# State: Uttar Pradesh

# Agriculture Contingency Plan for District: Kaushambi

| 1.0 District Agriculture profile | | | | |
|---|---|---|---|---|
| 1.1 | Agro-Climatic/ Ecological Zone | | | |
| | Agro-Ecological Sub Region(ICAR) | North plain zone | | |
| | Agro-Climatic Zone (Planning Commission) | | | |
| | Agro-Climatic Zone (NARP) | UP-4 Central Plain Zone | | |
| | List all the districts falling the NARP Zone* (^ 50% area falling in the zone) | Lakhimpur, Kheri, Sitapur, Hardoi, Farrukhabad, Etawah, Kanpur, Kanpur Dehat, Unnao, Lucknow, Rae Bareilly, Fatehpur | | |
| | Geographical coordinates of district headquarters | Latitude | Latitude | Latitude (mt) |
| | | 25° 28' N | 81° 54' E | - |
| | Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS | - | | |
| | Mention the KVK located in the district with address | Krishi Vigyan Kendra, Kaushambhi | | |
| | Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone | Allahabad Agriculture Deemed University | | |

| 1.2 | Rainfall | Normal RF (mm) | Normal Rainy Days (Number) | Normal Onset | Normal Cessation |
|---|---|---|---|---|---|
| | SW monsoon (June-sep) | 865.4 | 49 | 3rd week of June | 4th week of September |
| | Post monsoon (Oct-Dec) | 51.9 | 10 | | |
| | Winter (Jan-March) | 45.2 | - | - | - |
| | Pre monsoon (Apr-May) | 13.4 | - | - | - |
| | Annual | 975.9 | 59 | | |

| 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 in (,000 ha) | 185.504 | 153.813 | 0.195 | 22.847 | 0.517 | 3.768 | 3.875 | 8.132 | 7.467 | 4.235 |

| 1. 4 | **Major Soils (common names like red sandy loam deep soils (etc.,)*** | **Area ('000 ha)** | **Percent (%) of total** |
|---|---|---|---|
| | Deep, loamy soils | - | 54 |
| | Deep, fine soils moderately saline and sodic | - | 19 |
| | Deep, sandy soils | - | 18 |

| 1.5 | Agricultural land use | Area('000 hac) | Cropping intensity (%) |
|---|---|---|---|
| | Net sown area | 134.468 | 132.25 % |
| | Area sown more than once | 43.371 | |
| | Gross cropped area | 177.839 | |

| 1.6 | Irrigation | Area('000 ha) | | |
|---|---|---|---|---|
| | Net irrigation area | 97.147 | | |
| | Gross irrigated area | 128.027 | | |
| | Rain fed area | 37.321 | | |
| | Sources of irrigation (Gross Irr. Area) | Number | Area('000 ha) | Percentage of total irrigated area |
| | Canals | - | 198.32 | |
| | Tanks | - | 0.035 | |
| | Open wells | - | 0 | |
| | Bore wells (Tube wells) | - | 108.160 | |
| | Lift irrigation schemes | - | NA | |
| | Micro-irrigation | - | NA | |
| | Other sources | - | 0 | |
| | Total Irrigated Area | - | 128.027 | |
| | No. of Pump sets (2011-12) | 15467 | | |
| | No of Tractors | 2278 | | |
| | Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board) | No of blocks- Tehsils- | (%)area | Quality of water |
| | Over exploited | 2 | | |
| | Critical | 3 | | |
| | Semi-critical | 1 | | |
| | Safe | | | |
| | Waste water availability and use | | | |
| | Ground water quality | | | |
| *over-exploited groundwater u*Sesame*ization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70% | | | | |

**1.7 Area under major field crops & (As per latest figures 2013-14)**

| 1.7 | Major field crops cultivated | Area(‘000 ha) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Kharif | | | Rabi | | | Summer | Total |
| | | Irrigated | Rain fed | Total | Irrigated | Rain fed | Total | | |
| | Wheat | - | - | - | 72.960 | 0.336 | 73.296 | - | 73.296 |
| | Rice | 41.768 | 3.152 | 44.920 | - | - | - | - | 44.920 |
| | Gram | - | - | - | 0.137 | 12.146 | 12.283 | - | 12.283 |
| | Pearl millet | 0.004 | 10.634 | 10.638 | - | - | - | - | 10.638 |
| | Pigeon pea | 0.009 | 8.975 | 8.984 | - | - | - | - | 8.984 |
| | Sesame | 0.002 | 1.426 | 1.428 | - | - | - | - | 1.428 |

**1.8 Production and productivity of major crops (Average of last 5 years)**

| 1.8 | Major field crops cultivated | Area(‘000 ha) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Kharif | | Rabi | | Summer | | Total | | Crop residue as fodder (‘000 tons) |
| | | Production (‘000 t) | Productivity (Kg/ha) | Production (‘000t) | Productivity (Kg/ha) | Production (‘000 t) | Productivity (Kg/ha) | Production (‘000t) | Productivity (Kg/ha) | |
| | Rice | 86.656 | 2004 | - | - | - | - | 86.656 | 2004 | NA |
| | Wheat | - | - | 179.704 | 2538 | - | - | 179.704 | 2538 | NA |
| | Pearl millet | 13.438 | 1222 | - | - | - | - | 13.438 | 1222 | NA |
| | Gram | - | - | 15.120 | 1151 | - | - | 15.120 | 1151 | NA |
| | Pigeon pea | 9.388 | 942 | - | - | - | - | 9.388 | 9.42 | NA |
| | Sesame | 0.383 | 224 | - | - | - | - | 0.383 | 224 | NA |

| 1.8 | Major Fodder crops cultivated | Area(ha) | Total |
|---|---|---|---|
| | Kharif | 1438 | 1438 |
| | Rabi | 266 | 266 |
| | Summer | 219 | 219 |
| | Total | 1923 | 1923 |

| 1.9 | Livestock(year 2007) | Male(000) | Female(000) | Total (000) |
|---|---|---|---|---|
| | Non descriptive Cattle (local low yielding) | 63.419 | 71.504 | 134.923 |
| | Improved cattle | 0.002 | 0.013 | 0.015 |
| | Crossbred Cattle | 4.943 | 6.542 | 11.485 |
| | Non descriptive Buffaloes (local low yielding) | 16.441 | 65.458 | 81.899 |
| | Descript Buffaloes | 25.333 | 100.104 | 125.437 |
| | Goat | 46.027 | 79.715 | 125.742 |
| | Sheep | | | 28.911 |
| | Other (Camel,Pig, Yak etc) | | | 38.536 |
| | Commerical dairy farms (number) | | | 0.000 |

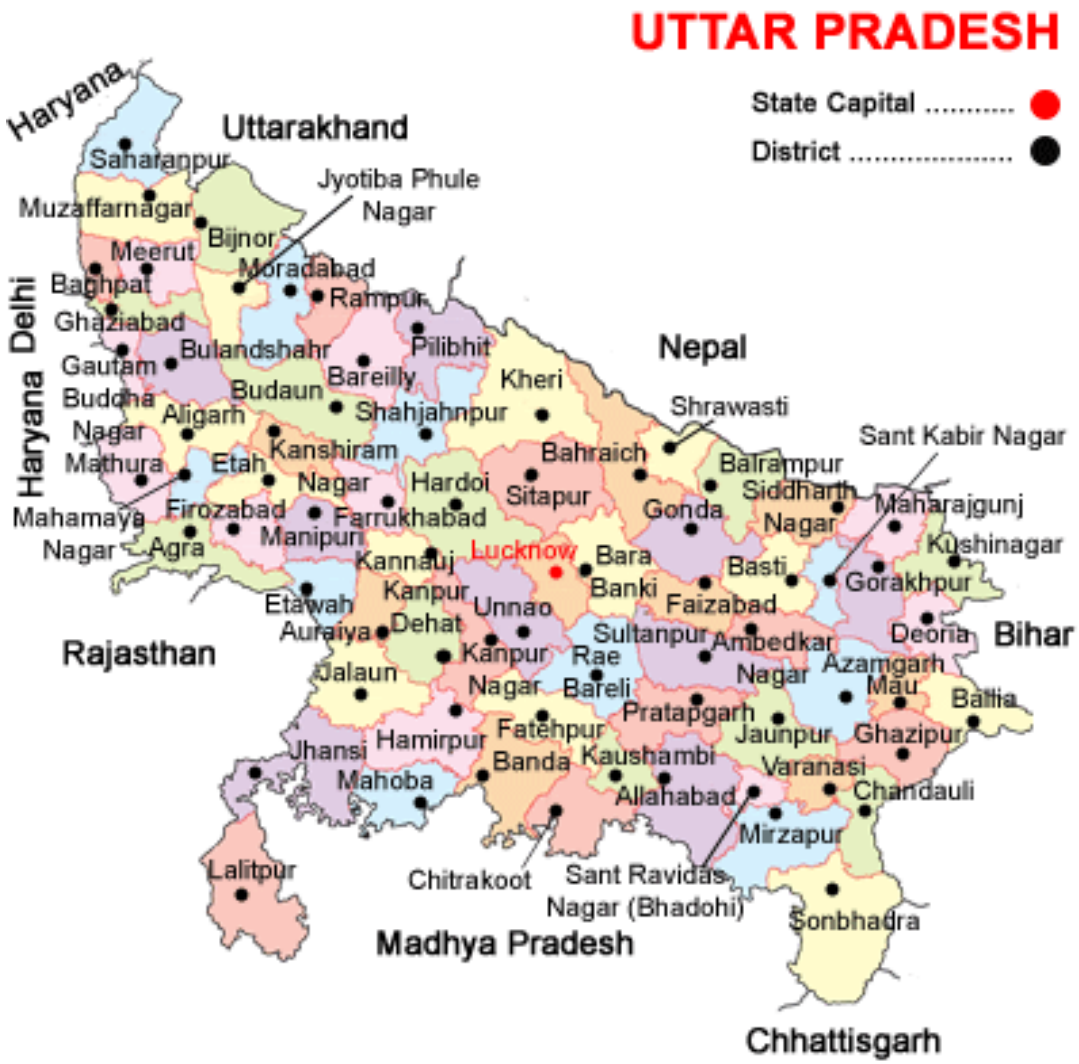
| **1.10** | **Sowing window for 5 major field crops** | **Pearl mil*let*** | **Maize** | **Rice** | **Urd** | **Sorghum** | **Moong** | **Wheat** | **Pea** | **Gram** | **Mustard** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kharif –Rainfed | 2nd week of July to last week of July | 2nd week of June to First week of July | - | 2nd week of July to First week of August | First week of July to 2nd week of July | First week of July to 2nd week of July | - | - | - | - |
| | Kharif - Irrigated | - | - | 3rd week of June to | 2nd week of July to First | First week of July to 2nd week of July | - | - | - | - | - |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Last week of July | week of August | | | | | | |
| | Rabi –Rainfed | | | | | | | First week of Nov to 3rd week of Dec | First week of Oct to first week of Nov | First week of Oct to first week of Nov | First week of Sep to 2nd week of Oct |
| | Rabi - Irrigated | | | | | | | 2nd week of Nov to 2th week of Dec | - | - | - |

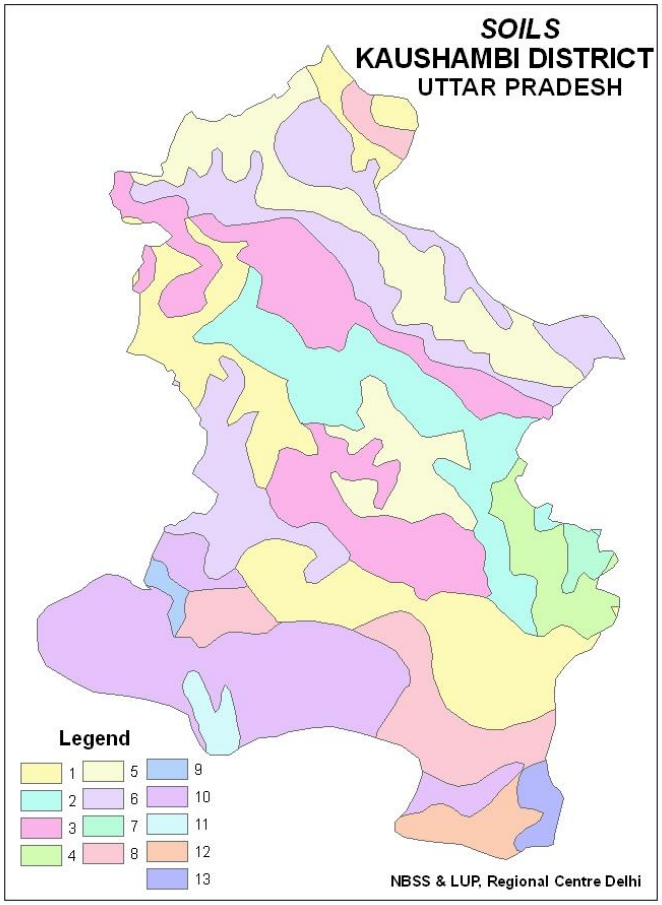
| **1.11** | **What is the major contingency the district is prone to?** | **Regular** | **Occasional** | **None** |
|---|---|---|---|---|
| | Drought | - | ✓ | |
| | Flood | - | - | |
| | Cyclone | - | - | |
| | Hail storm | - | - | |
| | Heat wave | - | ✓ | |
| | Cold wave | - | - | |
| | Frost | - | ✓ | |
| | Sea water intrusion | - | - | |
| | Sheath Blight, Stemborer , Pyrilla loose smut, Heliothis, Rust etc white grub. | - | - | |

| **Include Digital maps of the district for** | Location map of district with in State as Annexure I | Enclosed : Yes |
|---|---|---|
| | Mean annual rainfall as Annexure 2 | Enclosed : No |
| | Soil map as Annexure 3 | Enclosed : Yes |

Annexure I
Location map of Kaushambi district



**1.14 Soil Map**




**SOILS OF KAUSHAMBI DISTRICT (U.P.)**

**Alluvial plain (0-1% slope)**

1. Deep, loamy soils and slightly eroded .
2. Deep, fine soils moderately saline and sodic associated with loamy soils, slightly eroded .
3. Deep, fine soils and slightly eroded associated with loamy soils slightly saline and moderately sodic .
4. Deep, fine soils and slightly eroded associated with loamy soils .
5. Deep, loamy soils and slightly eroded associated with loamy soils with moderate salinity and sodicity and moderate water logging.
6. Deep, silty soils associated with loamy soils slightly eroded .
7. Deep, silty soils and slightly eroded associated with fine soils .

**Active Flood Plain (1-3% slope)**

8. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding .

**Ravinous land (3-5% slope)**

9. Deep, silty soils and severely eroded associated with loamy soils severely eroded.

**Undulating upland (3-5% slope)**

10. Deep, loamy soils, moderately eroded associated with fine smectitic soils and slightly eroded

**Very gently sloping uplands with hummocks (1-3% slope)**

11. Deep, fine soils, slightly eroded associated with fine smectitic soils and slightly eroded.

**Plateau (Sandstone on 1-3% slope)**

12. Moderately shallow, sandy-skeletal soils and very severely eroded associated with, loamy-skeletal soils and severely eroded
13. Moderately shallow, loamy soils and moderately eroded

**Source: NBSSLUP, Regional Centre, NewDelhi**

**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[a]** | **Normal Crop** | **Change in crop / cropping system[c] including variety** | **Agronomic measures[d]** | **Remarks on Implementation** |
| **Delay by 2 weeks (1 week of July)** | Deep loamy soils | Sorghum | Varsha,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23 | Seed Treatment | Prefer certified seeds rom reliable source |
| | | Pearl millet | No change<br>ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451 | Seed Treatment | |
| | | Pigeon pea | Prefer long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6<br><br>Intercropping of pigeon pea+ Perl millet (WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451) | Raised bed planting<br><br>In sole pigeon pea, 20% higher seed rate)<br><br>Intercropping of pigeon pea(interrow spacing of 75 cm)- cm) + Perl millet ( with row ratio of 1:2 | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| **Early season drought (delayed onset)** | **Major Farming situation[a]** | **Normal Crop** | **Change in crop/cropping system[c]** | **Agronomic measures[d]** | **Remarks on Implementation** |
| **Delay by 4 weeks (3 rd week of July)** | Deep loamy soils | Sorghum | Varsha,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23 | Seed Treatment<br>Interculture | Prefer certified seeds rom reliable source |
| | | Perl millet | No change<br>ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451 | Seed Treatment<br>Interculture | |
| | | Pigeon pea<br>Deep, sandy soils | Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 | Raised bed planting<br><br>In sole pigeonpea, 20% | |

| | | | | | |
|---|---|---|---|---|---|
| | | | Intercropping of pigeonpea+Jwar (Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23) | higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) +Jwar with row ratio of 1:2 | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| **Early season drought (delayed onset)** | **Major Farming situation[a]** | **Normal Crop** | **Change in crop/cropping system[c]** | **Agronomic measures[d]** | **Remarks on Implementation[e]** |
| **Delay by 6 weeks (1st week of August)** | Deep loamy soils | Sorghum | Varhsa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23 | Seed Treatment | Prefer certified seeds rom reliable source |
| | | Perl millet | No change<br><br>ICMB155, WCC75,NDFB-3, Pusa322, Pusa 23, ICMH 451 | Seed Treatment | |
| | | Pigeon pea<br>Deep, sandy soils | Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6<br><br>Intercropping of pigeonpea+ Jwar (Versa,CSV-13, CSV-15, Bundela, Hybrid CSH16, CSH 9, 13,14,18,23)) | Raised bed planting<br><br>In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) +Jwar with row ratio of 1:2 | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| **Early season drought (delayed onset)** | **Major Farming situation[a]** | **Normal Crop** | **Change in crop/cropping system[c]** | **Agronomic measures[d]** | **Remarks on Implementation[e]** |
| **Delay by 8 weeks (3rd week of August)** | Deep loamy soils | Pearl millet | Fallow Followed by Toria/ Mustard | Conserve moisture | |
| | | Sorghum | Fallow Followed by Toria/ Mustard | Conserve moisture | |
| | | Pigeon pea | Leep as fallow | Conserve moisture | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| Early season drought **(Normal onset)** | **Major Farming situation[a]** | **Normal Crop** | **Crop management[c]** | **Soil nutrient & moisture conservation measues[d]** | **Remarks on Implementation** |
| **Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.** | Deep loamy soils | Pearl millet | Weed Management | - | - |
| | | Sorghum | Weed Management | - | - |
| | | Pigeon pea | Weed control<br>Gap filling/thinning | - | - |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| **Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)** | **Major Farming situation[a]** | **Normal Crop** | **Crop management[c]** | **Soil nutrient & moisture conservation measues[d]** | **Remarks on Implementation** |
| **At vegetative stage** | Deep loamy soils | Perl millet | Weed Management | Interculture | |
| | | Sorghum | Weed Management | Interculture | |

| | | | | | |
|---|---|---|---|---|---|
| | | Pigeon pea | Weed control<br>Thinning to maintain optimum population | Mulching with locally available material/weeds | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| **Terminal drought** (Early withdrawal of monsoon) | **Major Farming situation[a]** | **Normal Crop** | **Crop management[c]** | **Rabi Crop planning[d]** | **Remarks on Implementation[e]** |
| | Deep loamy soils | Pearl millet | Weed Management | - | - |
| | | Sorghum | Weed Management | | - |
| | | Pigeon pea | Harvest at physiological maturity | - | - |

**2.1.2 Drought - Irrigated situation**

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| | **Major Farming situation[f]** | **Normal Crop** | **Change in crop** | **Agronomic measures[i]** | **Remarks on Implementation[j]** |
| Delayed release of water in canals due to low rainfall | Deep loamy soils | Paddy Narendra 97, Narendra 118, Narendra 80, NDR 359, | Transplanting with 3 to 4 seedlings/hill | • Drum seeding<br>• SRI method<br>• Irrigation at critical stages<br>• Reduce spacing plant to plant i.e.20x 15 cm | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| | **Major Farming situation[f]** | **Normal Crop** | **Change in crop** | **Agronomic measures[i]** | **Remarks on Implementation[j]** |
| Limited release of water in canals due to low rainfall | Deep loamy soils | Paddy, | Narendra 97, Narendra 118, Narendra 80, NDR 359 | • Transplanting with 3 to 4 seedlins/hill Drum seeding<br>• SRI method<br>• Irrigation at critical stages<br>• Reduce spacing plant to plant i.e.20x 15 cm | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation[f]** | **Normal Crop** | **Change in crop** | **Agronomic measures[i]** | **Remarks on Implementation[j]** |
| | | Perl millet | No change | Weed Management | |
| | | sorghum | No change | Weed Management | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation[f]** | **Normal Crop** | **Change in crop** | **Agronomic measures[i]** | **Remarks on Implementation[j]** |
| Non release of water in canals under delayed onset of monsoon in catchment | Deep loamy soils | Paddy | Narendra 97, Narendra 118, Narendra 80, NDR 359, | Transplanting with tube well irrigation<br><br>2 to 3 seedlings/hill<br>Drum seeding<br>SRI method<br>Irrigation at critical stages<br>Reduce spacing plant to plant i.e.20x 15 cm | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation[f]** | **Normal Crop/** | **Change in crop/cropping system[h]** | **Agronomic measures[i]** | **Remarks on Implementation[j]** |
| Lack of inflows into tanks due to insufficient /delayed onset of monsoon | | Not applicable | | | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation[f]** | **Normal Crop** | **Change in crop/** | **Agronomic measures[i]** | **Remarks on Implementation[j]** |
| Insufficient groundwater recharge due to low rainfall | Deep loamy soils-tube well irrigated | Paddy | No change | Transplanting with tube well irrigation<br><br>3 to 4 seedlings/hill<br>Drum seeding<br>SRI method<br>Irrigation at critical stages<br>Reduce spacing plant to plant i.e.20x 15 cm | |

**2.2 Unusual rains (untimely, unseasonal etc)** (for both rain fed and irrigated situations)

| Condition | Suggested contingency measure | | | |
|---|---|---|---|---|
| **Continuous high rainfall in a short span leading to water logging** | **Vegetative stage[k]** | **Flowering stage[l]** | **Crop maturity stage** | **Post harvest** |
| Rice | Strengthen the bunds | Strengthen the bunds | Drain out excess water | Shift the harvested produce to safer place |
| Perl millet | Drain out excess water | Drain out excess water | Drain out excess water | Shift the harvested produce to safer place |
| Sorghum | Drain out excess water | Drain out excess water | Drain out excess water | Shift the harvested produce to safer place |
| Pigeon pea | Drainage of Excess water & drenching of COC (Copper Oxy chloride) @ 2.5g/Liter water to avoid incidence of wilt & root rot. | - | - | - |
| **Horticulture** | | | - | - |
| Guava | Provide staking to less than 3 years aged plant to avoid | Provide proper drainage to avoid water logging | - | - |

| | | | | |
|---|---|---|---|---|
| | lodging | | | |
| Mango | Provide staking to less than 3 years aged plant to avoid lodging | Provide proper drainage to avoid water logging | - | - |
| **Heavy rainfall with high speed winds in a short span[2]** | Not applicable | - | - | - |
| **Outbreak of pests and diseases due to unseasonal rains** | Not applicable | - | | - |

**2.3 Floods- Not applicable**

**2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone**

| **Extreme event type** | **Suggested contingency measure[r]** | | | |
|---|---|---|---|---|
| | **Seedling / nursery stage** | **Vegetative stage** | **Reproductive stage** | **At harvest** |
| **Heat Wave[p]** | | | | |
| Rice | Raised the nursery near lift or other irrigation sources<br>Prepare 1-1.5 M wide raised Nursery Beds with provision of 30 cm width between the beds. | Apply light irrigation at evening | Apply light irrigation at evening | - |
| **Horticulture** | | | | |
| Mango | Light & frequent irrigation | Light & frequent irrigation | Light & frequent irrigation | |
| Guava | Light & frequent irrigation | Light & frequent irrigation | Light & frequent irrigation | |
| **Hailstorm** | Not applicable | | | |
| **Frost** | | | | |
| **Horticulture** | | | | |
| Mango | Proper care of seedlings | Prune affected branches<br>Plant protection measures | Harvest the produce | Grdae and market |
| Guava | | | | |
| **Cyclone** | Not applicable | | | |

## 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** | | | |
| Feed and Fodder availability | Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in common property resources (CPRs) or private property resources (PPRs) like waste and degraded lands with the monsoon pattern for higher biomass production<br>Promote cultivation of short duration fodder crops of sorghum/bajra/maize suitable to the district<br>Sowing of fodder crops like *Stylo* and *Cenchrus* on bunds so as to provide fodder and strengthening of bunds<br>Avoid burning of wheat and paddy straw and storing as dry fodder for future use<br>Proper drying, bailing and densification of harvested dry fodder for transport to the needy villages<br>Complete feed preparation using | Harvest and use biomass of dried up crops (Sorghum, Bajra, Rice etc) material as fodder.<br>Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS).<br>Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals<br>In case of mild drought, the available dry fodder may be enriched with urea and molasses and the productive livestock should be supplemented with vitamin & minerals mixture.<br>The available silage may be used as green fodder supplement for high yielders and pregnant animals<br>In case of severe drought, UMMB, hay, concentrates and vitamin & mineral mixture should be transported to the needy areas from the reserves at the district level initially and latter stages from the near by districts. All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS<br>Herd should be split and supplementation should be given only to the highly productive and breeding animals<br>Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive & breeding stock)<br>Available kitchen waste should be mixed with dry fodder while feeding | Green and concentrates supplementation should be provided to all the animals.<br>Short duration fodder crops of should be sown in unsown and crop failed areas where no further routine crop sowing is not possible<br>Promote cultivation of fodder crops during Rabi season |

| | | | |
|---|---|---|---|
| | red gram stalks may be exploited<br>Establishment of silvi-pastoral system in CPRs with *Stylosanthus hamata* and *Cenchrus ciliaris* as grass with *Leucaena leucocephala* as tree component<br>Creation of permanent fodder, feed and fodder seed banks in all drought prone villages | Arrangements should be made for mobilization of small ruminants across the districts where no drought exits with subsidized road/rail transportation and temporary shelter provision for the shepherds<br>Unproductive livestock should to be culled during severe drought<br>Create transportation and marketing facilities for the culled and unproductive animals (10000-20000 animals) in case of severe drought<br>Subsidized loans (5-10 crores) should be provided to the livestock keepers for purchase of supplements, concentrate feed ingredients etc., in case of severe drought | |
| **Heat & Cold wave** | In villages which are chronically prone to heat waves the following permanent measures are suggested<br>i) Plantation of trees like Neem, Pipal, Subabul around the shed<br>ii) Spreading of husk/straw/coconut leaves on the roof of the shed<br>iii) Water sprinklers / foggers in the animal shed<br>**iv)** Application of white reflector paint on the roof to reduce thermal radiation effect<br>**Cold wave :** Covering all the wire meshed walls / open area with gunny bags/ polyethylene sheets with a mechanism for lifting during the day time and closing during night | Allow the animals preferably early in the morning or late in the evening for grazing during heat waves<br>Allow for grazing between 10AM to 3PM during cold waves<br>Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves<br>Add 25-50 ml of edible oil in concentrates per kg and fed to the animal during cold waves<br>Apply / sprinkle lime powder (5-10g per square feet) in the animal shed during cold waves to neutralize ammonia accumulation<br>Put on the foggers / sprinklers during heat weaves and heaters during cold waves in case of high productive animals<br>In severe cases, vitamin 'C' (5-10ml per litre) and electrolytes (Electral powder @ 20g per litre) should be added in water during severe heat waves. | Green and concentrates supplementation should be provided to all the animals.<br>Allow the animals for grazing (normal timings) |
| **Health and** | List out the endemic diseases | Constitution of Rapid Action Veterinary Force | Conducting mass animal |

| | | | |
|---|---|---|---|
| **Disease management** | (species wise) in that district and store vaccines for those diseases<br>Timely vaccination (as per enclosed vaccination schedule) against all endemic diseases<br>Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district | Procurement of emergency medicines and medical kits<br>Performing ring vaccination (8 km radius) in case of any outbreak<br>Restricting movement of livestock in case of any epidemic<br>Rescue of sick and injured animals and their treatment | health camps<br>Conducting fertility camps<br>Mass deworming camps |
| **Insurance** | Insurance policy for loss of production due to drought may be developed<br>Encouraging insurance of livestock | Listing out the details of the dead animals and loss of production in high yielders | Submission for insurance claim and availing insurance benefit<br>Purchase of new productive animals |
| Drinking water | Identification of water resources<br>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<br>Provision of wholesome clean drinking water at least 3 times in a day | Bleach (0.1%) drinking water / water sources<br>Provide clean drinking water |

**2.5.2 Poultry**

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

| | | | |
|---|---|---|---|
| | | Culling of weak birds | |
| Drinking water | Rain water harvesting | Sanitation of drinking water | Give sufficient water as per the bird's requirement |
| Health and disease management | Culling of sick birds.<br>Deworming and vaccination against RD and fowl pox | 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<br>Disposal of dead birds by burning / burying with lime powder in pit |
| **Heat wave** | | | |
| Shelter/environment management | Provision of proper shelter with good ventilation | In severe cases, foggers/water sprinklers/wetting of hanged gunny bags should be arranged<br>Don't allow for scavenging during mid day | Routine practices are followed |
| Health and disease management | Deworming and vaccination against RD and fowl pox | Supplementation of house hold grain<br>Provide cool and clean drinking water with electrolytes and vit. C (5-10 ml per litre)<br>In hot summer, add anti-stress probiotics in drinking water or feed (Reestobal etc., 10-20ml per litre) | Routine practices are followed |
| **Cold wave** | | | |
| Shelter/environment management | Provision of proper shelter<br>Arrangement for brooding<br>Assure supply of continuous electricity | Close all openings with polythene sheets<br>In severe cases, arrange heaters<br>Don't allow for scavenging during early morning and late evening | Routine practices are followed |
| Health and disease management | Arrangement for protection from chilled air | Supplementation of grains<br>Antibiotics (Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to protect birds from pneumonia | Routine practices are followed |