

State: Uttar Pradesh

Agriculture Contingency Plan for District: Bijnor

| 1.0 District Agriculture profile | | | | |
|--|---|---|---------------------|----------|
| 1.1 | Agro-Climatic/Ecological Zone | | | |
| | Agro Ecological Sub Region (ICAR) | Northern Plain, Hot Subhumid (Dry) Eco-Region (9.1) | | |
| | Agro-Climatic Zone (Planning Commission) | Upper Gangatic plain Zone (V) | | |
| | Agro Climatic Zone (NARP) | Bhabar and Terai zone(UP-2) | | |
| | List all the districts falling under the NARP Zone* (*>50% area falling in the zone) | Pilibhit, Bareilly, Rampur, Moradabad, Shahjampur, Badaun, Jyotibaphule Nagar | | |
| | Geographic coordinates of district headquarters | Latitude | Longitude | Altitude |
| | | 29° 2' 29 ⁰ 58' N | 78° 0' to 78° 57' E | 115 mt. |
| | Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS | ZRS Nagina Bijnor, S.V.P.U. A & T, Meerut | | |
| | Mention the KVK located in the district with address | K.V.K, Nagina of S.V.P.U. A & T | | |
| Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone | S.V.P.University ZRS Nagina & S.V.P.U. A & T, Meerut | | | |

| 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): | 947.5 | 58 | 2 nd week of June | 3 rd week of September |
| | NE Monsoon(Oct-Dec): | 45.7 | 13 | 3 rd week of December | 3 rd week of January |
| | Winter (Jan- March) | 87.5 | 16 | - | - |
| | Summer (Apr-May) | 26.6 | 8 | - | - |
| | Annual | 1107.3 | 95 | - | - |

| | | | | | | | | | | | |
|------------|---|-------------------|-----------------|-------------|---------------------------------|--------------------|----------------------|--|------------------------------|-----------------|---------------|
| 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) | 464.578 | 332.615 | 54.898 | 54.901 | 0.452 | 4.089 | 2.098 | 4.356 | 6.802 | 3.367 |

| | | | |
|------------|---|-----------------------|-----------------------------|
| 1.4 | Major Soils (common names like red sandy loam deep soils (etc..))* | Area ('000 ha) | Percent (%) of total |
| | 1. Sandy loam | 91.67 | 27.56 |
| | 2. Loam | 114.25 | 34.35 |
| | 3. Clay loam | 71.71 | 21.56 |
| | 4. Silt loam | 53.65 | 16.13 |
| | 5. | | |
| | Others (specify): | | |

| | | | |
|------------|------------------------------|----------------|----------------------|
| 1.5 | Agricultural land use | Area ('000 ha) | Cropping intensity % |
| | Net sown area | 332.615 | 130.94% |
| | Area sown more than once | 102.906 | |
| | Gross cropped area | 435.521 | |

| | | | | |
|------------|--------------------------------|----------------|----------------|------------------------------------|
| 1.6 | Irrigation | Area ('000 ha) | | |
| | Net irrigated area | 262.830 ha | | |
| | Gross irrigated area | 8.718 ha | | |
| | Rainfed area | 69.785 | | |
| | Sources of Irrigation | Number | Area ('000 ha) | Percentage of total irrigated area |
| | Canals | | 12.816 | 4.9 % |
| | Tanks | | 0.052 | 0.02 % |
| | Open wells | NA | 125.360 | 47.70 % |
| | Bore wells | NA | 124.603 | 47.41 % |
| | Lift irrigation schemes | NIL | - | - |
| | Micro-irrigation | | - | - |
| | Other sources (please specify) | | - | - |
| | Total Irrigated Area | | 262.83 | |
| | Pump sets | | | |

| | | | |
|--|--|------------------------|---|
| No. of Tractors | | | |
| Groundwater availability and use* (Data source: State/Central Ground water Department /Board) | No. of blocks/ Tehsils Block-11 | (%) area | Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc) |
| Over exploited | Aku 1 | - | Not reported |
| Critical | Noorpur, Jalilpur, Kritpur, Burhanpur 4 | 7.24, 8.39, 5.23, 5.59 | do |
| Semi- critical | 4 | - | do |
| Safe | 2 | - | do |
| Wastewater availability and use | - | - | do |
| Ground water quality | | | |

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

1.7 Area under major field crops & horticulture (as per latest figures) (2008-09)

| 1.7 | Major field crops cultivated | Area ('000 ha) | | | | | | | |
|-----------|---------------------------------|----------------|---------|---------|-------------|---------|-------|---------|----------------|
| | | <i>Kharif</i> | | | <i>Rabi</i> | | | Summer | Grand total |
| | | Irrigated | Rainfed | Total | Irrigated | Rainfed | Total | | |
| Rice | 49.403 | - | 49.403 | - | - | - | - | 49.403 | |
| Wheat | - | - | - | 110.82 | - | 110.82 | - | 110.82 | |
| Sugarcane | - | - | - | 215.833 | - | 215.833 | - | 215.833 | |
| Mustard | - | - | - | - | 2.011 | 2.011 | - | 2.011 | |
| Toria | - | - | - | 8.256 | 5.741 | 13.997 | - | 13.997 | |
| Lentil | - | - | - | - | 1.722 | 1.722 | - | 1.722 | |
| Blackgram | - | 1.289 | 1.289 | - | - | - | 1.256 | 2.545 | |
| Sesamum | - | .256 | .256 | - | - | - | - | 0.256 | |
| Groundnut | - | 1.118 | 1.118 | - | - | - | - | 1.118 | |
| | | | | | | | | | |

| Horticulture crops - Fruits | Area ('000 ha) | | |
|--|----------------|-----------|---------|
| | Total | Irrigated | Rainfed |
| All fruits crops | 10037 ha | | |
| Horticulture crops - Vegetables | Total | Irrigated | Rainfed |
| Potato | 0.888 | 0.888 | - |
| Medicinal and Aromatic crops | Total | Irrigated | Rainfed |
| Flower | 0.135 ha | | |
| Plantation crops | Total | Irrigated | Rainfed |
| Poplar | 13.468 | 13.468 | 13.468 |
| Eucalyptus | 6.256 | - | 6.256 |
| Eg., industrial pulpwood crops etc. | | | |
| Fodder crops | Total | Irrigated | Rainfed |
| Jowar | 48.626 | 48.626 | - |
| Bajra | 3.462 | - | |
| Berseem | 2.394 | 2.394 | - |
| Total fodder crop area | 54.482 | 51.020 | 3.462 |
| Grazing land | 0.246 | 0.246 | - |
| Sericulture etc | - | - | - |
| Others (specify) | - | - | - |

| | | | | |
|-------------|--|---------------------|----------------------------------|---------------------|
| 1.8 | Livestock | Male ('000) | Female ('000) | Total ('000) |
| | Non descriptive Cattle (local low yielding) Indi | 107.165 | 258.461 | 365.626 |
| | Crossbred cattle/Exotic Improved cattle | 16.392 | 47.079 | 63.471 |
| | Non descriptive Buffaloes (local low yielding) | 114.697 | 351.490 | 466.181 |
| | Descript Buffaloes | 49.156 | 150.638 | 196.792 |
| | Goat | 31.339 | 54.205 | 85.544 |
| | Sheep Indigenous + Exotic | 3710+36 | 4673+101 | 84.463 |
| | Others (Camel, Pig, Yak etc.) | | | 882.011 |
| | Commercial dairy farms (Number) | | | |
| 1.9 | Poultry | No. of farms | Total No. of birds ('000) | |
| | Commercial | 0 | 0 | |
| | Backyard | | (38.741+50.414)=89.155 | |
| 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) | Non-mechanized (Shore Seines, Stake & trap nets) | |
| | | - | - | - | - | - |
| ii) Inland (Data Source: Fisheries Department) | No. Farmer owned ponds | | No. of Reservoirs | | No. of village tanks | |
| | | | | | | |
| 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) | | | - | - | - | |
| Others | | | - | - | - | |

1.11 Production and Productivity of major crops (Average of last 5 years: 2008-09 specify years)

| 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) | | | | | | | | | | |
| | Rice | 118.024 | 2389 | - | - | - | - | 118.024 | 2389 | 148.68 |
| | Wheat | - | - | 331.036 | 2987 | - | - | 331.036 | 2987 | 413.795 |
| | Sugarcane | - | - | 13039.767 | 60402 | - | - | 13039.767 | 60402 | 1955.85 |
| | Mustard | - | - | 2.092 | 1040 | - | - | 2.092 | 1040 | - |
| | Toria | - | - | 12.848 | 918 | - | - | 12.848 | 918 | - |

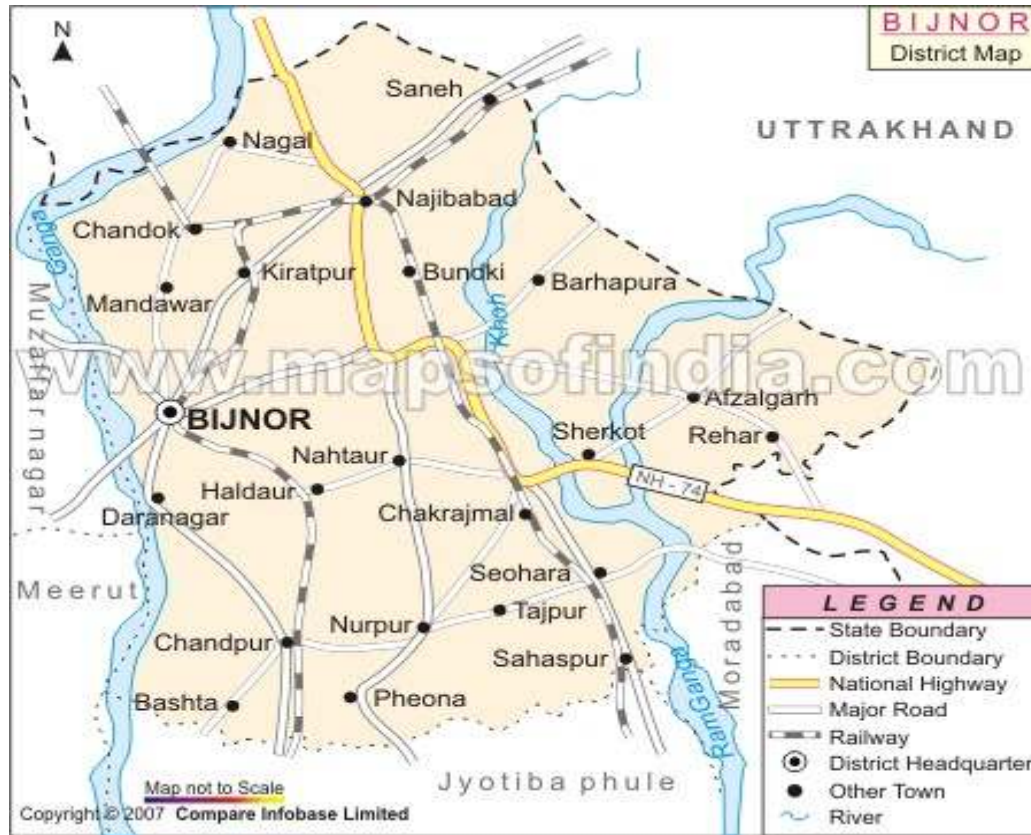
| | | | | | | | | | | |
|--|--------|-------|-----|--------|-------|-------|-----|--------|-------|-------|
| | Lentil | - | - | 1.345 | 781 | - | - | 1.345 | 781 | 1.625 |
| | Urd | 1.215 | 943 | - | - | 1.184 | 943 | 2.399 | 943 | 2.99 |
| | Til | 0.027 | 104 | - | - | - | - | 0.027 | 104 | - |
| | G. Nut | 0.801 | 674 | - | - | - | - | 0.801 | 674 | 0.961 |
| | Others | | | | | | | | | |
| Major Horticultural crops (Crops to be identified based on total acreage) | | | | | | | | | | |
| | Potato | - | - | 21.576 | 24278 | - | - | 21.576 | 24278 | - |

| | | | | | | |
|-------------|---|-------------|--------------|------------------|-----------------------|--------------------------------------|
| 1.12 | Sowing window for 5 major field crops (start and end of normal sowing period) | Rice | Wheat | Sugarcane | Toria, Mustard | Sesamum, Groundnut, Blackgram |
| | Kharif- Rainfed | June-July | - | - | - | July-Aug |
| | Kharif-Irrigated | June-July | - | - | - | July-Aug |
| | Rabi- Rainfed | - | Nov | - | Sep-Oct | - |
| | Rabi-Irrigated | - | Nov-Dec | March-April | Oct | - |

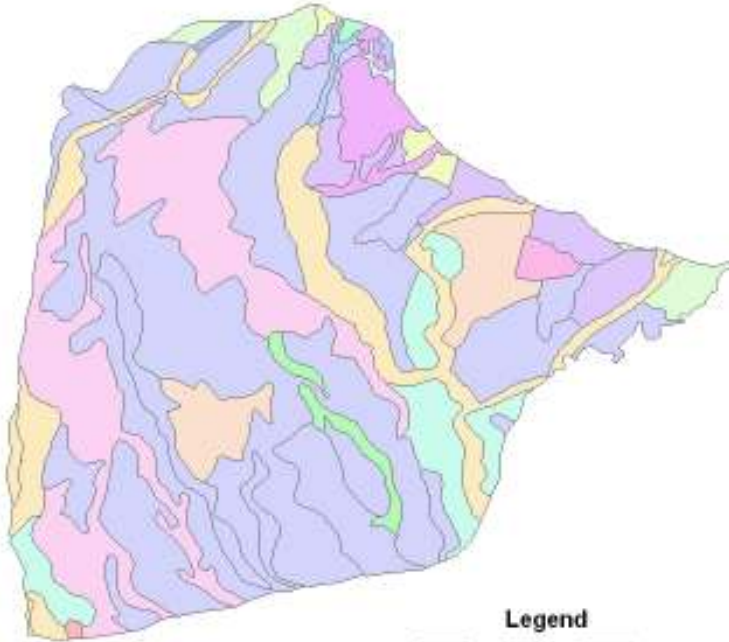
| | | | | |
|-------------|--|----------------|-------------------|-------------|
| 1.13 | What is the major contingency the district is prone to? (Tick mark) | Regular | Occasional | None |
| | Drought | x | √ | x |
| | Flood | x | √ | x |
| | Cyclone | x | √ | x |
| | Hail storm | x | √ | x |
| | Heat wave | x | x | √ |
| | Cold wave | x | √ | x |
| | Frost | x | √ | x |
| | Sea water intrusion | x | x | √ |
| | Pests and disease outbreak (specify) Stem borar, Sheath blight, Neck blast, Pyrilla, White grub, Rust etc. | √ | x | x |
| | Others (specify) Fog | x | √ | x |

| | | | |
|------|--|---|---------------|
| 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: No |
| | | Soil map as Annexure 3 | Enclosed: Yes |

Annexure I



**SOILS
BIJNOR DISTRICT
UTTAR PRADESH**



Legend

| | | |
|---|----|----|
| 1 | 7 | 13 |
| 2 | 8 | 14 |
| 3 | 9 | 15 |
| 4 | 10 | 16 |
| 5 | 11 | 17 |
| 6 | 12 | |

NBSS & LUP, Regional Centre Delhi

| Legend | Description |
|---------------|---|
| 1 | Shallow loamy-skeletal soils and medium loamy soils |
| 2 | Deep loamy soils and shallow loamy-skeletal soils |
| 3 | Deep loamy soils and loamy-skeletal soils |
| 4,7,8,10 &13 | Deep loamy soils and loamy soils |
| 5,6 &14 | Deep, loamy soils and sandy soils |
| 9&11 | Deep, loamy soils and silty soils |
| 12 | Deep, loamy soils and loamy soils(saline/sodic) |
| 15 | Deep, loamy soils (moderately saline and sodic) |
| 16 | Deep, sandy soils and loamy soils(slight flooding) |
| 17 | Deep, fine soils and fine moderate skeletal soils |

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 / Cropping system ^b | Change in crop / cropping system ^c including variety | Agronomic measures ^d | Remarks on Implementation ^e |
| Delay by 2 weeks (Specify month)* 4 th week of June | Deep soil, yellow colored alluvial loam soil | Maize Sorghum Pearl millet Pigeonpea | Maize: Kanchan, Navin Navjyoti, Azad utam, Surya, Meerut pili, Ganga 2, 11 Samrat etc Sorghum: CSH 14, 16, CSB 13, 15, SPB 1338 etc Pearl millet: Raj-171, WCC-75, Pusa 23, 322, ICMH-451 Pigeonpea: UPAS 120, ICPL 151, Pusa 33, | <ul style="list-style-type: none"> • Conservation furrow • Inter-cultivation • Sowing with multi seed drill • Wider spacing for pigeonpea | <ul style="list-style-type: none"> • Seed-drill under RKVY • Supply of seed through govt. agencies <i>ie.</i> NFSM, RKVY • Re-scheduling of canal calendar |
| Delay by 4 weeks (Specify month) 2 nd week of July | Deep soil, yellow colored alluvial loam soil | Maize Pearl millet Sesamum Blackgram | Maize: Kanchan, Navin Navjyoti, Azad utam, Surya, Meerut pili, Ganga 2, 11 Samrat etc Pearl millet: Raj-171, WCC-75, Pusa 23, 322 icmh-451 Sesamum: Pergati, Shekar, TA-78, TA-12 Blackgram: Narender urd-1, Pant U-30, 19, 35 etc | <ul style="list-style-type: none"> • Conservation furrow • Inter-cultivation • Sowing with multi seed drill | Seed-drill under RKVY Supply of seed through govt. agencies <i>ie.</i> NFSM |
| Delay by 6 weeks 4 th week of July | Others | Blackgram/Greengram Torina Pearl millet | Blackgram: Narender urd-1, Pant U-30, 19, 35 Greengram: Pantmoong -2, 3, Narender mung -1, 4, SML-668, PDM-11 Pearl millet: Raj-171, WCC-75, Pusa 23, 322 ICMH-451 | Sowing with multi seed drill | Re-scheduling of canal calendar |
| Condition | | | Suggested Contingency measures | | |
| Early season drought | Major Farming situation ^a | | Change in crop/cropping system ^c | Agronomic measures ^d | Remarks on Implementation ^e |

| | | | | | |
|---|--|-------|--|--|--|
| Delay by 8 weeks 2 nd week of August | Deep soil, yellow colored alluvial loam soil | Toria | Toria: P.T.-30, 507, 303, Bhawani, T-9 | <ul style="list-style-type: none"> • Conservation furrow • Inter-cultivation • Sowing with multi seed drill | <ul style="list-style-type: none"> • Seed-drill under RKVY • Supply of seed through govt. agencies <i>ie.</i> NFSM |
|---|--|-------|--|--|--|

| Condition | Major Farming situation ^a | Normal Crop / Cropping system | Suggested Contingency measures | | |
|--|--------------------------------------|--|---|--|---|
| | | | Crop management | Soil nutrient & moisture conservation measures | Remarks on Implementation |
| Early season drought (Normal onset) | | | | | |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | Irrigated upland | Rice: PS 4, 5, PB 1, PRH 10 Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati Maize: Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili Sorghum (Fodder): Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 | 1. Thinning, weeding and gap filling in existing crop. 2. Re sowing 3. Selection/nursery sowing of short duration rice cultivar | <ul style="list-style-type: none"> • Inter cultivation • Conservation furrow • Thinning and weeding • Mulching | <ul style="list-style-type: none"> • Supply of inter cultural implements through RKVY • Farm ponds through IWSM programme • Pulse crop seeds supply through NFSM |
| | Irrigated lowland | Rice: PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 Sorghum (Fodder): Kanpuri, UP Chari 1,2, Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 | | | |

| | | | | | |
|--|----------------------|---|--|--|--|
| | Un irrigated upland | Maize/Sorghum: Local Merut pili Toriam: T-36,T-9,Bhawani, PT-30,303,507 Pigeonpea: UPAS 120, ICPL 151 | | | |
| | Un irrigated lowland | Pearl millet: Local, Merut pili Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati | | | |

| Condition | | | Suggested Contingency measures | | |
|--|--------------------------------------|--|--|--|--|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation ^a | Normal Crop/cropping system ^b | Crop management | Soil nutrient & moisture conservation measures | Remarks on Implementation |
| At vegetative stage | Irrigated upland | Rice: PS 4, 5, PB 1, PRH 10 Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 Sesamum:T-4 ,T-12, T-13, T-78, Shaker, Pergati Maize: Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili Sorghum (Fodder): Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 | 1. Thinning, weeding and gap filling in existing crop. 2. Re sowing 3.Postponement of top dressing 4.Life saving irrigation | <ul style="list-style-type: none"> • Inter cultivation • Conservation furrow • Thinning and weeding • Mulching | <ul style="list-style-type: none"> • Supply of inter cultural implements through RKVY • Farm ponds through IWSM programme • Pulse crop seeds supply through NFSM • Micro/drip/sprinkler irrigation under govt. schemes |
| | Irrigated lowland | Rice: PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 Sorghum (Fodder): Kanpuri, UP Chari 1,2, Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 | | | |
| | Un irrigated upland | Maize/Sorghum: Local Merut pili Toriam: T-36,T-9,Bhawani, PT-30,303,507 Pigeonpea: UPAS 120, ICPL 151 | | | |
| | Un irrigated lowland | Pearl millet: Local Merut pili Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati | | | |

| Condition | | | Suggested Contingency measures | | |
|------------|-------|--|--------------------------------|-----------------|------------|
| Mid season | Major | Normal Crop/cropping system ^b | Crop management | Soil nutrient & | Remarks on |

| drought (long dry spell) | Farming situation ^a | | | moisture conservation measures | Implementation |
|---------------------------------|--------------------------------|--|--|--|---|
| At flowering/ fruiting stage | Irrigated upland | Rice: PS 4, 5, PB 1, PRH 10 Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati Maize: Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili Sorghum (Fodder): Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 | 1. Thinning, weeding and gap filling in existing crop. 2.Life saving irrigation 3. Weeding and weed mulching | <ul style="list-style-type: none"> • Conservation furrow • Thinning and weeding • Mulching • Urea spray or KCL spray | <ul style="list-style-type: none"> • Farm ponds through IWSM programme |
| | Irrigated lowland | Rice: PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 Sorghum (Fodder): Kanpuri, UP Chari 1,2, Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 | | | |
| | Un irrigated upland | Maize/Sorghum: Local Merut pili Toriam: T-36,T-9,Bhawani, PT-30,303,507 Pigeonpea: UPAS 120, ICPL 151 | | | |
| | Un irrigated lowland | Pigeonpea: UPAS 120, ICPL 151 Pearl millet: Local Merut pili Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati | | | |

| Condition | Major Farming situation ^a | Normal Crop/cropping system ^b | Suggested Contingency measures | | |
|--|--------------------------------------|--|--|--|---|
| | | | Crop management | Rabi crop planning | Remarks on Implementation |
| Terminal drought (Early withdrawal of monsoon) | Irrigated upland | Rice: PS 4, 5, PB 1, PRH 10 Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati Maize: Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili Sorghum (Fodder): Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 | 1.Life saving irrigation 2. Picking/harvesting of pods/ear 3.Harvest at physiological maturity stage 4.Harvest for fodder | <ul style="list-style-type: none"> • Toria/mustard • Potato • Pea/gram • Berseem/oat • Land levelling | <ul style="list-style-type: none"> • Farm ponds through IWSM programme • Supply of seed through ISOPM • Harvesting and threshing |
| | Irrigated | Rice: PS 2,3, PB 1, Sarju 52, Pant 4, Narendra | | | |

| | | | | | |
|--|----------------------|---|--|--|--|
| | lowland | 359, Saket 4 Sorghum (Fodder): Kanpuri, UP Chari 1,2, Sugarcane: 64, 88230, 92254, 95255, COS 767, 8432, 97284 | | | implements through RKVY • Supply of land lazer labeler through CLDP or RKVY |
| | Un irrigated upland | Maize/Sorghum: Local Merut pili Toria: T-36,T-9,Bhawani, PT-30,303,507 Pigeonpea: UPAS 120, ICPL 151 | | | |
| | Un irrigated lowland | Pigeonpea: UPAS 120, ICPL 151 Pearl millet: Local, Merut pili Sesamum:T-4 ,T-12, T-13, T-78, Shekar, Pergati | | | |

1.1.2. Drought Irrigated situation

| Condition | Major Farming situation ^f | Normal Crop/ cropping system ^g | Suggested Contingency measures | | | |
|--|--------------------------------------|---|---|---|--|---|
| | | | Change in crop/cropping system ^h | Agronomic measures ⁱ | Remarks on Implementation ^j | |
| Delayed release of water in canals due to low rainfall | Upland sandy loam soils | Rice (Basmati)-Wheat | Replace rice with maize or aerobic rice Rice: PS 4, 5, PB 1, PRH 10 Maize: Kanchan, Sweta, Navin, Surya | <ul style="list-style-type: none"> • Use short duration varieties Light irrigation with tube well water <ul style="list-style-type: none"> • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane/maize | <ul style="list-style-type: none"> • Seed through KSSC and NFSM • Adequate supply of electricity/diesel should be ensured by the Govt. agencies. | |
| | | Sorghum (Fodder)/Maize-Potato/ Wheat | Pearl millet/Greengram/ Blackgram - Potato/ Wheat Pearl millet: WCC-75,Raj-171,Pusa-23,Pusa-322 | | | |
| | | Sugarcane +cucurbits –Ratoon-Wheat | No change required | | | |
| | Lowland clay loam soils | Rice-wheat | Basmati rice –Wheat Rice: PS 4, 5, PB 1, PRH 10 Kanchan, Sweta, Navin, Surya | <ul style="list-style-type: none"> • Use short duration varieties Light irrigation with tube well water <ul style="list-style-type: none"> • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane | <ul style="list-style-type: none"> • Seed through KSSC and NFSM • Adequate supply of electricity/diesel should be ensured by the Govt. agencies. | |
| | | | Sorghum Fodder-Wheat | | | Pearl millet-Wheat Pearl millet fodder: WCC-75, Raj-171, Pusa-23, Pusa-322 |
| | | | Sugarcane-Ratoon-Wheat | | | No change required |

| Condition | Suggested Contingency measures | | | | | | |
|--|--------------------------------------|--|---|--|--|--|---|
| | Major Farming situation ^f | Normal Crop/cropping system ^g | Change in crop/cropping system ^h | Agronomic measures ⁱ | Remarks on Implementation ^j | | |
| Limited release of water in canals due to low rainfall | Upland sandy loam soils | Rice (Basmati)-Wheat | No change required | <ul style="list-style-type: none"> • Light irrigation with tube well water at critical stages only e.g CRI, Tillering &.Flowering stage • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane/maize | <ul style="list-style-type: none"> • Adequate supply of electricity/diesel should be ensured by the Govt. agencies. | | |
| | | Sorghum (Fodder)/Maize-Potato/ Wheat | No change required | | | | |
| | | Sugarcane +cucurbits –Ratoon-Wheat | No change required | | | | |
| | Lowland clay loam soils | Rice-wheat | No change required | | | <ul style="list-style-type: none"> • Light irrigation with tube well water at critical stages only e.g CRI, Tillering &.Flowering stage • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane | <ul style="list-style-type: none"> • Supply of inter cultural implements through RKV • Adequate supply of electricity/diesel should be ensured by the Govt. agencies. |
| | | Sorghum Fodder-Wheat | No change required | | | | |
| | | Sugarcane-Ratoon-Wheat | No change required | | | | |

| Condition | Suggested Contingency measures | | | | |
|--|--|--|---|--|---|
| | Major Farming situation ^f | Normal Crop/cropping system ^g | Change in crop/cropping system ^h | Agronomic measures ⁱ | Remarks on Implementation ^j |
| Non release of water in canals under delayed onset of monsoon in catchment | Upland tube well irrigated canal sandy loam soil | Basmati rice | Maize/Aerobic Rice | <ul style="list-style-type: none"> • Limited irrigation • Alternate Furrow irrigation • Drip irrigation • Mulching | <ul style="list-style-type: none"> • Seed through KSSC and NFSM • Supply of inter cultural implements through RKVY • |
| | | Sorghum/Maize | Pearl millet /Pigeonpea/Blackgram | | |
| | | Sugarcane +cucurbits | Sugarcane | | |
| | Lowland tube well irrigated canal clay | Rice | Pearl millet/ Blackgram/Greengram | | |

| Condition | Suggested Contingency measures | | | | |
|--|--|--|---|---|---|
| | Major Farming situation ^f | Normal Crop/cropping system ^g | Change in crop/cropping system ^h | Agronomic measures ⁱ | Remarks on Implementation ^j |
| | loam soil | Sorghum Fodder | Pearl millet/Sorghum Fodder | <ul style="list-style-type: none"> • Alternate Furrow irrigation • Drip irrigation • Mulching • Alternate furrow irrigation | <ul style="list-style-type: none"> • KSSC and NFSM • Harvesting and threshing implements through RKVY |
| | | Sugarcane + cucurbits | Sugarcane | | |
| Condition | Major Farming situation ^f | Normal Crop/cropping system ^g | 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 | 1) Farming situation: Mention source of irrigation, topography | Cropping system 1: | NA | NA | NA |

| Condition | Suggested Contingency measures | | | | |
|---|--|--|--|---|---|
| | Major Farming situation ^f | Normal Crop/cropping system ^g | Change in crop/cropping system ^h | Agronomic measures ⁱ | Remarks on Implementation ^j |
| Insufficient groundwater recharge due to low rainfall | Upland tube well irrigated canal sandy loam soil | Basmati rice | Maize/Aerobic Rice /Vegetable (Tomato, Brinjal, cucurbits etc) | <ul style="list-style-type: none"> • Limited irrigation • Alternate Furrow irrigation • Drip irrigation • Mulching | <ul style="list-style-type: none"> • Seed through KSSC and NFSM • Harvesting and threshing implements through RKVY |
| | | Sorghum/Maize | Pearl millet /Pigeonpea/Blackgram | | |
| | | Sugarcane +cucurbits | Sugarcane | | |
| | Lowland tube well irrigated canal clay loam soil | Rice | Pearl millet/ Blackgram/Greengram | <ul style="list-style-type: none"> • Limited irrigation • Alternate Furrow irrigation • Drip irrigation • Mulching • Alternate furrow irrigation | <ul style="list-style-type: none"> • Seed through KSSC and NFSM • Micro/drip/sprinkler irrigation under govt. schemes • Supply of inter cultural implements through RKVY |
| | | Sorghum Fodder | Pearlmillet/SorghumFodder | | |
| | | Sugarcane + cucurbits | Sugarcane | | |

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

| Condition | Suggested contingency measure | | | |
|--|-------------------------------|------------------------------|--|---|
| | Vegetative stage ^k | Flowering stage ^l | Crop maturity stage ^m | Post harvest ⁿ |
| Continuous high rainfall in a short span leading to water logging | | | | |
| Maize + Blackgram/Greengram/Cucurbits | Provide drainage | Provide drainage | Drain out excess water, Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Sugarcane | Provide drainage | NA | Drain out excess water and harvest the lodged crop as early as possible | Supply to sugar mills /crusher as early as possible or shift to safer place and cover the cane with trash materials |
| Blackgram/Greengram | Provide drainage | Provide drainage | Drain out excess water. Harvesting at physiological maturity stage. | Safe storage against storage pest and disease |
| Horticulture | | | | |
| Okra | Provide drainage | Provide drainage | Picking of vegetables at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Cucurbits | Provide drainage | Provide drainage | Drain out excess water & Harvesting at physiological maturity stage and picking of cucurbits crop. | Shift to safer place & dispose of produce as early as possible |
| Brinjal | Provide drainage | Provide drainage | Picking at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Tomato | Provide drainage | Provide drainage | Picking at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Mango | - | - | Spray of 2% urea + Carbendazim 0.02% solution | - |
| Guava | - | - | Spray of 2% urea + Carbendazim 0.02% solution | - |
| Heavy rainfall with high speed winds in a short span² | | | | |
| Sugarcane | • Earthing up | NA | Drain out excess water and harvest | Supply to sugar mills |

| | | | | |
|---------------------|--|---|--|---|
| | • Tying | | the lodged crop as early as possible | /crusher as early as possible or shift to safer place and cover the cane with trash materials |
| Maize/Sorghum | Provide drainage | Provide drainage Use Wind breaks | Drain out excess water & Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Blackgram/Greengram | Provide drainage | Provide drainage Use Wind breaks | Drain out excess water & Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Rice basmati | Provide drainage | Provide drainage | Drain out excess water & Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Pigeonpea | • Provide drainage • Sowing on raised bed | Provide drainage | Drain out excess water & Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Horticulture | | | | |
| Okra | • Provide drainage • Sowing on raised bed | Provide drainage | Drain out Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Brinjal | • Provide drainage • Sowing on raised bed | Provide drainage | Drain out Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Tomato | • Provide drainage • Sowing on raised bed • Stacking | Provide drainage Use Wind breaks Stacking | Drain out Harvesting at physiological maturity stage Stacking | Shift to safer place & dispose of produce as early as possible |
| Cauliflower | • Provide drainage • Sowing on raised bed | Provide drainage | Drain out Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |
| Cucurbits | • Provide drainage • Sowing on raised bed | Provide drainage | Drain out Harvesting at physiological maturity stage | Shift to safer place & dispose of produce as early as possible |

| | | | | |
|---|--|--|---|--|
| Mango | Use Wind breaks | Use of NAA spray | Use of NAA spray | - |
| Guava | Use Wind breaks | Use of NAA spray | Use of NAA spray | - |
| Outbreak of pests and diseases due to unseasonal rains | | | | |
| Rice basmati | Need based plant protection IPDM for Rice/pluses | Need based plant protection IPDM for Rice/pluses | Do not use strong pesticide at maturity stage | Shift to safer place & dispose of produce as early as possible |
| Sugarcane | | | | |
| Sorghum fodder | | | | |
| Blackgram/Greengram | | | | |
| Pigeonpea | | | | |
| Horticulture | | | | |
| Okra | Need based plant protection IPDM for Rice/pluses | Need based plant protection IPDM for Rice/pluses | Do not use strong pesticide at maturity stage | Shift to safer place & dispose of produce as early as possible |
| Brinjal | | | | |
| Tomato | | | | |
| Cucurbits | | | | |
| Cauliflower | | | | |

2.3 Floods

| Condition | Suggested contingency measure ^o | | | |
|---|--|------------------|--------------------|----------------------|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Transient water logging/partial inundation¹ | | | | |
| Rice basmati | <ul style="list-style-type: none"> • Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed | Provide drainage | Provide drainage | Shift to safer place |
| Sugarcane | Direct sowing | Provide drainage | Provide drainage | Shift to safer place |
| Sorghum fodder | Direct sowing | Provide drainage | Provide drainage | Shift to safer place |
| Blackgram/Greengram | Direct sowing | Provide drainage | Provide drainage | Shift to safer place |
| Pigeonpea | Direct sowing | Provide drainage | Provide drainage | Shift to safer place |

| | | | | |
|--|--|------------------|------------------|----------------------|
| Horticulture | | | | |
| Okra | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Brinjal | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Tomato | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Continuous submergence for more than 2 days² | | | | |
| Rice | <ul style="list-style-type: none"> • Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed | Provide drainage | Provide drainage | Shift to safer place |
| Horticulture | NA | NA | NA | NA |
| Okra | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Brinjal | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Tomato | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Mango | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place |
| Sea water intrusion³ | NA | NA | NA | NA |
| Crop1 | | | | |
| Crop2 | | | | |

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

| Condition | Suggested contingency measure ^o | | | |
|--|--|------------------|--------------------|--|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Transient water logging/ partial inundation¹ | | | | |
| Rice basmati | <ul style="list-style-type: none"> • Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Sugarcane | Direct sowing | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Sorghum fodder | Direct sowing | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Blackgram/Greengram | Direct sowing | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Pigeonpea | Direct sowing | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Horticulture | | | | |
| Okra | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Brinjal | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Tomato | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Continuous submergence for more than 2 days² | | | | Shift to safer place & dispose of produce as early |

| | | | | |
|--|--|------------------|------------------|--|
| | | | | as possible |
| Rice | <ul style="list-style-type: none"> • Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Horticulture | | | | Shift to safer place & dispose of produce as early as possible |
| Okra | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Brinjal | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Tomato | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Mango | <ul style="list-style-type: none"> • Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting | Provide drainage | Provide drainage | Shift to safer place & dispose of produce as early as possible |
| Sea water intrusion³ | NA | NA | NA | NA |
| Crop1 | | | | |
| Crop2 | | | | |

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

| | Suggested contingency measures | | |
|----------------|--------------------------------|------------------|-----------------|
| | Before the event ^s | During the event | After the event |
| Drought | | | |

| | | | |
|--------------------------------------|--|---|--|
| <p>Feed and fodder availability</p> | <ul style="list-style-type: none"> • Fodder crop Insurance • Making of feed blocks • Encourage farmers to allocate some lands for cultivating perennial fodder (Napier grass, Subabul), specially on bunds and wasteland • Establishing fodder banks, encouraging fodder crops in irrigated area • Making silage or hay of excess fodder. • Statistics regarding feed/fodder availability and requirement should be updated by the concerned department. • Seed production and development of drought resistant crops and their varieties of fodder crops. • Encourage farmers to adopt sprinkler irrigation system. • Training to the farmers and extension functionaries for production and long term storage of feed and fodder. | <ul style="list-style-type: none"> • Utilizing fodder from perennial trees/shrubs/fodder bank reserves for small ruminant. • Utilizing stored fodder as silage, hay, feed blocks & mixture etc. • Migration of herd /flock to other places. • Establishment of communication and linkage with other state agencies. | <ul style="list-style-type: none"> • Availing crop insurance • Cultivation of fast growing green fodder crops. • Development of drought resistance fodder. • Increase the number of Fodder Banks for future use. |
| <p>Drinking water</p> | <ul style="list-style-type: none"> • Preserving water in the pond/tank for drinking purpose. • Excavation of bore well/creation of tanks or ponds. • De-silting of village ponds on regular basis and adopt water harvesting techniques through water shed approach. • Filling of the ponds with canal/tube well water during lean period. | <ul style="list-style-type: none"> • Using preserved water in the tanks for drinking • Available ground water should be used for drinking on priority basis. | <p>Recharge of well/ Tanks etc.</p> |
| <p>Health and disease management</p> | <ul style="list-style-type: none"> • Farmers should be encouraged to avail Livestock insurance • Training to livestock owners regarding natural calamities. • Veterinary preparedness with medicines and vaccines. • Vaccination | <ul style="list-style-type: none"> • Conduction mass animal health camp and treating the effected animals. • Mass campaigning though different media regarding possible outbreak of diseases and their management. | <ul style="list-style-type: none"> • Availing insurance benefits. • Followed standard Livestock management practices. • Proper health care & treatment. |
| <p>Floods</p> | | | |

| | | | |
|--------------------------------------|--|--|--|
| <p>Feed and fodder availability</p> | <ul style="list-style-type: none"> • Fodder crop Insurance • Making of feed blocks • Encourage farmers to allocate some lands for cultivating perennial fodder (Napier grass, Subabul), specially on bunds and wasteland • Establishing fodder banks, encouraging fodder crops. • Making silage or hay of excess fodder and that should be stored on up land. • Statistics regarding feed/fodder availability and requirement should be updated by the concerned deptt. • Seed production and development of crops and their varieties of fodder crops for water logged conditions. • Training to the farmers and extension functionaries for production and long term storage of feed and fodder. | <ul style="list-style-type: none"> • Utilizing fodder from perennial tress/shrubs/fodder bank reserves. • Use of feed mixture/block hay etc • Migration of flock /herds • Establishment of communication and linkage with other state agencies | <ul style="list-style-type: none"> • Availing crop insurance • Cultivation of fast growing green fodder crops |
| <p>Drinking water</p> | <ul style="list-style-type: none"> • Making suitable provision for safe drinking surface water including excavation of bore well/hand pump (India mark—II) at community level. • Make farmers aware not to use contaminated/ flood water for drinking purpose. | <p>Contaminated flood water should not be used for drinking.</p> | <p>Open sources of drinking water (tank/well) should be further treated with potassium per manganate.</p> |
| <p>Health and disease management</p> | <ul style="list-style-type: none"> • Live stock Insurance • Training to livestock owners regarding natural calamities. • Veterinary preparedness with medicines and vaccines. • Vaccination • | <ul style="list-style-type: none"> • Conduction mass animal health camp and treating the effected animals. • Training to livestock owners regarding natural calamities. • Establishment of Co-ordination with other Agencies. • Use of mass media to spread expat advice | <ul style="list-style-type: none"> • Culling sick animals • Availing insurance benefits. • Culling unproductive livestock • Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases. |
| <p>Cyclone N.A</p> | <p>N.A</p> | <p>N.A</p> | <p>N.A</p> |
| <p>Heat wave and cold</p> | | | |

| wave | | | |
|--------------------------------|--|--|---|
| Shelter/environment management | <ul style="list-style-type: none"> • Avoid use of GI sheet for roofing in the animal shed • Create adequate sources for additional supply of water to protect the animals from heat waves. • Establishment of modern shelter sheds. • As far as possible grow shade trees such as Neem, Pilkhan, Karanj etc near the animal sheds. • Make provision for adequate no. of fans/coolers /heaters according to the situation, if possible | <ul style="list-style-type: none"> • Provide the thatches/ tarpaulins/ rags in the animal sheds to protect against direct entry of hot/ cold waves • Provide proper bedding to prevent from cold and proper ventilation to prevent from heat. • Provide drinking water to animal frequently during heat wave • Watch the forecast of weather department. • As for as possible the animal should be allowed to wallow in pounds/ canals/ river or give bath once or twice in a day during heat waves | Repair and maintenance of additional facilities |
| Health and disease management | <ul style="list-style-type: none"> • Insure the animals • Training to livestock owners/ para-vets regarding preventive measure against extreme weather conditions • Veterinary preparedness with medicines and vaccines etc. • Vaccination against FMD & Cold | <ul style="list-style-type: none"> • Organize village level animal health camps • Consult veterinary officer immediately if any adverse symptoms are noticed • Use of ITKs for food supplements | <ul style="list-style-type: none"> • Proper after care of animals. • Availing insurance benefits. • Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases. |

^s based on forewarning wherever available

2.5.2 Poultry

| | Suggested contingency measures | | | Convergence/ linkages with ongoing programs, if any |
|----------------|--------------------------------|------------------|-----------------|---|
| | Before the event ^a | During the event | After the event | |
| Drought | | | | |

| | | | | |
|-------------------------------|--|--|---|--|
| Shortage of feed ingredients | <ul style="list-style-type: none"> • Making and storage of feed concentrates • Awareness regarding traditional feed banks. • Feed requirement data should be generated • Prepare the feed requirement data base of poultry farm. • Store the feed ingredients | <ul style="list-style-type: none"> • Use of feed concentrates/ mixture/blocks etc • Establishment of communication with other state agencies. • Use of locally available feed recourses. • Import the feed recourse form other states. | <ul style="list-style-type: none"> • Availing insurance • Increase the no. of feed banks for future use | |
| Drinking water | <ul style="list-style-type: none"> • Making extra facility for drinking water. • Repair & maintenance of water resources | Frequent supply of drinking water | | |
| Health and disease management | <ul style="list-style-type: none"> • Veterinary preparedness with medicines and vaccines. • Vaccination • Training to poultry Growers regarding natural calamities. | Treatment of affected poultry birds | <ul style="list-style-type: none"> • Culling of flock • Availing insurance benefits • Proper disposal of corpse of dead bodies to prevent the paped of contagious diseases | |
| Floods | | | | |
| Shortage of feed ingredients | Sufficient quantity of feed ingredients should be stored | <ul style="list-style-type: none"> • Use of stored feed in balanced form • Prevent the feed from moisture. | <ul style="list-style-type: none"> • Cleaning of feed store & repair if any. • Moist feed should be dried & treated as per requirement | |
| Drinking water | Make provision of ground water for drinking | Use only Ground water obtained from India Mrka II or Tubewell | <ul style="list-style-type: none"> • Repair, maintenance and cleaning of water recourse • Sanitation of open Wells | |
| Health and disease | <ul style="list-style-type: none"> • Veterinary preparedness with | <ul style="list-style-type: none"> • Migration of flock if required | <ul style="list-style-type: none"> • Availing insurance benefits. | |

| | | | | |
|--------------------------------|---|--|--|--|
| management | <ul style="list-style-type: none"> medicines and vaccines Vaccination | <ul style="list-style-type: none"> Treatment | <ul style="list-style-type: none"> Culling of unproductive flock | |
| Cyclone | NA | NA | NA | |
| Shortage of feed ingredients | <ul style="list-style-type: none"> Storage and making of feed concentrates Proper feed requirement data base | <ul style="list-style-type: none"> Establishment of communication with other state agencies Use of stored feed ingredient Import of feed from other areas | Repair and maintenance of feed store | |
| Drinking water | <ul style="list-style-type: none"> Make provision of ground water for drinking | <ul style="list-style-type: none"> Use only Ground water obtained from India Mrka II or Tubewell | Repair and maintenance of water recourse | |
| Health and disease management | <ul style="list-style-type: none"> Training to poultry growers regarding natural calamities. Veterinary preparedness with medicines and vaccines. | Treatment of injured poultry birds. | <ul style="list-style-type: none"> Culling of flock Availing insurance benefits. Proper disposal of corpse of dead bodies to prevent the paped of contagious diseases. | |
| Heat wave and cold wave | | | | |
| Shelter/environment management | <ul style="list-style-type: none"> Making sufficient provision of shelter to protect live stock from heat and cold waves Establishment of alternate resource for water supply. Modern shelter sheds. | <ul style="list-style-type: none"> Keep the birds in appropriate shelter Provide proper bedding to prevent from cold and proper ventilated to prevent from heat Provide drinking water to birds frequently. Adopted proper management practices. Watch the fore cast of weather department. | <ul style="list-style-type: none"> Making of modern shelter sheds Increase the plantation of trees | |
| Health and disease management | <ul style="list-style-type: none"> Insurance Veterinary preparedness with medicines and vaccines Training to poultry growers regarding natural calamities | <ul style="list-style-type: none"> Provide proper treatment as per requirement Treatment of injured poultry | <ul style="list-style-type: none"> Availing insurance benefits Culling of unproductive flock Proper disposal of corpse of dead bodies to prevent the paped of contagious diseases | <ul style="list-style-type: none"> |

^a based on forewarning wherever available

| | Suggested contingency measures | | |
|--|---|---|--|
| | Before the event ^a | During the event | After the event |
| 1) Drought | | | |
| A. Capture | | | |
| Marine | – | – | – |
| Inland | | | |
| (i) Shallow water depth due to insufficient rains/inflow | <ul style="list-style-type: none"> • Adopt appropriate measures to reduce water seepage or infiltration | <ul style="list-style-type: none"> • Harvest the crop partially | <ul style="list-style-type: none"> • Re stock |
| (ii) Changes in water quality | <ul style="list-style-type: none"> • Regular observation to check the water quality and remove the pollutants if any. | <ul style="list-style-type: none"> • Add oxy-flow to improve oxygen • Churning of pond water | <ul style="list-style-type: none"> • Maintain appropriate level of water if possible • Check the water quality and remove the pollutants if any. |
| (iii) Any other | – | – | – |
| B. Aquaculture | | | |
| (i) Shallow water in ponds due to insufficient rains/inflow | <ul style="list-style-type: none"> • Adopt appropriate measures to reduce water seepage or infiltration from ponds • Avoid any kinds of water pollution and maintain water pH | <ul style="list-style-type: none"> • Ensure the Oxygen availability into ponds for the survival of fish • Avoid any kind of water pollution • Add oxy-flow to improve oxygen into ponds. • Churning of pond water | <ul style="list-style-type: none"> • Maintain appropriate level of water in ponds • Check the water quality and remove the pollutants if any. |
| (ii) Impact of salt load build up in ponds / change in water quality | <ul style="list-style-type: none"> • Add some fresh water from other source like cannel etc | <ul style="list-style-type: none"> • Add oxy-flow to improve oxygen into ponds. • Churning of pond water • Add fresh water into pond for life saving and to reduce salt load | <ul style="list-style-type: none"> • Add fresh water into pond for life saving and to reduce salt load • Maintain appropriate level of water in ponds • Check the water quality and remove the pollutants if any. |
| (iii) Any other | – | – | -- |
| 2) Floods | | | |
| A. Capture | | | |
| Marine | -- | -- | -- |

| | | | |
|---|--|--|---|
| Inland | | | |
| (i) No. of boats / nets/damaged | <ul style="list-style-type: none"> Boats, nets etc should be taken out from water bodies | <ul style="list-style-type: none"> Close supervision of flood condition | <ul style="list-style-type: none"> Damaged boat or nets should be repaired |
| (ii) No. of houses damaged | – | – | <ul style="list-style-type: none"> Repair the damaged house. |
| (iii) Loss of stock | – | – | <ul style="list-style-type: none"> Sanitation and proper disposal of corpse |
| (iv) Changes in water quality | <ul style="list-style-type: none"> Increase the height of bunds. | -- | -- |
| (v) Health and diseases | -- | <ul style="list-style-type: none"> Treatment if possible | -- |
| B. Aquaculture | | | |
| (i) Inundation with flood water | <ul style="list-style-type: none"> Repair the bunds to prevent the inflow of water If inflow water is not polluted then place the net at inlet and outlet Raise the height of bunds Plan a proper drainage system at farm Plantation of soil binding plants at bund | <ul style="list-style-type: none"> Avoid inflow of flood water from outside. If inflow water is not polluted that can be permitted to flow through net placed at inlet and outlet of pond. Fencing of net required in case of overflow to avoid the migration of fish | <ul style="list-style-type: none"> Repair the damaged bunds Check water quality Change the water if it is polluted |
| (ii) Water contamination and changes in water quality | <ul style="list-style-type: none"> Limeing @300 kg/ha | <ul style="list-style-type: none"> Stop inflow of contaminated water | <ul style="list-style-type: none"> Maintain appropriate level of water in ponds Check the water quality and remove the pollutants if any. |
| (iii) Health and diseases | <ul style="list-style-type: none"> Limeing @300 kg/ha Vaccination | <ul style="list-style-type: none"> Diagnostic measures and provide appropriate medicines | <ul style="list-style-type: none"> Limeing and medication as per requirement Use Cifex to control ulcerative syndromes |
| (iv) Loss of stock and inputs (feed, chemicals etc) | <ul style="list-style-type: none"> Marketable stock should be sold | <ul style="list-style-type: none"> Immediately remove the dead fishes from ponds and do sanitation | <ul style="list-style-type: none"> After sanitation add new stock |
| (v) Infrastructure damage (pumps, aerators, huts etc) | <ul style="list-style-type: none"> Damageable infrastructures should be secured | <ul style="list-style-type: none"> Do not supply Electricity in flooded area | <ul style="list-style-type: none"> Repaire and service the damage infrastructure |

| | | | |
|--|---|---|---|
| (vi) Any other | | | |
| 3. Cyclone / Tsunami | NA | NA | NA |
| A. Capture | -- | -- | -- |
| Marine | | | |
| (i) Average compensation paid due to loss of fishermen lives | | | |
| (ii) Avg. no. of boats / nets/damaged | | | |
| (iii) Avg. no. of houses damaged | | | |
| Inland | -- | -- | -- |
| B. Aquaculture | -- | -- | -- |
| (i) Overflow / flooding of ponds | | | |
| (ii) Changes in water quality (fresh water / brackish water ratio) | | | |
| (iii) Health and diseases | | | |
| (iv) Loss of stock and inputs (feed, chemicals etc) | | | |
| (v) Infrastructure damage (pumps, aerators, shelters/huts etc) | | | |
| (vi) Any other | | | |
| 4. Heat wave and cold wave | | | |
| A. Capture | | | |
| Marine | -- | -- | -- |
| Inland | | | |
| B. Aquaculture | | | |
| (i) Changes in pond environment (water quality) | <ul style="list-style-type: none"> • Maintain appropriate level of water in ponds <i>i.e.</i> 1.75m in 2m deep ponds • Check the water quality and remove the pollutants if any | <ul style="list-style-type: none"> • Maintain appropriate level of water in ponds <i>i.e.</i> 1.75m in 2m deep ponds • Check the water quality and remove the pollutants if any | <ul style="list-style-type: none"> • Maintain appropriate level of water in ponds <i>i.e.</i> 1.75m in 2m deep ponds • Check the water quality and remove the pollutants if any |
| i) Health and Disease management | <ul style="list-style-type: none"> • Limeing@300kg/ha | <ul style="list-style-type: none"> • Medication as per requirement | <ul style="list-style-type: none"> • Remove the dead fishes from |

| | | | |
|----------------|--|--|--|
| | | | ponds and add new stocks to compensate • the production |
| (ii) Any other | | | |

^a based on forewarning wherever available