

State: UTTAR PRADESH

Agriculture Contingency Plan for District: Gorakhpur

| 1.0 District Agriculture profile | | | | |
|--|--|--|-----------------------|----------|
| 1.1 | Agro-Climatic/Ecological Zone | | | |
| | Agro Ecological Sub Region (ICAR) | Eastern Plain, Hot Subhumid (moist) Eco-Region (13.1) | | |
| | Agro-Climatic Zone (Planning Commission) | Middle Gangetic Plain Region (IV) | | |
| | Agro Climatic Zone (NARP) | North Eastern Plain Zone (UP-8) | | |
| | List all the districts falling under the NARP Zone* (*>50% area falling in the zone) | Division – Kanpur (2) Allahabad (4) Varanasi (4), Mirzapur (3), Azamgarh (3), Gorakhpur (4), Basti (3), Lucknow (6), Faizabad (4), Devipatan (4); Total districts - 37 | | |
| | Geographic coordinates of district headquarters | Latitude | Longitude | Altitude |
| | | 26 ⁰ 46' N | 43 ⁰ 22' E | 69m |
| | Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS | Institute of Agricultural Sciences, Banaras Hindu University, Varanasi. | | |
| | Mention the KVK located in the district with address | Krishi Vigyan Kendra, Belipur, Gorakhpur Dist. | | |
| Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone | - | | | |

| 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): | 1182.1 | 50 | 3 rd week of June | 1 st week of October |
| | NE Monsoon(Oct-Dec): | 77.0 | 2 | - | - |
| | Winter (Jan- March) | 46.1 | 4 | - | - |

| | | | | | |
|--|------------------|--------|----|---|---|
| | Summer (Apr-May) | 58.9 | 5 | - | - |
| | Annual | 1364.1 | 61 | - | - |

| | | | | | | | | | | | |
|------------|--|-------------------|-----------------|-------------|---------------------------------|--------------------|----------------------|--|------------------------------|-----------------|---------------|
| 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) | 335.317 | 248.723 | 6.031 | 45.875 | 0.211 | 2.255 | 2.916 | 4.037 | 18.702 | 6.567 |

| | | | |
|------------|---|------------------------|-----------------------------|
| 1.4 | Major Soils (common names like red sandy loam deep soils (etc.,))* | Area ('000' ha) | Percent (%) of total |
| | Sandy loam | | |
| | Loam | | |
| | Clay loam | | |
| | Sandy | | |
| | Others (specify): | | |

| | | | |
|------------|------------------------------|-----------------------|-----------------------------|
| 1.5 | Agricultural land use | Area ('000 ha) | Cropping intensity % |
| | Net sown area | 248.723 | 154.4% |
| | Area sown more than once | 134.400 | |
| | Gross cropped area | 383.123 | |

| | | |
|------------|----------------------|----------------|
| 1.6 | Irrigation | Area ('000 ha) |
| | Net irrigated area | 210.711 |
| | Gross irrigated area | 232.765 |

| | | | |
|--|---------------------------|---|---|
| Rainfed area | 15.958 | | |
| Sources of Irrigation | Number | Area ('000 ha) | Percentage of total irrigated area |
| Canals | | 5.472 | |
| Tanks | | 1.628 | |
| Open wells | | 0.608 | |
| Bore wells | | Govt. 10.796 + Pvt. 191.883 = 202.679 | |
| Lift irrigation schemes | | | |
| Micro-irrigation | | | |
| Other sources (please specify) | | 0.324 | |
| Total Irrigated Area | | 210.711 | |
| Pump sets | | | |
| No. of Tractors | | | |
| Groundwater availability and use* (Data source: State/Central Ground water Department /Board) | No. of blocks – 19 | (%) area | Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc) |
| Over exploited | | | No problem of arsenic & fluoride however, low amount of salinity is reported. In majority of the area the problems of calcium & iron are reported |
| Critical | | | |
| Semi- critical | | | |
| Safe | Safe | | |
| Wastewater availability and use | | | |
| Ground water quality | | | |

1.7 Area under major field crops & horticulture

| 1.7 | Major field crops cultivated | Area ('000 ha) | | | | | | | |
|-------|------------------------------|----------------|---------|-------|-------------|---------|-------|----------------|-------------|
| | | <i>Khariif</i> | | | <i>Rabi</i> | | | Summer | Grand total |
| | | Irrigated | Rainfed | Total | Irrigated | Rainfed | Total | | |
| Wheat | 187.710 | 0.071 | 187.781 | | | | | 187.781 | |
| Rice | 24.261 | 128.660 | 152.921 | | | | | 152.921 | |

| | | | | | | | | |
|-----------|-------|-------|-------|-----|-------|-------|-------|--------------|
| Pigeonpea | | | | 0.0 | 6.209 | 6.209 | | 6.209 |
| Maize | 0.262 | 3.330 | 3.592 | | | | | 3.592 |
| Sugarcane | | | | | | | 3.312 | 3.312 |
| Mustard | 3.054 | 0.023 | 3.077 | | | | | 3.077 |
| Pea | 2.464 | 0.030 | 2.494 | | | | | 2.494 |

*: The data reported are based on Govt. official reports; however, more than 5000 hectare is cultivated under rainfed conditions (Personal Observation)

| S. No | Horticultural Crops - Fruits (2004-05) | Total | Irrigated | Rainfed |
|-------|---|-----------------------|---------------------------|-------------------------|
| | Mango | 4.525 | - | - |
| | Banana | 0.724 | - | - |
| | Guava | 0.211 | - | - |
| | Musk melon | 0.046 | - | - |
| | Horticultural Crops Vegetables | | | |
| | Potato (2007-08) | 4.441 | - | |
| | Greenpea | 1.137 | - | - |
| | Onion (2007-08) | 0.151 | - | - |
| | Cauliflower | 0.134 | - | - |
| | Okra | 0.120 | - | - |
| | Cabbage | 0.061 | - | - |
| | Medicinal and Aromatic crops | Total (000 ha) | Irrigated (000 ha) | Rainfed (000 ha) |
| | | | | |
| | Plantation crops | Total | Irrigated | Rainfed |
| | | | | |
| | Fodder crops | Total | Irrigated | Rainfed |
| | Total fodders | 2.345 | 1.357 | 0.988 |
| | Total fodder crop area | | | |

| | | | | |
|--|-------------------------|--|--|--|
| | Grazing land | | | |
| | Sericulture etc | | | |
| | Others (specify) | | | |

| 1.8 | Livestock* (2003) | Male ('000) | Female ('000) | Male + Female (>3 Yrs) ('000) | Total ('000) |
|------------|--|--------------------|----------------------|--|---------------------|
| | Non descriptive Cattle (local low yielding) | 37.362 | 65.577 | 86.346 | 189.285 |
| | Improved cattle | | | | |
| | Crossbred cattle | 6.284 | 36.788 | 44.275 | 87.347 |
| | Non descriptive Buffaloes (local low yielding) | 1.192 | 97.915 | 97.025 | 196.132 |
| | Descript Buffaloes | | | | |
| | Goat | | | | 161.656 |
| | Sheep | | | | 13.960 |
| | Others (Pig) | | | | 37.161 |
| | Commercial dairy farms (Number) | | | | 0.470 |

| 1.9 | Poultry | No. of farms | Total No. of birds ('000) |
|------------|----------------|---------------------|----------------------------------|
| | Commercial | | 322.480 |
| | Backyard | | 2.701 |

| 1.10 Fisheries (Data source: Chief Planning Officer) (200708) | | | | |
|---|-------------------------|--------------|-------------|--------------------------------|
| A. Capture | | | | |
| i) Marine (Data Source: Fisheries | No. of fishermen | Boats | Nets | Storage facilities (Ice |
| | | | | |

| | | | | | | | |
|---|-------------------------------|--|---------------------------------|--|-----------------------------|--|---------------------|
| Department) | | | | | | | plants etc.) |
| | | | | | | | |
| ii) Inland (Data Source: Fisheries Department) | No. Farmer owned ponds | | No. of Reservoirs | | No. of village tanks | | |
| | | | 10.0 (Govt.)+725.0 (Private) | | | | |
| 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) | | | 406.41 (Govt.)+ 289.0 (Private) | | | 5.3000 (Govt.)+ 721.600 (Private) Angulikao-31171000 | |
| Others | | | | | | | |

1.11 Production and Productivity of major crops (Average of 5 years 2003-04, 2004-05, 2005-06; 06- 07& 2007-08).

| 1.11 | Name of crop | Kharif | | Rabi | | Summer | | Total | | Crop residue as fodder ('000 tons) |
|--|--------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---|
| | | Production ('000 t) | Productivity (kg/ha) | Production ('000 t) | Productivity (kg/ha) | Production ('000 t) | Productivity (kg/ha) | Production ('000 t) | Productivity (kg/ha) | |
| Major Field crops (Crops to be identified based on total acreage) | | | | | | | | | | |
| | Wheat | 461.124 | 2470 | | | | | 461.124 | 2470 | |
| | Rice | 268.984 | 1781 | | | | | 268.984 | 1781 | |
| | Pigeon pea | | | 4.795 | 605 | | | 4.795 | 605 | |
| | Maize | 3.994 | 1087 | 0.059 | 1942 | 0.348 | 1418 | 4.378 | 1115 | |

| | | | | | | | | | | |
|--|------------------|-------|------|--|--|---------|------|---------|-------|--|
| | Sugarcane | | | | | 182.782 | 5438 | 182.782 | 54380 | |
| | Mustard | 2.212 | 715 | | | | | 2.212 | 715 | |
| | Pea | 3.258 | 1144 | | | | | 3.258 | 1144 | |
| Major Horticultural crops (Crops to be identified based on total acreage) | | | | | | | | | | |
| Fruit Crop (2004-05) | | | | | | | | | | |
| | Mango | | | | | | | 24.328 | 537 | |
| | Banana | | | | | | | 26.331 | 3636 | |
| | Guava | | | | | | | 1.787 | 846 | |
| | Musk melon | | | | | | | 1.196 | 2600 | |
| Horticultural Crops Vegetables | | | | | | | | | | |
| Vegetable Crop | | | | | | | | | | |
| | Potato (2007-08) | | | | | | | 86.945 | 19481 | |
| | Greenpea | | | | | | | 9.329 | 820 | |
| | Onion | | | | | | | 2.085 | 1164 | |
| | Cauliflower | | | | | | | 2.697 | 2012 | |
| | Okra | | | | | | | 1.392 | 1160 | |
| | Cabbage | | | | | | | 1.385 | 2270 | |

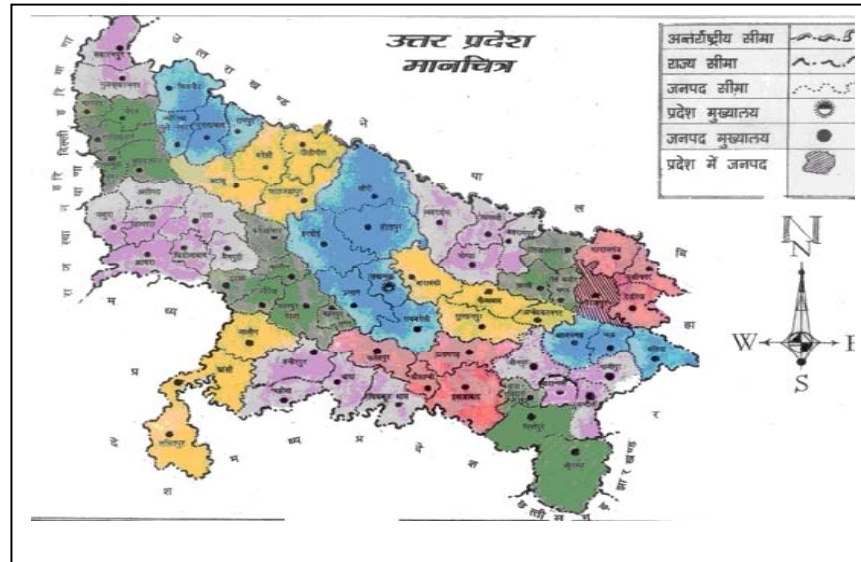
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|-------------|---|--------------|------------------------------|------------------------------|---------------------------------|------------------|----------------|------------|
| 1.12 | Sowing window for 5 major field crops (start and end of normal sowing period) | Wheat | Rice | Pigeonpea | Maize | Sugarcane | Mustard | Pea |
| | Kharif- Rainfed | - | 4 th week of June | 4 th week of June | 4 th week of June to | | | |

| | | | | | | | | |
|--|------------------|--|---------------------------------|---------------------------------|---|-----------------|---|---|
| | | | to 1 st week of July | to 1 st week of July | 1 st week of July | | | |
| | Kharif-Irrigated | - | June (nursery) | - | - | | - | |
| | Rabi- Rainfed | 3 rd week of October to 4 th week of October | - | - | - | | 3 rd week of October to 4 th week of October | 3 rd week of October to 4 th week of October |
| | Rabi-Irrigated | 3 rd week of November to 4 th week of November | | | 3 rd week of October to 3 rd week of November | October/Nov. | 3 rd week of October to 3 rd week of November | 3 rd week of October to 3 rd week of November |
| | Summer irrigated | - | - | - | 3 rd week of March to 3 rd week of April | February/ March | | |

| 1.13 | What is the major contingency the district is prone to? (Tick mark) | Regular | Occasional | None |
|------|---|---------|------------|------|
| | Drought | √ | | |
| | Flood | | √ | |
| | Cyclone | | √ | |
| | Hail storm | | √ | |
| | Heat wave | | √ | |
| | Cold wave | | √ | |
| | Frost | | √ | |
| | Sea water intrusion | | | |
| | Pests and disease outbreak (specify) | √ | | |
| | Others (specify) | | | |

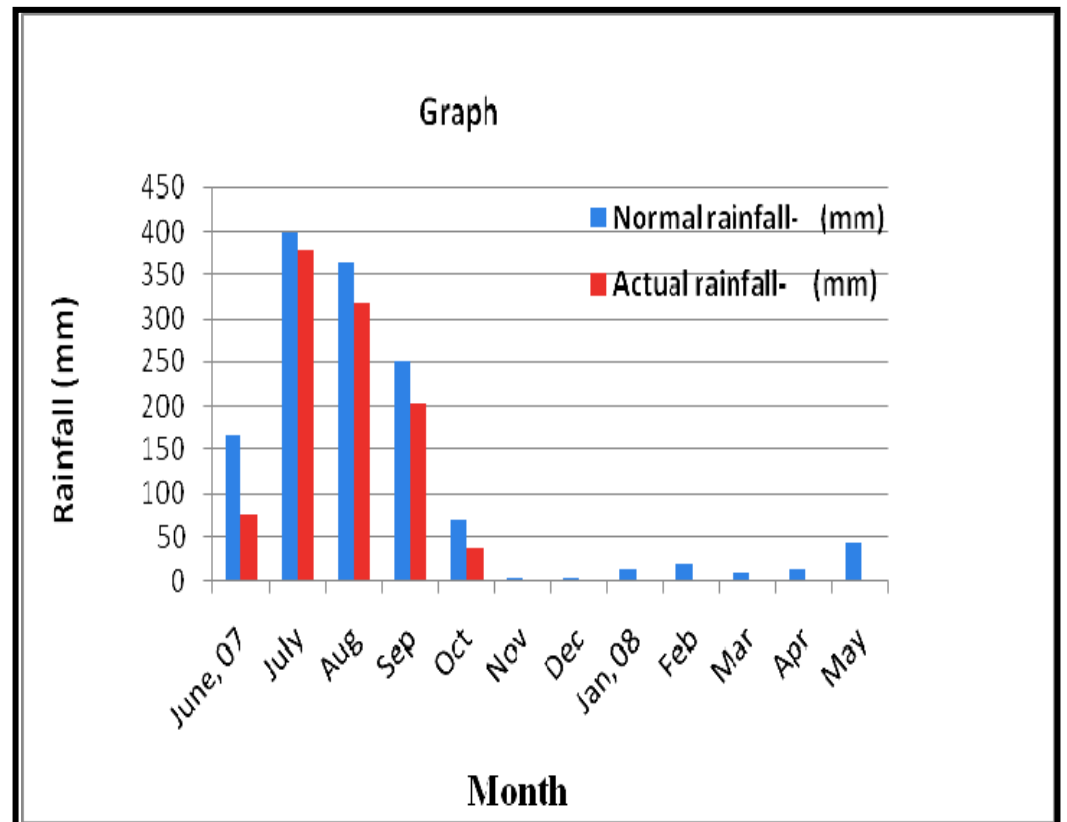
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|------|--|---|---------------|
| 1.14 | Include Digital maps of the district for | Location map of district within State as Annexure 1 | Enclosed: Yes |
| | | Mean annual rainfall as Annexure 2 | Enclosed: Yes |
| | | Soil map as Annexure 3 | Enclosed: Yes |

Annexure 1

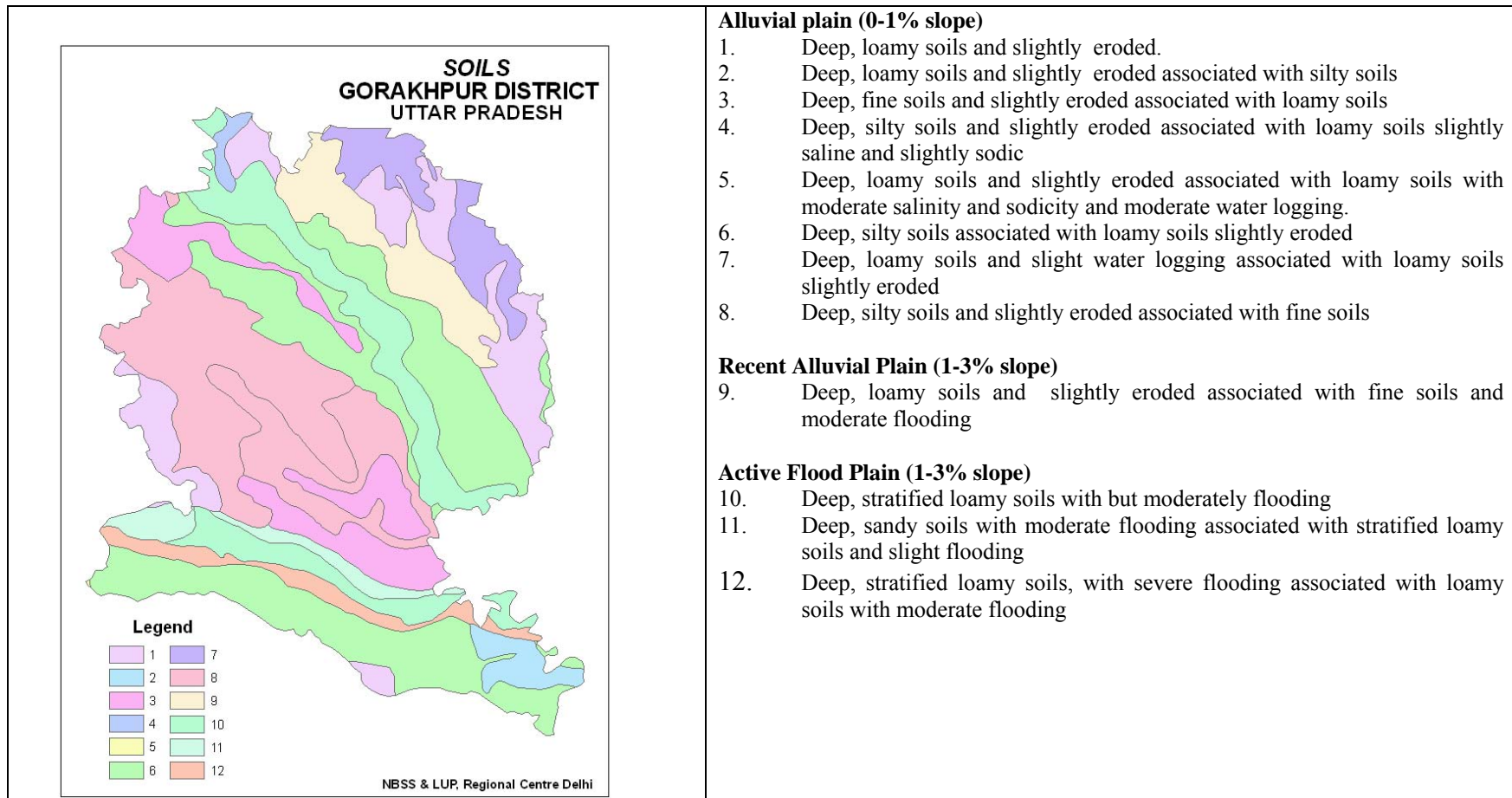


Annexure -2: Mean Annual Rainfall of Gorakhpur district (2007-08)

| Month | Normal rainfall- (mm) | Actual rainfall (mm) |
|------------|-----------------------|----------------------|
| June 2007 | 167.3 | 75.8 |
| July | 398.6 | 377.8 |
| August | 364.7 | 318.0 |
| September | 251.5 | 203.9 |
| October | 69.5 | 36.9 |
| November | 4.2 | 0.0 |
| December | 3.3 | 0.0 |
| January 08 | 14.3 | 0.0 |
| February | 21.0 | 0.0 |
| March | 10.8 | 0.0 |
| April | 15.1 | 0.0 |
| May | 43.8 | 0.0 |



Annexure-III



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 1 st week of July | Upland | Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeonpea (sole crop) Rabi crops Lentil: (Malviya Vishwanath, PL406, PL639 & KLS-218) Mustard: Varuna, Ashirvad, Vardan | Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini Maize :Hybrids:-Malaviya Makka-2, Ganga 2, Ganga 11, Shaktiman 2; Composite :Naveen, Kanchan, Sweta, Prabhat, gaurav, Pragati; Desi:Jaunpuri Pigeonpea: Bahar, Narendra Arahar-1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13) | Direct sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| | | Pigeonpea + Groundnut | Pigeonpea + Groundnut Groundnut: Chandra, Chitra, Kaushal, Prakash, Utkarsh | Sowing of maize between two rows of sugarcane on ridges. | |
| | Medium land | Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan | Early maturing, semi dwarf and HYV rice: NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant Dhan-12, HUR-105 and Pant Shankar dhan-1 | Direct sowing in lines through Seed-cum Ferti drill as well as transplanting of rice seedlings after puddling the field. Community nursery may be utilized for the transplanting | |
| | | Sugarcane + Maize/ Sugarcane + Mustard/ Pigeonpea + Groundnut | Sugarcane + Maize/ Pigeonpea + Groundnut | Sowing should be done on ridges of main as well as intercrops. | |

| | | | | | |
|--|---------|--|--|---|--|
| | Lowland | Rice-Lentil Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 | MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi | Transplanting of rice seed lings should be completed before 15 th of July through community base nursery | |
|--|---------|--|--|---|--|

| Condition | | Suggested Contingency measures | | | |
|--|--------------------------------------|--|---|---|--|
| Early season drought (delayed onset) | Major Farming situation ^a | Normal Crop/cropping system ^b | Change in crop/cropping system ^c | Agronomic measures ^d | Remarks on Implementation ^e |
| Delay by 4 weeks 3 rd week of July | Upland | Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeon pea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard:Varuna, Ashirvad, Vardan | Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini, Maize : Hybrids: Malaviya Makka-2, Ganga 2, Ganga 11, Shaktiman 2; Composite :Naveen, Kanchan, Sweta, Prabhat, gaurav, Pragati; Desi – Jaunpuri Pigeonpea: Bahar, Narendra Arahar1, Malviya Vakas(MA6) & Malviya Chamtkar (MA13) | Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Soil moisture conservation practices such as soil mulching sugarcane leaves may be utilized. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| | | Pigeonpea + Groundnut | Pigeonpea+ Groundnut Groundnut- Chandra, Chitra, Kaushal, Prakash, Utkarsh | Sowing of maize between two rows of sugarcane on ridges. | |
| | Medium land | Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, | Early maturing, semi dwarf and HYV rice: NDR 97, NDR 118, Ratna, IR-36, NDR-80, Pant Dhan-12, HUR-105 and Pant Shankar dhan-1 | Sowing with seed cum ferti drills and re-sowing if no proper germination. Weed management through dry land weeder & also through weedicides. | |

| | | | | | |
|--|---------|---|--|--|--|
| | | Vardan | | Conservation furrow, inter culture Surface water management | |
| | | Sugarcane + Maize Sugarcane + Mustard Pigeonpea + Groundnut | Sugarcane + Maize Pigeonpea + Groundnut | Sowing should be done on ridges of main as well as intercrops. | |
| | Lowland | Rice-Lentil Rabi Crops Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 | MTU-7029, BPT-5204, NDR- 8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi | Transplanting of rice seedlings should be started with the onset of the monsoon through community base nursery | |

| Condition | | | Suggested Contingency measures | | |
|---|--------------------------------------|--|--|--|---|
| Early season drought (delayed onset) | Major Farming situation ^a | Normal Crop/cropping system ^b | Change in crop/cropping system ^c | Agronomic measures ^d | Remarks on Implementation ^e |
| Delay by 6 weeks 1 st week of August | Upland | Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeon pea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard:Varuna, Ashirvad, Vardan | Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23 | Under the sufficient rainfall and water stagnation transplanting of early maturing rice varieties as listed above may be done from community nursery. Sowing with seed cum ferti drills across the slope and re-sowing if no proper germination. Soil moisture conservation practices such as soil mulching with sugarcane leaves may be utilized in standing sugarcane fields. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| | | Pigeonpea + Groundnut | Pigeonpea+ Pearl millet <i>Genotypes:</i> as above | Sowing should be done on ridges only | |

| | | | | | |
|--|-------------|---|--|---|--|
| | Medium land | Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan | Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23 | Sowing with seed cum ferti drills across the slope Weed management through dry land weeder & thinning of population in case of pearl millet, conservation furrow and interculture. Surface water management | |
| | | Sugarcane + Maize Sugarcane + Mustard Pigeonpea + Groundnut | Pigeonpea + Pearl millet | Sowing should be done on ridges of main as well as intercropped. | |
| | Lowland | Rice-Lentil Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 | MTU-7029, BPT-5204, NDR- 8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi | Transplanting of rice seed lings should be completed up to 10 th of August through community base nursery | |

| Condition | Major Farming situation ^a | Normal Crop/cropping system ^b | Suggested Contingency measures | | |
|--|--------------------------------------|--|--|---|---|
| | | | Change in crop/cropping system ^c | Agronomic measures ^d | Remarks on Implementation ^e |
| Early season drought (delayed onset) | | | | | |
| Delay by 8 weeks 3 rd week of August | Upland | Rice-Lentil/ Rice-Mustard/ Maize – Lentil/ Pigeon pea (sole crop) Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard:Varuna, Ashirvad, Vardan | Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23 | Sowing of Pearl millet on ridges may be recommended for upland area for grain as well as fodder crop. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |

| | | | | | |
|--|-------------|---|--|--|--|
| | | Pigeonpea + Groundnut | Pigeonpea+ Pearl millet <i>Genotypes:</i> as above | Sowing of both Pigeonpea + Pearl millet should be done on ridges only. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| | Medium land | Rice-Lentil/ Rice-Mustard Rabi crops Lentil: Malviya Vishwanath, PL406, PL639 & KLS-218 Mustard :Varuna, Ashirvad, Vardan | Pearl millet in place of rice Pearl millet: WCC 75, Raj 171, Pusa 23 | Weed management through dryland weeder & thinning of population in case of pearl millet grown for grain purpose only Surface water management | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| | | Sugarcane + Maize Sugarcane + Mustard Pigeonpea + Groundnut | Pigeonpea + Pearl millet | Sowing should be done on ridges of main as well as intercrops. | |
| | Lowland | Rice-Lentil Lentil:Malviya Vishwanath, PL406, PL639 & KLS-218 | MTU-7029, BPT-5204, NDR-8002, Jalmagana, Madhukar, Jal Priya, Jal Nidhi & Bar Avarodhi | Transplanting of rice seed lings should be completed before 25 th of August through community base nursery | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |

| Condition | | | Suggested Contingency measures | | |
|--|--------------------------------------|---|---|--|--|
| Early season drought (Normal onset) | Major Farming situation ^a | Normal Crop/cropping system ^b | Crop management ^c | Soil nutrient & moisture conservation measues ^d | Remarks on Implementation ^e |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | Upland | Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop) | Use of drought tolerant varieties (NDR 97, Vandana and Govind) Shushk Samrat Gap filling or re-sowing of crop , as per need Use of dust mulch/ straw mulch Inter row harrowing | Use of additional N @10kg/ha Conservation furrow | |
| | | Pigeonpea + Groundnut | Earthing up to main crops | Conservation tillage | |

| | | | | | |
|--|-------------|------------------------------|--|---|--|
| | | | Thinning to maintain proper distance between the plants Gap filling and re-sowing of crops as per need | Spray 2% urea as foliar application | |
| | Medium land | Rice-Lentil/ Rice-Mustard | Gap filling or re-sowing of crops if needed. Use of drought resistant/tolerant rice varieties. Retransplanting of rice seedlings from community nursery Use of dust mulch/straw mulch , Inter-row harrowing | Use of additional N @10kg/ha Conservation furrow | |
| | Lowland | Rice-Lentil | Gap filling or re-sowing of crop, as per need. Use of dust mulch/ straw mulch Retransplanting from community nursery as and when rains received. | Use of additional N @10kg/ha Conservation furrow | |

| Condition | Major Farming situation ^a | Normal Crop/cropping system ^b | Suggested Contingency measures | | |
|--|--------------------------------------|---|---|---|--|
| | | | Crop management ^c | Soil nutrient & moisture conservation measues ^d | Remarks on Implementation ^e |
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | | | | | |
| At vegetative stage | Upland | Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop) | Life saving irrigation, if possible Dust/ straw mulch Thinning Inter row harrowing | Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow | |

| | | | | | |
|--|-------------|------------------------------|--|---|--|
| | | Pigeonpea + Groundnut | Earthing up and thinning of intercrops to maintain proper distance between the plants. | Conservation tillage Spray of 2% urea as foliar application | |
| | Medium land | Rice-Lentil/ Rice-Mustard | Life saving irrigation if possible Dust/ straw mulch Thinning Inter row harrowing | Use of additional N @10kg/ha Spray 2% urea as foliar application Conservation furrow | |
| | Lowland | Rice-Lentil | Life saving irrigation if possible Dust/ straw mulch Thinning Inter row harrowing | Use of additional N @10kg/ha Spray of 2% urea as foliar application Conservation furrow | |

| Condition | Major Farming situation ^a | Normal Crop/cropping system ^b | Suggested Contingency measures | | |
|-------------------------------------|--------------------------------------|---|---|---|--|
| | | | Crop Management ^c | Soil nutrient & moisture conservation measures ^d | Remarks on Implementation ^e |
| Mid season drought (long dry spell) | | | | | |
| At flowering/ fruiting stage | Upland | Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop) | Life saving irrigation if possible Harvest maize for fodder purposes | 1) Spraying 2% urea as foliar application. 2) KCl Spray | Farmers may be advised to work in NREGS & CLDP in the spare time |
| | | Pigeonpea + Groundnut | If there is no winter rain , give light irrigation to Pigeonpea crop | Spraying 2% urea as foliar application. KCl Spray | Farmers may be advised to work in NREGS & CLDP in the spare time |
| | Medium land | Rice-Lentil/ Rice-Mustard | Life saving irrigation to rice – one or two depending upon availability of water in canal | 1) Spraying of 2% urea as foliar application. 2) KCl Spray | Farmers may be advised to work in NREGS & CLDP in the spare time |

| | | | | | |
|--|---------|-------------|---|--|--|
| | Lowland | Rice-Lentil | Life saving irrigation, if possible Dust/ straw mulch Thinning Inter row harrowing | Use of additional N @10kg/ha Spray 2% urea as foliar application Conservation furrow Use of Azotobacter/ Azospirillum Use of Blue Green Algae @12.5kg/ha after 3-4 days of transplanting of rice seedlings | |
|--|---------|-------------|---|--|--|

| Condition | Major Farming situation ^a | Normal Crop/cropping system ^b | Suggested Contingency measures | | |
|--|--------------------------------------|---|--|---|--|
| | | | Crop Management ^c | Rabi Crop planning ^d | Remarks on Implementation ^e |
| Terminal drought (Early withdrawal of monsoon) | | | | | |
| | Upland | Rice-Lentil/ Rice-Mustard/ Maize- Lentil/ Pigeon pea (sole crop) | Life saving irrigation, if possible Dust/ straw mulch Inter row harrowing Defoliate older leaves Harvesting at physiological maturity. | Toria/Agati mustard may be sown during last week of September to middle of October. | |
| | | Pigeonpea + Groundnut | 1) Harvesting at physiological maturity 2) Life saving irrigation, if possible to Pigeonpea 3) Harvesting of pearl millet for fodder purpose if inter cropped in place of ground nut | 1) Spraying 2% urea as foliar application. 2) KCl Spray | Farmers may be advised to work in NREGS & CLDP in the spare time |
| | Medium land | Rice-Lentil/ | Dust/ straw mulch | Toria/Agati mustard | |

| | | | | | |
|--|---------|--------------|---|---|--|
| | | Rice-Mustard | Inter row harrowing Defoliate older leaves Harvesting at physiological maturity. | may be sown during last week of September to middle of October. | |
| | Lowland | Rice-Lentil | Dust/ straw mulch Inter row harrowing Defoliate older leaves Harvesting at physiological maturity. | Use of Azotobacter/ Azospirillum Use of Blue Green Algae @12.5kg/ha after 3-4 days of transplanting of rice seedlings. Torla/Agati mustard may be sown during last week of September to middle of October. | |

2.1.2 Drought - Irrigated situation

| 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 ⁱ |
| Delayed release of water in canals due to low rainfall | Medium land | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane(2 years)/Rice-Maize (Rabi)/Greengram Maize:Hybrids: Malaviya Makka-2, Ganga 2, Ganga 11, Shaktiman 2; Composite: Naveen, Kanchan, Sweta, Prabhat, Gaurav, Pragati; Desi:Jaunpuri Rabi crops Wheat:HUW-468, HD-2824, UP-2338, K-9107 Pea: Rachna, HUDP-15, DDR- | Rice short duration varieties: NDR 97, NDR 118, Varani Deep, Vandana, Govind, Shushk Samrat, Ashwini | Community nursery, Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation. | Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM |

| Condition | Suggested Contingency measures | | | | |
|---|--------------------------------------|---|---|---|--|
| | Major Farming situation ^f | Normal Crop/cropping system ^g | Change in crop/cropping system ^h | Agonomic measures ⁱ | Remarks on Implementation ^j |
| | | 23, KPMR-144-1 Toria: T-9, Bhavani, NDR Angati rai-4, PT-30, PT-507 Mustard :Varuna, Ashirvad, Vardan Sugarcane :CoS-96268, CoLK-94184 and Local Potato: Kufri Sadabahar, Kufri Sindhuri, Kufri Jyoti | | | |
| | Lowland | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops of as above | Tall rice varieties: Swarna, Cross-116, MTU-7029 and BPT-5204 | Transplanting of rice seedlings should be completed before 15 th of July through community base nursery | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| Limited release of water in canals due to low rainfall | Medium land | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above | Short duration rice varieties: NDR-118, NDR-97, Pant dhan-12, HUR-105, Vandana, Sushk samrat, Ashwini | Community nursery, Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation. | Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM |
| | Lowland | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-potato/ Rice-wheat-sugarcane (2 years)/ Rice-Maize(Rabi)/Green gram Genotypes of crops- as above | Tall rice varieties:Swarna, Cross-116, Mtu-7029 and BPT-5204 | Transplanting of rice seed lings should be completed before 15 th of July through community base nursery | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |

| 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 | Medium land | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above | Early maturing, semi dwarf and HYV rice: Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant Shankar Dhan-1 | Direct sowing in lines through Seed-cum Ferti drill. Use of dust and straw mulch. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |
| | Lowland | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above | Tall rice varieties: Type-3, Type-23, Mahsoori and Swarna | After heavy rainfall transplanting may be done with seedlings from community nursery. | Breeder seed may be obtained from the University Seed drills under RKVY Supply of seeds through NFSM |

| 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 |
| Lack of inflows into tanks due to insufficient /Delayed onset of monsoon | Medium & Lowland | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above | Early maturing, semi dwarf and HYV rice: Saket-4, NDR 97, NDR 118, Govind, Ashwini, HUR-105 and Pant Shankar Dhan-1 / Sorghum (fodder) and Pearl millet | Conservation tillage. | Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM |

| Condition | Major Farming situation ^f | Normal Crop/cropping system ^g | Suggested Contingency measures | | |
|---|--------------------------------------|--|--|--|--|
| | | | Change in crop/cropping system ⁿ | Agronomic measures ⁱ | Remarks on Implementation ^j |
| Insufficient groundwater recharge due to low rainfall | Medium & Low land | Rice-Wheat/ Rice-Pea/ Rice-Mustard/ Maize-Potato/ Rice-Wheat-Sugarcane (2 years)/ Rice-Maize (Rabi)/Green gram Genotypes of crops- as above | Pulses (Blackgram), Oilseeds (Sesame, Ground nut) | Direct seeding in small beds. Use of micro-irrigation systems viz. sprinkler & sub-surface irrigation. | Breeders seed will be supplied by BHU and NDAU, Faizabad. Seed drills RKVY and supply of seeds NFSM |
| | | | | | |

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 | | | | |
| Wheat | Provide drainage | Proper bunding drain out excess water | Harvesting at physiological maturity | Shift to safer place |
| Rice | Provide drainage | Proper bunding drain out excess water | Harvesting at physiological maturity | Shift to safer place |
| Pigeonpea | Provide drainage Sowing on ridges | Provide drainage Sowing on ridges | Provide drainage | Shift to safer place |
| Maize | Provide drainage Sowing on ridges | Provide drainage Sowing on ridges | Provide drainage harvesting of green cobs | Shift to safer place |
| Sugarcane | Provide drainage | Harvesting of crop before flowering | Harvesting of crops | Shift to mills |
| Mustard | Provide drainage | Provide drainage | Harvesting at physiological maturity | Shift to safer place |
| Pea | Provide drainage | Provide drainage | Harvesting of green pods | Shift to safer place |
| Horticulture | | | | |
| Potato | Ridge an furrow method of | Digging of tubers before | Drain out excess water and | Shift to safer |

| | | | | |
|---|--|---|---|--------------------------------|
| | sowing Drain out excess water | flowering | digging of pre-mature tubers | place |
| Greenpea | Provide drainage | Provide drainage | Harvesting of green pods | Shift to safer place |
| Onion | Drain out excess water | Drain out excess water | Drain out excess water | Shift to safer place |
| Cauliflower | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Drain out excess water. Plucking of mature and pre-mature flowers | Shift to market |
| Okra | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Drain out excess water. Plucking of mature and pre-mature fruits for vegetable purpose. | Shift to market |
| Cabbage | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Drain out excess water. | Shift to market |
| Heavy rainfall with high speed Winds in short span | | | | |
| Wheat | Drain out excess water | Drain out excess water and speed of wind may be protected with vegetable barriers | Drain out excess water and protect with vegetable barriers | Keep the grains at safer place |
| Rice | Drain out excess water | Drain out excess water protected with vegetable barriers | Drain out excess water and protect with vegetable barriers | Keep the grains at safer place |
| Pigeonpea | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Harvesting at physiological maturity | Keep the grains at safer place |
| Maize | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Harvested of green cobs | Keep the cobs at safer place |
| Sugarcane | Plant should be tied in a group and drain out excess water | Sugarcane is harvested on or before flowering | Plant should be tied in a group and drain out excess water Harvesting is being practiced | Transport to mills |
| Mustard | Drain out excess water | Drain out excess water | Drain out excess water. Harvesting at physiological maturity | Keep the grains at safer place |

| | | | | |
|---|--|---|--|---|
| Pea | Drain out excess water No effect of high speed of winds | Drain out excess water Grow dwarf and erect varieties of field pea | Drain out excess water. Harvesting of green pods | Keep the grains at safer place |
| Horticulture | | | | |
| Potato | Drain out excess water No effect of high speed of winds | Drain out excess water | Drain out excess water. Harvesting of pre-mature tubers | Keep the tubers at safer place |
| Greenpea | Drain out excess water No effect of high speed of winds | Drain out excess water Grow dwarf and erect varieties of field pea | Drain out excess water. Harvesting of green pods | Keep the green pods at safer place |
| Onion | Drain out excess water No effect of high speed of winds | Drain out excess water No effect of high speed of winds | Drain out excess water No effect of high speed of winds | Shift to safer place |
| Cauliflower | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges Harvesting of pre-mature flowers | Shift to market |
| Okra | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges Harvesting of pre-mature fruits | Shift to market as green vegetables |
| Cabbage | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges | Drain out excess water Sowing on ridges Harvesting of pre-mature buds | Shift to market as green vegetables |
| Outbreak of pests and diseases due to unseasonal rains | | | | |
| Wheat | Need based plant protection (integrated pest and disease management) | Need based plant protection (integrated pest and disease management) | Need based plant protection (integrated pest and disease management) | Safe storage against stored grain pest and diseases |
| Rice | -do | -do | -do | -do |

| | | | | |
|-----------|-----|-----|-----|-----|
| Pigeonpea | -do | -do | -do | -do |
| Maize | -do | -do | -do | -do |
| Sugarcane | -do | -do | -do | -do |
| Mustard | -do | -do | -do | -do |
| Pea | -do | -do | -do | -do |

| | | | | |
|--------------|--|--|--|---|
| Horticulture | | | | |
| Potato | Need based plant protection (integrated pest and disease management) | Need based plant protection (integrated pest and disease management) | Need based plant protection (integrated pest and disease management) | Safe storage against stored grain pest and diseases |
| Greenpea | -do- | -do- | -do- | -do- |
| Onion | -do- | -do- | -do- | -do- |
| Cauliflower | -do- | -do- | -do- | -do- |
| Okra | -do- | -do- | -do- | -do- |
| Cabbage | -do- | -do- | -do- | -do- |

2.3 Floods

| Condition | Suggested contingency measure ^o | | | |
|--|--|---|---|---|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Transient water logging/ partial inundation¹ | | | | |
| Wheat | Not experienced | Not experienced | Not experienced | Not experienced |
| Rice | Early seedling growing variety should be preferred and community nursery should be practiced | Fast growing varieties should be grown (Mahsoori) | Variety having seed dormancy should be preferred | Harvesting at physiological maturity |
| Pigeonpea | Resowing after flood | Resowing after flood | Harvest for fodder purpose | Harvesting at physiological maturity |
| Maize | Resowing after flood | Resowing after flood | Harvest for fodder purpose or harvesting of green | Harvesting at physiological maturity or harvesting of |

| | | | | |
|--|---|---|--|--------------------------------------|
| | | | cobs | green cobs |
| Sugarcane | Not experienced | Harvest for fodder purposes | Harvesting at physiological maturity | Harvesting at physiological maturity |
| Mustard | Not experienced | Not experienced | Not experienced | Not experienced |
| Pea | Not experienced | Not experienced | Not experienced | Not experienced |
| Horticulture | | | | |
| Potato | Not experienced | Not experienced | Not experienced | Not experienced |
| Green pea | Not experienced | Not experienced | Not experienced | Not experienced |
| Onion | Not experienced | Not experienced | Not experienced | Not experienced |
| Cauliflower | Not experienced | Not experienced | Not experienced | Not experienced |
| okra | Summer crop is not affected | Summer crop is not affected | Summer crop is not affected | Summer crop is not affected |
| Cabbage | Not experienced | Not experienced | Not experienced | Not experienced |
| Continuous submergence for more than 2 days² | | | | |
| Wheat | Not experienced | Not experienced | Not experienced | Not experienced |
| Rice | Varieties having submergence resistance should be grown <i>viz.</i> Swarana sub-1, IR-64 sub-1 re transplanting after cessation of flood from community nursery | Varieties having submergence resistance should be grown <i>viz.</i> Swarana sub-1, IR-64 sub-1 re transplanting after cessation of flood from community nursery | Prior transplanting of submergence resistant varieties along with seed dormancy. | Harvesting at physiological maturity |
| Pigeonpea | Resowing if possible | Replace with rice | Not experienced | Not experienced |
| Maize | Resowing if possible | Replace with rice | Replace with rice | Replace with rice |
| Sugarcane | Not experienced | Harvest for fodder purposes | Harvesting at physiological maturity or harvest for fodder purposes. | Harvesting at physiological maturity |
| Mustard | Not experienced | Not experienced | Not experienced | Not experienced |
| Pea | Not experienced | Not experienced | Not experienced | Not experienced |
| Horticulture | | | | |
| Potato | Not experienced | Not experienced | Not experienced | Not experienced |
| Greenpea | Not experienced | Not experienced | Not experienced | Not experienced |
| Onion | Not experienced | Not experienced | Not experienced | Not experienced |
| Cauliflower | Not experienced | Not experienced | Not experienced | Not experienced |

| | | | | |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Okra | Summer crop is not affected | Summer crop is not affected | Summer crop is not affected | Summer crop is not affected |
| Cabbage | Not experienced | Not experienced | Not experienced | Not experienced |
| Sea water intrusion³ | | | | |

2.4 Extreme events: High temperature (heat wave) / Cold wave/Frost/ Hailstorm /Cyclone/Fog

| Extreme event type | Suggested contingency measure ^r | | | |
|------------------------------|--|---|---|--------------------------------------|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Heat Wave^p | | | | |
| Wheat | Not experienced | Not experienced | Proper irrigation through out stress along with growing heat resistant varieties (stay green colour varieties) Foliar application of 2% urea | Harvesting at physiological maturity |
| Rice | Proper irrigation | Proper irrigation throughout stress period along with growing heat resistant varieties Foliar application of 2% urea | Not experienced | Not experienced |
| Pigeonpea | Proper irrigation | Proper irrigation | Proper irrigation | Proper irrigation |
| Maize | Proper irrigation | Proper irrigation | Proper irrigation | Proper irrigation |
| Sugarcane | Proper irrigation | Conservation tillage - ridges & furrows | Proper irrigation | Harvesting at physiological maturity |
| Mustard | Not experienced | Not experienced | Proper irrigation through out stress along with growing heat resistant varieties (stay green colour varieties) Foliar application of 2% urea | Harvesting at physiological maturity |
| Pea | Not experienced | Not experienced | Harvesting of green pods and proper irrigation | Harvesting at physiological maturity |
| Horticulture | | | | |

| | | | | |
|------------------------------|-------------------|---|--|--|
| Potato | Not experienced | Not experienced | Not experienced | Harvesting at physiological maturity |
| Greenpea | Not experienced | Not experienced | Not experienced | Harvesting at physiological maturity |
| Onion | Proper irrigation | Proper irrigation | Proper irrigation | Proper irrigation |
| Cauliflower | Proper irrigation | Proper irrigation | Proper irrigation | Proper irrigation |
| Okra | Not experienced | Not experienced | Not experienced | Proper irrigation |
| Cabbage | Not experienced | Not experienced | Not experienced | Proper irrigation |
| Cold wave^q | | | | |
| Wheat | Not experienced | Proper irrigation through out stress along with growing cold tolerant varieties | Proper irrigation through out stress along with growing cold tolerant varieties | Harvesting at physiological maturity |
| Rice | Not experienced | Not experienced | Not experienced | Harvesting at physiological maturity |
| Pigeonpea | Not experienced | Not experienced | Proper irrigation through out stress along with growing cold tolerant varieties | Harvesting at physiological maturity |
| Maize | Not experienced | Not experienced | Not experienced | Not experienced |
| Sugarcane | Not experienced | Not experienced | Crop is harvested before onset of cold waves | Crop is harvested before onset of cold waves |
| Mustard | Not experienced | Not experienced | Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties | Harvesting at physiological maturity |
| Pea | Not experienced | Not experienced | Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties | Harvesting at physiological maturity |
| Horticulture | | | | |
| Potato | Not experienced | Not experienced | Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties | Harvesting at physiological maturity |
| Greenpea | Not experienced | Not experienced | Keep the surroundings warm (burning the waste materials) & | Harvesting of green pods |

| | | | | |
|---------------------|-----------------|--|--|---------------------------------------|
| | | | growing cold tolerant varieties | |
| Onion | Not experienced | Not experienced | Not experienced | Not experienced |
| Cauliflower | Not experienced | Not experienced | Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties | Harvesting at pre-mature stage |
| Okra | Not experienced | Not experienced | Not experienced | Not experienced |
| Cabbage | Not experienced | Not experienced | Keep the surroundings warm (burning the waste materials) & growing cold tolerant varieties | Harvesting at pre-mature stage |
| Frost | | | | |
| Wheat | Not experienced | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Not experienced |
| Rice | Not experienced | Not experienced | Not experienced | Not experienced |
| Pigeonpea | Not experienced | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Not experienced |
| Maize | Not experienced | Not experienced | Not experienced | Not experienced |
| Sugarcane | Not experienced | Not experienced | Crop is harvested before the incidence of frost | Harvesting at physiological maturity |
| Mustard | Not experienced | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Not experienced |
| Pea | Not experienced | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Harvesting of green pods |
| Horticulture | | | | |
| Potato | Not experienced | Not experienced | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Digging of tubers as pre-mature stage |
| Greenpea | Not experienced | Keep the surroundings warm(burning the waste materials) | Keep the surroundings warm(burning the waste materials) | Harvesting of green pods |

| | | | | |
|---------------------|-----------------|--|--|--------------------------------|
| | | & growing frost tolerant varieties | & growing frost tolerant varieties | |
| Onion | Not experienced | Not experienced | Not experienced | Not experienced |
| Cauliflower | Not experienced | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Keep the surroundings warm(burning the waste materials) & growing frost tolerant varieties | Harvesting at pre-mature stage |
| Okra | Not experienced | Not experienced | Not experienced | Not experienced |
| Cabbage | Not experienced | Not experienced | Not experienced | Not experienced |
| Hailstorm | | | | |
| Horticulture | | | | |
| Cyclone | | | | |
| Horticulture | | | | |

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

| | Suggested contingency measures | | |
|--------------------------------------|--|--|--------------------|
| | Before the events | During the event | After the event |
| Drought | | | |
| Feed and fodder availability | Insurance Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, encouraging fodder crops in irrigated area Silage – using excess fodder for silage | Utilizing fodder from perennial trees and Fodder bank reserves. Utilizing fodder stored in silage. Transporting excess fodder from adjoining districts Use of feed mixtures. Allow the cattle's for grazing at barren lands. | Availing Insurance |
| Drinking water | Preserving water in the tank for drinking purpose Excavation of Bore wells | Using preserved water in the tanks for drinking. Wherever ground water resources are available priority for drinking purpose. | |
| Health and disease management | Veterinary preparedness with medicines and vaccines | Conducting mass animal Health Camps and treating the affected once in Campaign | |

| | | | |
|---------------------------------------|---|--|--------------------|
| Floods | | | |
| Feed and fodder availability | Grow the fodder crops at safer places (non- flood prone area) | Utilizing fodder from perennial trees and Fodder bank reserves. Utilizing fodder stored in silage. Transporting excess fodder from adjoining districts Use of feed mixtures. Shift the live stocks at safer place. | Availing insurance |
| Drinking water | | Shift the live stocks at safer place where drinking water is available. | |
| Health and disease management | Veterinary preparedness with medicines and vaccines | Conducting mass animal Health Camps and treating the affected once in Campaign | |
| Cyclone | | | |
| Feed and fodder availability | | | |
| Drinking water | | | |
| Health and disease management | | | |
| Heat wave and cold wave | | | |
| Shelter/environment management | | | |
| Health and disease management | | | |

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 | Insurance & Integration Establishing feed serve Bank | Utilizing from feed serve banks | Availing insurance Strengthening feed Reserve Banks | |
| Shortage of feed ingredients | | | | |
| Drinking water | | | | |
| Health and disease management | Emergency Veterinary preparedness with medicines vaccination to birds | Campaign and Mass Vaccination | Culling affected birds | |
| Heat wave and cold wave | | | | |
| Shelter/environment management | | | | |
| Health and disease management | | | | |

2.5.3 Fisheries/ Aquaculture

| | 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 | | | |
| (ii) Changes in water quality | | | |
| (iii) Any other | | | |
| B. Aquaculture | | | |

| | | | |
|--|--|--|--|
| (i) Shallow water in ponds due to insufficient rains/inflow | | | |
| (ii) Impact of salt load build up in ponds / change in water quality | | | |
| (iii) Any other | | | |
| 2) Floods | | | |
| A. Capture | | | |
| Marine | | | |
| Inland | | | |
| (i) No. of boats / nets/damaged | | | |
| (ii) No.of houses damaged | | | |
| (iii) Loss of stock | | | |
| (iv) Changes in water quality | | | |
| (v) Health and diseases | | | |
| B. Aquaculture | | | |
| (i) Inundation with flood water | | | |
| (ii) Water contamination and changes in water quality | | | |
| (iii) Health and diseases | | | |
| (iv) Loss of stock and inputs (feed, chemicals etc) | | | |
| (v) Infrastructure damage (pumps, aerators, huts etc) | | | |
| (vi) Any other | | | |
| 3. Cyclone / Tsunami | | | |
| 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) | | | |
| (ii) Health and Disease management | | | |
| (iii) Any other | | | |