bunch</li> </ul>
Large Cardamom	<ul style="list-style-type: none"> <li>▪ Nursery raising under polyhouse.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shade regulation may be followed by planting trees providing 50-60% shade. Ultis cum large cardamom plantation is highly recommended</li> </ul>	NA	NA

Ginger	▪ Nursery raising under polyhouse.	▪ Shade regulation may be followed	NA	NA
Turmeric	▪	▪		
Vegetables (cucurbits)	▪ Nursery raising under polyhouse. ▪ Provide shade to protect from damage or resowing of the crops	▪ Polyhouse cultivation & proper irrigation	▪ Polyhouse cultivation & proper irrigation ▪ Proper crop management for the succeeding years	▪ Picking of fruits at right edible stage depends upon individual varieties and marketing requirements. Fruits are harvested, packed in baskets and transported to markets.
<b>Horticulture</b>				
<b>Cyclone</b>	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
<b>Sand deposition or heavy siltation</b>				
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 <sup>s</sup>	During the event	After the event
<b>Drought</b>			
Feed and fodder availability	<ul style="list-style-type: none"> <li>▪ Advance early warning system through Agromet advisories.</li> <li>▪ Awareness on fodder cultivation &amp; identification of locally available, natural fodder of area.</li> <li>▪ Excess fodder may be stored as hay/silage or converted into feed block in the flush season, for lean period.</li> <li>▪ Stacking of paddy straws.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of unconventional feed/fodders resources.</li> <li>▪ Grazing in the peri peri of forest areas.</li> <li>▪ Feeding according to body weight requirement</li> <li>▪ Improvement of the poor quality roughages (urea treatment, soaking, poultry litter(&gt; 37%).</li> <li>▪ Use of feed additives to improve digestibility.</li> <li>▪ use of stored Hay and Silage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Avail the benefits of schemes under drought, from state or central for feeds and fodder.</li> <li>▪ Supplementary feeding of livestock to regain the general physiological imbalanced.</li> <li>▪ Proper irrigation of fodder plot and cultivation of leguminous fodders to meet the demand of green fodders</li> </ul>
Drinking water	<ul style="list-style-type: none"> <li>▪ Construction of water harvesting structures.</li> <li>▪ Harvesting rain water &amp; water from natural source</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of stored water from water harvesting structure.</li> <li>▪ Fetching water from watershed areas and natural stream/river.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submitting a memorandum to state or central Govt. regarding amount of water shortfall during drought and action to be initiate accordingly.</li> <li>▪ Construction of permanent water harvesting</li> </ul>

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

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

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

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

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

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

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

<sup>s</sup> 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	
<b>Drought</b>				
Shortage of feed ingredients	<ul style="list-style-type: none"> <li>▪ Awareness on maize, pea and oil seed cultivation for use of poultry feed</li> <li>▪ Procurement of feed ingredients in bulk.</li> <li>▪ Installation of feed mixing plant</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of stored feed</li> <li>▪ Use of feeds from the local resources</li> <li>▪ Regular radio/TV telecast to follow the instruction of Do &amp; Don'ts from experts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availing insurance for the crop loss.</li> <li>▪ Availing subsidiary schemes from line deptt.</li> </ul>	Schemes from Line Deptt./RKVY/ATMA
Drinking water	<ul style="list-style-type: none"> <li>▪ Construction of water harvesting structures.</li> <li>▪ Harvesting rain water &amp; water from natural source</li> <li>▪ Developing watershed areas.</li> <li>▪ Regular radio/TV telecast to follow the instruction of Do &amp; Don'ts from experts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provision of potable water</li> <li>▪ Use of stored water from water harvesting structure.</li> <li>▪ Fetching water from watershed areas and natural stream/river.</li> <li>▪ Avail subsidy water supply through tankers from state or central Govt.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submitting a memorandum to state or central Govt. regarding amount of water shortfall during drought and action to be initiated accordingly.</li> <li>▪ Construction of permanent water harvesting structure with a planning to fulfill the water requirement during drought.</li> </ul>	
Health and disease management	<ul style="list-style-type: none"> <li>▪ Regular deworming and vaccination against viral disease.</li> <li>▪ Stocking of veterinary medicines, vitamin and mineral supplements.</li> <li>▪ Training of paravets and identifying key man in each village to combat the situation if arise.</li> <li>▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations.</li> <li>▪ Proper ventilation system of Housing to reduce heat stress.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly.</li> <li>▪ Supplementary feeding of vitamin and mineral to reduce heat stress</li> <li>▪ Regular radio/TV telecast to follow the instruction of Do &amp; Don'ts from experts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly.</li> <li>▪ selective culling of bird</li> <li>▪ Submitting a memorandum to state or central Govt. regarding the loss of poultry due to Drought and remedies to be taken accordingly for future.</li> </ul>	
<b>Floods</b>				
Shortage of feed ingredients	<ul style="list-style-type: none"> <li>▪ Awareness on maize, pea and oil seed cultivation for use of poultry feed</li> <li>▪ Procurement of feed ingredients in bulk and store in raised floor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of stored feed</li> <li>▪ Use of feeds from the local resources</li> <li>▪ Regular radio/TV telecast to follow the instruction of Do &amp;</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availing insurance for the crop loss.</li> <li>▪ Availing subsidiary schemes from line deptt.</li> </ul>	

	<ul style="list-style-type: none"> <li>▪ Installation of feed mixing plant</li> </ul>	Don'ts from experts.		
Drinking water	<ul style="list-style-type: none"> <li>▪ Storage of safe drinking water in community tanks / water harvesting structures which is not prone to seepage of flood water.</li> <li>▪ Installation of large sized sand filters with charcoal.</li> <li>▪ Tying up with PHED Deptt. of neighboring district to supply water at needy time.</li> <li>▪ Creating awareness amongst public how to conserve water and judiciously use in flood situation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Chlorination of the drinking water and use of sand filter</li> <li>▪ Supply of fresh drinking water from nearby district.</li> <li>▪ Regular radio/TV telecast to follow the instruction of Do &amp; Don'ts from experts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cleaning of water storage tanks</li> <li>▪ Relief for damaged tanks and community pipe line for reconstruction.</li> </ul>	
Health and disease management	<ul style="list-style-type: none"> <li>▪ Regular deworming and vaccination against viral disease.</li> <li>▪ Stocking of veterinary medicines, vitamin and mineral supplements.</li> <li>▪ Training of paravets and identifying key man in each village to combat the situation if arise.</li> <li>▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations.</li> <li>▪ Proper ventilation system of Housing to reduce heat stress.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly.</li> <li>▪ Supplementary feeding of vitamin and mineral to reduce heat stress</li> <li>▪ Regular radio/TV telecast to follow the instruction of Do &amp; Don'ts from experts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mass awareness cum Health camp and symptomatically prompt treatment accordingly.</li> <li>▪ selective culling of bird</li> <li>▪ Submitting a memorandum to state or central Govt. regarding the loss of poultry due to Drought and remedies to be taken accordingly for future.</li> </ul>	
<b>Cyclone</b>				
Shortage of feed ingredients	NA	NA	NA	NA
Drinking water	NA	NA	NA	NA
Health and disease management	NA	NA	NA	NA
<b>Heat wave</b>				
Shelter/environment management	<ul style="list-style-type: none"> <li>▪ Advance early warning system through Agromet advisories for preparedness to combat the situation.</li> <li>▪ Good shelter with well</li> </ul>	<ul style="list-style-type: none"> <li>▪ Confine the animal in protected shelter</li> <li>▪ prevent them direct expose to heat wave</li> <li>▪ reduce upto 20% of the ration</li> </ul>	<ul style="list-style-type: none"> <li>▪ Adlib provision of potable water</li> <li>▪ Analysis of the present experience and remodeling of housing structure.</li> <li>▪ provide nutretical</li> </ul>	

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

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

<sup>a</sup> based on forewarning wherever available