

State: Rajasthan

Agriculture Contingency Plan for District: SAWAI MADHOPUR

| 1.0 District Agriculture profile | | | | | |
|---|--|--|--|--|---|
| 1.1 | Agro-Climatic/Ecological Zone | | | | |
| | Agro Ecological Sub Region (ICAR) | Northern Plain (And Central Highlands) Including Aravallis, Hot Semi-Arid Eco-Region (4.1) | | | |
| | Agro-Climatic Zone (Planning Commission) | CENTRAL PLATEAU AND HILLS REGION (VIII) | | | |
| | Agro Climatic Zone (NARP) | FLOOD PRONE EASTERN PLAIN ZONE (RJ-6) & SEMI ARID EASTERN PLAIN ZONE (RJ-5) | | | |
| | List all the districts or part thereof falling under the NARP Zone | Sawai Madhopur | | | |
| | Geographic coordinates of district headquarters | Latitude | Longitude | Altitude | |
| | | 25 45' & 26 ⁰ 41' N | 75 ⁰ 59' & 77 ⁰ 0' E | 237 msl | |
| | Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS | Zonal Director Research, A.R.S., Navgaon (S.K.R.A.U., Bikaner), Distt.: Alwar. | | | |
| Mention the KVK located in the district | K.V.K., Sawai Madhopur. | | | | |
| 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): | 829 | 30 | 3 rd week of June | 3 rd week of September |
| | NE Monsoon(Oct-Dec): | 18 | 1 | - | |
| | Winter (Jan- March) | 19 | 3 | - | - |
| | Summer (Apr-May) | 8 | 1 | - | - |
| | Annual | 874 | 35 | - | - |

| 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) | 497.947 | 329.647 | 79.997 | 27.994 | 24.719 | 12.878 | 0.543 | 39.289 | 33.182 | 22.740 |

| 1.4 | Major Soils (common names like red sandy loam deep soils (etc.,))* | Area ('000 ha) | Percent (%) of total |
|-----|--|----------------|----------------------|
| | 1. Deep black clayey | - | 10.79 |
| | 2. Shallow brown loamy | - | 0.84 |
| | 3. Medium brown loamy | - | 6.25 |
| | 4. Deep brown clayey | - | 18.11 |
| | 5. Deep brown loamy | - | 42.04 |
| | 6. Deep dark brown sandy | - | 0.09 |
| | 7. Red gravelly loam hilly | - | 6.98 |
| | 8. Rock red | - | 12.03 |
| | 9. Shallow yellowish brown gravelly | - | 2.86 |
| | Others (specify): | | |

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets

| 1.5 | Agricultural land use | Area ('000 ha) | Cropping intensity % |
|-----|--------------------------|----------------|----------------------|
| | Net sown area | 256.6 | 128 |
| | Area sown more than once | 73.0 | |
| | Gross cropped area | 329.6 | |

| | | | | |
|---|--|----------------------------|----------------|---|
| 1.6 | Irrigation | Area ('000 ha) | | |
| | Net irrigated area | 154.545 | | |
| | Gross irrigated area | 156.967 | | |
| | Rainfed area | 172.680 | | |
| | Sources of Irrigation | Number | Area ('000 ha) | Percentage of total irrigated area |
| | Canals | 0 | 0 | |
| | Tanks | 0 | 0 | |
| | Open wells | 31092 | 92.133 | 58.7 |
| | Bore wells | 7077 | 59.284 | 37.77 |
| | Lift irrigation schemes | - | - | |
| | Micro-irrigation | | | |
| | Other sources (please specify) | | | |
| | Total Irrigated Area | | | |
| | Pump sets | 32564 | | |
| | No. of Tractors | | | |
| | Groundwater availability and use* (Data source: State/Central Ground water Department /Board) | No. of blocks/ Tehsils (5) | (%) area | Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc) |
| | Over exploited | 4 | 80 | Sodic, fluoride |
| | Critical | 1 | 20 | |
| | Semi- critical | - | - | |
| | Safe | - | - | |
| Wastewater availability and use | - | - | | |
| 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) (Specify year - 2008-09) final estimates

| 1.7 | Major field crops cultivated | Area ('000 ha) | | | | | | |
|-----------|------------------------------|----------------|---------|---------|-------------|-----------|---------|--------|
| | | <i>Kharif</i> | | | <i>Rabi</i> | | | |
| | | Irrigated | Rainfed | Total | Crop | Irrigated | Rainfed | Summer |
| Bajra | 0 | 65.7 | | Wheat | 53.4 | | | |
| Guar | 0 | 0.3 | | Barley | 1.2 | | | |
| Til | 0.001 | 39.1 | | Gram | 3.3 | 10.6 | | |
| Cotton | - | - | | Mustard | 134.8 | 173.9 | | |
| Arhar | 0 | 0.3 | | | | | | |
| Groundnut | 6.6 | - | | | | | | |

| | Horticulture crops - Fruits | Area ('000 ha) | | |
|--|---------------------------------|----------------|-----------|---------|
| | | Total | Irrigated | Rainfed |
| | | | | |
| | Horticulture crops - Vegetables | Total | Irrigated | Rainfed |
| | Onion | 0.08 | 0.08 | - |
| | Potato | 0.04 | 0.04 | - |

| | | | |
|--|--------------|------------------|----------------|
| Chilly | 1.80 | 1.80 | - |
| Pea | 0.05 | 0.05 | - |
| Coriander | 0.1 | 0.1 | - |
| | | | |
| Medicinal and Aromatic crops | Total | Irrigated | Rainfed |
| Methi | 0.1 | 0.1 | - |
| Plantation crops | Total | Irrigated | Rainfed |
| Eg., industrial pulpwood crops etc. | | | |
| Fodder crops | Total | Irrigated | Rainfed |
| Jowar | | 0.01 | s2.6 |
| Total fodder crop area | | | |
| Grazing land | | | |
| Sericulture etc | | | |
| Others (specify) | | | |

| | | | | | | | |
|-------------|---|-------------------------------|----------------------------------|--------------------------|------------------------------------|--|---|
| 1.8 | Livestock | Male ('000) | Female ('000) | Total ('000) | | | |
| | Non descriptive Cattle (local low yielding) | | | | | | |
| | Crossbred cattle | | | | | | |
| | Non descriptive Buffaloes (local low yielding) | | | | | | |
| | Graded Buffaloes | | | | | | |
| | Goat | | | | | | |
| | Sheep | | | | | | |
| | Others (Camel, Pig, Yak etc.) | | | | | | |
| | Commercial dairy farms (Number) | | | | | | |
| 1.9 | Poultry | No. of farms | Total No. of birds ('000) | | | | |
| | Commercial | | | | | | |
| | Backyard | | | | | | |
| 1.10 | Fisheries (Data source: Chief Planning Officer) | | | | | | |
| | A. Capture | | | | | | |
| | i) Marine (Data Source: Fisheries Department) | No. of fishermen | Boats | | Nets | | Storage facilities (Ice plants etc.) |
| | | | Mechanized | Non-mechanized | Mechanized (Trawl nets, Gill nets) | 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: 2004, 05, 06, 07, 08; specify years)

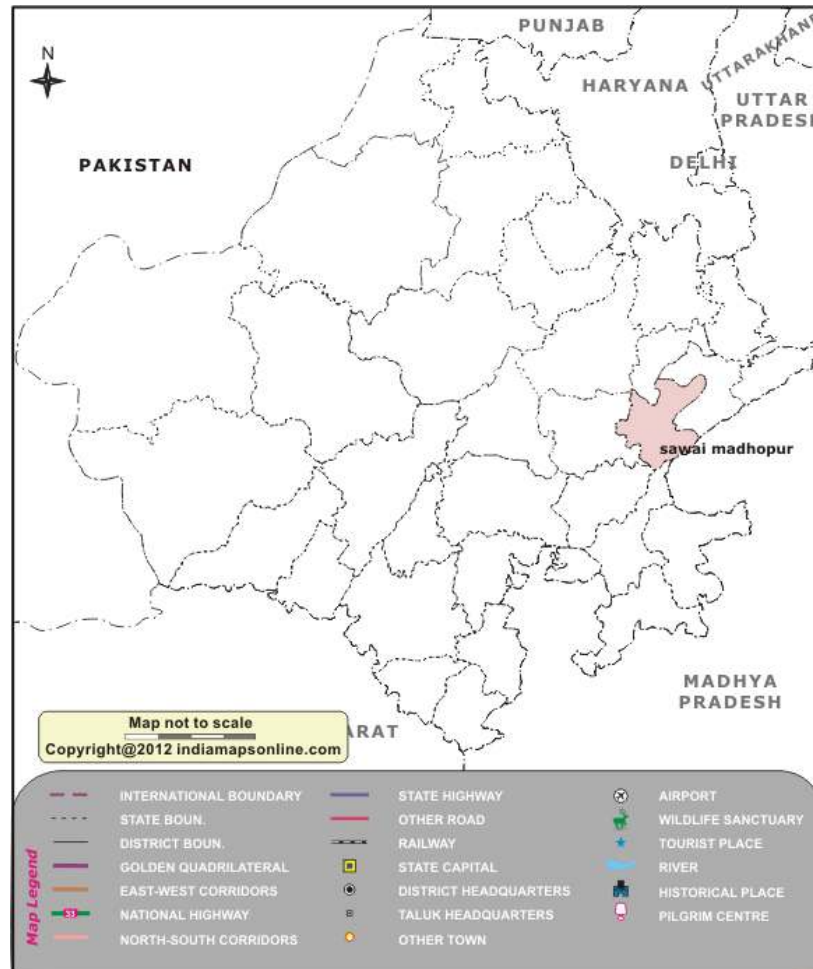
| 1.11 | Name of crop | Kharif | | Rabi | | Summer | | Total | | Crop residue as fodder ('000 tons) |
|--|--------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|------------------------------------|
| | | 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) | | | | | | | | | | |
| | Bajra | 116.9 | 1654 | 107.05 | 2254 | | | | | |
| | Guar | 1.5 | 490 | 1.65 | 1632 | | | | | |
| | Til | 7.5 | 506 | 9.24 | 921 | | | | | |
| | Cotton | 2 Bales | 340 | 186.99 | 1079 | | | | | |
| | Arhar | 0.55 | 0.64 | | | | | | | |
| | Groundnut | 4.70 | 889 | | | | | | | |
| Major Horticultural crops (Crops to be identified based on total acreage) | | | | | | | | | | |
| | Methi | - | - | 0.125 | 1105 | | | | | |

| 1.12 | Sowing window for 5 major field crops (start and end of normal sowing period) | Bajra | Guar | Wheat | Barley | Mustard |
|------|---|---|---|---|---|---|
| | Kharif- Rainfed | 15 th June – 15 th July | 15 th June – 15 th July | - | - | - |
| | Kharif-Irrigated | 15 th June – 15 th July | 15 th June – 15 th July | - | - | - |
| | Rabi- Rainfed | - | - | - | 1 st Nov.-30 th Nov | 15 th Sep.-15 th Oct. |
| | Rabi-Irrigated | - | - | 15 th Nov.-25 th Dec. | 1 st Nov.-30 th Nov | 15 th Oct.-15 th Nov. |

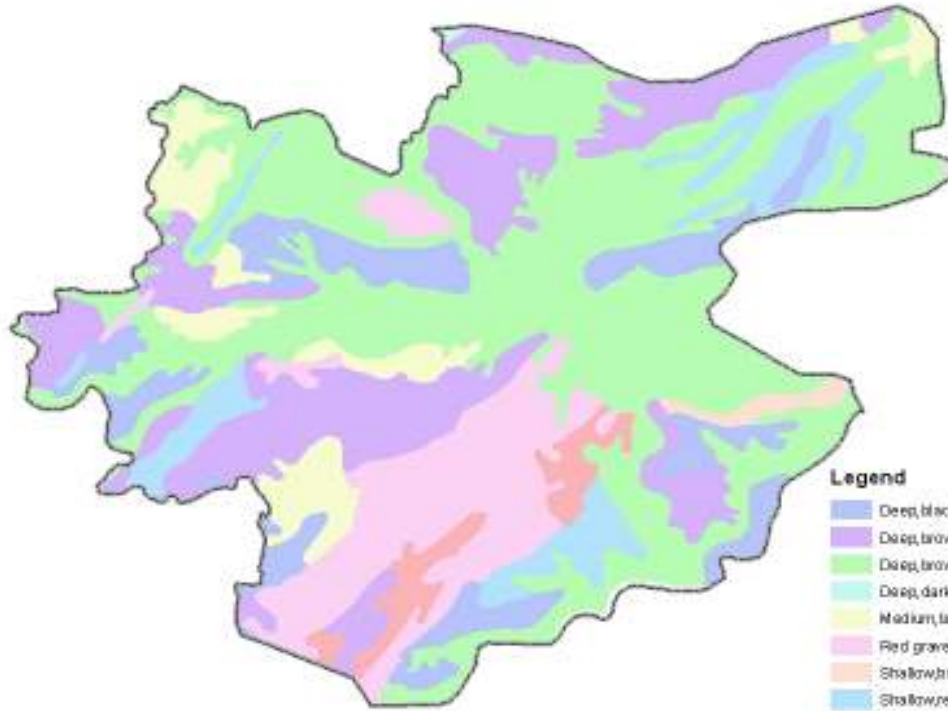
| 1.13 | What is the major contingency the district is prone to? (Tick mark) | Regular | Occasional | None |
|-------------|--|----------------|-------------------|-------------|
| | Drought | | √ | |
| | Flood | | | √ |
| | Cyclone | | | √ |
| | Hail storm | | | √ |
| | Heat wave | | √ | |
| | Cold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

| 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 |

Location map



Soils of Sawai Madhopur district, Rajasthan



Legend

- Deep, black clayey soils
- Deep, brown clayey soils
- Deep, brown loamy soils
- Deep, dark brown sandy soils
- Medium, brown loamy soils
- Red gravelly loam hilly soils
- Shallow, brown loamy soils
- Shallow, red gravelly loam soils
- Shallow, yellowish brown gravelly loam soils
- District boundary

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

| Condition | Major Farming situation ^a | Normal Crop / Cropping system ^b | Suggested Contingency measures | | |
|--|--|---|---|--|--|
| | | | Change in crop / cropping system ^c including variety | Agronomic measures ^d | Remarks on Implementation ^e |
| Early season drought (delayed onset) Delay by 2 weeks (Specify month)* July 1 st week | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Bajra -HHB-67, HHB-94, ICMH-356, MH-169.RHB 30, HHB 60, ICTP-8203 Guar :RGC—486, 1003, 1017, 1002, 1091, 936, RGM 112 Til - RT-46, RT-125, RT-127, GT-1. | Wider spacing in Bajra 45x45/30 cm, thinning, inter culture operation weed control at 25 DAS. Inter cropping in Bajra: Paired 2 rows of Bajra at 30 cm & only one row of moong / guar. | Seed drill under RKVY, supply of seed through RSSC, NSC, Bio-fertilizers, plain water harvesting structures, for regular fodder supply.Planting of Ardu, subabul, etc. at farmer & village level. Desilting of ponds to increase their capacity. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| Condition | Major Farming situation ^a | Normal Crop/cropping system ^b | Suggested Contingency measures | | |
|--------------------------------------|--------------------------------------|--|--|---------------------------------|--|
| | | | Change in crop/cropping system ^c (short duration) | Agronomic measures ^d | Remarks on Implementation ^e |
| Early season drought (delayed onset) | | | | | |

| | | | | | |
|--|---|---|--|--|---|
| Delay by 4 weeks (Specify month) July 3rd week | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Guar: RGC-936, 1003, 1002, 1017, RHB 30, Bajra: HHB-67, ICTP- 8203, HHB-60 | Prepare seed nursery of bajra & transplant in July end. Inter cropping in Bajra: Paired 2 rows of Bajra at 30 cm & only one row of moong / guar. | Seed drill under RKVY, supply of seed through RSSC, NSC, Bio-fertilizers, plain water harvesting structures, for regular fodder supply planting of Ardu, subabul, etc. at farmer & village level. Desilting of ponds to increase their capacity. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| 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 (Specify month) August 1st week | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Bajra and Jowar can be grown for fodder purpose. Guar-green manuring | Increase seed rate, Adequate nutrient management | Supply of seed / through RSSC, NSC. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| 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 8 weeks (Specify month) N.A. Situation did not arise in last 20 years August 4th week | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | No Kharif crop can be taken and Prepare land for rainfed rabi crops | | |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| 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 measures ^d | Remarks on Implementation ^e |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Thinning, weeding, gap filling of thinned plants. Resowing, if necessary. Only short duration varieties. | Mulching. | Supply of Weedicides under RKVY. Supply of intercultural implements. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| 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 | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Life saving irrigation thinning, weeding. Spraying thiourea in bajra, guar, etc. | | Supply of interculture implements through RKVY. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| 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) | | | | | |
| At flowering/ fruiting stage | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Life saving irrigation, spray of 0.1% thiourea + 0.2%, FeSO ₄ 0.5%, K ₂ SO ₄ / KCI + 1% urea. | Mulching. | Supply of interculture implements through RKVY. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

| 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) | Rainfed- Deep brown loamy soil (high rain) | Bajra/Guar/ Til -Mustard, Wheat/ Barley/ Gram | Life saving irrigation, harvest the crop for fodder purpose. Weed free field. | Harvested field: prepare the field followed by soil planking to conserve moisture for rabi rainfed crops. | Supply of interculture implements through RKVY. |
| | Rainfed- Deep brown clayey soil (medium rain) | | | | |
| | Rainfed- Red gravelly loam hilly soil (high rain) | | | | |

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 | | | | |
| Bajra, guar, til. | Provide drainage. | | Provide drainage, harvesting at Physiological maturity stage. | Shift safer places harvested crop plants heaped upright, threshed produced turned frequently, safe storage |
| Heavy rainfall with high speed winds in a short span ² – N.A. | | | | |
| Outbreak of pests and diseases due to unseasonal rains | Need based plant protection IPDM for all crops | -do- | -do- | -do- |

2.3 Floods – not applicable

| Condition | Suggested contingency measure ^o | | | |
|--|--|------------------|--------------------|------------|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Transient water logging/ partial inundation ¹ | | | | |
| Continuous submergence for more than 2 days ² | | | | |
| Sea water intrusion ³ | | | | |

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

| Extreme event type | Suggested contingency measure ^r | | | |
|------------------------|--|----------------------|---|------------|
| | Seedling / nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Heat Wave ^p | Life saving irrigation | Spraying of thiourea | Spraying of thiourea + FeSO ₄ | |
| Bajra | | | or KCl / K ₂ SO ₄ + urea spray. | |
| Guar | | | | |
| Til | | | | |
| Cold wave ^q | N.A. | | | |
| Frost | N.A. | | | |
| Hailstorm | N.A. | | | |
| Cyclone | N.A. | | | |

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 | | | |

| | | | |
|--------------------------------|------------------------------|---|---|
| Feed and fodder availability | Provide Enough feed & fodder | Provide sufficient feed & fodder along with mineral mixture. Harvest and use all failed crop material as fodder. Use MNB, urea treatment of poor fodder | Provide sufficient feed & fodder along with mineral mixture |
| Drinking water | Enough water for drinking | Provide sufficient water along with mineral mixture, Hygiene and sanitation, avoid wallowing of animals in water bodies | Provide sufficient water along with mineral mixture |
| Health and disease management | | Vaccinate against contagious diseases. | Vaccinate against contagious diseases |
| Floods | | | |
| Feed and fodder availability | Provide Enough feed & fodder | Provide dry fodder and feed in sufficient amount | Provide dry fodder and feed in sufficient amount |
| Drinking water | | Provide safe drinking water, maintain sanitation | Provide safe drinking water |
| Drinking water | | Organization of mass animal health camp, Spraying of fly repellents | Deworming, proper disposal of dead animals |
| Health and disease management | | | |
| Cyclone | | | |
| Feed and fodder availability | | Cover the shelter from north side/west side and use heaters/coolers, Grazing during morning and evening time | Normal condition |
| Drinking water | | | |
| Health and disease management | | | |
| Heat wave and cold wave | | | |

| | | | |
|--------------------------------|------------------|---|------------------|
| Shelter/environment management | Normal condition | Cover the shelter from north side/west side and use heaters/coolers | Normal condition |
| Health and disease management | Normal condition | Vaccinate against diseases | Normal condition |
| | | | |

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 | Provide Enough feed | Provide sufficient feed along with mineral mixture | Provide sufficient feed along with mineral mixture | Provide Enough feed |
| Drinking water | Enough water for drinking | Provide sufficient water along with mineral mixture | Provide sufficient water along with mineral mixture | Enough water for drinking |
| Health and disease management | | Vaccinate against contagious diseases | Vaccinate against contagious diseases | |
| Floods | | | | |
| Shortage of feed ingredients | Provide Enough feed & fodder | Provide dry fodder and feed in | Provide dry fodder and feed in sufficient amount | Provide Enough feed & fodder |

| | | | | |
|--------------------------------|------------------|---|-----------------------------|------------------|
| | | sufficient amount | | |
| Drinking water | | Provide safe drinking water | Provide safe drinking water | |
| Health and disease management | | | | |
| Cyclone | | | | |
| Shortage of feed ingredients | | | | |
| Drinking water | | | | |
| Health and disease management | | | | |
| Heat wave and cold wave | | | | |
| Shelter/environment management | Normal condition | Cover the shelter from north side/west side and use heaters/coolers | Normal condition | Normal condition |
| Health and disease management | Normal condition | Vaccinate against diseases | Normal condition | Normal condition |
| | | | | |

^a based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture: NA