

STATE: KARNATAKA
Agriculture Contingency Plan for District: MANDYA

| 1.0 District Agriculture profile | | | | | |
|---|--|---|-------------------------|--|---|
| 1.1 | Agro-Climatic/Ecological Zone | | | | |
| | Agro Ecological Sub Region (ICAR) | Eastern Ghats And TamilNadu Uplands And Deccan Plateau (8.2) | | | |
| | Agro-Climatic Region (Planning Commission) | Southern Plateau and Hills Region (X) | | | |
| | Agro Climatic Zone (NARP) | Central dry zone, Southern dry zone, Southern transition zone (KA-4, KA-6, KA-7) | | | |
| | List all the districts or part thereof falling under the NARP Zone | Mandya, Maddur, Malavalli, Srirangapattana, Pandavapura, Nagamangala and Krishnarajapet | | | |
| | Geographic coordinates of district | Latitude | Longitude | Altitude | |
| | | 12°31'21.94"N | 76°54'24.16"E | 729 m | |
| | Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS | Zonal Agricultural Research Station, V.C. Farm, Mandya – 571 405, Karnataka | | | |
| Mention the KVK located in the district | Krishi Vignan Kendra, V.C. Farm, Mandya-571 405, Karnataka | | | | |
| 1.2 | Rainfall | Normal RF(mm) | Normal Rainy days (No.) | Normal Onset (specify week and month) | Normal Cessation (specify week and month) |
| | SW monsoon (June-September): | 264.5 | 33 | 2nd week of June | 4th week of September |
| | NE Monsoon(October-December): | 246.2 | 17 | 2nd week of October | 2nd week of December |
| | Winter (January- February) | 16 | 3 | | |
| | Summer (March-May) | 173.1 | 12 | | |
| | Annual | 699.8 | 65 | | |

| 1.3 | Land use pattern of the district (latest statistics) | Geographical area | Cultivable area | Forest area | Land under non-agricultural use | Permanent pastures | Cultivable wasteland | Land under Misc. tree crops and groves | Barren and uncultivable land | Current fallows | Other fallows |
|------------|---|-------------------|-----------------|-------------|---------------------------------|--------------------|----------------------|--|------------------------------|-----------------|---------------|
| | Area ('000 ha) | 498.2 | 225.0 | 24.8 | 60.9 | 38.0 | 42.0 | 3.4 | 21.5 | 30.7 | 43.0 |

| | | | |
|------------|---|-----------------------|-----------------------------|
| 1.4 | Major Soils (common names like shallow red soils etc.) | Area ('000 ha) | Percent (%) of total |
| | Red gravelly soils | 125.4 | 60 |
| | Red sandy loam soils | 64.6 | 30 |
| | Red sandy soils | 21.4 | 10 |
| | Others (specify): | - | - |
| 1.5 | Agricultural land use | Area ('000 ha) | Cropping intensity % |
| | Net sown area | 225.0 | 116.8 % |
| | Area sown more than once | 37.9 | |
| | Gross cropped area | 262.9 | |

| | | | | | | | | | |
|----------------|---|-----------------------|-----------------------|--------|-----------|---------|---|-------------|-----------|
| 1.6 | Irrigation | Area ('000 ha) | | | | | | | |
| | Net irrigated area | 126.2 | | | | | | | |
| | Gross irrigated area | 149.0 | | | | | | | |
| | Rainfed area | 98.8 | | | | | | | |
| | Sources of Irrigation | Number | Area ('000 ha) | | | | Percentage of total irrigated area | | |
| | Canals | | 96.9 | | | | 74.0 | | |
| | Tanks | 891 | 19.0 | | | | 14.5 | | |
| | Open wells | | - | | | | - | | |
| | Bore wells | 10517 | 11.7 | | | | 8.9 | | |
| | Lift irrigation | 4 | - | | | | - | | |
| | Micro-irrigation | | - | | | | - | | |
| | Other sources | | 3.4 | | | | 2.6 | | |
| | Total Irrigated Area | | 131.0 | | | | 100.0 | | |
| | Pump sets | 10230 | | | | | | | |
| | No. of Tractors | 1361 | | | | | | | |
| | Groundwater availability and use | No. of Tehsils | (%) area | | | | | | |
| | | | Mandya | Maddur | Malavalli | K.R.Pet | Nagamangala | Pandavapura | S.R.Patna |
| | Over exploited | 1 | 1 | 29 | 22 | 97 | 2 | 15 | 24 |
| | Critical | 1 | | 2 | 77 | | | | 1 |
| Semi- critical | | | | | | | | | |

| | | | | | | | | |
|---|---|----|----|---|---|----|----|----|
| Safe | 5 | 99 | 69 | 1 | 3 | 98 | 85 | 75 |
| Wastewater availability and use | | | | | | | | |
| Ground water quality | Fluoride contamination found in part of Pandavapura & Nagamangala tehsil Nitrate contamination found in Mandya | | | | | | | |
| *over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70% | | | | | | | | |

(* Data source: State/Central Ground water Department /Board)

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

| 1.7 | Major Field Crops cultivated | Area ('000 ha) | | | | | |
|-----|---|-------------------|----------------|------------------|----------------|--------|-------|
| | | <i>Kharif</i> | | <i>Rabi</i> | | Summer | Total |
| | | <i>Irrigated</i> | <i>Rainfed</i> | <i>Irrigated</i> | <i>Rainfed</i> | - | - |
| 1 | Paddy | 70.2 | - | - | - | 20.0 | 90.2 |
| 2 | Ragi | 37.1 | 40.2 | 1.2 | 3.8 | 3.0 | 85.3 |
| 4 | Sugarcane | 25.0 | | 3.0 | - | 2.0 | 30.0 |
| 5 | Horsegram | - | 10.9 | - | 15 | - | 25.9 |
| 6 | Cowpea | - | 5.8 | - | 0.25 | 0.5 | 6.6 |
| 3 | Maize | 4.3 | 0.7 | 0.5 | - | 0.15 | 5.7 |
| 7 | Field bean | - | 5.2 | - | 0.05 | 0.05 | 5.3 |
| 8 | Sesamum | - | 4.5 | - | - | - | 4.5 |
| 9 | Niger | - | 2.5 | - | - | - | 2.5 |
| | Horticulture crops - Fruits | Total area | | | | | |
| 1 | Mango | 4.2 | | | | | |
| 2 | Banana | 2.1 | | | | | |
| 3 | Sapota | 1.0 | | | | | |
| 4 | Jack | 0.7 | | | | | |
| 5 | Papaya | 0.4 | | | | | |
| | Horticultural crops - Vegetables | Total area | | | | | |
| 1 | Cucumber | 3.3 | | | | | |
| 2 | Tomato | 2.3 | | | | | |
| 3 | Brinjal | 1.2 | | | | | |

| | | | |
|--|---|-------------------------------|-------------------|
| | 4 | Beans | 1.0 |
| | 5 | Okra | 0.6 |
| | | Plantation crops | Total area |
| | 1 | Coconut | 52.3 |
| | 2 | Arecanut | 1.0 |
| | | Total fodder crop area | - |
| | | Grazing land | - |
| | | Sericulture (Mulberry) | 16.6 |
| | | Others (Specify) | - |

| | | | | |
|------------|--|---------------------|----------------------------------|---------------------|
| 1.8 | Livestock | Male ('000) | Female ('000) | Total ('000) |
| | Non descriptive Cattle (local low yielding) | 68.0 | 130.0 | 198.0 |
| | Crossbred cattle | 3.4 | 148.1 | 151.5 |
| | Non descriptive Buffaloes (local low yielding) | 7.1 | 161.7 | 168.8 |
| | Graded Buffaloes | | | |
| | Goat | 55.0 | 189.1 | 244.3 |
| | Sheep | 34.9 | 348.5 | 383.4 |
| | Others (Pig, Dog etc.) | | | 9.6 |
| | Commercial dairy farms (Number) | | | |
| 1.9 | Poultry | No. of farms | Total No. of birds ('000) | |
| | Commercial | | 530.2 | |
| | Backyard | | | |

| | | | | | | |
|-------------|--|-------------------------------|--------------|--------------------------|------------------------------------|---|
| 1.10 | Fisheries (Data source: Chief Planning Officer) | | | | | |
| | A. Capture | | | | | |
| | i) Marine (Data Source: Fisheries Department) | No. of fishermen | Boats | | Nets | Storage facilities (Ice plants etc.) |
| | | | Mechanized | Non-mechanized | Mechanized (Trawl nets, Gill nets) | |
| | NA | | | | | |
| | ii) Inland (Data Source: Fisheries Department) | No. Farmer owned ponds | | No. of Reservoirs | No. of village tanks | |
| | | 31 | | 4 | 688 | |

| B. Culture | | | |
|---|-------------------------------|---------------------|-------------------------------|
| | Water Spread Area (ha) | Yield (t/ha) | Production ('000 tons) |
| i) Brackish water (Data Source: MPEDA/ Fisheries Department) | | | |
| ii) Fresh water (Data Source: Fisheries Department) | 15.1 | 0.5 | 8.3 |
| Others | | | |

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

| 1.11 | Name of crop | Kharif | | Rabi | | Summer | | Total | | Crop residue as fodder ('000 tons) |
|--|-----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|------------------------------------|
| | | Production ('000 t) | Productivity (kg/ha) | Production ('000 t) | Productivity (kg/ha) | Production ('000 t) | Productivity (kg/ha) | Production ('000 t) | Productivity (kg/ha) | |
| Major Field crops (Crops to be identified based on total acreage) | | | | | | | | | | |
| 1 | Paddy | 252.7 | 3600 | | | 75.0 | 3750 | 327.7 | 3675 | - |
| 2 | Ragi | 143.0 | 1850 | 10.3 | 2050 | 6.8 | 2250 | 160.0 | 2050 | - |
| 3 | Maize | 18.3 | 3650 | 1.9 | 3700 | 0.6 | 4000 | 20.7 | 3783.3 | - |
| 4 | Sugarcane | 3250.0 | 130000 | 390.0 | 130000 | 260.0 | 130000 | 3900.0 | 130000 | - |
| 5 | Sericulture-CB cocoon | 30.7 | 65.7kg/100dfls | 45.5 | 64kg/100dfls | 35.91 | 63kg/100dfls | 112.16 | 64.2kg/100dfls | - |
| | BV Coccon | 0.9 | 56.2kg/100dfls | 1.8 | 51.8kg/100dfls | 0.196 | 52kg/100dfls | 2.9 | 53.3kg/100dfls | - |
| 6 | Horse gram | 6.2 | 575 | 9.0 | 600 | | | 15.2 | 587.5 | - |
| 7 | Cow pea | 2.8 | 475 | 0.1 | 450 | 0.3 | 500 | 3.1 | 475 | - |
| 8 | Field bean | 2.0 | 375 | - | 300 | - | 375 | 2.0 | 350 | - |
| 9 | Sesamum | 2.5 | 550 | | | | | 2.5 | 550 | - |
| 10 | Niger | 0.6 | 230 | | | | | 0.6 | 230 | - |
| Major Horticultural crops (Crops to be identified based on total acreage) | | | | | | | | | | |
| 1 | Coconut | - | - | - | - | - | - | 5885 (lakh nuts) | 11242 nuts/ha | - |
| 2 | Mango | - | - | - | - | - | - | 31.3 | 7480 | - |
| 3 | Cucumber | - | - | - | - | - | - | 42.6 | 1307 | - |
| 4 | Tomato | 30.4 | 2237 | 8.4 | 2632 | 15.2 | 2515 | 54.1 | 2461 | - |
| 5 | Banana | - | - | - | - | - | - | 60 | 2848 | - |

| | | | | | | |
|------------------|---|---|---|---|--|---|
| 1.12 | Sowing window for 5 major field crops (start and end of normal sowing period) | Paddy | Sugarcane | Ragi | Maize | Mulberry |
| | Khariif- Rainfed | - | - | June 2 nd week to July 1 st week | June 1 st week -July 4 th week | - |
| | Khariif-Irrigated | July 2 nd week – August 2 nd week | June 1 st week –August 4 th week | July 2 nd week | July 2 nd week | July 1 st week to October 4 th week |
| | Rabi- Rainfed | - | - | August 2 nd week | August 4 th week | - |
| | Rabi-Irrigated | - | October 3 rd week to November 2 nd week | October 3 rd week to November 2 nd week | September 3 rd week to October 1 st week | - |
| Summer-irrigated | January 2 nd week | January 1 st week to February 4 th week | January 2 nd week | January 2 nd week | 1 st to 4 th week of January | |

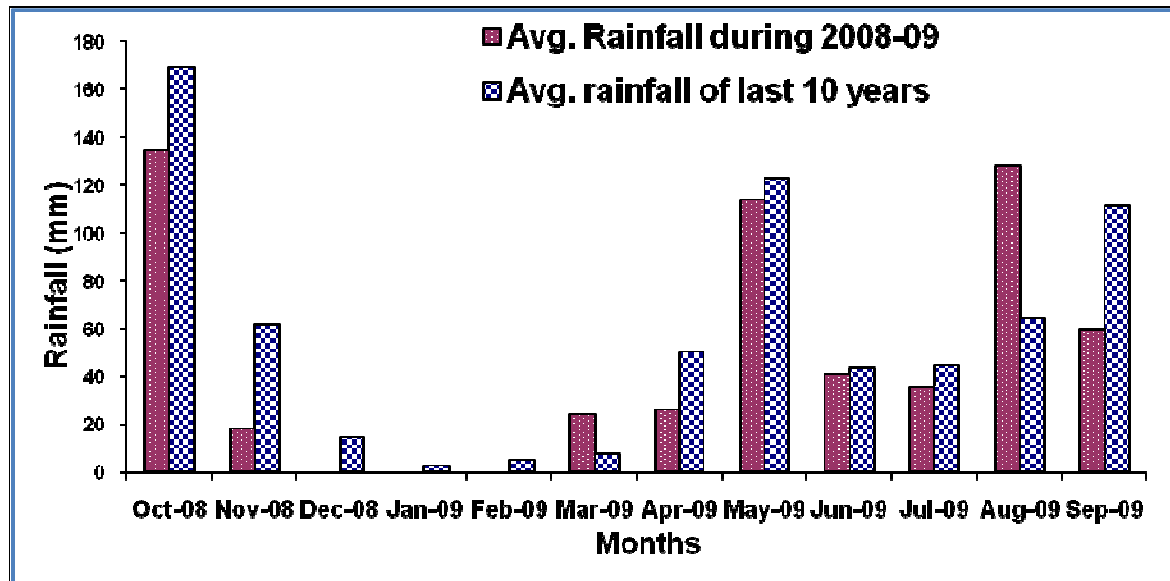
| | | | | |
|------------------------------|---|----------------|-------------------|-------------|
| 1.13 | What is the major contingency the district is prone to? (Tick mark and mention years if known during the last 10 year period) | Regular | Occasional | None |
| | Drought | | ✓ | |
| | Floods |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

| | | | |
|------|--|---|---------------|
| 1.14 | Include Digital maps of the district for | Location map of district within State as Annexure I | Enclosed: Yes |
| | | Mean annual rainfall as Annexure II | Enclosed: Yes |
| | | Soil map as Annexure III | Enclosed: Yes |

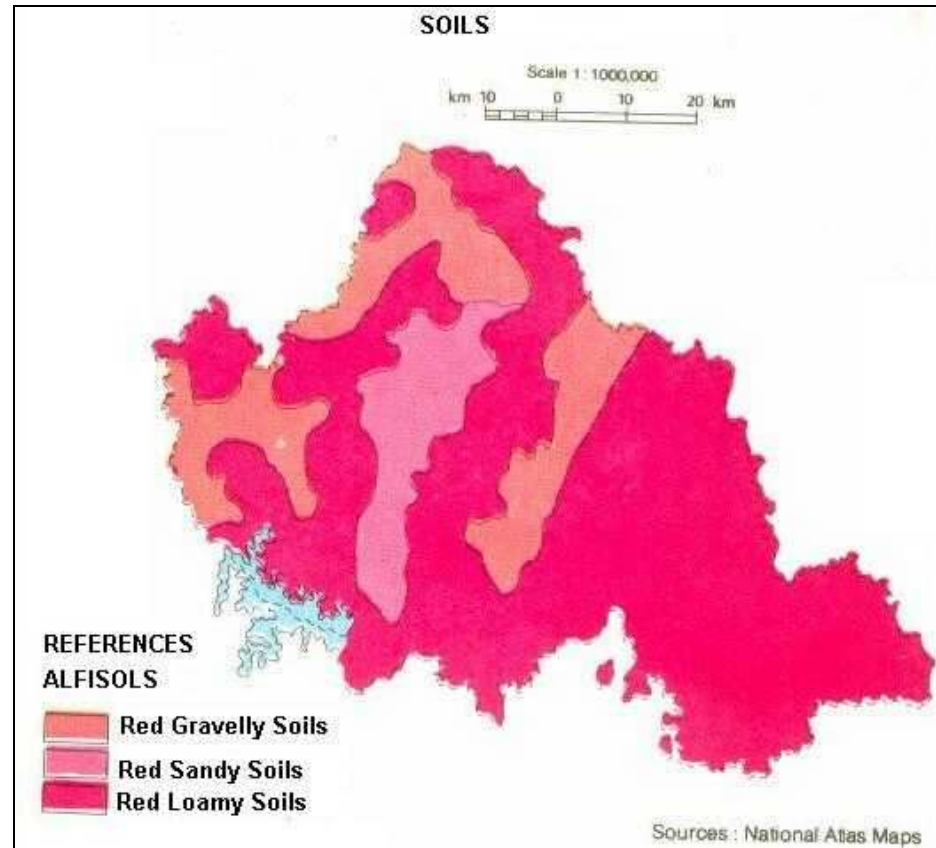
Annexure-I: Location map of Mandya district within Karnataka State



Annexure-II : Mean annual rainfall of Mandya district



Annexure-III: Soil map of Mandya district



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

| Condition | | | Suggested Contingency measures | | |
|--|----------------------------|------------------------------|---|--|-------------------------------------|
| Early season drought (delayed onset) | Major Farming situation | Normal Crop/ cropping system | Change in crop/ cropping system | Agronomic measures | Remarks on Implementation |
| Delay by 2 weeks (June 4 th week) | Red gravelly & sandy soils | Ragi | Ragi: MR-1& 6, GPU-28, L-5, HR-911& Indaf-8, KMR-301 Ragi inter cropping with Redgram (8:2) or Soybean (4:2) | Deep ploughing for water conservation | Supply of seeds through KSSC & KSDA |
| | | | | Seed hardening (soaking Ragi 1 kg seeds in 600ml of water for 18 hrs & shade dry for 24hrs before sowing) | |
| | | | | Nursery preparation & transplanting soon after the shower (seed rate- 5kg/ha) if irrigation facility available | |
| | | | | Thinning by passing harrow | |
| | Conservation furrow | | | | |
| | Red sandy & loamy soils | Maize | Maize: Sowing of 110-120 duration varieties/hybrids - NAC-6004, Hema, NAH-2049 | Deep ploughing for water conservation | |
| Application of zinc sulfate (10 kg/ha) | | | | | |
| Earthing up (4 th & 6 th week) | | | | | |

| Condition | | | Suggested Contingency measures | | |
|--|----------------------------|-----------------------------|---|--|-------------------------------------|
| Early season drought (delayed onset) | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |
| Delay by 4 weeks (July 2 nd week) | Red gravelly & sandy soils | Ragi | Ragi: MR-1& 6, GPU-28, L-5, HR-911& Indaf-8, KMR-301 Ragi inter cropping with Redgram (8:2) or Soybean (4:2) | Deep ploughing for water conservation | Supply of seeds through KSSC & KSDA |
| | | | | Seed hardening (soaking Ragi 1 kg seeds in 600ml of water for 18 hrs& shade dry for 24hrs before sowing) | |
| | | | | Nursery preparation & transplanting soon after the shower (seed rate- 5kg/ha) if irrigation facility available | |
| | | | | Thinning by passing harrow | |
| | | | | Conservation furrow | |

| | | | | | |
|--|-------------------------|-------|--|--|------|
| | Red sandy & loamy soils | Maize | Maize: Sowing of 110-120 duration varieties/hybrids - NAC-6004, Hema, NAH-2049 | Deep ploughing for water conservation | -do- |
| | | | | Application of zinc sulfate (10 kg/ha) | |
| | | | | Earthing up (4 th & 6 th week) | |

| Condition | | | Suggested Contingency measures | | |
|--|---------------------------|-----------------------------|---|--|---------------------------|
| Early season drought (delayed onset) | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |
| Delay by 6 weeks (July 4 th week) | Red gravelly & sandy soil | Ragi | Ragi: MR-1, GPU-28, L-5, HR-911, Indaf-5 & Indaf-8, KMR-301 | Deep ploughing for water conservation | -do- |
| | | | | Seed hardening (soaking ragi 1 kg seeds in 600ml of water for 18 hrs& shade dry for 24hrs before sowing) | |
| | | | | Thinning by passing harrow | |
| | | | | Conservation furrow | |
| | | | Redgram: BRG- 2 Redgram inter cropping with jowar (8:2) or fodder maize (1:1) | Seed treatment with Rhizobium & PSB (375 g/ha) | |
| Delay by 8 weeks (August 2 nd week) | Red sandy & loamy soils | Maize | Maize: NAC-6004, Hema, NAH-2049 Maize intercropped with Cowpea/Soybean/ Field bean (2:2) | Sowing of 110-120 duration varieties/hybrids | -do- |
| | | | | Deep ploughing for water conservation | |
| | | | | Seed treatment with fungicide | |
| | | | | Application of zinc sulfate (10 kg/ha) | |
| | | | | Earthing up (4 th & 6 th week) | |

| Condition | | | Suggested Contingency measures | | |
|--|----------------------------|-----------------------------|---|--|-------------------------------------|
| Early season drought (delayed onset) | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |
| Delay by 8 weeks (August 2 nd week) | Red gravelly & sandy soils | Ragi | Ragi: PR-202, GPU-26 Indaf-5 & Indaf-9 | Deep ploughing for water conservation | Supply of seeds through KSSC & KSDA |
| | | | | Seed hardening (soaking Ragi 1 kg seeds in 600ml of water for 18 hrs& shade dry for 24hrs before sowing) | |
| | | | | Thinning by passing harrow | |
| | | | | Conservation furrow | |

| | | | |
|--------------------------------------|---------------------|---|--|
| Red sandy & loamy soils | Maize | Maize: Sowing of 95-100 duration varieties/hybrids – NAC-6002 | Deep ploughing for water conservation |
| | | | Seed treatment with fungicide |
| | | | Application of zinc sulfate (10 kg/ha) |
| | | | Earthing up (4 th & 6 th week) |
| | | ALTERNATE CROP Cowpea: TVX-944, KBC-1 & 2 | Seed treatment with Rhizobium & PSB (500 g/ ha) |
| | | | Spacing: 30 X 7.5 cm |
| | | | Seed rate: 30 kg/ha |
| | | Field bean: HA- 3 & 4, Arka vijay | Seed treatment with Rhizobium & PSB (500 g/ ha) |
| | | | Spacing: 45 X 15 cm |
| | | | Seed rate: 30 kg/ha |
| | | Foxtail millet (Navane): RS-118, K-221-1 | Seed rate: 10 kg/ha |
| | | | Spacing: 30 X 10 cm |
| | | | Navane intercropped with horse gram (4:1) |
| Kodo millet (Haraka): PSC-1, GSK-364 | Seed rate: 12 kg/ha | | |
| | Spacing: 30 X 10 cm | | |
| Barnyard millet (Same): CO-2, PRC-3 | Seed rate: 10 kg/ha | | |
| | Spacing: 30 X 10 cm | | |

| Condition | Major Farming situation | Normal Crop/cropping system | Suggested Contingency measures | | Remarks on Implementation |
|--|------------------------------|-----------------------------|--|---|---------------------------|
| | | | Crop management | Soil nutrient & moisture conservation measure | |
| Early season drought (Normal onset) | Red gravelly and sandy soils | Ragi | Re-sowing with L-5, PR-202, GPU-26 Indaf-5 & Indaf-9 | Passing harrow | |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | Red sandy and loamy soils | Maize | Thinning | Conservation/ dead furrow | |
| | | | Re-sowing with NAC-6002 | Passing harrow | |
| | | | Thinning | Conservation/ dead furrow | |
| | | | | Mulching with crop residue/ farm waste | |
| | | | | Earthing up | |

| Condition | | | Suggested Contingency measures | | |
|---|-----------------------------|-----------------------------|--------------------------------|--|---------------------------|
| Mid season drought | Major Farming situation | Normal Crop/cropping system | Crop management | Soil nutrient & moisture conservation measure | Remarks on Implementation |
| (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) At vegetative stage | Red gravelly and sandy soil | Ragi | Thinning | Passing harrow | - |
| | | | Postponement of top dressing | Conservation/ dead furrow | |
| | | | Life saving irrigation | | |
| | Red sandy and loamy soils | Maize | Postponement of top dressing | -do- Mulching with crop residue/ farm waste | |
| | | | Life saving irrigation | | |
| | | | | | |
| | | | Earthing up | | |

| Condition | | | Suggested Contingency measures | | |
|-------------------------------------|----------------------------|-----------------------------|--------------------------------|---|---------------------------|
| Mid season drought (long dry spell) | Major Farming situation | Normal Crop/cropping system | Crop management | Soil nutrient & moisture conservation measures | Remarks on Implementation |
| At flowering/ fruiting stage | Red gravelly & sandy soils | Ragi | Thinning | Passing harrow | - |
| | | | Life saving irrigation | Conservation/ dead furrow | |
| | | | Weeding and mulching | | |
| | Red sandy & loamy soils | Maize | Life saving irrigation | -do- Mulching with crop residue/ farm waste Earthing up | |
| | | | Weeding and Weed mulching | | |
| | | | | | |

| Condition | | | Suggested Contingency measures | | |
|------------------|---------------------------|-----------------------------|---|--|---------------------------|
| Terminal drought | Major Farming situation | Normal Crop/cropping system | Crop management | Rabi Crop planning | Remarks on Implementation |
| | Red gravelly & sandy soil | Ragi | Life saving irrigation | Cowpea, Sunflower, Field bean, Horsegram (October month) | - |
| | | | Harvest at physiological maturity stage | | |
| | | | Harvest for fodder | | |
| | Red sandy & loamy | Maize | Life saving irrigation | Cowpea, Sunflower, Field | |

| | | | | | |
|--|-------|--|-------------------------------------|---------------------------------|--|
| | soils | | Harvest for baby corn at 40-45 days | bean, Horsegram (October month) | |
| | | | Harvest for fodder | | |

2.1.2 Irrigated situation

| Condition | Major Farming situation | Normal Crop/cropping system | Suggested Contingency measures | | |
|--|-------------------------------------|--|---|--|---------------------------|
| | | | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |
| Delayed release of water in canals due to low rainfall | Red loamy and Black clay loam soils | Paddy | Paddy: IR-30864, IR-64, KRH-2, MTU-1001 & 1010 (July 2nd week) | Dry nursery preparation & transplanting | |
| | | | Paddy: IR-30864, IR-64, Vikas, KRH-2, Rasi, MTU-1001, & 1010 (August 2nd week) | Tip trimming of seedlings before transplanting | |
| | | | Paddy: Mangala, CTH-1 & 3 (August 4th week) | 4-5 seedlings per hill | |
| | | | | High density planting (60-70 hills/ sq m) | |
| | | | | Application of N in more splits | |
| | | | | Drum Sowing | |
| | | | | Sowing of pre-germinated seeds using drum seeder | |
| | | | | Direct sowing | |
| | | | | Broadcasting sprouted seeds @ 100 kg/ha | |
| | | | | Application of N in more splits | |
| Red sandy loamy, and Black clay loam soils | Sugarcane | Sugarcane: Co-419, Co-86032, Co-Vc-2003-165, Co-8371 | Planting at 4 feet in paired row and irrigating at alternate rows | | |
| | | | Intercropping with soybean/ French bean/ diancha | | |
| | | | Sugarcane trash mulching for ratoon crop | | |
| | | | Increase the interval irrigation | | |
| (Sericulture) | | Mulberry Variety | No change | Mulberry nursery – Covering plot with straw | |

| | | | | | |
|--|--|--|--|--|--|
| | | | | <p>Existing garden-</p> <p>1.Bottom pruning</p> <p>2.Postponement of silkworm rearing</p> <p>3. Irrigation once in 15 days in alternative rows 4.Adoption of UAS Serisuvama technology– (i) bunding mulberry garden across the slope; (ii) growing horsegram as an intercrop; (iii) making trenches or passing couper plough to make two feet width and one feet depth trenches in every alternative rows (iv) incorporation of horsegram biomass and locally available green leaf into trenches, filling recommended FYM (20 tons/ year/ hectare) and tank silt as a second layer if available; (v) filling trenches by taking soil from either side of rows and making raised bed and using either side rows for irrigation; (vi) application of bio fertilizers (Azotobacter-20kg/ha/year and PSB- 25kg/ha/year); (vii) application of recommended dose fertilizer (300:120:120 kg NPK/ha/yr based on the soil test and application of Zinc sulphate @8kg/ha. (viii) mulching raised beds by using locally available trash or any farm waste. It repeats 2 times per year.</p> | |
|--|--|--|--|--|--|

| Condition | Major Farming situation | Normal Crop/cropping system | Suggested Contingency measures | | |
|--|-------------------------------------|---|--|---|-------------------------------------|
| | | | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |
| Limited release of water in canals due to low rainfall | Red loamy and Black clay loam soils | Paddy | Paddy: IR-30864, IR-64, KRH-2, MTU-1001 & 1010 (July 2nd week) | SRI Paddy | Supply of seeds through KSSC & KSDA |
| | | | Paddy: IR-30864, IR-64, Vikas, KRH-2, Rasi, MTU-1001, & 1010 (August 2nd week) | Seed rate 5kg/ha | |
| | | | Paddy: Mangala, CTH-1 & 3 (August 4th week) | Transplanting 8-12 day old single seedling/hill at 25 X 25 cm spacing | |
| | | | | Maintaining moist condition (no flooding) | |
| | | | | Aerobic paddy | |
| | | | | Seed rate 5 kg/ha | |
| | | | Sugarcane | Sugarcane: Co-419, Co-86032, Co-Vc-2003-165, Co-8371 | |
| | | Trash mulching | | | |
| | | Spraying of 2.5 % potassium at 20 days interval | | | |
| | | | | | |
| Red loamy and Black clay loam soils (Sericulture) | Mulberry Variety | No change | Mulberry nursery – Covering plot with straw | | |
| | | | Existing garden- 1.Bottom pruning 2.Postponement of silkworm rearing 3. Irrigation once in 15 days in alternative rows 4.Adoption of UAS Serisuvama technology | | |

| Condition | Major Farming situation | Normal Crop/cropping system | Suggested Contingency measures | | |
|---|---|-----------------------------|--|---|-------------------------------------|
| | | | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |
| Non release of water in canals under delayed onset of monsoon in catchments | Red loamy and Black clay loam | Paddy | Ragi: L-5, PR-202, GPU-26 Indaf-5 & Indaf-9 | Deep ploughing for water conservation | Supply of seeds through KSSC & KSDA |
| | | | | Seed hardening (soaking ragi 1 kg seeds in 600ml of water for 18 hrs & shade dry for 24hrs before sowing) | |
| | | | | Thinning by passing harrow | |
| | | | | Conservation furrow | |
| | | | Maize: NAC-6002 | Sowing of 110-120 duration varieties/hybrids | |
| | | | | Deep ploughing for water conservation | |
| | | | | Earthing up (4 th & 6 th week) | |
| | | | Horse gram: PHG-9, KBH-1 | Seed rate: 25 kg/ha | |
| | | | | Line sowing:30X10cm | |
| | | | Cowpea:TVX-944, KBC-1 & 2 | Seed rate: 30 kg/ha | |
| | | | | Seed treatment with Rhizobium & PSB (500 g/ ha) | |
| | | | | Line sowing:45X10cm | |
| | | | Sesamum: TMV-3, Navile-1, T-7 | Seed rate: 4 kg/ha | |
| | | | | Line sowing:30X15cm | |
| | | | Blackgram: T-9, LBG-25 | Seed rate: 25 kg/ha | |
| | | | | Drill sowing-30 cm | |
| | | | Bengalgram: Annigeri-1, JG-11, KAK-2, Vishal | Seed rate: 62.5 kg/ha | |
| | | | | Drill sowing-30X10cm | |
| | | | Field bean: HA- 3 & 4, Arka vijay | Seed treatment with Rhizobium & PSB (500 g/ ha) | |
| | | | | Spacing: 45 X 15 cm | |
| Seed rate: 30 kg/ha | | | | | |
| Foxtail millet (Navane): RS-118, K-221-1 | Seed rate: 10 kg/ha | | | | |
| | Spacing: 30 X 10 cm | | | | |
| | Navane intercropped with horse gram (4:1) | | | | |
| Kodo millet (Haraka): PSC-1, GSK-364 | Seed rate: 12 kg/ha | | | | |
| | Spacing: 30 X 10 cm | | | | |
| Barnyard millet (Same): CO-2, PRC-3 | Seed rate: 10 kg/ha | | | | |
| | Spacing: 30 X 10 cm | | | | |

| | | | | | |
|--|---|------------------|-----------|--|--|
| | Red loamy, Black clay loam soil (Sericulture) | Mulberry Variety | No change | Mulberry nursery – Covering plot with straw Existing garden- 1.Bottom pruning 2.Postponement of silkworm rearing 3.Irrigation once in 15 days in alternative rows 4. adoption of UAS Serisuvama technology | |
|--|---|------------------|-----------|--|--|

| Condition | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system | Suggested Contingency measures | |
|--|-------------------------------------|---|---|--|-------------------------------------|
| | | | | Agronomic measures | Remarks on Implementation |
| Lack of inflows into tanks due to insufficient /delayed onset of monsoon | Red loamy and Black clay loam soils | Paddy | Ragi: L-5, PR-202, GPU-26 Indaf-5 & Indaf-9 | Deep ploughing for water conservation | Supply of seeds through KSSC & KSDA |
| | | | | Seed hardening (soaking ragi 1 kg seeds in 600ml of water for 18 hrs& shade dry for 24hrs before sowing) | |
| | | | | Thinning by passing harrow | |
| | | | | Conservation furrow | |
| | | | Maize: NAC-6002 | Sowing of 110-120 duration varieties/hybrids | |
| | | | | Deep ploughing for water conservation | |
| | | | | Earthing up (4 th & 6 th week) | |
| | | | Groundnut: TMV-2, GPBD-4 Groundnut intercropped with Redgram (8:2)/ Castor (8:1) | Seed treatment with Rhizobium (375 kg/ha) | |
| | | | | Application of gypsum (500 kg/ha) with in 30 DOS | |
| | | | Sunflower:KBSH-41,42 & 44 | Seed hardening- soaking seeds for 14 hours & shade drying before sowing | |
| | | | | Seed treatment with fungicide & insecticide | |
| | | | | Hand pollination between 8-11 hrs for 8-10 days during flowering | |
| | | | Cowpea:TVX-944, KBC-1 & 2 | Seed rate: 30 kg/ha | |
| Horse gram: PHG-9, KBH-1 | Seed rate: 25 kg/ha | | | | |
| | Line sowing:30X10cm | | | | |
| Mulberry Variety- V1 | Variety-V1 | Mulberry nursery – Covering plot with straw | | | |

| | | | | | |
|--|--|--|--|---|--|
| | | | | Existing garden- 1.Bottom pruning 2.Postponement of silkworm rearing 3.Irrigation once in 15 days in alternative rows 4. Adoption of UAS Serisuvarna technology | |
|--|--|--|--|---|--|

| Condition | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system | Suggested Contingency measures | |
|---|-------------------------------------|-----------------------------|--|---|-------------------------------------|
| | | | | Agronomic measures | Remarks on Implementation |
| Insufficient groundwater recharge due to low rainfall | Red loamy and Black clay loam soils | Paddy | Ragi: L-5, PR-202, GPU-26 Indaf-5 & Indaf-9 | Deep ploughing for water conservation | Supply of seeds through KSSC & KSDA |
| | | | | Seed hardening (soaking ragi 1 kg seeds in 600ml of water for 18 hrs & shade dry for 24hrs before sowing) | |
| | | | | Thinning by passing harrow | |
| | | | | Conservation furrow | |
| | | | Maize: NAC-6002 | Sowing of 110-120 duration varieties/hybrids | |
| | | | | Deep ploughing for water conservation | |
| | | | | Earthing up (4 th & 6 th week) | |
| | | | Groundnut: TMV-2, GPBD-4 | Seed treatment with Rhizobium (375 kg/ha) | |
| | | | | Groundnut intercropped with red gram (8:2)/ castor (8:1) | |
| | | | | Application of gypsum (500 kg/ha) with in 30 DOS | |
| | | | | Seed hardening- soaking seeds for 14 hours & shade drying before sowing | |
| | | | Sunflower:KBSH-41,42 & 44 | Seed treatment with fungicide & insecticide | |
| | | | | Hand pollination between 8-11 hrs for 8-10 days during flowering | |
| | | | Cowpea:TVX-944, KBC-1 & 2 | Seed rate: 30 kg/ha | |
| Horse gram: PHG-9, KBH-1 | Seed rate: 25 kg/ha | | | | |
| | Line sowing:30X10cm | | | | |

| | | | | | |
|--|---|----------------------|---|--|--|
| | | | Black gram: T-9, LBG-25 | Seed rate: 25 kg/ha Drill sowing-30 cm | |
| | | | Bengal gram: Annigeri-1, JG-11, KAK-2, Vishal | Seed rate: 62.5 kg/ha Drill sowing-30X10cm | |
| | | | Field bean: HA- 3 & 4, Arka vijay | Seed treatment with Rhizobium & PSB (500 g/ ha) Spacing: 45 X 15 cm Seed rate: 30 kg/ha Seed treatment with fungicide Application of zinc sulfate (10 kg/ha) Earthing up (4 th & 6 th week) | |
| | | | Red gram: TTB-7, BRG-1 & 2 | Seed rate (25 kg/ha), Spacing 24 X 9 inches Seed treatment with Rhizobium & PSB (375 g/ha) Red gram inter cropping with jowar (8:2) or fodder maize (1:1) | |
| | | | Green gram: PDM-84-178 | Seed rate (15-20 kg/ha), Spacing 30X10 cm Seed treatment with Rhizobium & PSB (500 g/ha) | |
| | Red loamy, Black clay loam soil (Sericulture) | Mulberry Variety- V1 | Variety-V1 | Mulberry nursery – Covering plot with straw Existing garden- 1. Bottom pruning 2. Postponement of silkworm rearing 3. Irrigation once in 15 days in alternative rows 4. Adoption of UAS Serisuvarna technology | |

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

| Condition | Suggested contingency measure | | | |
|---|--|--|--|--|
| | Vegetative stage | Flowering stage | Crop maturity stage | Post harvest |
| Continuous high rainfall in a short span leading to water logging | | | | |
| Paddy | Additional soil nutrient supply- split application of N based on LCC | Protect crop from grain discoloration with 0.2 % mancozeb spray. | Safe disposal of excess water Protect crop from grain discoloration with 0.2 % mancozeb spray. Mechanized harvesting at physiological maturity | Drying using artificial driers, Par boiled rice |
| Sugarcane | Safe disposal of excess water Additional soil nutrient supply | Safe disposal of excess water | Safe disposal of excess water | - |
| Ragi | -do- | -do- | -do- Harvesting of Ragi ear heads | Drying using artificial driers, safe storage, Value addition-malt |
| Maize | -do- | -do- Crop can be used as fodder | Safe disposal of excess water | Drying using artificial driers, safe storage, Value addition-flakes |
| Sericulture (Mulberry) | -do- | | Harvesting leaf and feeding silkworm | |
| Outbreak of pests and diseases due to unseasonal rains | | | | |
| Paddy | Brown Plant Hopper; Use of BPH tolerant variety IET 7575 & 8116 | Hispa: Blast: Spray Tricyclazole @ 0.6g/lit | Sheath blight | Following of Plant Protection measures as per package of practice |
| Sugarcane | Wooly Aphids and Scales: Dipping of setts in 0.15% malathion or 1-0.08% dimethoate for 10-15 minutes. | Leaf hopper: Spray 0.08% monocrotophos or DDVP with addition of 2.5 % N in spray solution or spray neemark @ 5 lit per ha. | | Root borer: Harvesting at ground level to destroy the pest stages. Destroy stray of plants |

| | | | | | |
|-------------------|---|--|--|--|--|
| Ragi: | Finger blast, Tursicum leaf blight | | | | |
| Maize | Rust | | | | |
| Coconut | Black headed caterpillar : Release of parasitoids like Gorriozus nephantidis, Elasmus nephantidis | | | Mites : Spraying biopesticides on the bunches - 2% neem oil - garlic emulsion (20ml neem oil + 20g garlic + 5g bar soap in 1 litre water) | |
| Tukra in mulberry | | | | Spray of Dimethoate @1ml/L of water | |
| Silkworm diseases | | | | Disinfection of silkworm rearing house and equipment with Stabilised chlorine dioxide and Bleaching Use of bed disinfectant viz., Ankush, Jayapower vijetha @5gm/sqft | |

2.3 Floods

| Condition | Suggested contingency measures | | | |
|---|--------------------------------|------------------|--------------------|------------|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Transient water logging/ partial inundation | NA | | | |
| Continuous submergence for more than 2 days | NA | | | |
| Sea water inundation | NA | | | |

2.4 Extreme Events

| Extreme event type | Suggested contingency measures | | | |
|--------------------|--------------------------------|------------------|--------------------|------------|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Heat Wave | | | NA | |
| Cold wave | | | NA | |
| Frost | | | NA | |

| Extreme event type | Suggested contingency measures | | | |
|--------------------|--|---|--|--|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Hailstorm | NA | | | |
| Cyclone | | | | |
| Paddy | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Apply booster dose of 0.2 kg N/40 sq. m Spray micronutrients like Zn, Fe 2-3 times at 4 -5 days interval 4. Takeup proper weed control measures | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Apply booster dose of 20 kg N/Acre Spray ZnSO₄ 0.2 % if it is less than 45 days after transplanting Take up need based plant protection measures | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Takeup need based plant protection measures Lodged plants to be lifted and tied together to make them stand erect | <ul style="list-style-type: none"> Drain out water spread sheaves loosely in field or field bunds where there is no water stagnation Spray common salt at 5% to prevent germination of seed and spoilage of straw from moulds Thresh after drying the sheaves properly Ensure proper grain moisture before storing |
| Maize | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Intercultivation and earthing up to be done Apply 20 kg N + 10 kg K /ha after draining excess water Take up plant protection measures against possible pests and disease incidence | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Takeup weed control either mechanically or through weedicides Intercultivation and earthing up to be done Apply 20 kg N + 10 kg K /ha after draining excess water Take up plant protection measures against possible pests and disease incidence | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Take up plant protection measures against possible pests and disease incidence | <ul style="list-style-type: none"> To drain out the excess water at the earliest by farming drainage channels if there is a gradient and if not by using motors Cob picking to be done after they are dried fully |

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

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

| | | | |
|---------------|--|--|--|
| | <p>of harvested grass from previous season</p> <p>Creation of permanent fodder, feed and fodder seed banks in all drought prone villages</p> | | |
| Floods | <p>In case of early forewarning (EFW), harvest all the crops (Paddy, Ragi, Horse gram, Cowpea, Maize, Field bean, Black gram, Green gram, Cowpea, Horse gram etc.) that can be useful as fodder in future (store properly)</p> <p>Don't allow the animals for grazing if severe floods are forewarned</p> <p>In flood prone mandals, arrange for storing minimum required quantity of hay (25-50kg) and concentrates (25kgs) per animals in farmer / LS keepers house / shed for feeding animals during floods</p> <p>Keep stock of bleaching powder and lime</p> <p>Carry out Butax spray for control of external parasites</p> <p>Identify the Clinical staff and trained paravets and indent for their services as per schedules</p> <p>Identify the volunteers who can serve in need of emergency</p> <p>Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations</p> | <p>Transportation of animals to elevated areas</p> <p>Stall feeding of animals with stored hay and concentrates</p> <p>Proper hygiene and sanitation of the animal shed</p> <p>In severe floods, un-tether or let loose the animals</p> <p>Emergency outlet establishment for required medicines or feed in each village</p> <p>Spraying of fly repellants in animal sheds</p> | <p>Repair of animal shed</p> <p>Bring back the animals to the shed</p> <p>Cleaning and disinfection of the shed</p> <p>Bleach (0.1%) drinking water / water sources</p> <p>Deworming with broad spectrum dewormers</p> <p>Vaccination against possible disease out breaks like HS, BQ, FMD and PPR</p> <p>Proper disposable of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit</p> <p>Drying the harvested crop material and proper storage for use as fodder.</p> |

| | | | |
|--------------------------------------|---|--|--|
| | Capacity building and preparedness of the stakeholders and official staff for the unexpected events Capacity building and preparedness of the stakeholders and official staff for the unexpected events | | |
| Cyclone | Harvest all the possible wetted grain (Paddy, Ragi, Horse gram, Cowpea, Maize, Field bean, Black gram, Green gram, Cowpea, Horse gram etc) and use as animal feed. Stock of anti-diarrheal drugs and electrolytes should be made available for emergency transport Don't allow the animals for grazing in case of early forewarning (EFW) of cyclone Incase of EFW of severe cyclone, shift the animals to safer places. | Treatment of the sick, injured and affected animals through arrangement of mobile emergency veterinary hospitals / rescue animal health workers. Diarrhea out break may happen. Health camps should be organized In severe cases un-tether or let loose the animals Arrange transportation of highly productive animals to safer place Spraying of fly repellants in animal sheds | Repair of animal shed Deworm the animals through mass camps Vaccinate against possible disease out breaks like HS, BQ, FMD and PPR Proper dispose of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit Bleach / chlorinate (0.1%) drinking water or water resources Collect drowned crop material, dry it and store for future use Sowing of short duration fodder crops in unsown and water logged areas when crops are damaged and no chance to replant Application of urea (20-25kg/ha) in the inundated areas and CPR's to enhance the bio mass production. |
| Cold & Heat wave | NA | | |
| Health and Disease management | List out the endemic diseases (species wise) in that district Procure and stock emergency medicines and vaccines for important endemic | Constitution of Rapid Action Veterinary Force Performing ring vaccination (8 km radius) in case of any outbreak Restricting movement of livestock in case of any | Conducting mass animal health camps Conducting fertility camps Mass deworming camps |

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| | diseases of the area All the stock must be immunized for endemic diseases of the area Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district | epidemic Rescue of sick and injured animals and their treatment Rescue of sick and injured animals and their treatment | |
| Drinking water | Identification of water resources Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals) | Restrict wallowing of animals in water bodies/resources | Bleach (0.1%) drinking water / water sources Provide clean drinking water |
| Insurance | Encouraging insurance of livestock | Listing out the details of the dead animals | Submission for insurance claim and availing insurance benefit Purchase of new productive animals |

2.5.2 Poultry

| | Suggested contingency measures | | |
|------------------------------|--|--|---------------------------------------|
| | Before the event | During the event | After the event |
| Drought | | | |
| Shortage of feed ingredients | Storing of house hold grain like maize, broken rice etc, in to use as feed in case of severe drought | Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds Culling of weak birds | Supplementation to all survived birds |

| | | | |
|-------------------------------|---|---|---|
| Drinking water | | Use water sanitizers or offer cool hygienic drinking water | |
| Health and disease management | Culling of sick birds. Deworming and vaccination against RD and IBD | Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water (5ml in one litre water) | Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit |
| Floods | | | |
| Shortage of feed ingredients | In case of early forewarning of floods, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc, | Use stored feed as supplement Don't allow for scavenging Culling of weak birds | Routine practices are followed Deworming and vaccination against RD |
| Drinking water | | Use water sanitizers or offer cool hygienic drinking water | |
| Health and disease management | In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak | Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness | Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD |
| Cyclone | | | |
| Shortage of feed ingredients | In case of EFW, shift the birds to safer place Storing of house hold grain like | Use stored feed as supplement Don't allow for scavenging Protect from thunder storms | Routine practices are followed |

| | | | |
|-------------------------------|---|---|---|
| | maize, broken rice, bajra etc, Culling of weak birds | | |
| Drinking water | | Use water sanitizers or offer cool drinking water | |
| Health and disease management | In case of EFW, add antibiotic powder in drinking water to prevent any disease outbreak | Sanitation of poultry house Treatment of affected birds Prevent water logging surrounding the sheds Assure supply of electricity Sprinkle lime powder (5-10g per square feet) to prevent ammonia accumulation due to dampness | Disposal of dead birds by burning / deep burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against Ranikhet Disease (0.5ml S/c) |
| Cold & Heat wave | NA | | |

2.5.3 Fisheries/ Aquaculture

| | Suggested contingency measures | | |
|--|--|---|---|
| | Before the event | During the event | After the event |
| 1) Drought | | | |
| A. Capture | | | |
| Marine | NIL | | |
| Inland | | | |
| (i) Shallow water depth due to insufficient rains/inflow | No action | Reduced fishing activity, emergency harvest | Shifting of activity to live reservoirs |
| (ii) Changes in water quality | No action | No action | No action |
| (iii) Any other | | | |
| B. Aquaculture | | | |
| (i) Shallow water in ponds due to insufficient rains/inflow | Deepening of ponds in narrow bottom areas. | Reduced fishing activity, emergency harvest | Shifting of activity to live reservoirs |
| (ii) Impact of salt load build up in ponds / change in water quality | No action | Reduce feeding intensity | Reduce manuring |

| | | | |
|-----------------------------------|-----------------|--|--|
| (iii) Any other | Ornamental fish | | |
| 2) Floods | NIL | | |
| 3. Cyclone / Tsunami | NIL | | |
| 4. Heat wave and cold wave | NA | | |