# State: Uttar Pradesh
# Agriculture Contingency Plan for District: Farrukhabad

| 1.0 District Agriculture profile | | | | |
|---|---|---|---|---|
| 1.1 | Agro-Climatic/ Ecological Zone | | | |
| | Agro-Ecological Sub Region(ICAR) | Central Plain Zone | | |
| | Agro-Climatic Zone (Planning Commission) | Upper Gangetic Plain Region | | |
| | 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, Raebareli, Fatehpur and Allahabad. | | |
| | Geographical coordinates of district headquarters | Latitude | Longitude | Altitude (mt) |
| | | 27.37N | 79.63.E | |
| | Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS | | | |
| | Mention the KVK located in the district with address | Krishi Vigyan Kendra, Krishi Bhawan, Lakula Farm, Farrukhabad, | | |
| | Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone | CSA Kanpur | | |

| 1.2 | Rainfall | Normal RF (mm) | Normal Rainy Days (Number) | Normal Onset (Specify week and month) | Normal Cessation (Specify week and month) |
|---|---|---|---|---|---|
| | SW monsoon (June-sep) | 705.0 | 45 | 3nd week of June | 4rd week of September |
| | Post monsoon (Oct-Dec) | 36.6 | 10 | | |
| | Winter (Jan-March) | 38.3 | 10 | - | - |
| | Pre monsoon (Apr-May) | 15.5 | 2 | - | - |
| | Annual | 795.4 | 67 | - | - |

| 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) | 219.9 | 182.4 | 0.3 | 29.1 | 0.6 | 3.7 | 3.3 | 7.5 | 21.3 | 5.1 |

| 1.5 | Agricultural land use | Area(‘000 hac) | Cropping intensity (%) |
|---|---|---|---|
| | Net sown area | 149.0 | 116 % |
| | Area sown more than once | 61.9 | |
| | Gross cropped area | 210.9 | |

| 1.6 | Irrigation | Area(‘000 ha) | | |
|---|---|---|---|---|
| | Net irrigation area | 138.9 | | |
| | Gross irrigated area | 180.2 | | |
| | Rain fed area | 10.2 | | |
| | Sources of irrigation(Gross Irr. Area) | Number | Area(’000 ha) | Percentage of total irrigated area |
| | Canals | -- | 3.98 | 2.2 |
| | Tanks | - | 0 | |
| | Open wells | - | 0 | |
| | Bore wells(Tube Wells) | - | 176.2 | 97.8 |
| | Lift irrigation schemes | - | NA | |
| | Micro-irrigation | - | NA | |
| | Other sources | - | 0 | |
| | Total Irrigated Area | - | 180.179 | |
| | No. of Pump sets (2011-12) | 33117 | | |
| | No. of Tractors | 5471 | | |
| | Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board) | No of blocks- Tehsils- | (%)area | Quality of water |
| | Over exploited | | | |
| | Critical | | | |
| | Semi-critical | | | |
| | Safe | | | |
| | Waste water availability and use | | | |
| | Ground water quality | | | |
| *over-exploited groundwater utilization> 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 | | |
| | Rice | 13.2 | 0.3 | 13.5 | - | - | - | - | 13.5 |
| | Wheat | - | - | - | 73.7 | 0.2 | 73.9 | - | 73.9 |
| | Maize | 14.9 | 16.3 | 31.2 | - | - | - | - | 31.2 |
| | Bajra | 0.6 | 3.3 | 3.9 | - | - | - | - | 3.9 |
| | Masoor | - | - | - | 1.0 | 0.2 | 1.2 | - | 1.2 |
| | Potato | - | - | - | 33.1 | 0 | 33.1 | - | 33.1 |

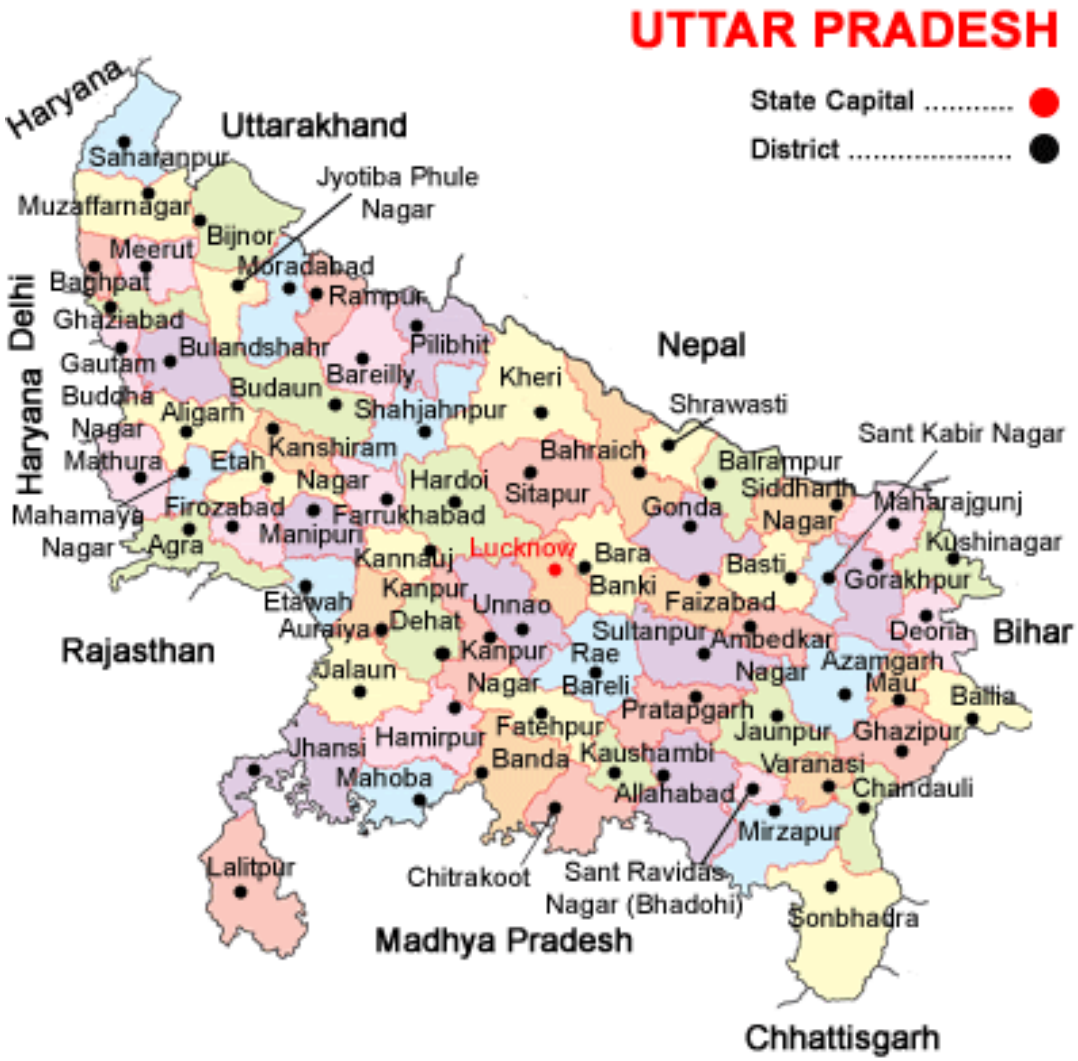
| **1.8** | **Sowing window for 5 major field crops** | **Bajra** | **Maize** | **Rice** | **Black gram** | **Jowar** | **Green gram** | **Wheat** | **Pea** | **Gram** | **Mustard** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kharif – Rainfed | 2nd week of July to last week of July | 2nd 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 Last week of July | 2nd week of July to First week of August | First week of July to 2nd week of July | - | - | - | - | - |
| | 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 | - | - | - |

| 1.9 | 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. | | | √ |

| 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 2 | Enclosed: Yes |
| | | Soil map as Annexure 3 | Enclosed: Yes |

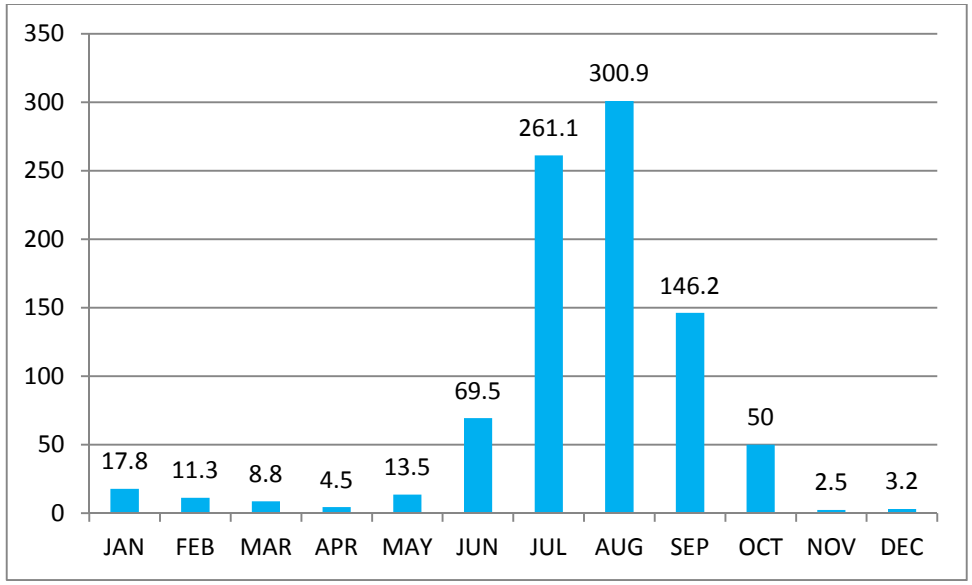
Annexure I

Location map of Farrukhabad district

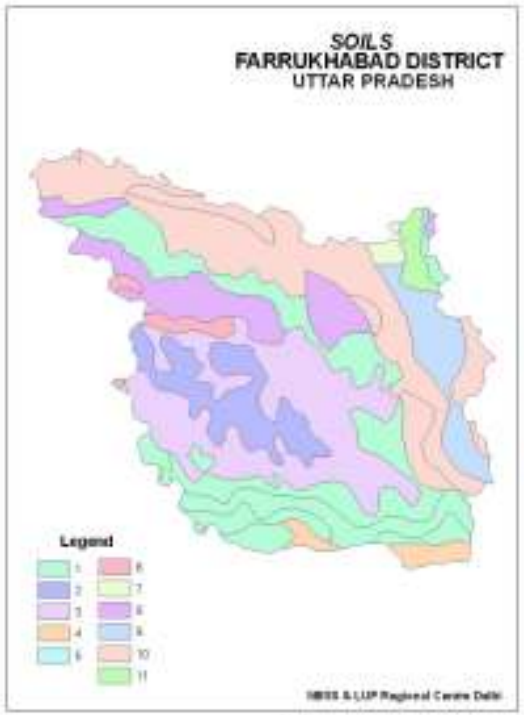


Annexure 2

Average month-wise rainfall (mm) in Farrukhabad district



Annexure 3
Soil map of Farrukhabad district




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

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

1. Deep, loamy soils and slightly eroded
2. Deep, loamy soils and slightly eroded associated with silty soils
3. Deep, fine soils and slightly eroded associated with loamy soils
4. Deep, loamy soils and slightly eroded associated with silty soils slightly saline/sodic and moderately sodic

**Old Alluvial plain with river left out channels/Oxbows/point bars (1-3%slope)**

5. Deep, fine soils with moderate water logging associated with fine soils with slight salinity/moderate sodicity

**Recent Alluvial Plain (1-3% slope)**

6. Deep, loamy soils and severely flooding and slight salinity/sodicity
7. Deep, stratified loamy soils, with severe flooding associated with loamy soils with severe flooding
8. Deep, loamy soils and moderate water logging associated with sandy soils with moderate water logging

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

9. Deep, stratified loamy soils with but moderately flooding
10. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding
11. Deep, stratified loamy soils, with moderate flooding associated with sandy soils with moderate flooding

**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 including variety** | **Agronomic measures** | **Remarks on Implementation** |
| Delay by 2 weeks<br><br>July 1st week | Normal rainfall sandy loam soils | Maize | Cropping system 3: Maize<br>**Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510<br>**Hybride-** Pusa -5 , Prakash and JH-3459 | Use medium maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |
| | | Pearl millet | Cropping system 2:Perlmillet<br>**Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171<br>**Hybride-** Pusa-23 & 322 and ICMH-451 | Use medium maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |

| **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 4 weeks<br><br>July 3rd week | Normal rainfall sandy loam soils | Maize | Crop replace by sesame –T-78, Pragti, Sekhar | Line sowing, | Linked with SDC |
| | | Pearl millet | Cropping system 2:Perlmillet<br>**Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171<br>**Hybride-** Pusa-23 & 322 and ICMH-451 | Use medium maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |
| | | Sorghum | Cropping system 1: Sorghum | Use medium maturing | Use disease free |

| | | | | | |
|---|---|---|---|---|---|
| | | | **Composite-** Varsha, CSV-13 & CSV-15,<br>**Hybrid-** CSH-9, 16, and CSH-14 | varieties, Thinning, Intercultivation, Mulching | certified seed from a reliable source |

| **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 6 weeks<br><br>Aug. 1st week | Normal rainfall sandy loam soils | Maize | Crop replace by sesame –T-78, Pragti, Sekhar | Line sowing, | Linked with SDC |
| | | Pearl millet | Cropping system 2:Perlmillet<br>**Composite-** ICTP-8203 and Raj-171<br>**Hybrid-** Pusa-23 & 322 | Use early maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |
| | | Sorghum | Cropping system 1: Sorghum<br>**Composite-** CSV-13 , CSV-15 and Vijeta<br>**Hybrid-** CSH- 16, and CSH-14 | Use early maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |

| **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 8 weeks<br><br>Aug. 3rd week | Normal rainfall sandy loam soils | Maize | **Kharif Fallow** | **Prepare for toria** | **-** |
| | | Pearl millet | Cropping system 2:Perlmillet<br>**Composite-** ICTP-8203 and Raj-171<br>**Hybrid-** Pusa-23 & 322 | Use early maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |

| | | | | | |
|---|---|---|---|---|---|
| | | Sorghum | Pigeon pea (Late sown) : Bahar, Amar , and PDA-11 | Late maturing varieties, Thinning, Intercultivation, Mulching | Use disease free certified seed from a reliable source |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| Early season drought **(Normal onset)** | **Major Farming situation** | **Normal Crop/cropping system** | **Crop management** | **Soil nutrient & moisture conservation measures** | **Remarks on Implementation** |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | Normal rainfall sandy loam soils | Maize | Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybride-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459 | Thinning and gap filling in the existing crop. Mulching, Intercultivation | |
| | | Pearl millet | Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451 | Thinning and gap filling in the existing crop. Mulching, Intercultivation | |
| | | Sorghum | Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23 | Thinning and gap filling in the existing crop. Mulching, Intercultivation | |

| 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** |
| At vegetative stage | Normal rainfall sandy loam soils | Maize | Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510 **Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459 | Thinning, Intercultivation, Mulching | Wider plant spacing by thinning |
| | | Pearl millet | Cropping system 2:Perlmillet **Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171 **Hybrid-** Pusa-23 & 322 and ICMH-451 | Thinning, Intercultivation, Mulching | Wider plant spacing by thinning |
| | | Sorghum | Cropping system 1: Sorghum **Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23 | Thinning, Intercultivation, Mulching | Wider plant spacing by thinning |

| 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 | sandy loam soils | Maize | Cropping system 3: Maize **Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH- | Spray 2% solution of Urea , Mulching | Linked with U.P Agro/PCF |

| | | | | | |
|---|---|---|---|---|---|
| | | | 510<br>**Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459 | | |
| | | Pearl millet | Cropping system 2:Perlmillet<br>**Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171<br>**Hybrid-** Pusa-23 & 322 and ICMH-451 | Spray 2% solution of Urea , Mulching | |
| | | Sorghum | Cropping system 1: Sorghum<br>**Composite-** Varsha, CSV-13, CSV-15,SPB-1388 and Vijeta<br>**Hybrid-** CSH-9, 16,14,18,13 and CSH-23 | Spray 2% solution of Urea , Mulching | |

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| **Terminal drought** (Early withdrawal of monsoon) | **Major Farming situation** | **Normal Crop/cropping system** | **Crop management** | **Rabi Crop planning** | **Remarks on Implementation** |
| | Normal rainfall sandy loam soils | Maize | Cropping system 3: Maize<br>**Composite-** Naveen, Azad uttam, Pragati,Gaurav and KH-510<br>**Hybrid-** Ganga-11, Sartaj , HQPM-5 and Prakash, JH-3459 | Planning for early potato | Linked with NSC/ Deptt. Of hort. |
| | | Pearl millet | Cropping system 2:Perlmillet<br>**Composite-** ICMB-155, WCC-75,ICTP-8203 and Raj-171<br>**Hybrid-** Pusa-23 & 322 and ICMH-451 | Planning for early potato | |
| | | Sorghum | Cropping system 1: Sorghum<br>**Composite-** Varsha, CSV-13, | Planning for early potato | |

| | | | | | |
|---|---|---|---|---|---|
| | | | CSV-15,SPB-1388 and Vijeta **Hybrid-** CSH-9, 16,14,18,13 and CSH-23 | | |

### 2.1.2 Drought - Irrigated situation

| **Condition** | | | **Suggested Contingency measures** | | |
|---|---|---|---|---|---|
| | **Major Farming situation** | **Normal Crop/cropping system** | **Change in crop/cropping system** | **Agronomic measures** | **Remarks on Implementation** |
| Delayed release of water in canals due to low rainfall | Normal rainfall Loam Soil | Cropping system 1:Paddy (Transplanted) **Rain-fed ;** Govind, Narendra-118,97 , Ashwani, **Irrigated (**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **Irrigated (**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **Irrigated (**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh | Direct seeded Paddy Saket-4, Ratna, Pant-12, Narendra-80, 2026 | Limited irrigation, weed management | Linked with SDC/SAUs |
| | | Cropping system 2: | | | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation** | **Normal Crop/cropping system** | **Change in crop/cropping system** | **Agronomic measures** | **Remarks on Implementation** |
| Limited release of water in canals due to low rainfall | Normal rainfall Loam Soil | Cropping system 1:Paddy (Transplanted) **Rain-fed ;** Govind, Narendra-118,97 , Ashwani, **Irrigated (**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **Irrigated (**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **Irrigated (**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh | Direct seeded Paddy Saket-4, Ratna, Pant-12, Narendra-80, 2026 | Limited irrigation, weed management | Linked with SDC/SAUs |
| | | **Wheat** | **Medium duration Varieties PBW-343,K-307** | | |
| | | **potato** | **C-140, Kufri, Pukhraj, Chipsona1,2,3** | | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation** | **Normal Crop/cropping system** | **Change in crop/cropping system** | **Agronomic measures** | **Remarks on Implementation** |
| Non release of water in canals under delayed onset of monsoon in catchment | Loam Soil | Cropping system 1:Paddy (Transplanted) **Rain-fed ;** Govind, Narendra-118,97 , Ashwani, **Irrigated (**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **Irrigated (**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **Irrigated (**Late)- Type-3, PB- | Direct seeded Paddy Saket-4, Ratna, Pant-12, Narendra-80, 2026 | Limited irrigation, weed management | ***Linked with SDC/SAUs*** |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation** | **Normal Crop/cropping system** | **Change in crop/cropping system** | **Agronomic measures** | **Remarks on Implementation** |
| | | 1, Kashturi, Narendra lalmati and Malvya sugandh | | | |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation** | **Normal Crop/cropping system** | **Change in crop/cropping system** | **Agronomic measures** | **Remarks on Implementation** |
| Lack of inflows into tanks due to insufficient /delayed onset of monsoon | Loam Soil | Cropping system 1:Paddy (Transplanted) **Rain-fed ;** Govind, Narendra-118,97 , Ashwani, **Irrigated (**Early) Saket-4, Ratna, Pant-12, Narendra-80, 2026 **Irrigated (**Medium) Sarjoo-52, Pant-4, Narendra-359, 2026,2064 **Irrigated (**Late)- Type-3, PB-1, Kashturi, Narendra lalmati and Malvya sugandh | Direct seeded Paddy Saket-4, Ratna, Pant-12, Narendra-80, 2026 | Limited irrigation, weed management | ***Linked with SDC/SAUs*** |

| Condition | | | Suggested Contingency measures | | |
|---|---|---|---|---|---|
| | **Major Farming situation** | **Normal Crop/cropping system** | **Change in crop/cropping system** | **Agronomic measures** | **Remarks on Implementation** |
| Insufficient groundwater recharge due to low rainfall | Loam Soil | Paddy | Catch crop Toria T-9, T-36, PT-30 and PT-303 as per situation | Limited irrigation, Weeding and Management of Pest and Disease | Seed supply through Govt. approved seed centers |

**2.2 Unusual rains (untimely, un seasonal etc)**

| **Condition** | **Suggested contingency measure** | | | |
|---|---|---|---|---|
| **Continuous high rainfall in a short span leading to water logging** | **Vegetative stage** | **Flowering stage** | **Crop maturity stage** | **Post harvest** |
| Maize | Drainage | Drainage | Drainage | Shift to safe place |
| Paddy | Banding around the field | Drain out excess water | Drain out excess water | Shift to safe place |
| Pearl millet | Drainage | Drainage | Drainage | Shift to safe place |
| Sorghum | Drainage | Drainage | Drainage | Shift to safe place |
| Sugarcane | Drainage | Drainage | Drainage | Shift to safe place |
| **Outbreak of pests and diseases due to un seasonal rains** | | | | |
| Maize | Need based and recommended pant protection Measures | | | |
| Paddy | | | | |
| Pearl millet | | | | |
| Sorghum | | | | |
| Sugarcane | | | | |
| **Horticulture** | | | | |

**2.3 Floods : Occasional events; Not Applicable**

| **Condition** | **Suggested contingency measure** | | | |
|---|---|---|---|---|
| **Transient water logging/ partial inundation**[1] | **Seedling / nursery stage** | **Vegetative stage** | **Reproductive stage** | **At harvest** |
| **Horticulture** | Not applicable | | | |
| **Continuous submergence for more than 2 days** | Not applicable | | | |
| **Sea water intrusion** | 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** | Not applicable | | | |
| **Cold wave** | Not applicable | | | |
| **Frost** | Not applicable | | | |
| **Hailstorm** | Not applicable | | | |
| **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 | Harvest and use biomass of dried up crops (Sorghum, Bajra, Maize, Rice, Wheat, pea, chick pea 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 & | 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 |

| | | | |
|---|---|---|---|
| | 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 red gram stalks may be exploited<br>Preserving maize fodder as silage for future use<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 | 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<br>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 | |
| **Cyclone & Floods** | **NA** | | |
| **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 / | 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 | Green and concentrates supplementation should be provided to all the animals.<br>Allow the animals for grazing (normal timings) |

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| | 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 | 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. | |
| **Health and Disease management** | List out the endemic diseases (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 | Constitution of Rapid Action Veterinary Force<br>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 | Conducting mass animal 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 | | |
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| | **Before the event** | **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<br>Culling of weak birds | Supplementation to all survived 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 |

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| **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 |