

**State: ARUNACHAL PRADESH**

**Agriculture Contingency Plan for District: ANJAW**

| <b>1.0 District Agriculture profile*</b>   |  |   |  |           |
|--|--|---|--|-----------|
| <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 Zone (Planning Commission)   | Eastern Himalayan Region  |  |           |
|  | Agro Climatic Zone (NARP)  | Temperate Sub-Alpine Zone   |  |           |
|  | List all the districts falling under the NARP Zone* (*>50% area falling in the zone) | Anjaw   |  |           |
|  | Geographic coordinates of district headquarters head-quarters                        | Latitude  | Longitude  | Altitude  |
|  |  | 22 <sup>0</sup> -29 <sup>0</sup> 'N TO 23 <sup>0</sup> - 30 <sup>0</sup> 'N                     | 95 <sup>0</sup> -15 <sup>0</sup> 'E TO 97 <sup>0</sup> -24 <sup>0</sup> 'E | 1296m MSL |
|  | Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS                        | ICAR Research Complex for NEH Region, Basar, Arunachal Pradesh                                  |  |           |
|  | Mention the KVK located in the district with full address                            | Ojing apartment, Hayuliang, Anjaw district, Arunachal Pradesh-792104                            |  |           |
| 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                       |   |  |           |

**Source: C-DAP of Anjaw, Deptt. of Agriculture 2012-13.**

| <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> |
|------------|--------------------------------|----------------------|-----------------------------------|---|--|
|            | Pre-monsoon (March-May):       | 1210.7               | -                                 | 1 <sup>st</sup> March                         | 28 <sup>th</sup> May                             |
|            | South West Monsoon (June-Sep): | 1489.5               | -                                 | 1 <sup>st</sup> June                          | 27 <sup>th</sup> Sept.                           |
|            | Post Monsoon (Oct-Dec):        | 633.6                | -                                 | 5 <sup>th</sup> October                       | 31 <sup>st</sup> Dec                             |
|            | North east Monsoon (Jan-Feb):  | 417.4                | -                                 | 6 <sup>th</sup> January                       | 25 <sup>th</sup> Feb                             |
|            | <b>Annual</b>                  | <b>3751.2</b>        | -                                 | -   | -  |

**Source: Central ground water board, NER, Ministry of water resources Guwahati 2009**

| 1.3 | Land use pattern of the district ('000ha.) (latest statistics) |                 |             |                                 |                    |                      |  |                              |                 |               |
|-----|--|-----------------|-------------|---------------------------------|--------------------|----------------------|--|------------------------------|-----------------|---------------|
|     | Geographical Area (000ha)                                      | Cultivable area | Forest area | Land under non-agricultural use | Permanent pastures | Cultivable wasteland | Land under Misc. tree crops and groves | Barren and uncultivable land | Current Fallows | Other fallows |
|     | 619.0  | 19.03           |             | 0.67                            | 1.38               | 6.87                 | 0.49                                   | 0.68                         | 1.42            | 2.17          |

\*Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of. India.(Data provided for the year 2011)

| 1.4 | Major Soils (common names like shallow red soils, etc.) | Area ('000 Ha) | Percent (%) of total |
|-----|---|----------------|----------------------|
|     | 1. Sandy coarse loamy black soil                        | 115.5          | 18                   |
|     | 2. Sandy Fine loamy black soil                          | 126.0          | 20                   |
|     | 3. Black loamy soil                                     | 242.5          | 40                   |
|     | 4. Black loamy fine soil                                | 135.0          | 22                   |

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

#### Soil pH – 4.2 - 6.5

| 1.5 | Agricultural land use    | Area ('000ha) | Cropping intensity (%) |
|-----|--------------------------|---------------|------------------------|
|     | Net sown area            | 8.08          | 121%                   |
|     | Area sown more than once | 1.7           |                        |
|     | Gross cropped area       | 9.78          |                        |

Source:Director of Economic and Statistics Ministry of Agriculture Govt. of India, 2012.

| 1.6 | Irrigation           | Area ('000ha) |
|-----|----------------------|---------------|
|     | Net irrigated area   | 0.555         |
|     | Gross irrigated area | 0.555         |
|     | Rainfed area         | 7.615         |

\*Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt.of.India. (Data provided for the year 2008-09)

|  | Sources of Irrigation | Number | Area (ha) | Percentage of total irrigated area |
|--|-----------------------|--------|-----------|------------------------------------|
|  | Canals                | -      | -         | -                                  |
|  | Tanks                 | -      | -         | -                                  |
|  | Open wells            | -      | -         | -                                  |
|  | Bore wells            | -      | -         | -                                  |

|  |                                   |                 |  |
|--|-----------------------------------|-----------------|--|
| Lift irrigation schemes  | -                                 | -               | -  |
| Micro-irrigation   | -                                 | -               | -  |
| Other sources (please specify)<br>Ponds, river   | -                                 | -               | -  |
| Total Irrigated Area   | -                                 | -               | -  |
| Pump sets  | -                                 | -               | -  |
| No. of Tractors  | -                                 | -               | -  |
| <b>Groundwater availability and use* (Data source: State/Central Ground water Department /Board)</b> | <b>No. of blocks/ Tehsils</b>     | <b>(%) area</b> | <b>Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)</b> |
| Over exploited   | -                                 | -               | -  |
| Critical   | -                                 | -               | -  |
| Semi- critical   | -                                 | -               | -  |
| Safe   | 04                                | 100             | -  |
| Wastewater availability and use  | -                                 | -               | -  |
| Ground water quality   | Good (50.70% i.e. 1717.57 Sq. Km) |                 |  |

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

Source: C-DAP of Anjaw, Deptt. of Agriculture 2012-13.

| 1.6. a. | Fertilizer and Pesticides use                             | Type  | Total quantity (Kg/ha)             |
|---------|---|---|------------------------------------|
| 1       | Fertilizers* (per capita fertilizer consumption in kg/ha) | N,P,K   | N-2.08 ,<br>P-1.11<br>K-0.45 Kg/ha |
| 2       | Chemical Pesticides*                                      | Insecticides,Fungicides<br>Weedicides, Others (specify) | NA                                 |

\* If break up is not available, indicate total quantity used in the district for any recent year, mention here the year and source of statistic

Source: C-DAP of Anjaw, Dept. of Agriculture 2012-13.

### 1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2013-14)

| 1.7 | S. No.  | Major field crops cultivated | Area ('000 ha) |         |       |           |         |       |           |         |       | Grand total |
|-----|---------|------------------------------|----------------|---------|-------|-----------|---------|-------|-----------|---------|-------|-------------|
|     |         |                              | Pre-Kharif     |         |       | Kharif    |         |       | Rabi      |         |       |             |
|     |         |                              | Irrigated      | Rainfed | Total | Irrigated | Rainfed | Total | Irrigated | Rainfed | Total |             |
| 1   | Maize   | NA                           | NA             | NA      | NA    | 3.995     | 3.995   | NA    | NA        | NA      | 3.995 |             |
| 2   | Paddy   | 0.030                        | 3.531          | 3.561   | NA    | Na        | NA      | NA    | NA        | NA      | 3.561 |             |
| 3   | Millets | NA                           | NA             | NA      | NA    | 1.381     | 1.381   | NA    | NA        | NA      | 1.381 |             |
| 4   | Potato  | NA                           | NA             | NA      | NA    | NA        | NA      | NA    | 0.120     | 0.120   | 0.120 |             |
| 5   | Pulses  | NA                           | NA             | NA      | NA    | NA        | NA      | NA    | 0.103     | 0.103   | 0.103 |             |
| 6   | Wheat   | NA                           | NA             | NA      | NA    | NA        | NA      | NA    | 0.013     | 0.013   | 0.013 |             |

Source: Statistical abstracts of Arunachal Pradesh (Year 2013-14)

Source: Deptt. of Horticulture, Govt. of Arunachal Pradesh, 2011-14.

| SL. No. | Horticulture crops –<br>Fruits             | Area ('000 ha) |           |         |
|---------|--|----------------|-----------|---------|
|         |  | Total          | Irrigated | Rainfed |
| 1.      | Orange                                     | 0.3344         | -         | 0.3344  |
| 2.      | Kiwi                                       | 0.0170         | -         | 0.0170  |
| 3.      | Apple                                      | 0.0147         | -         | 0.0147  |
| 4.      | Banana                                     | 0.0057         | -         | 0.0057  |
| 5.      | Guava                                      | 0.0027         | -         | 0.0027  |
| 6.      | Pineapple                                  | 0.0020         | -         | 0.0020  |
| 7.      | Pear                                       | 0.0014         | -         | 0.0014  |
| 8.      | Walnut                                     | 0.0004         | -         | 0.0004  |
|         | Others<br>(specify)                        |                |           |         |
|         | Horticulture crops –<br>Vegetables /spices | Total          | Irrigated | Rainfed |
| 1       | Pumpkin                                    | 0.0101         | -         | 0.0101  |
| 2       | Radish                                     | 0.0083         | -         | 0.0083  |
| 3       | Beans                                      | 0.0080         | -         | 0.0080  |
| 4       | Sweet potato                               | 0.0074         | -         | 0.0074  |
| 5       | Potato                                     | 0.0072         | -         | 0.0072  |
| 6       | Chillies                                   | 0.0054         | -         | 0.0054  |
| 7       | Tomato                                     | 0.0045         | -         | 0.0045  |
| 8       | Bitter gourd                               | 0.0038         | -         | 0.0038  |
| 9       | Musk melon                                 | 0.0031         | -         | 0.0031  |
| 10      | Cucumber                                   | 0.0027         | -         | 0.0027  |
| 11      | Brinjal                                    | 0.0025         | -         | 0.0025  |
| 12      | Ginger                                     | 0.0054         | -         | 0.0054  |
| 13      | Large cardamom                             | 2.3000         | -         | 2.3000  |
|         | Medicinal and<br>Aromatic crops            | Total          | Irrigated | Rainfed |
|         | Plantation crops                           | Total          | Irrigated | Rainfed |
| 1       | Arecanut                                   | -              | -         | -       |
| 2       | Coconut                                    | -              | -         | -       |
| 3       | Tea  | -              | -         | -       |

Source: 18<sup>th</sup> Quinquennial Livestock Census, 2007, Deptt. of AH & Vety., Govt. of Arunachal Pradesh

|                                 |   |                               |                                  |                          |                               |                             |   |
|---------------------------------|---|-------------------------------|----------------------------------|--------------------------|-------------------------------|-----------------------------|---|
| <b>1.8</b>                      | <b>Livestock</b>  | <b>Male ('000)</b>            | <b>Female ('000)</b>             | <b>Total ('000)</b>      |                               |                             |   |
|                                 | Indigenous cattle   | 2.376                         | 2.569                            | 4.945                    |                               |                             |   |
|                                 | Improved / Crossbred cattle   | -                             | -                                | -                        |                               |                             |   |
|                                 | Buffaloes (local low yielding)                                      | Nil                           | Nil                              | Nil                      |                               |                             |   |
|                                 | Improved Buffaloes  | Nil                           | Nil                              | Nil                      |                               |                             |   |
|                                 | Goat  | 1.901                         | 2.377                            | 4.278                    |                               |                             |   |
|                                 | Sheep   | 0.002                         | 0.005                            | 0.007                    |                               |                             |   |
|                                 | Pig   | 4.803                         | 4.947                            | 9.750                    |                               |                             |   |
|                                 | Mithun  | 4.129                         | 3.658                            | 7.787                    |                               |                             |   |
|                                 | Yak   | Nil                           | Nil                              | Nil                      |                               |                             |   |
|                                 | Others (Dog)  | 1.144                         | 0.904                            | 2.048                    |                               |                             |   |
| Commercial dairy farms (Number) | Nil   | Nil                           | Nil                              |                          |                               |                             |   |
| <b>1.9</b>                      | <b>Poultry</b>  | <b>No. of farms</b>           | <b>Total No. of birds ('000)</b> |                          |                               |                             |   |
|                                 | Commercial  | Nil                           |                                  |                          |                               |                             |   |
|                                 | Backyard  |                               | 24.424                           |                          |                               |                             |   |
| <b>1.10</b>                     | <b>Fisheries</b> (Data source: Chief Planning Officer)              |                               |                                  |                          |                               |                             |   |
|                                 | <b>A. Capture</b>   |                               |                                  |                          |                               |                             |   |
|                                 | i) <b>Marine</b> (Data Source: Fisheries Department)                | <b>No. of fishermen</b>       | <b>Boats</b>                     |                          | <b>Nets</b>                   |                             | <b>Storage facilities (Ice plants etc.)</b> |
|                                 |   |                               | Nil                              | Non-mechanized           | Nil                           | Nil                         |   |
|                                 |   | -                             | -                                | -                        | -                             | -                           |   |
|                                 | ii) <b>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> |                             |   |
|                                 | i) <b>Brackish water</b> (Data Source: MPEDA/ Fisheries Department) |                               | -                                | -                        | -                             |                             |   |
|                                 | ii) <b>Fresh water</b> (Data Source: Fisheries Department)          |                               | -                                | -                        | -                             |                             |   |
|                                 | <b>Others</b>   |                               | -                                | -                        | -                             |                             |   |

**1.11 Area, Production and Productivity of major crops for the last 5 years**

| 1.11   | Name of crop         | Kharif              |                      | Rabi                |                      | Summer              |                      | 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                 | 4.494               | 1262.005             | -                   |                      |                     |                      | 4.494               | 1262                 |                                    |
| Crop 2   | Maize                | 3.995               | 972.465              | -                   |                      |                     |                      | 3.995               | 972                  |                                    |
| Crop 3   | Potato               | -                   | -                    | 1.022               | 8616.667             |                     |                      | 1.022               | 867                  |                                    |
| Crop 4   | Pulses               | -                   | -                    | 0.155               | 1504.854             |                     |                      | 0.155               | 1505                 |                                    |
| Crop 5   | Oilseeds             | -                   | -                    | 0.139               | 1000.000             |                     |                      | 0.139               | 1000                 |                                    |
| Others   | -                    | -                   | -                    |                     |                      |                     |                      |                     |                      |                                    |
| <b>Major Horticultural crops (Crops to be identified based on total acreage)</b> |                      |                     |                      |                     |                      |                     |                      |                     |                      |                                    |
| Crop 1   | Large cardamom (dry) |                     |                      | 121.93              | 60.00                |                     |                      | 121.93              | 60.00                |                                    |
| Crop 2   | Ginger               |                     |                      | 15.45               | 1212.60              |                     |                      | 15.45               | 1212.60              |                                    |
| Crop 3   | Orange               |                     |                      | 155.3               | 608.73               |                     |                      | 155.3               | 608.73               |                                    |
| Crop 4   | Pineapple            |                     |                      | 4.33                | 1850.00              |                     |                      | 4.33                | 1850.00              |                                    |
| Crop 5   | Pumpkin              | 16.18               | 1527.79              |                     |                      |                     |                      | 16.18               | 1527.79              |                                    |
| Crop 6   | Vegetable            | 2.127               | 3132.548             |                     |                      |                     |                      | 2.127               | 3132.548             |                                    |

| 1.12 | Sowing window for 5 major field crops (start and end of normal sowing period) | Maize        | WRC/ TRC Paddy | Millet (Finger millet, foxtail, kodo etc) | Potato     | Pulses  | Vegetables   |
|------|---|--------------|----------------|---|------------|---------|--------------|
|      | Pre Kharif- rainfed (pre monsoon)   | March- April | -              | March-May                                 | -          | -       | March- April |
|      | Kharif- Rainfed (Monsoon)   | May-June     | June-July      | -   | -          | -       | May-June     |
|      | Kharif- Irrigated   | -            | -              | -   | -          | -       | -            |
|      | Rabi- Rainfed   | Oct-Nov      | -              | Oct-Nov                                   | Sept- Oct* | Oct-Nov | Oct-Nov      |
|      | Rabi- Irrigated   | -            | -              | -   | -          | -       | -            |
|      | Summer- Irrigated   | -            | -              | -   | -          | -       | -            |

Note: \* In higher altitude sowing window: Jan-Feb

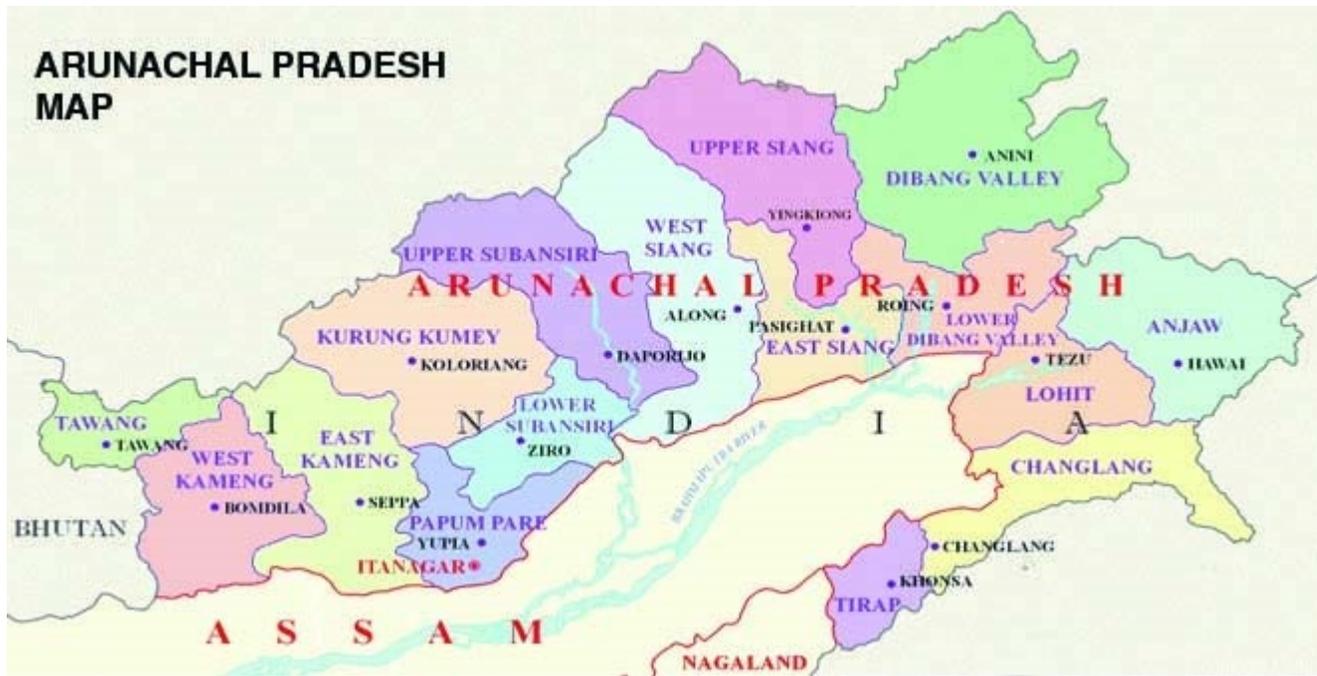
| 1.13 | What is the major contingency the district is prone to? (Tick mark) | Regular* | Occasional | None |
|------|---|----------|------------|------|
|      | Drought   |          | ✓          |      |
|      | Flood   |          | ✓          |      |
|      | Cyclone   |          |            | ✓    |
|      | Hail storm  |          | ✓          |      |
|      | Heat wave   |          |            | ✓    |

|  |  |   |   |   |
|--|--|---|---|---|
|  | Cold wave                              |   | ✓ |   |
|  | Frost                                  |   | ✓ |   |
|  | Sea water intrusion                    |   |   | ✓ |
|  | Snowfall in temperate zone             | ✓ |   |   |
|  | Landslides                             | ✓ |   |   |
|  | Earthquake                             |   | ✓ |   |
|  | Pests and disease outbreak (specify)   | ✓ |   |   |
|  | Others (like fog, cloud bursting etc.) |   | ✓ |   |

\*When contingency occurs in six out of 10 years

|             |   |   |                      |
|-------------|---|---|----------------------|
| <b>1.14</b> | <b>Include Digital maps of the district for</b> | Location map of district within State as Annexure I | Enclosed: <b>Yes</b> |
|             |   | Mean annual rainfall as Annexure 2                  | Enclosed: <b>No</b>  |
|             |   | Soil map as Annexure 3                              | Enclosed: <b>No</b>  |

Location map of Anjaw in Arunachal Pradesh



## 2.0 Strategies for weather related contingencies

### 2.1 Drought (Rainfed situation)

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

| Condition  |   |  | Suggested Contingency measures  |   |                                      |
|--|---|--|---|---|--------------------------------------|
| Early season drought (delayed onset)                                 | Major Farming situation   | Normal Crop / Cropping system                                | Change in crop /cropping system including variety   | Agronomic measures  | Remarks on Implementation            |
| Delay by 2 weeks ( 2 <sup>nd</sup> to 3 <sup>rd</sup> week of April) | 600-1000 m MSL<br>Shallow to moderately deep coarse loamy Soils | Maize  | <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>   | Schemes from Line Deptt. /RKVY/ ATMA |
|  |   | Millet (finger/foxtail millet)                               | <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>   | -   | -                                    |
|  |   | 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, IHR -Sel. 132</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</li> </ul> | -                                    |

|  |           |  |   |   |  |
|--|-----------|--|---|---|--|
|  |           |  |   | early growth stage.<br><ul style="list-style-type: none"> <li>Mixed cropping of various vegetable crops.</li> </ul> |  |
| <b>Above 1000 m MSL<br/>Shallow coarse loamy<br/>Soils</b> | Maize     | <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    | Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)  | -   | -   |  |
|  | Vegetable | <p><b><u>Bottle gourd (round)</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> </ul> | <p><b><u>Bottle gourd (round)</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> <p>Mixed cropping of various vegetable crops.</p> | -   |  |

**Normal onset of pre- monsoon**

| Condition  | Major Farming situation                                      | Normal Crop/cropping system                                  | Suggested Contingency measures  |   |  |
|--|--|--|---|---|--|
|  |  |  | Crop management   | Soil nutrient & moisture conservation measures  | Remarks on Implementation  |
| Early season drought (Normal onset )   |  |  |   |   |  |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | 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 MSL Shallow 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>▪ 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>   | Schemes from Line 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<br>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) | 600-1000 m MSL<br>Shallow to moderately deep coarse loamy Soils | 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>         | -                         |
|   | Above 1000 m MSL<br>Shallow coarse loamy Soils                  | 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   | Soil nutrient & moisture conservation measures  | Remarks on Implementation |
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period) | 600-1000 m MSL Shallow to moderately deep coarse loamy Soils | 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>         | -                         |
|   | Above 1000 m MSL Shallow coarse loamy Soils                  | 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.<br>▪ 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.<br>▪ Preparation 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.<br>▪ 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.<br>▪ 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  | Suggested Contingency measures   |  |                           |
|--|--|--------------------------------|--|--|---------------------------|
|  |  |                                | Change in crop /cropping system including variety  | Agronomic measures   | Remarks on Implementation |
| Early season drought (delayed onset)             | 600-1000 m MSL Shallow to moderately deep coarse loamy Soils | WRC/TRC (Paddy)                | ▪ Short duration vars. RCM-9, RCM-10, RCM 11, CAU-R-1, TTB-404, TTB-303, Mulagavaru, Kanaklata.    | ▪ Closer spacing of 15x15 cm and 4-5 seedlings/hill<br>▪ Weeding is to be done 15 and 35 days after transplanting. | -                         |
| Delay by 2 weeks ( 3 <sup>rd</sup> week of June) |  | Millet (finger/foxtail millet) | ▪ Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Arjuna, | ▪ 10% higher seed rate   | -                         |

|   |                           |   |  |   |   |
|---|---------------------------|---|--|---|---|
|   |                           |   | Prasad)  |   |   |
|   |                           | 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> </ul> | <p><b><u>Bottle gourd</u></b></p> <ul style="list-style-type: none"> <li>▪ Punjab Round, Pusa Sandesh, Narendra Shishir, Punjab Komal. 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> <li>▪ Mixed cropping of various vegetable crops.</li> </ul> | - |
| Above 1000 m MSL Shallow coarse loamy Soils | WRC/TRC (Paddy)           | <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                    | Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)         | -  | -   |   |
|   | Off season vegetable crop |   | <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  | Major Farming situation                                      | Normal Crop/cropping system    | Suggested Contingency measures  |   |  |
|--|--|--------------------------------|---|---|--|
|  |  |                                | Crop management   | Soil nutrient & moisture conservation measures  | Remarks on Implementation  |
| Early season drought (Normal onset )   |  |                                |   |   |  |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | 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>▪ 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> | 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>▪ 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> | Protected cultivation to be promoted<br>Promoted rain water harvesting structure |
|  |  |                                |   |   |  |

| Condition   |   |                                | Suggested Contingency measures   |   |                                     |
|---|---|--------------------------------|--|---|-------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period) | Major Farming situation   | Normal Crop /cropping system   | Crop management  | Soil nutrient & moisture conservation measures  | Remarks on Implementation           |
| Vegetative stage  | <b>600-1000 m MSL Shallow to moderately deep coarse loamy Soils</b> | 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> | -                                   |
|   | <b>Above 1000 m MSL Shallow coarse loamy Soils</b>                  | 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   |   |                                | Suggested Contingency measures  |   |                                     |
|---|---|--------------------------------|---|---|-------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period) | Major Farming situation   | Normal Crop /cropping system   | Crop management   | Soil nutrient & moisture conservation measures  | Remarks on Implementation           |
| Reproductive stage  | <b>600-1000 m MSL Shallow to moderately deep coarse loamy Soils</b> | 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> | -                                   |
|   | <b>Above 1000 m MSL Shallow coarse</b>                              | 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> | -                                   |

|  |                    |                                      |                                |   |   |
|--|--------------------|--------------------------------------|--------------------------------|---|---|
|  | <b>loamy Soils</b> | Millet<br>(finger/foxtail<br>millet) | ▪ Foliar application of 1% MOP | ▪ Provide irrigation from the available sources | - |
|--|--------------------|--------------------------------------|--------------------------------|---|---|

| Condition   |   |                                   | Suggested Contingency measures      |  |                                    |
|---|---|-----------------------------------|-------------------------------------|--|------------------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation   | Normal Crop/cropping system       | Crop management                     | Rabi Crop planning   | Remarks on Implementation          |
|   | <b>600-1000 m MSL<br/>Shallow to moderately deep coarse loamy Soils</b> | WRC/TRC (Paddy)                   | ▪ Harvest at physiological maturity | ▪ Planning for zero tillage cultivation of pea, toria etc.<br>▪ Preparation for cole crops | Schemes from Line Deptt./RKVY/ATMA |
|   |   | Millet<br>(finger/foxtail millet) | ▪ Harvest at physiological maturity | ▪ Planning for zero tillage cultivation of pea, toria etc.<br>▪ Preparation for cole crops | -                                  |
|   | <b>Above 1000 m MSL<br/>Shallow coarse loamy Soils</b>                  | WRC/TRC (Paddy)                   | ▪ Harvest at physiological maturity | ▪ Planning for zero tillage cultivation of pea, toria etc.<br>▪ Preparation for cole crops | Schemes from Line Deptt./RKVY/ATMA |
|   |   | Millet<br>(finger/foxtail millet) | ▪ Harvest at physiological maturity | ▪ Planning for zero tillage cultivation of pea, toria etc.<br>▪ Preparation for cole crops |                                    |

### 2.1.2 Drought - Irrigated situation: NA

### 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 | ▪ Drain out excess water<br>▪ Harvest at physiological maturity | ▪ Shifting to a safer place<br>▪ Dry in shade and in well ventilated space |
| Maize   | Provide drainage                        | Provide drainage                       | ▪ Drain out excess water<br>▪ Harvest at physiological maturity | ▪ Shifting to a safer place<br>▪ Dry in shade and in well ventilated space |
| Milllet   | Drainage of excess water                | Immediate provision of                 | ▪ Drain out excess water<br>▪ Harvest at physiological          | Proper drying  |

|                     |  | drainage system  | maturity   |   |
|---------------------|--|--|--|---|
| <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> <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 brances 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>▪ Spray 2,4,5-T @ 20ppm or 2,4,5-TCPA @ 15ppm to inhibit fruit drop</li> <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>   | <ul style="list-style-type: none"> <li>▪ Stored the fruits for 4-8 months at -1.1 to 0°C and 85-90 % RH.</li> <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, Bentonite or 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</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> </ul>  | <ul style="list-style-type: none"> <li>▪ Heavy pruning should not done as the fruit will be affected by rain</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</li> </ul>  |

|                        |  |   |   |   |
|------------------------|--|---|---|---|
|                        | <ul style="list-style-type: none"> <li>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>▪ 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>▪ Drain out excess water</li> </ul>  | <ul style="list-style-type: none"> <li>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> <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>                             |
| 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</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</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> </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>                                     |

|   |  |   |   |  |
|---|--|---|---|--|
|   | <p>moisture condition followed by manuring</p> <ul style="list-style-type: none"> <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>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 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>▪ Take up appropriate plant protection measures</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> <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>▪ Provision of drainage to remove excess water.</li> <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>▪ Harvest ripe fruits</li> <li>▪ Propping heavy bearing tree and 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>  | <ul style="list-style-type: none"> <li>▪ Store fruits for 4-8 months at -1.1 to 0°C and 85-90 % RH.</li> </ul>   |
| Pineapple   | <ul style="list-style-type: none"> <li>▪ Earthing up plants for better development and anchorage.</li> <li>▪ Make trenches/furrows in between</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Earthing up to prevent uprooting.</li> <li>▪ Provide proper drainage</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Fruits can be protected with locally available material to protect the mature fruit from</li> </ul>  | <ul style="list-style-type: none"> <li>▪ .Store fruits in well aerated farm shed or house to avoid loses.</li> </ul>   |

|                |   |   |   |   |
|----------------|---|---|---|---|
|                | <ul style="list-style-type: none"> <li>ridges to facilitate drainage of excess water.</li> <li>▪ Nutrient management to be followed</li> </ul>  | <ul style="list-style-type: none"> <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>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>▪ 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> </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>▪ For newly planted crops, staking should be provided.</li> <li>▪ Provide adequate drainage</li> <li>▪ Spraying of insecticides and fungicide</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</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Provision of drainage to</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Dry weather before harvesting is</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Shifting of the produce</li> </ul>   |

|  |  |  |  |  |
|--|--|--|--|--|
|  | <p>avoid stagnation of water</p> <ul style="list-style-type: none"> <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> | <p>remove excess water.</p> <ul style="list-style-type: none"> <li>▪ Earthing up should be followed by manuring.</li> <li>▪ Field bunding to prevent entry of water from surrounding areas.</li> </ul>   | <p>necessary. So harvesting can be delayed.</p>  | <p>to a drier place.</p> <ul style="list-style-type: none"> <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/ltr or spraying of Carbendazim @ 1 g/ltr.</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 Chloropyrifos 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 streptomycin @ 0.020 %.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Sun drying of the harvested cob to prevent spoilage.</li> </ul>                                       |
| <b>Horticulture</b>  |  |  |  |  |
| Orange (Citrus Leaf miner)   | <ul style="list-style-type: none"> <li>▪ Spraying of Fenvalerate and Cypermethrin for controlling leaf miner.</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/l 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/l of water.</li> <li>Soil dranching with captan/Tiram @ 2/l 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/l of water.</li> <li>Soil dranching with captan/Tiram. @ 2/l 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/l) or Dithane – Z-78 (2.5 g / lt).</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/<br>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> <li>Utilization of residual soil moisture and use of recharged soil profile for growing pulses</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>Utilization of residual soil moisture and use of recharged soil profile for growing pulses</li> </ul> |

| Horticulture/Plantation crops |  |   |   |   |
|-------------------------------|--|---|---|---|
| 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> </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> </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 obtain</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>  |

|  |   |  |  |    |
|--|---|--|--|----|
|  | ▪ Field bunding to prevent entry of water from surrounding areas. | ▪ Follow appropriate nutrient management practices | 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                                    | <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</li> </ul>   | NA   | NA  |
| Turmeric                                  | <ul style="list-style-type: none"> <li></li> </ul>  | <ul style="list-style-type: none"> <li></li> </ul>   |  |   |
| Vegetables (cucurbits)                    | <ul style="list-style-type: none"> <li>Nursery raising under polyhouse.</li> <li>Provide shade to protect from damage or resowing of the crops</li> </ul> | <ul style="list-style-type: none"> <li>Polyhouse cultivation &amp; proper irrigation</li> </ul>  | <ul style="list-style-type: none"> <li>Polyhouse cultivation &amp; proper irrigation</li> <li>Proper crop management for the succeeding years</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> |
| <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> </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> </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</li> </ul> |

|                               |   |   |   |
|-------------------------------|---|---|---|
|                               | <ul style="list-style-type: none"> <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>▪ 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>  | cultivation of leguminous fodders to meet the demand of green fodders   |
| 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> </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> <li>▪ Avail subsidy water supply through tankers from sate or central Govt.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Submitting a memorandum to sate or central Govt. regarding amount of water shortfall during drought and action to be initiate 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>▪ 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 sate 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</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Chlorination of the drinking water and use of sand filter</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Cleaning of water storage tanks, canals and drainage system.</li> </ul>  |

|                               |  |   |  |
|-------------------------------|--|---|--|
|                               | <p>structures which is not prone to seepage of flood water.</p> <ul style="list-style-type: none"> <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>▪ 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 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> <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>▪ 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 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> </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</li> </ul>  |

|                                |  |   |  |
|--------------------------------|--|---|--|
|                                | <ul style="list-style-type: none"> <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>▪ 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 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>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> </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</li> </ul>                 |

|                                |  |   |  |
|--------------------------------|--|---|--|
|                                | <ul style="list-style-type: none"> <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>  |   | for future.  |
| Mithun                         |  |   |  |
| 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> |
| 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>  |

|                                |  |   |  |
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| 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> <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> |
| <b>Cold wave</b>               |  |   |  |
| <b>Cattle</b>                  |  |   |  |
| Shelter/environment            | <ul style="list-style-type: none"> <li>▪ Good shelter with well ventilation</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>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>▪ 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>▪ 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>                |
| Mithun                         |  |   |   |
| 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> | ▪ 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</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</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> </ul>   | ▪ Analysis of the present experience and remodeling of housing structure.   |

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|--------------------------------|--|---|--|
|                                | <p>shed areas.</p> <ul style="list-style-type: none"> <li>▪ Feed balance ration to withstand the cold wave prior to occurrence.</li> </ul>   | <ul style="list-style-type: none"> <li>▪ feed extra ration along with mineral and vitamin supplements to withstand cold wave</li> <li>▪</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</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> </ul>  |

|                   |  |  |   |
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|                   | <p>the situation if arise.</p> <ul style="list-style-type: none"> <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>▪ 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 sate 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 maze, pea and oil seed cultivation for use of poultry feed</li> <li>▪ Procurement of feed ingredients in bulk and store in raise floor.</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>   |  |
| 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</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</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</li> </ul>   |  |

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|                                | <ul style="list-style-type: none"> <li>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>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>sate 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 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>▪ Misting 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>   |    |
| 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</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</li> </ul> |    |

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|                                | <p>follow the instruction of Do &amp; Don'ts from experts.</p> <ul style="list-style-type: none"> <li>▪ Providing available communication and transportation facilities in every dispensary / clinic for consultations.</li> </ul>  |   | <p>the loss of animal due to flood and remedies to be taken accordingly for future.</p>  |           |
| <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> | <p>Analysis of the present experience and remodeling of housing structure.</p>   |           |
| 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 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 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</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</li> </ul>   | <p>NA</p> |

|                            |   |   |   |    |
|----------------------------|---|---|---|----|
|                            | <p>supplements.</p> <ul style="list-style-type: none"> <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>▪ Regular radio/TV telecast to follow the instruction of Do &amp; Don'ts from experts</li> </ul>   | <p>surrounding areas.</p> <ul style="list-style-type: none"> <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>   |    |
| 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