

State: Uttar Pradesh
Agriculture Contingency Plan for District: Banda

| | | | | |
|---|--|---|-----------|----------|
| 1.0 | District Agriculture profile | | | |
| 1.1 | Agro-Climatic/ Ecological Zone | | | |
| | Agro-Ecological Sub Region(ICAR) | Central Plain Zone | | |
| | Agro-Climatic Zone (Planning Commission) | Central Plateau and Hill Region | | |
| | Agro-Climatic Zone (NARP) | Bundelkhand zone(U.P-10) | | |
| | List all the districts falling the NARP Zone* (^ 50% area falling in the zone) | Lalitpur, Jhansi, Jalaun, Chitrakut, Mahoba, Banda and Hamirpur | | |
| | Geographical coordinates of district headquarters | Latitude | Longitude | Altitude |
| | | 25° 20' N | 80° 22' E | 538 |
| | Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS | Zonal research Station, Bharari | | |
| | Mention the KVK located in the district with address | Krishi Vigyan Kend4a, Village Kamasin, Banda Dist. | | |
| Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone | C. S. A Kanpur | | | |

| | | | | | |
|-----|-----------------------|----------------|----------------------------|---------------------------------------|---|
| 1.2 | Rainfall | Normal RF (mm) | Normal Rainy Days (Number) | Normal Onset (Specify week and month) | Normal Cessation (Specify week and month) |
| | SW monsoon (June-sep) | 850.6 | 55 | 2 nd week of June | 3 rd week of September |
| | NE monsoon (Oct-Dec) | 46.3 | 10 | 3 rd week of December | 2 nd week of January |
| | Winter (Jan-March) | 37.1 | - | - | - |
| | Summer (Apr-May) | 11.5 | - | - | - |
| | Annual | 945.9 | 65 | | |

| | | | | | | | | | | | |
|-----|--|-------------------|-----------------|-------------|---------------------------------|--------------------|----------------------|---------------------------------------|------------------------------|-----------------|---------------|
| 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) | 438.9 | 389.9 | 5.4 | 31.9 | 0.4 | 12.6 | 1.5 | 11.3 | 19.4 | 12.9 |

| | | | |
|-----|-------------|---------------|---------------------|
| 1.4 | Major Soils | Area('000 ha) | Percent(%) of total |
| | Rakar Soil | | |
| | Parwa soils | | |
| | Kabar soils | | |
| | Maar soils | | |

| | | | |
|-----|--------------------------|---------------|------------------------|
| 1.5 | Agricultural land use | Area('000 ha) | Cropping intensity (%) |
| | Net sown area | 343.5 | 124.7% |
| | Area sown more than once | 84.9 | |
| | Gross cropped area | 428.5 | |

| | | | | |
|--|---|---------------------------|---------------|------------------------------------|
| 1.6 | Irrigation | Area('000 ha) | | |
| | Net irrigation area | 157.7 | | |
| | Gross irrigated area | 205.9 | | |
| | Rain fed area | 185.7 | | |
| | Sources of irrigation | Number | Area('000 ha) | Percentage of total irrigated area |
| | Canals | | 109.8 | 53.3 |
| | Tanks | | 5.6 | 2.7 |
| | Open wells | | 14.7 | 7.1 |
| | Bore wells | | 75.6 | 36.7 |
| | Lift irrigation schemes | | | |
| | Micro-irrigation | | | |
| | Other sources | | 140 | 0.1 |
| | Total Irrigated Area | | 205.9 | |
| | Pump sets | | | |
| | No. of Tractors | | | |
| | Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board) | No of blocks- Tehsils- | (%)area | Quality of water |
| | Over exploited | | | |
| | Critical | | | |
| | Semi-critical | | | |
| | Safe | | | |
| Waste water availability and use | | | | |
| Ground water quality | | | | |
| *over-exploited groundwater utilization > 100%; critical: 90-100%; semicritical: 70-90%; safe: < 70% | | | | |

1.7 Area under major field crops & (As per latest figures 2011-12)

| | | | | | | | | | |
|--------|------------------------------|---------------|----------|-------|-----------|----------|-------|--------|-------|
| 1.7 | Major field crops cultivated | Area('000 ha) | | | | | | | |
| | | Kharif | | | Rabi | | | Summer | Total |
| | | Irrigated | Rain fed | Total | Irrigated | Rain fed | Total | | |
| | Rice | 53.2 | 1.1 | 54.3 | 0 | 0 | 0 | 0 | 54.3 |
| | Wheat | 0 | 0 | 0 | 145.8 | 13.6 | 159.4 | 0 | 159.4 |
| Pulses | 0.001 | 7.07 | 7.071 | 3.8 | 146.9 | 150.7 | 0.5 | 158.3 | |

| | | | | | | | | | |
|--|----------|------|------|-------|-------|-------|-------|------|-------|
| | Oilseeds | 0.02 | 15.3 | 15.3 | 0.2 | 4.7 | 4.9 | 0.01 | 20.2 |
| | Millets | 0 | 28.8 | 28.8 | 0 | 0 | 0 | 0 | 28.8 |
| | Total | 53.2 | 52.4 | 105.6 | 149.8 | 165.1 | 314.9 | 0.5 | 420.9 |

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

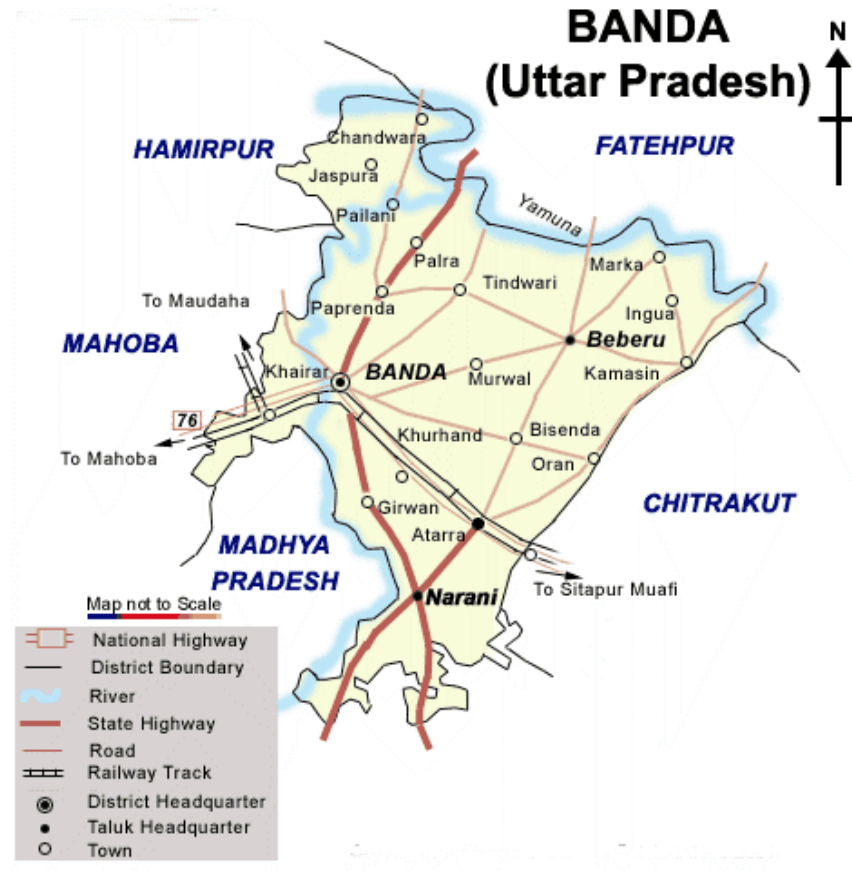
| 1.7 | Major field crops cultivated | Area ('000 ha) | | | | | | | | Crop residue as fodder ('000 tons) |
|-----|------------------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|------------------------------------|
| | | Kharif | | Rabi | | Summer | | Total | | |
| | | Production ('000 T) | Productivity (KG/HA) | Production ('000 T) | Productivity (KG/HA) | Production ('000 T) | Productivity (KG/HA) | Production ('000 T) | Productivity (KG/HA) | |
| | Rice | 75.469 | 1468 | 0 | 0 | 0 | 0 | 75.469 | 1468 | |
| | Wheat | 0 | 0 | 291.777 | 1925 | 0 | 0 | 291.777 | 1925 | |
| | Pulses | 2.779 | 319 | 125.233 | 805 | 0.034 | 815 | 127.638 | 786 | |
| | Oilseeds | 2.798 | 164 | 2.336 | 505 | 0.004 | 1250 | 4.751 | 247 | |
| | Millets | 20.665 | 1126 | 0 | 0 | 0 | 0 | 20665 | 1126 | |
| | Foodgrains | 109.739 | 1216 | 441.326 | 1344 | 0.038 | 821 | 526.893 | 1313 | |

| 1.8 | Sowing window for 5 major field crops | Sesame | Jowar | Bajra | Black Gram | Green gram | Pigeon Pea | Gour | Wheat | Pea | Gram | Lentil | Mustard |
|-----|---------------------------------------|--------|-----------|-----------|------------------|------------|------------|------|----------|------------------|------------------|----------|-----------|
| | Kharif –Rainfed | July | June-July | June-July | April, June-July | June-July | July | - | - | - | - | - | - |
| | Kharif - Irrigated | July | June-July | June-July | April, June-July | June-July | July | July | - | - | - | - | - |
| | Rabi –Rainfed | - | - | - | - | -- | - | - | | October-November | October-November | November | September |
| | Rabi - Irrigated | - | - | - | - | - | - | - | December | October-November | October-November | November | September |

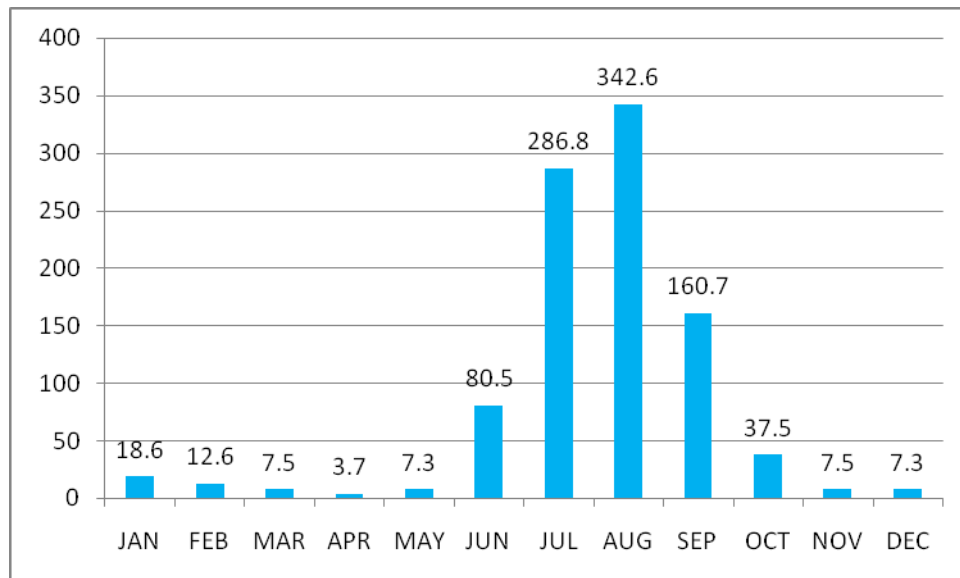
| 1.9 | What is the major contingency the district is prone to? | Regular | Occasional | None |
|-----|---|---------|------------|------|
| | Drought | ✓ | - | |
| | Flood | - | - | |
| | Cyclone | - | - | |
| | Hail storm | - | - | |
| | Heat wave | ✓ | - | |
| | Cold wave | - | - | |
| | Frost | - | - | |
| | Sea water intrusion | - | - | |
| | Sheath Blight, Stemborrer , Pyrilla loose smut, Heliothis, Rust etc white grub. | - | - | |

| | | | |
|------|---|--|----------------|
| 1.14 | Include Digital maps of the district for | Location map of district with in State as Annexure I | Enclosed : Yes |
| | | Mean annual rainfall as Annexure 2 | Enclosed : Yes |
| | | Soil map as Annexure 3 | Enclosed : No |

Annexure 01: Location map of the Uttar Pradesh state and district Banda



Annexure 02: Mean annual rainfall (mm) of district Banda



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

| Condition | | | Suggested contingency measures | | |
|--|---|---|--|---|--------------------------|
| Early season drought (delayed onset) | Major farming situation | Normal crop/ Cropping systems | Change in crops/ Cropping systems | Agronomic measures | Remark on implementation |
| Delay by 2 weeks 4 th week of June | Deep soil, Rakar, Parwa, Kabar, and maar Soil | Rice- Wheat Sesame- Pea Sesame-Gram Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Pigeon Pea Green Gram- Lentil | Rice- Short duration Maize- Hybrid, HQPM-1 Pearl Millets- Raj-171 & Hybrid, Sorghum - Csv-13,15 & Hybrid | Mulching, Line Sowing , Light Irrigation, Weed Management and thinning, | Mixed farming |
| Delay by 4 weeks 4 nd week of July | Deep soil, Rakar, Parwa, Kabar, and maar Soil | Sesame- Pea Sesame-Gram Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Pigeon Pea Green Gram- Lentil | Replace rice with Green gram, Black Gram & Sorghum, Green Gram - PM-8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, Black Gram - T-9 PU-19,PU-40,PU-35 Sekhar-1,2&3 | Sesame on ridges, Mulching, Line Sowing , Light Irrigation, Weed Management and thinning, | Inter cropping |
| Delay by 6 weeks 4 th week of July | Deep soil, Rakar, Parwa, Kabar, and maar Soil | Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Pigeon Pea Green Gram- Lentil Sesame- Pea Sesame-Gram | Replace rice with Green gram and pearl millet Green Gram - PM-8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya Pearl Millets- Raj-171 & Hybrid, | Wider spacing 25 enhanced nutrients | Inter cropping |
| Delay by 8weeks 2nd week of August | Deep soil, Rakar, Parwa, Kabar, and maar Soil | Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Pigeon Pea Green Gram- Lentil Sesame- Pea Sesame-Gram | Plan for toria | | |

| Condition | | | Suggested contingency measures | | |
|--|-------------------------|--|--|---|--------------------------|
| Early season drought (Normal onset) | Major farming situation | Normal crop/ Cropping systems | Crop management | Soil nutrient & moisture conservation measures | Remark on implementation |
| Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/ op stand | Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Pigeon Pea- NDR-1, NDR-2,MA-6, MA-13 | Ridge-furrow sowing, | |
| | Irrigated lowland | Rice-Wheat Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Green Gram- Lentil | Use of drought tolerant rice varieties- NDR-97, Susk Samrat Resowing & Gap filling Inter row harrowing | Use of additional Urea, Zink Sulphate, Mulching, | |
| | Un Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Sesame-T-78, Pragti, Sekhar | Ridge-furrow sowing, | |
| | Un Irrigated lowland | Black Gram- Pea/Gram | Green Gram- PM-8, PDM-11, Samrat, Jyoti, Jagriti, Janpriya, Black Gram- T-9 PU-19,PU-40,PU-35 Sekhar-1,2&3 | Ridge-furrow sowing, | |
| Mid season drought (Long dry spell consecutive 2 weeks rainless(.2.5mm period) | | | | | |
| At vegetative stage | Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Pigeon Pea- NDR-1, NDR-2,MA-6, MA-13 | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | |
| | Irrigated lowland | Rice-Wheat Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Green Gram- Lentil | Use of drought tolerant rice varieties- NDR-97, Susk Samrat Resowing & Gap filling Inter row harrowing | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | |
| | Un Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Sesame-T-78, Pragti, Sekhar | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | |
| | Un Irrigated lowland | Black Gram- Pea/Gram | Green Gram- PM-8, | Life saving Irrigation, straw | |

| | | | | | |
|---|----------------------|--|---|--|---------------------------------|
| | | | PDM-11, Samrat, Jyoti, Jagriti, Janpriya, Black Gram- T-9 PU-19,PU-40,PU-35 Sekhar-1,2&3 | Mulch, Thinning, Inter cropping | |
| At flowering / fruiting stage | Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Spraying of 2% urea as foliar application KCI Spray | |
| | Irrigated lowland | Rice-Wheat Black Gram- Pea/Gram Jowar- Wheat Bajra- Wheat Green Gram- Lentil | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Spraying of 2% urea as foliar application KCI Spray | |
| | Un Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Spraying of 2% urea as foliar application KCI Spray | |
| | Un Irrigated lowland | Black Gram- Pea/Gram | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Spraying of 2% urea as foliar application KCI Spray | |
| | | Normal crop/ Cropping systems | Crop management | Rabi Crop planning | Remark on implementation |
| Thermal drought (Early withdrawal of monsoon) | Irrigated upland | Sesame- Pea Sesame-Gram | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Toria | Early Rabi |
| | Irrigated lowland | Jowar- Wheat Bajra- Wheat Green Gram- Lentil | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Toria | Early Rabi |
| | Un Irrigated upland | Sesame- Pea Sesame-Gram Pigeon Pea | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Toria | Early Rabi |
| | Un Irrigated lowland | Black Gram- Pea/Gram | Life saving Irrigation, straw Mulch, Thinning, Inter cropping | Toria | Early Rabi |

2.1.2 Drought –Irrigated situation

| Condition | | | Suggested contingency measures | | |
|--|-------------------------|--|---|---|--------------------------|
| Early season drought (delayed onset) | Major farming situation | Normal crop/ Cropping systems | Change in crops/ Cropping systems | Agronomic measures | Remark on implementation |
| Delayed release of water in canals due to low rainfall | Sandy Loam soils | Rice- Wheat | Rice- Short duration Varieties- NDR-97, UPS-212, Susk Smrat, Sahbhagi | Direct sowing, Drum Seeder Micro irrigation | |
| | | Millets- Mustard Pigeon Pea | No change | Micro irrigation/Thinning, Weed control | |
| | | Sesame- Lentil Black gram/ Green gram | No change | Micro irrigation/Thinning, Weed control | |
| | clay /Silt loam soils | Soybean-Gram | No change | Micro irrigation/Thinning, Weed control | |
| | | - | - | - | - |
| | | - | - | - | - |
| Limited release of water in canals due to low rainfall | Sandy Loam soils | Rice- Wheat | Rice- Short duration Varieties- NDR-97, UPS-212, Susk Smrat, Sahbhagi | Direct sowing, Drum Seeder Micro irrigation | |
| | | Millets- Mustard Pigeon Pea | No change | Micro irrigation/Thinning, Weed control | |
| | | Sesame- Lentil Black gram/ Green gram | No change | Micro irrigation/Thinning, Weed control | |
| | clay loam soils | Soybean-Gram | No change | Micro irrigation/Thinning, Weed control | |
| | | - | - | - | - |
| | | - | - | - | - |
| Non release of water in canals under delayed onset of monsoon in catchment | Sandy Loam soils | Rice- Wheat | Rice may be replaced by Pulses Green Gram- Samrat, Janpriya, Jagriti Black Gram- T-9, PU- | Direct seeding in small beds, Use of Micro-irrigation/ Sub surface irrigation | |

| | | | | | |
|---|---|--|---|---|--|
| | | | 40, PU-35 Azad-3 | | |
| | | Millets- Mustard Pigeon Pea | No change | Sowing of Pigeon pea at 90 cm+ two rows of inter crops on ridges Use of Micro- irrigation/ Sub surface irrigation | |
| | | Sesame- Lentil Black gram/ Green gram | No change | Direct seeding in small beds, Use of Micro-irrigation/ Sub surface irrigation | |
| | clay loam soils | Soybean-Gram | No change | Direct seeding in small beds, Use of Micro-irrigation/ Sub surface irrigation | |
| | | - | | | |
| | | - | | | |
| Insufficient water recharge due to low rainfall | Upland tube well irrigated canal Sandy Loam soils | Rice- Wheat | Rice may be replaced by Pulses Green Gram- Samrat, Janpriya, Jagriti Black Gram- T-9, PU-40, PU-35 Azad-3 | Direct seeding in small beds, Use of Micro-irrigation/ Sub surface irrigation | |
| | | Millets- Mustard Pigeon Pea | No change | Sowing of Pigeon pea at 90 cm+ two rows of inter crops on ridges Use of Micro- irrigation/ Sub surface irrigation | |
| | | Sesame- Lentil Black gram/ Green gram | No change | Direct seeding in small beds, Use of Micro-irrigation/ Sub surface irrigation | |
| | Lowland tube well irrigated canal clay loam soils | Soybean-Gram | No change | Direct seeding in small beds, Use of Micro-irrigation/ Sub surface irrigation | |
| | | | | | |
| | | | | | |

2.2 Unusual rains – (Untimely, unseasonal etc)

| Condition | | | Suggested contingency measures | | |
|--|-------------------------|--|-----------------------------------|------------------------------|-----------------------|
| Continuous high rainfall in a short span leading to water logging | Vegetative stage | Flowering stage | Crop maturity stage'' | | Post harvest'' |
| Soybean Black gram/ Green gram/ | Provide Drainage | Proper bunding Drain out excess water | Harvest at physiological maturity | | Shift to safer side |
| Sesame/ Pigeon pea | Provide Drainage | Proper bunding Drain out excess water | Harvest at physiological maturity | | Shift to safer side |
| Condition | | | Suggested contingency measures | | |
| Heavy rainfall with high speed winds in a short span | Vegetative stage | Flowering stage | | Crop maturity stage'' | Post harvest'' |
| Soybean Black gram/ Green gram/ | Provide Drainage | Proper bunding Drain out excess water | Harvest at physiological maturity | | Shift to safer side |
| Sesame/ Pigeon pea | Provide Drainage | Proper bunding Drain out excess water | Harvest at physiological maturity | | Shift to safer side |
| Condition | | | Suggested contingency measures | | |
| Outbreak of pests and diseases due to unseasonal rains | Vegetative stage | Flowering stage | Flowering stage | Crop maturity stage'' | Post harvest'' |
| Soybean Black gram/ Green gram/ | Bio pesticides use | Bio pesticides use | Bio pesticides use | Bio pesticides use | Shift to safer place |
| Sesame/ Pigeon pea | Bio pesticides use | Bio pesticides use | Bio pesticides use | Bio pesticides use | Shift to safer place |

2.3 Floods

| Condition | Suggested contingency measures | | | |
|--|--------------------------------|-------------------------|---|-----------------------------------|
| Transient water logging/ partial inundation | Seedling/Nursery stage | Vegetative stage | Reproductive stage | At harvest |
| Soybean Black gram/ Green gram/ | Provide drainage | Provide drainage | Provide drainage/ Prevent premature seed | Harvest at physiological maturity |
| Sesame/ Pigeon pea | Provide drainage | Provide drainage | Provide drainage/ Prevent premature seed | Harvest at physiological maturity |
| Pearl Millets | Provide drainage | Provide drainage | Provide drainage/ Prevent premature seed | Harvest at physiological maturity |
| Sorghum | Provide drainage | Provide drainage | Provide drainage/ Prevent premature seed | Harvest at physiological maturity |

