State: **GUJARAT**

**Agriculture Contingency Plan for District: SABARKANTHA**

### 1.0 District Agriculture profile

#### 1.1 Agro-Climatic/Ecological Zone

<table>
<thead>
<tr>
<th>Sub Region/Zone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agro Ecological Sub Region (ICAR)</td>
<td>North Gujarat plain (Inclusive of Aravalli range and East Rajasthan Uplands) hot, dry, semi–arid eco-subregion (4.2)</td>
</tr>
<tr>
<td>Agro-Climatic Zone (Planning Commission)</td>
<td>Gujarat Plains and Hills Region (XIII)</td>
</tr>
<tr>
<td>Agro Climatic Zone (NARP)</td>
<td>North Gujarat Agroclimatic zone (GJ-4)</td>
</tr>
</tbody>
</table>

List all the districts or part thereof falling under the NARP Zone: Gandhi Nagar, Kheda, Mehsana And Sabarkanta

<table>
<thead>
<tr>
<th>Geographic coordinates of district headquarters</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23°03’N</td>
<td>73°39’E</td>
<td>127 m</td>
</tr>
</tbody>
</table>

Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS:
- Agricultural Research Station, S.D. Agricultural University, Talod
- Maize Research Station, S.D. Agricultural University Bhiloda

Mention the KVK located in the district: Krushi Vigyan Kendra, S.D. Agricultural University, Khedbrahma, Taluka- Khedbrahma

#### 1.2 Rainfall

<table>
<thead>
<tr>
<th>Season</th>
<th>Normal RF (mm)</th>
<th>Normal Rainy days (number)</th>
<th>Normal Onset (specify week and month)</th>
<th>Normal Cessation (specify week and month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW monsoon (June-Sep):</td>
<td>807</td>
<td>35</td>
<td>4th week of June</td>
<td>2nd week of September</td>
</tr>
<tr>
<td>NE Monsoon(Oct-Dec):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter (Jan- March)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer (Apr-May)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual</td>
<td>807</td>
<td>35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 1.3 Land use pattern of the district (latest statistics)

<table>
<thead>
<tr>
<th>Area ('000 ha)</th>
<th>Geographical area</th>
<th>Cultivable area</th>
<th>Forest area</th>
<th>Land under non-agricultural use</th>
<th>Permanent pastures</th>
<th>Cultivable wasteland</th>
<th>Land under Misc. tree crops and groves</th>
<th>Barren and uncultivable land</th>
<th>Current fallows</th>
<th>Other fallows</th>
</tr>
</thead>
<tbody>
<tr>
<td>730.0</td>
<td>445.0</td>
<td>126.0</td>
<td>42.0</td>
<td>33.0</td>
<td>15.0</td>
<td>-</td>
<td>-</td>
<td>35.0</td>
<td>34.0</td>
<td>-</td>
</tr>
</tbody>
</table>

(Source: District Panchayat Report, Report of Agriculture Department)

### 1.4 Major Soils (common names like red sandy loam deep soils (etc.,)*

| Sandy loam (Gorada) | 191.1 | 26.18 |
| Medium black        | 412.0 | 56.44 |
| Hilly Soils         | 126.9 | 17.38 |

### 1.5 Agricultural land use

| Net sown area       | 445.0 | 118.0 |
| Area sown more than once | 79.0 |     |
| Gross cropped area  | 524.0 |     |

(Source: District Panchayat Report, Report of Agriculture Department)

### 1.6 Irrigation

| Net irrigated area  | 163.0 |
| Gross irrigated area | 177.0 |
| Rainfed area        | 282.0 |

<table>
<thead>
<tr>
<th>Sources of Irrigation</th>
<th>Number</th>
<th>Area ('000 ha)</th>
<th>Percentage of total irrigated area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canals</td>
<td>544 Km</td>
<td>23.0</td>
<td>13.0</td>
</tr>
<tr>
<td>Tanks</td>
<td>0.6</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Open wells</td>
<td>81136</td>
<td>90.6</td>
<td>51.2</td>
</tr>
<tr>
<td>Bore wells</td>
<td>5561</td>
<td>44.8</td>
<td>25.3</td>
</tr>
<tr>
<td>Lift irrigation schemes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micro-irrigation</td>
<td>9514</td>
<td>18.0</td>
<td>10.2</td>
</tr>
<tr>
<td>Other sources (please specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Irrigated Area</td>
<td></td>
<td>177.0</td>
<td></td>
</tr>
<tr>
<td>Pump sets</td>
<td>73714</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.No.</td>
<td>Major field crops cultivated</td>
<td>Kharif Irrigated</td>
<td>Kharif Rainfed</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>1</td>
<td>Maize</td>
<td>-</td>
<td>112.0</td>
</tr>
<tr>
<td>2</td>
<td>Cotton (Lint)</td>
<td>74.6</td>
<td>17.8</td>
</tr>
<tr>
<td>3</td>
<td>Wheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Groundnut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pulses (Tur, Urad, Greengram)</td>
<td>42.5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Castor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Horticulture crops – Fruits</th>
<th>Area (‘000 ha)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mango</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ber</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Citrus</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sapota</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Aonla</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Horticulture crops – Vegetables</th>
<th>Area (‘000 ha)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cucurbits</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Okra</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Brinjal</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tomato</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Clusterbean</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Medicinal and Aromatic crops</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1  Ginger</td>
<td>0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  Turmeric</td>
<td>0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plantation crops</strong></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1</strong></td>
<td><strong>Nil</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other s (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eg., industrial pulpwood crops etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fodder crops</strong></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1  Crop1</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total fodder crop area</strong></td>
<td>32.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grazing land</strong></td>
<td>33.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sericulture etc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Others (specify)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: District Panchayat Report, Report of Agriculture Department)

<table>
<thead>
<tr>
<th>Livestock</th>
<th>Male ('000)</th>
<th>Female (No's)</th>
<th>Total (No's)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source: 26th survey Report (08-09), Dept. of A. H., Gujarat State</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non descriptive Cattle (local low yielding)</td>
<td>468850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crossbred cattle</td>
<td>151846</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non descriptive Buffaloes (local low yielding)</td>
<td>774928</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graded Buffaloes</td>
<td>343981</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goat</td>
<td>66695</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>4728</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (Camel, Pig, Yak etc.)</td>
<td></td>
<td>4728</td>
<td></td>
</tr>
<tr>
<td>Commercial dairy farms (Number)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poultry</th>
<th>No. of farms</th>
<th>Total No. of birds (No's)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>15015 (layer) + 143350(broilers) + 2126(ducks) =</td>
<td>160491</td>
</tr>
</tbody>
</table>
### 1.10 Fisheries

(Data source: Gujarat Fisheries Statistics 2006-07 and MArch-10, Commissioner of Fisheries, Govt. of Gujarat)

#### A. Capture

<table>
<thead>
<tr>
<th>i) Marine (Data Source: Fisheries Department)</th>
<th>No. of fishermen</th>
<th>Boats</th>
<th>Nets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanized</th>
<th>Non-mechanized</th>
<th>Mechanized</th>
<th>Non-mechanized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trawl nets, Gill nets</td>
<td>Shore Seines, Stake &amp; trap nets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>509</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ii) Inland (Data Source: Fisheries Department)</th>
<th>No. Farmer owned ponds</th>
<th>No. of Reservoirs</th>
<th>No. of village tanks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>57 (15097 ha)</td>
<td></td>
</tr>
</tbody>
</table>

#### B. Culture

<table>
<thead>
<tr>
<th>Water Spread Area (ha)</th>
<th>Yield (t/ha)</th>
<th>Production (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Brackish water (Data Source: MPEDA/ Fisheries Department)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ii) Fresh water (Data Source: Fisheries Department)</td>
<td>-</td>
<td>279</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(Data source: Gujarat Fisheries Statistics 2006-07 and MArch-10, Commissioner of Fisheries, Govt. of Gujarat)

### 1.11 Production and Productivity of major crops

(Average of last 5 years: 2004, 05, 06, 07, 08, 09: specify years)

#### 1.11 Name of crop

<table>
<thead>
<tr>
<th>Kharif</th>
<th>Rabi</th>
<th>Summer</th>
<th>Total</th>
<th>Crop residue as fodder ('000 tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production ('000 t)</td>
<td>Productivity (kg/ha)</td>
<td>Production ('000 t)</td>
<td>Productivity (kg/ha)</td>
<td>Production ('000 t)</td>
</tr>
</tbody>
</table>

**Major Field crops (Crops to be identified based on total acreage)**

<p>| 1 | Maize | 147.0 | 1315.0 | - | - | - | - | 147.0 | 1315 | 205.8 |
| 2 | Cotton (Lint) | 298.3 | 560.0 | - | - | - | - | 298.3 | 560 | 894.9 |
| 3 | Wheat | 223.9 | 2505 | 223.9 | 2505 | 256.5 |</p>
<table>
<thead>
<tr>
<th></th>
<th>Crops</th>
<th>Sowing window for 5 major field crops (start and end of normal sowing period)</th>
<th>Maize</th>
<th>Cotton</th>
<th>Wheat</th>
<th>Groundnut</th>
<th>Pulses</th>
<th>Castor</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Groundnut</td>
<td>3rd week of June- 1st week of July</td>
<td>3rd week of June-3rd week of July</td>
<td>21st June-15th july</td>
<td>3rd week of June- 1st week of July</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pulses (Tur, Urad, Greengram)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Castor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major Horticultural crops (Crops to be identified based on total acreage)**

<table>
<thead>
<tr>
<th></th>
<th>Crops</th>
<th>Sowing window for 5 major field crops (start and end of normal sowing period)</th>
<th>Maize</th>
<th>Cotton</th>
<th>Wheat</th>
<th>Groundnut</th>
<th>Pulses</th>
<th>Castor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mango</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Citrus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sapota</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Aonla</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: District Panchayat Report, Report of Agriculture Department)

**1.12 Sowing window for 5 major field crops (start and end of normal sowing period)**

- **Kharif- Rainfed**: 3rd week of June-1st week of July
- **Kharif-Irrigated**: 3rd week of June-3rd week of July
- **Rabi- Rainfed**: 3rd week to 4th week of November
- **Rabi-Irrigated**: 3rd week of July - 3rd week of Aug.

**1.13 What is the major contingency the district is prone to? (Tick mark)**

<table>
<thead>
<tr>
<th>Contingency</th>
<th>Regular</th>
<th>Occasional</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flood</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Cyclone</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Event</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Hail storm</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Heat wave</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold wave</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Frost</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Sea water intrusion</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Pests and disease outbreak (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.14 Include Digital maps of the district for

<table>
<thead>
<tr>
<th>Description</th>
<th>Enclosed: Yes / No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location map of district within State as Annexure I</td>
<td>Yes</td>
</tr>
<tr>
<td>Mean annual rainfall as Annexure 2</td>
<td>Yes</td>
</tr>
<tr>
<td>Soil map as Annexure 3</td>
<td>Yes</td>
</tr>
</tbody>
</table>

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Major Farming situation</th>
<th>Normal Crop / Cropping system</th>
<th>Change in crop / cropping system including variety</th>
<th>Agronomic measures</th>
<th>Remarks on Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early season drought</td>
<td>High rainfall Sandy loam</td>
<td>Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>(delayed onset)</td>
<td>Soil (Himmatnagar, Prantij, Talod, Dhansura)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay by 2 weeks, i.e.</td>
<td>Groundnut</td>
<td></td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>July 1st week</td>
<td>- Spreading type GAUG-10, GG-11, 12 &amp; 13.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Breeder seed source SAU
- Certified seed source NSC,GSSC, GUJCOMASOL
- Seed drill under RKVY (costing Rs.
<table>
<thead>
<tr>
<th>Crop</th>
<th>Breeder Seed Source</th>
<th>Certified Seed Source</th>
<th>Seed Drill under RKVY Costing Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>SAU</td>
<td>NSC, GSSC, GUJCOMASOL</td>
<td></td>
</tr>
<tr>
<td>Pigeonpea</td>
<td>T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
<td>As such</td>
<td>do</td>
</tr>
<tr>
<td>Green gram</td>
<td>Guj.Mung-1,2,3,4 &amp; 6, K-851</td>
<td>As such</td>
<td>No change</td>
</tr>
<tr>
<td>Black gram</td>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1</td>
<td>As such</td>
<td>No change</td>
</tr>
<tr>
<td>Fodder crop</td>
<td>Jowar: GFS-4,5 S-1049 (sundhiya jowar)</td>
<td>As such</td>
<td>Seed source NSC, GUJCOMASOL, GSSC.</td>
</tr>
<tr>
<td>Maize local</td>
<td>African tall</td>
<td>As Such</td>
<td>do</td>
</tr>
<tr>
<td>Medium rainfall, Medium black soil (Khedbrahma, Meghraj)</td>
<td>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Paddy-Wheat</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Castor GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>No change</td>
<td>• Ridge &amp; furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)</td>
<td>• Ridge &amp; furrow maker can be provided under RKVY or other Govt. Agency. • Breeder seed source SAU • Certified seed source NSC, GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)</td>
</tr>
<tr>
<td>Rice - Transplanting Var. GR-3, 4, 5, 6 GR-7 (Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118. - Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5, 8 &amp; 9</td>
<td>No change</td>
<td>No change</td>
<td>• Breeder seed source SAU • Certified seed source NSC, GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)</td>
</tr>
<tr>
<td>Maize - Private Hybrids-Pusa early hybrids-1 &amp; 2 - Improved Var. Farm sameri, Guj.Maize-1, 2, 3, 4 &amp; 6, Narmada moti</td>
<td>As such</td>
<td>As such</td>
<td>• Breeder seed source SAU • Certified seed source NSC, GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)</td>
</tr>
<tr>
<td>Groundnut - Spreading type GAUG-10, GG-11, 12 &amp; 13. - Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 - Semi spreading GG-20</td>
<td>No change</td>
<td>No change</td>
<td>do</td>
</tr>
<tr>
<td>Green gram Guj.Mung-1, 2, 3 &amp; 4, K-851</td>
<td>No change</td>
<td>No change</td>
<td>do</td>
</tr>
<tr>
<td>Crop</td>
<td>Seed Source</td>
<td>Characteristics</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
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<td>---------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Black gram</td>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj,</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urad-1</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Pigeonpea</td>
<td>T.15-15, Pusa Ageti, BDN-2, ICPL-87,</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GT-1, GT-100, GT-101, Danas, GTH-1</td>
<td>No change</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Fodder crop</td>
<td>Jowar: GFS-4.5 S-1049 (sunthiya jowar)</td>
<td>As such</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jowar: S-1049, SSG-59-3 (Multicut)</td>
<td>Seed source NSC, GUJCOMASOL, GSSC.</td>
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<tr>
<td></td>
<td>Bajra: GF Bajra-1 (Multicut)</td>
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</tr>
<tr>
<td>Maize local</td>
<td>African tall</td>
<td>As Such</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
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<td>do</td>
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<tr>
<td>High rainfall, Medium black Soil</td>
<td>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Groundnut-Wheat</td>
<td>GHB-558,538,577,719,732</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Grow short duration early maturing varieties of Bajra viz. GHB-538, GHB-577</td>
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<tr>
<td></td>
<td>Bajra</td>
<td>• 20 Per Cent higher seed rate</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Seed priming with thiourea (0.05%) for four hours</td>
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<td></td>
<td></td>
<td>• Sowing by adopting compartmental bunding (3.0 X 4.5 m)</td>
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<td></td>
<td></td>
<td>• Breeder seed source SAU</td>
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<td></td>
<td></td>
<td>• Certified seed source NSC, GSSC, GUJCOMASOL</td>
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<td></td>
<td></td>
<td>• Seed drill under RKVY (costing Rs. 30000/-)</td>
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<tr>
<td>Maize</td>
<td>-Private Hybrids-Pusa early hybrids-1 &amp; 2, Improved Var. Farm sameri, Guj, Maize-1,2,3,4,6, Narmada moti</td>
<td>As such</td>
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<tr>
<td></td>
<td></td>
<td>As such</td>
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<td></td>
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<td>do</td>
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<tr>
<td>Castor</td>
<td>GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>No change</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Ridge &amp; furrow method of sowing (90 cm)</td>
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<td></td>
<td></td>
<td>Or</td>
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<tr>
<td></td>
<td></td>
<td>• Ridge &amp; furrow maker can be provided under RKVY or other Govt. Agency.</td>
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<td></td>
<td></td>
<td>• Breeder seed source SAU</td>
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<td></td>
<td></td>
<td>• Certified seed source NSC, GSSC,</td>
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<tr>
<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Change in crop/cropping system</td>
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<tr>
<td>Early season drought (delayed onset)</td>
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<tr>
<td>Delay by 4 weeks (Specify month)</td>
<td>High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)</td>
<td>Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)</td>
<td>Early maturing Bt-Cotton + Green gram or Black gram (1:1 Row ratio)</td>
</tr>
<tr>
<td>July 3rd Week</td>
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<tr>
<td>Groundnut - Spreading type GAUG-10, GG-11, 12 &amp; 13. - Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 - Semi spreading GG-20</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Cotton (Bt)</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
<td>No change</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Fodder crop Jowar: GFS-4,5 S-1049 (sundhiya jowar)</td>
<td>Jowar: S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut)</td>
<td>As such</td>
<td></td>
</tr>
<tr>
<td>Maize local: African tall</td>
<td>As Such</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Groundnut</td>
<td>Cowpea</td>
<td>Castor</td>
<td>Maize</td>
</tr>
<tr>
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</tr>
<tr>
<td>Sowing at 60 cm spacing Fertilizer reduction by 30 Per Cent</td>
<td>Sowing at 60 cm spacing Fertilizer reduction by 30 Per Cent</td>
<td>No Change Ridge &amp; furrow method of sowing (90 cm) Or Compartmental bunding (3.6 X 6.0 m)</td>
<td>Sow the crop at 75 cm distance Reduce the fertilizer application by 30 Per Cent</td>
</tr>
<tr>
<td>Breed seed source SAU Certified seed source NSC, GSSC, GUJCOMASOL Seed drill under RKVY (costing Rs. 30000/-)</td>
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<tr>
<td>Crop</td>
<td>Source</td>
<td>Handling</td>
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<td></td>
</tr>
<tr>
<td>Black gram</td>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td><strong>Fodder crop</strong></td>
<td><strong>Jowar:</strong> GFS-4,5 S-1049 (sundhiya jowar) <strong>Bajra:</strong> GF Bajra-1 (Multicut)</td>
<td>• Compartmental Bunding (3.6 m x 6.0 m) • S applicaton @ 20 kg/ha in form of Gypsum • Seed source NSC, GUJCOMASOL, GSSC. • Gypsum may supplied by GSFC under subsidies rate</td>
<td></td>
</tr>
<tr>
<td>Maize local:</td>
<td>African tall</td>
<td>do</td>
<td>• Bund maker can be provided under RKVY</td>
</tr>
<tr>
<td>Medium rainfall, Medium black soil (Khedbrahma, Meghraj)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Paddy-Wheat Cotton (Bt)</td>
<td>Early maturing Bt-Cotton + Green gram or Black gram (1:1 Row ratio)</td>
<td>• Conservation furrow at every third row</td>
<td>• Furrow maker can be provided under RKVY or other Govt. Agency.</td>
</tr>
<tr>
<td>Castor</td>
<td>GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>No Change</td>
<td>• Ridge &amp; furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m) • Breeder seed source SAU • Certified seed source NSC, GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge &amp; furrow maker can be provided under RKVY or other Govt. Agency.</td>
</tr>
<tr>
<td>Rice</td>
<td>Transplanting Var. GR-3,4,5,6 GR-7(Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasil, Kamod-118. Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5,8 &amp; 9</td>
<td>Paddy Variety GR-11, GR-12, GR-13, Jaya, Gurjari, Dandi</td>
<td>• SRI Techniques • Staggering of Nursery</td>
</tr>
<tr>
<td>Crop</td>
<td>Hybrids/Pure Lines</td>
<td>Details</td>
<td>Source</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>Maize</td>
<td>-Private Hybrids-Pusa early hybrids-1 &amp; 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 &amp; 6, Narmada moti</td>
<td>• Gujarat Maize 4 or 6 + Tur GT-101 (2:1 row ratio) • Gujarat Maize 4 or 6 + Urad Guj.-1 (1:1 row ratio)</td>
<td>---</td>
</tr>
<tr>
<td>Groundnut</td>
<td>-Spreading type GAUG-10, GG-11, 12 &amp; 13. -Bunch type (Erect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 -Semi spreading GG-20</td>
<td>• Cowpea -Guj.Cowpea-1,2,4 &amp;5 Only as a vegetable purpose, green pod marketing Clusuresbean- HG-75,Guj Guar-1 and 2 only Mothbean -Gujarat Mothbean-1, GMO-2 Green gram -Gujarat Moong-4 Black gram -Gujarat Urad-1</td>
<td>• Sowing at 60 cm spacing • Fertilizer reduction by 30 Per Cent</td>
</tr>
<tr>
<td>Green gram</td>
<td>Guj.Mung-1,2,3 &amp; 4, K-851</td>
<td>• Gujarat Moong-4</td>
<td>• Sowing at 60 cm spacing • Fertilizer reduction by 30 Per Cent</td>
</tr>
<tr>
<td>Black gram</td>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1</td>
<td>• Gujarat Urad-1</td>
<td>• Sowing at 60 cm spacing • Fertilizer reduction by 30 Per Cent</td>
</tr>
<tr>
<td>Pigeonpea</td>
<td>T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
<td>• Dual purpose Sorghum Gujarat Jowar-39 and Malvan</td>
<td>• Compartmental Bunding (3.6 m x6.0 m) • S applicaton @ 20 kg/ha in form of Gypsum</td>
</tr>
<tr>
<td>Fodder crop</td>
<td>Jowar: GFS-4,5 S-1049 (sundhiya jowar)</td>
<td>• Jowar: S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut)</td>
<td>• Compartmental Bunding (3.6 m x6.0 m) • S applicaton @ 20 kg/ha in form of Gypsum</td>
</tr>
<tr>
<td>Maize local:</td>
<td>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Groundnut-Wheat Bajra GHB-558,538,577,719,732</td>
<td>do</td>
<td>• Bundemaker can be provided under RKVY</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)</td>
<td>• Short duration early maturing Var. GHB-538 &amp; 577</td>
<td>• Sowing at 60 cm-seed priming with thiurea (0.05%) for four hours</td>
<td>• Breeder seed source SAU</td>
</tr>
<tr>
<td></td>
<td>• Karingdo as a mixed crop along with pearl millet third row</td>
<td>• Sowing by adopting compartmental bunding (3.0 X 4.5 m)</td>
<td>• Certified seed source NSC, GSSC, GUJCOMASOL</td>
</tr>
<tr>
<td></td>
<td>• Reduce 25% acreage of pearl millet by Guar and Mothbean</td>
<td></td>
<td>• Seed drill under RKVY (costing Rs. 30000/-)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maize -Private Hybrids-Pusa early hybrids-1 &amp; 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 &amp; 6, Narmada moti</th>
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<th>• Gujarat Maize 4 or 6 + Tur GT-101 (2:1 row ratio)</th>
<th>• Sow the crop at 75cm distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Gujarat Maize 4 or 6 + Urad Guj.-1 (1:1 row ratio)</td>
<td>• Reduce the fertilizer application by 30 Per Cent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Castor GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</th>
<th>No Change</th>
<th>• Ridge &amp; furrow method of sowing (90 cm) Or</th>
<th>• Breeder seed source SAU</th>
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<tr>
<td></td>
<td></td>
<td>• Compartmental bunding (3.6 X 6.0 m)</td>
<td>• Certified seed source NSC, GSSC, GUJCOMASOL</td>
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<td></td>
<td></td>
<td>• Fertilizer reduction by 30 Per Cent</td>
<td>• Certified seed source NSC, GSSC, GUJCOMASOL</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Seed drill under RKVY (costing Rs. 30000/-)</td>
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<tr>
<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Change in crop/cropping system</td>
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</tr>
<tr>
<td>Early season drought (delayed onset)</td>
<td>High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)</td>
<td>Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)</td>
<td></td>
</tr>
<tr>
<td>Delay by 6 weeks August 1st week</td>
<td></td>
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</tr>
<tr>
<td>Cotton (Bt)</td>
<td>• Early maturing Bt-Cotton + Green gram or Black gram (1:1 Row ratio)</td>
<td>• Conservation furrow at every third row</td>
<td>• Furrow maker can be provided under RKVY or other Govt. Agency.</td>
</tr>
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<td>Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
<td>Dual purpose Sorghum Gujarat Jowar-39 and Malvan</td>
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<td>• Breeder seed source SAU</td>
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<td>Jowar: S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut)</td>
<td>• Compartmental Bunding (3.6 m x 6.0 m) • S application @ 20 kg/ha in form of Gypsum</td>
<td>Seed source SCP, GUJCOMASOL, GSSC. Gypsum may supplied by GSFC under subsidies rate</td>
</tr>
<tr>
<td>Maize local:</td>
<td>African tall</td>
<td>do</td>
<td>Bund maker can be provided under RKVY</td>
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<tr>
<th>Condition</th>
<th>Major Farming situation</th>
<th>Normal Crop/cropping system</th>
<th>Change in crop/cropping system</th>
<th>Agronomic measures</th>
<th>Suggested Contingency measures</th>
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<td>Dual purpose Sorghum Gujarat Jowar-39 and Malvan</td>
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<td>• Breeder seed source SAU</td>
<td>Beach source SCP, GUJCOMASOL, GSSC.</td>
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<td>Fodder crop Jowar: GFS-4,5 S-1049 (sundhiya jowar)</td>
<td>Jowar: S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut)</td>
<td>• Compartmental Bunding (3.6 m x 6.0 m) • S application @ 20 kg/ha in form of Gypsum</td>
<td>Seed source SCP, GUJCOMASOL, GSSC. Gypsum may supplied by GSFC under subsidies rate</td>
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<td>Maize local:</td>
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<td>do</td>
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<th>Suggested Contingency measures</th>
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<td>Delay by 6 weeks August 1st week</td>
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<td>Cotton (Bt)</td>
<td>• Early maturing Bt-Cotton + Green gram or Black gram (1:1 Row ratio)</td>
<td>• Conservation furrow at every third row</td>
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<td>Clusterbean</td>
<td>Maize</td>
<td>Pigeonpea</td>
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<tr>
<td>- Spreading type GAUG-10, GG-11, 12 &amp; 13. Bunch type (Errct) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 - Semi spreading GG-20</td>
<td>Hg-75, Gujarat Guar 1 or 2 Fodder Jowar GJ-39, Malvan</td>
<td>- Private Hybrids- Pusa early hybrids-1 &amp; 2 - Improved Var. Farm sameri, Guj, Maize-1,2,3,4 &amp; 6, Narmada moti</td>
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<td><strong>- One row of Cowpea or Clusterbean between regular two row of castor without giving any fertilizer</strong></td>
<td><strong>- 25% higher seed rate with 60 cm spacing</strong></td>
<td><strong>- Wider spacing at 60 cm with 25 Per Cent higher seed rate</strong></td>
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<tr>
<td><strong>- Compartmental bunding (3.6 X 6.0 m)</strong></td>
<td><strong>- Reduce the fertilizer by 40 Per Cent</strong></td>
<td><strong>- Reduce the fertilizer application by 40 Per Cent</strong></td>
<td><strong>- Breeder seed source SAU</strong></td>
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<td><strong>- Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying)</strong></td>
<td><strong>- In fodder Sorghum, apply 20 kg S/ha through Gypsum</strong></td>
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<td><strong>- Reduction in fertilizer application by 50 Per Cent</strong></td>
<td><strong>- Breed seed source SAU</strong></td>
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<td><strong>- Sowing distance 120 cm for castor</strong></td>
<td><strong>- Certified seed source NSC, GSSC, GUJCOMAS OL</strong></td>
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<tr>
<td><strong>- No fertilizer application for intercrop</strong></td>
<td><strong>- Seed drill under RKVY (costing Rs. 30000/-)</strong></td>
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<tr>
<td><strong>- Bund maker provide under RKVY</strong></td>
<td><strong>- Gypsum provided under subsidies rate by Govt. Agency</strong></td>
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<td>Crop</td>
<td>Seed Variety</td>
<td>Sowing Practice</td>
<td>Notes</td>
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</table>
| Green gram | Guj.Mung-1,2,3 & 4, K-851 | **Fodder sorghum**-GJ-39, Malvan | - Wider spacing at 60 cm with 25 Per Cent higher seed rate  
- Reduce the fertilizer application by 40 Per Cent  
- In fodder Sorghum, apply 20 kg S/ha through Gypsum |
| Black gram | Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1 | **Fodder sorghum**-GJ-39, Malvan | do |
| **Fodder crop** | **Jowar**: GFS-4, S-1049 (sundhiya jowar)  
**Bajra**: GF Bajra-1 (Multicut) |  
- **Compartmental Bunding** (3.6 m x 6.0 m)  
- **S** applicaton @ 20 kg/ha in form of Gypsum |  
- Seed source NSC, GUJCOMASOL, GSSC  
- Gypsum may supplied by GSFC under subsidies rate |
| Maize local | African tall | do |  
- **Bund maker** can be provided under RKVY |
| **Maize local** | African tall | do |  
- Breeder seed source SAU  
- Certified seed source NSC, GSSC, GUJCOMAS OL  
- Seed drill under RKVY (costing Rs. 30000/-)  
- Ridge & furrow maker can be provided under RKVY or other Govt. Agency |
| Castor | **Castor** (GCH-4,5 or 7) |  
- Castor (GCH-4,5 or 7)  
- Castor (GCH-4,5 or 7) + Clusterbean (Guj Guar 1 or 2)  
- One row of Cowpea or Clusterbean between regular two row of castor without giving any fertilizer |  
- Seed hardening (soaking the seed 8 hours in water followed by shadow drying)  
- Sow the castor crop at 120 cm spacing  
- Compartmental bunding (3.6 X 6.0m)  
- Breeder seed source SAU |

**Cropping system:**
- Cotton-Wheat, Maize-Wheat & Paddy-Wheat  
- Cotton (Bt)  
- Medium rainfall, Medium black soil (Khedbrahma, Meghraj)
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<tr>
<th>Crop</th>
<th>Seed Source</th>
<th>Indigenous/Commercial Source</th>
<th>Function</th>
<th>Description</th>
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<tr>
<td>Rice</td>
<td>- Transplanting Var.</td>
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<td>GR-3,4,5,6 GR-7 (Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod, 118. Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5,8 &amp; 9</td>
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<td>- Drill paddy</td>
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<td>Maize</td>
<td>- Private Hybrids-</td>
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<td>Pusa early hybrids-1 &amp; 2, Improved Var. Farm sameri, Guj. Maize-1,2,3,4 &amp; 6, Narmada moti</td>
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<td>- Spreading type</td>
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<td>- Bunch type (Erect)</td>
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<td>J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1</td>
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<td>Groundnut</td>
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<tr>
<td>Crop Type</td>
<td>Variety/Details</td>
<td>Recommended Practices</td>
<td>Notes</td>
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| Green gram | Guj. Mung-1,2,3 & 4, K-851 | **Fodder sorghum** GJ-39, Malvan | - Wider spacing at 60 cm with 25 Per Cent higher seed rate  
- Reduce the fertilizer application by 40 Per Cent  
- In fodder Sorghum, apply 20 kg S/ha through Gypsum  
- Breeder seed source SAU  
- Certified seed source NSC, GSSC, GUJCOMAS OL  
- Seed drill under RKVY (costing Rs. 30000/-) |
| Black gram | Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1 | **Fodder sorghum** GJ-39, Malvan | do |
| Fodder crop | Jowar: GFS-4,5 S-1049 (sundhiya jowar) | **Jowar**: S-1049, SSG-59-3 (Multicut)  
**Bajra**: GF Bajra-1 (Multicut) | - Compartmental Bunding (3.6 m x 6.0 m)  
- S application @ 20 kg/ha in form of Gypsum  
- Seed source NSC, GUJCOMASOL, GSSC.  
- Gypsum may supplied by GSFC under subsidies rate |
| Maize local | African tall | do |
| High rainfall, Medium black soil | Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat | **Bajra**: GHB-558,538,577,719,732 | - Clusterbean HG-75, Gujarat Guar 1 or 2  
- 25% higher seed rate with 60 cm spacing  
- Reduce the fertilizer by 40 Per Cent  
- Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying)  
- Breeder seed source SAU  
- Certified seed source NSC, GSSC, GUJCOMAS OL  
- Seed drill under RKVY (costing Rs. 30000/-)  
- Ridge & furrow maker can be provided under RKVY |

Note: RKVY = Rashtriya Krishi Vikas Yojana.
<table>
<thead>
<tr>
<th>Crop</th>
<th>Variety/Details</th>
<th>Recommendations</th>
<th>Source/Agency</th>
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<td>Breeder seed source SAU</td>
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<td>Ridge &amp; furrow maker can be provided under RKVY or other Govt. Agency.</td>
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<td>Gypsum provided under subsidies rate by Govt. Agency.</td>
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<tr>
<td>Castor</td>
<td>GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>Castor (GCH-4,5 or 7) + Mothbean (GMO-2) (1:2 row ratio) (two line of Mothbean in regular spacing of Castor)</td>
<td>Breeder seed source SAU</td>
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<td>Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying)</td>
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<td>25% higher seed rate with 60 cm</td>
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or other Govt. Agency.
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<th>Variety</th>
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<th>Fertilizer</th>
<th>Compartmental Bunding</th>
<th>Source of Seed</th>
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<tr>
<td>Cotton (Bt)</td>
<td>Castor (GCH-4,5 or 7) + Clusterbean (Gujar 1 or 2)</td>
<td>Seed hardening (soaking the seed 8 hours in water followed by shadow drying)</td>
<td>Sow the castor crop at 120 cm spacing</td>
<td>Compartamental bunding (3.6 x 6.0 m)</td>
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<td>• Breeder seed source SAU&lt;br&gt;• Certified seed source NSC, GSSC, GUJCOMASOL&lt;br&gt;• Seed drill under RKVY (costing Rs. 30000/-)&lt;br&gt;• Ridge &amp; furrow maker can be provided under RKVY or other Govt. Agency.&lt;br&gt;• Gypsum provided under subsidies rate by Govt. Agency.</td>
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<td>Delay by 8 weeks August 3rd week</td>
<td>Groundnut -Spreading type GAUG-10, GG-11, 12 &amp; 13. -Bunch type (Erect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 -Semi spreading GG-20</td>
<td>Sesame Purva (semi rabi var.) Purva-1</td>
<td>As such</td>
<td>Breeder seed source SAU&lt;br&gt;• Certified seed source NSC, GSSC, GUJCOMASOL</td>
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<td>Castor GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>• Castor (GCH-4,5 or 7) + Cowpea (GC-4 (one line of Cowpea in regular spacing of castor) Or • Castor (GCH-4,5 or 7) + Purva Til (purva-1)</td>
<td>• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying)&lt;br&gt;• Reduction in fertilizer application by 50 Per Cent&lt;br&gt;• Sowing distance 120 cm for castor&lt;br&gt;• No fertilizer application for inter crop</td>
<td>Breeder seed source SAU&lt;br&gt;• Certified seed source NSC, GSSC, GUJCOMASOL&lt;br&gt;• Bund maker provide under RKVY&lt;br&gt;• Seed drill can be provided under RKVY or any other Govt. Agency on subsidies rate</td>
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<td>Crop</td>
<td>Fodder Source</td>
<td>Remarks</td>
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<td>hybrids-1 &amp; 2</td>
<td>GJ-39, Malvan</td>
<td>- Reduce the fertilizer application by 40 Per Cent</td>
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<td>-Improved Var.</td>
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<td>- In fodder Sorghum, apply 20 kg S/ha through Gypsum</td>
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<td>GT-101, Banas, GTH-1</td>
<td>Gujarat</td>
<td>- Seed drill under RKVY (costing Rs. 30000/-)</td>
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<tr>
<td><strong>Green gram</strong></td>
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<td><strong>Black gram</strong></td>
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<td><strong>Fodder crop</strong></td>
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<td><strong>Jowar</strong></td>
<td>Jowar:S-1049, SSG-59-3 (Multicut)</td>
<td>- Compartmental Bunding (3.6 m x 6.0 m)</td>
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<td>Bajra:GF Bajra-1 (Multicut)</td>
<td>- S application @ 20 kg/ha in form of Gypsum</td>
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<td>Region</td>
<td>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Paddy-Wheat</td>
<td>Clusterbean Hg-75, Gujarat Guar 1 or 2</td>
<td>Fodder Jowar GJ-39, Malvan</td>
<td>Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>Rice - Transplanting Var. GR-3,4,5,6 GR-7(Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118. - Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5,8 &amp; 9</td>
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<tr>
<td>Medium rainfall, Medium black soil (Khedbrahma, Meghraj)</td>
<td>Cotton (Bt)</td>
<td>25% higher seed rate with 60 cm spacing</td>
<td>Reduce the fertilizer by 40 Per Cent</td>
<td>Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying) In fodder Sorghum, apply 20 kg S/ha through Gypsum</td>
<td><strong>Rice</strong> Transplanting Var. GR-3,4,5,6 GR-7(Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118. <strong>Drill paddy</strong> Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5,8 &amp; 9</td>
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<td><strong>Maize</strong> Private Hybrids-Pusa early</td>
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- Breeder seed source SAU
- Certified seed source NSC,GSSC,GUJCOMASOL
- Seed drill under RKVY (costing Rs. 30000/-)
- Ridge & furrow maker can be provided under RKVY or other Govt. Agency.
- Gypsum provided under subsidies rate by Govt. Agency.

- Castor (GCH-4,5 or 7) + Cowpea (GC-4 (one line of Cowpea in regular spacing of castor) Or
- Castor (GCH-4,5 or 7) + Purva Til (purva-1) (1:1 Row ratio) | Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) Reduction in fertilizer application by 50 Per Cent Sowing distance 120 cm for castor No fertilizer application for inter crop | Breeder seed source SAU Certified seed source NSC,GSSC,GUJCOMASOL Bund maker provide under RKVY Seed drill can be provided under RKVY or any other Govt. Agency on subsidies rate

- Residual moisture be utilized for sowing gram or wheat (Duram) ---
<table>
<thead>
<tr>
<th>Hybrid</th>
<th>Improved Var.</th>
<th>Farm sameri, Guj. Maize 1,2,3,4 &amp; 6, Narmada moti</th>
<th>Reduced the fertilizer application by 40 Per Cent</th>
<th>Seed drill under RKVY (costing Rs. 30000/-)</th>
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<tr>
<td>Groundnut</td>
<td>Spreading type</td>
<td>GAUG-10, GG-11, 12 &amp; 13. - Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 - Semi spreading GG-20</td>
<td>Reduce the fertilizer application by 40 Per Cent</td>
<td>Seed drill under RKVY (costing Rs. 30000/-)</td>
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<td>Sesame</td>
<td>Purva (semi rabi var.) Purva-1</td>
<td>As such</td>
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<td>Guj. Mung-1,2,3 &amp; 4, K-851</td>
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<td>Wider spacing at 60 cm with 25 Per Cent higher seed rate</td>
<td>Breeder seed source SAU</td>
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<tr>
<td>Black gram</td>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1</td>
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<td>Wider spacing at 60 cm with 25 Per Cent higher seed rate</td>
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<td>Fodder crop</td>
<td>Jowar: GFS-4,5, S-1049 (sundhiya jowar)</td>
<td>Jowar: S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut) Reduce the 25% seed rate</td>
<td>Compartmental Bunding (3.6 m x 6.0 m)</td>
<td>Seed source NSC, GUJCOMASOL, GSSC.</td>
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<td></td>
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<td>S application @ 20 kg/ha in form of Gypsum</td>
<td>Gypsum may supplied by GSFC under subsidies rate</td>
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<td>Bund maker can be provided under RKVY</td>
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<tr>
<td>Crop</td>
<td>Variety</td>
<td>Measures</td>
<td>Source</td>
<td>Notes</td>
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<td><strong>GF Bajra</strong>-1 (Multicut) <strong>Reduce the 25% seed rate</strong></td>
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<td><strong>Bund creating (3.6 m x 6.0 m)</strong> <strong>S application @ 20 kg/ha in form of Gypsum</strong></td>
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<tr>
<td>High rainfall,</td>
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<td><strong>Cropping system:</strong> Cotton-Wheat, Maize-Wheat &amp; Groundnut-Wheat</td>
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<td>Medium black</td>
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<td><strong>Bajra</strong> GHB-558,538,577,719,732 <strong>Fodder Jowar GJ-39, Malvan</strong></td>
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<td>Soil.</td>
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<td><strong>Wider spacing at 60 cm with 25% higher seed rate</strong></td>
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<td><strong>Gypsum provided under subsidies rate by Govt. Agency.</strong></td>
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<td><strong>Maize Hybrid-Pusa early hybrids 1 &amp; 2</strong></td>
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<td><strong>Improved Var. Farm sameri, Guj Maize 1,2,3,4 &amp; 6, Narmada moti</strong></td>
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<td>Castor</td>
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<td><strong>Castor GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</strong></td>
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<td>**Castor (GCH-4,5 or 7) + Cowpea (GC-4 (one line of Cowpea in regular spacing of castor) **</td>
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<td>Or <strong>Castor (GCH-4,5 or 7) + Purva Til</strong></td>
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<td><strong>Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying)</strong></td>
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<td><strong>Reduction in fertilizer application by 50%</strong></td>
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<td><strong>Sowing distance 120 cm for castor</strong></td>
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<td><strong>No fertilizer application for inter crop</strong></td>
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<td><strong>Breeder seed source SAU</strong></td>
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<td><strong>Seed drill can be provided under RKVY or any other Govt. Agency on subsidies rate</strong></td>
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<td>Crop</td>
<td>Varieties/Characteristics</td>
<td>Remarks</td>
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<td><strong>Groundnut</strong></td>
<td>Groundnut - Spreading type GAUG-10, GG-11, 12 &amp; 13. Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 Semi spreading GG-20 Cotton (Bt)</td>
<td>Breeder seed source SAU Certified seed source NSC, GSSC, GUJCOMASOL</td>
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<td><strong>Sesame</strong></td>
<td>Purva (semi rabi var.) Purva-1</td>
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<td><strong>Pigeonpea</strong></td>
<td>T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
<td>Breeder seed source SAU Certified seed source NSC, GSSC, GUJCOMASOL</td>
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<td><strong>Dual purpose</strong></td>
<td>Sorghum Gujarat Jowar-39 and Malvan</td>
<td>Seed drill under RKVY (costing Rs. 30000/-)</td>
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<td><strong>Fodder crop</strong></td>
<td>Jowar: GFS-4,5, S-1049 (sundhiya jowar)</td>
<td>Seed source NSC, GUJCOMASOL, GSSC, Gypsum may supplied by GSFC under subsidies rate Bund maker can be provided under RKVY</td>
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<td>Bajra: GF Bajra-1 (Multicut) Reduce the 25% seed rate</td>
<td>Seed source NSC, GUJCOMASOL, GSSC, Gypsum may supplied by GSFC under subsidies rate Bund maker can be provided under RKVY</td>
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<td>Jowar: S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut) Reduce the 25% seed rate</td>
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<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Suggested Contingency measures</td>
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<tr>
<td>Early season drought (Normal onset)</td>
<td>High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)</td>
<td>Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)</td>
<td>Gap filling and thinning to retain one plant / hill</td>
<td>Conservation of soil moisture by hoeing and weeding. Use weeds as mulch</td>
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<tr>
<td>Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.</td>
<td>Groundnut - Spreading type GAUG-10, GG-11, 12 &amp; 13. - Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1 - Semi spreading GG-20</td>
<td>Gap filling</td>
<td>do</td>
<td>do</td>
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<td>Castor GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>Gap filling and thinning to retain one plant/hill</td>
<td>do</td>
<td>do</td>
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<td>Maize - Private Hybrids-Pusa early hybrids-1 &amp; 2 - Improved Var. Farm sameri, Guj.Maize-1,2,3,4 &amp; 6, Narmada moti</td>
<td>Gap filling and thinning to maintain 20 cm plant to plant distance</td>
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<td>Green gram Guj.Mung-1,2,3 &amp; 4, K-851</td>
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<td>do</td>
<td>do</td>
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<td>Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1</td>
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<td>Conservation of soil moisture by hoeing and weeding. Use weeds as mulch</td>
<td>Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<td><strong>Fodder crop</strong></td>
<td>As such</td>
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<td><strong>Jowar</strong></td>
<td>GFS-4,5</td>
<td>S-1049 (sundhiya jowar)</td>
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<tr>
<td><strong>Maize local</strong></td>
<td>As such</td>
<td>As such</td>
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**Medium rainfall, Medium black soil (Khedbrahma, Meghraj)**

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<thead>
<tr>
<th><strong>Cropping system:</strong> Cotton-Wheat, Maize-Wheat &amp; Paddy-Wheat Cotton (Bt)</th>
<th>Gap filling and thinning to retain one plant / hill</th>
<th>Conservation of soil moisture by hoeing and weeding. Use weeds as mulch</th>
<th>do</th>
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<tr>
<td><strong>Castor</strong></td>
<td>do</td>
<td>do</td>
<td>do</td>
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<td>GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>do</td>
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<td>do</td>
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**Rice**

- Transplanting Var. GR-3,4,5,6 GR-7 (Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118.
- Drill paddy
Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5,8 & 9

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<th><strong>Rice</strong></th>
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<th>Apply irrigation if required</th>
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**Maize**

- Private Hybrids-Pusa early hybrids-1 & 2
- Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti

<table>
<thead>
<tr>
<th><strong>Maize</strong></th>
<th>Gap filling and thinning to maintain 20 cm plant to plant distance</th>
<th>Conservation of soil moisture by hoeing and weeding. Use weeds as mulch</th>
<th>Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Groundnut**

- Spreading type GAUG-10, GG-11, 12 & 13.

<table>
<thead>
<tr>
<th><strong>Groundnut</strong></th>
<th>Gap filling</th>
<th>Conservation of soil moisture by hoeing and weeding. Use weeds as mulch</th>
<th>Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop</td>
<td>Variety</td>
<td>Conservation of soil moisture by hoeing and weeding. Use weeds as mulch</td>
<td>Implement for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<tr>
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</tr>
<tr>
<td>Green gram</td>
<td>Guj.Mung-1,2,3 &amp; 4, K-851</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Black gram</td>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Pigeonpea</td>
<td>T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Fodder crop</td>
<td>Jowar: GFS-4,5 S-1049 (sundhiya jowar)</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Maize local</td>
<td></td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>High rainfall, Medium black soil, (Idar, Bhiloda, Modasa, Malpur, Bayad, Vadali, Vijaynagar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Groundnut-Wheat</td>
<td>Baira GHB-558,538,577,719,732</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Maize -Private Hybrids-Pusa early hybrids-1 &amp; 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 &amp; 6, Narmada moti</td>
<td></td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Castor</td>
<td>GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Groundnut -Spreading type</td>
<td>GAUG-10, GG-11, 12 &amp; 13</td>
<td>do</td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Crop management</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
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<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mid season drought (long dry spell, consecutive 2 weeks rainless (&gt;2.5 mm period))</td>
<td>High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)</td>
<td>Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)</td>
<td>• Reduce the plant population by 15 to 20 Per Cent and use as mulching material</td>
</tr>
<tr>
<td>At vegetative stage</td>
<td>Groundnut</td>
<td>• Alternate furrow irrigation or irrigation through MIS if possible</td>
<td>• Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Postponed the top dressing of N fertilizers</td>
<td>• Water harvested structure can be constructed under NAREGA</td>
</tr>
<tr>
<td>Crop</td>
<td>Spreading type</td>
<td>Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)</td>
<td>Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk)</td>
</tr>
<tr>
<td>------------</td>
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<td>--------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>Castor</td>
<td>GAUG-10, GG-11, GG-12 &amp; 13</td>
<td>If possible life saving irrigation through MIS</td>
<td>Mulching (Plastic film 25 micron @ 200 kg/ha)</td>
</tr>
<tr>
<td></td>
<td>J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1</td>
<td>Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk)</td>
<td>Mulching (Plastic film 25 micron @ 200 kg/ha)</td>
</tr>
<tr>
<td></td>
<td>Semi spreading</td>
<td>Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk)</td>
<td>Mulching (Plastic film 25 micron @ 200 kg/ha)</td>
</tr>
<tr>
<td></td>
<td>GG-20</td>
<td>Mulching (Plastic film 25 micron @ 200 kg/ha)</td>
<td>conservation of soil moisture by hoeing and weeds use as mulch</td>
</tr>
</tbody>
</table>

**Castor**
- GAUG-10, GG-11, GG-12 & 13
- J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1
- GG-20

**Protection against sucking pest**
- Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water
- If possible life saving irrigation through MIS

**Mulching of farm byproduct**
- @ 10t/ha (castor cell or Bajara husk)

**Mulching**
- (Plastic film 25 micron @ 200 kg/ha)

**Other measures**
- Mulching material can be provided under RKVY or Govt. subsidies rate
- Water harvested structure can be constructed under NAREGA

**Maize**
- Private Hybrids-Pusa early hybrids-1 & 2
- Improved Var. Farm sameri, Guj. Maize-1, 2, 3, 4 & 6, Narmada moti

**Protection against sucking pest**
- Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water
- If possible life saving irrigation through MIS

**Mulching**
- (Plastic film 25 micron @ 200 kg/ha)

**Other measures**
- Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
- Mulching material can be provided under RKVY or Govt. subsidies rate
- Water harvested structure can be constructed under NAREGA

**Pigeonpea**
- T-15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1

**Protection against sucking pest**
- Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water
- If possible life saving irrigation through MIS

**Mulching**
- (Plastic film 25 micron @ 200 kg/ha)

**Other measures**
- Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
- Mulching material can be provided under RKVY or Govt. subsidies rate
- Water harvested structure can be constructed under NAREGA

**Conservation of soil moisture**
- by hoeing and weeds use as mulch
<table>
<thead>
<tr>
<th>Crop</th>
<th>Management Measures</th>
<th>Subsidies/Technologies</th>
</tr>
</thead>
</table>
| Green gram Guj.Mung-1,2,3 & 4, K-851 | - Methyle o demeton or Diamethioate 10 ml/10 l of water  
- If possible life saving irrigation through MIS  
- Removal of 20% plant from the row  
- Weeding  
- Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 l of water)  
- If possible life saving irrigation through MIS  
- Alternate furrow irrigation or irrigation through MIS if possible. | - NAREGA  
- MIS can be provided under subsidies rate through GGRC  
- Implement for hoeing & weeding be procured under RKVY or Govt. subsidies rate |
| Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1 | - Methyle o demeton or Diamethioate 10 ml/10 l of water  
- If possible life saving irrigation through MIS  
- Removal of 20% plant from the row  
- Weeding  
- Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 l of water)  
- -If possible life saving irrigation through MIS  
- Alternate furrow irrigation or irrigation through MIS if possible.  
- Interculturing  
- Interculturing  
- Weeds use as mulch  
- Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk)  
- Postponed the top dressing of N fertilizers  
- Mulch9ing (Plastic film 25 micron & 200 kg/ha) | -- |
| Fodder crop Jowar: GFS-4,5 S-1049 (sundhiya jowar) | - Methyle o demeton or Diamethioate 10 ml/10 l of water  
- If possible life saving irrigation through MIS  
- Alternate furrow irrigation or irrigation through MIS if possible.  
- Interculturing  
- Soil mulch by selo interculturing  
- Life saving irrigation if possible.  
- Restrict the fertilizer application if moisture is insufficient  
- Reduce 25% plant population | --- |
<p>| Maize local: Cropping system: Cotton-Wheat, Maize- | do | do | --- |
| Medium rainfall. | | | |</p>
<table>
<thead>
<tr>
<th>Crop</th>
<th>Variety/Genotype</th>
<th>Cultivation Practice</th>
<th>Technique/Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat &amp; Paddy</td>
<td>Medium black soil (Khedbrahma, Meghraj)</td>
<td>Reduce the plant population by 15 to 20 Per Cent and use as mulching material</td>
<td>Conservation of soil moisture by hoeing and weeding</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Mulching material under RKVY or Govt. subsidies rate</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Water harvested structure can be constructed under NAREGA</td>
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</tr>
<tr>
<td></td>
<td>Paddy</td>
<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<td>- Water harvested structure can be constructed under NAREGA</td>
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<tr>
<td></td>
<td>Cotton (Bt)</td>
<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<tr>
<td>Castor</td>
<td>GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>Reduce the plant population by 10 to 15 Per Cent and use as mulch</td>
<td>Conservation of soil moisture by hoeing and weeding</td>
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<tr>
<td></td>
<td></td>
<td>- Alternate furrow irrigation</td>
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<td></td>
<td>- If possible life saving irrigation through MIS</td>
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<td>- Mulching of farm byproduct @ 10t/ha (castor shell or Bajra)</td>
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<td></td>
<td></td>
<td>- Postponed the top dressing of N fertilizers</td>
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<td></td>
<td></td>
<td>- Mulching (Plastic film 25 micron @ 200 kg/ha) + Spraying of 5% kaolin solution</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>Transplanting Var. GR-3, GR-5, GR-7 (Scented), GR-8, GR-11, GR-22, GR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118. Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5, GR-8 &amp; 9</td>
<td>Life saving irrigation</td>
<td>Delayed top dressing of N fertilizers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<td>- Mulching material under RKVY or Govt. subsidies rate</td>
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<tr>
<td></td>
<td></td>
<td>- MIS can be provided under subsidies rate through GGRC</td>
<td></td>
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<td>Transplanting Var. GR-3, GR-5, GR-7 (Scented), GR-8, GR-11, GR-22, GR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118. Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5, GR-8 &amp; 9</td>
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<td>Delayed top dressing of N fertilizers</td>
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<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<td>- Water harvested structure can be constructed under NAREGA</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- MIS can be provided under subsidies rate through GGRC</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>Private Hybrids-Pusa</td>
<td>Thining of 20 Per Cent plant from the line and delayed top dressing of N fertilizers</td>
<td>Soil earthing up implement be procured under RKVY or Govt. subsidies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>- MIS can be provided under subsidies rate through GGRC</td>
<td></td>
</tr>
<tr>
<td>Crop</td>
<td>Varieties</td>
<td>Practice</td>
<td>Government Subsidies</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------</td>
<td>--------------------------------------------------------------------------</td>
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</tr>
</tbody>
</table>
| Early hybrids | Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti | - use as fodder  
  - Life saving irrigation  
  - Earthingup by harrowing  
  - Control of leaf borer apply 3 to 4 granules of tenic in leaf hole | Govt. subsidies rate |
| Groundnut     | Spreading type GAUG-10, GG-11, 12 & 13, Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 | - Weeding & hoeing  
  - Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)  
  - If possible life saving irrigation through MIS | - Avoid top dressing of N fertilizers  
  - Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk)  
  - Mulching (Plastic film 25 micron @200 kg/ha)  
  - Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate  
  - Mulching material can be provided under RKVY  
  - MIS can be provided under subsidies rate through GGRC |
| Green gram    | Guj.Mung-1,2,3 & 4, K-851 | - Removal of 20% plant from the row  
  - Weeding  
  - Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)  
  - If possible life saving irrigation through MIS | Interculturing |
| Black gram    | Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1 | do | Interculturing |

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<table>
<thead>
<tr>
<th>Crop</th>
<th>Control Measures</th>
<th>Protection Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigeonpea</td>
<td>- Reduce the plant population by 10 to 15 Per Cent and use as mulch</td>
<td>- Conservation of soil moisture by hoeing and weeds use as mulch</td>
</tr>
<tr>
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<td>- Alternate furrow irrigation</td>
<td>- Mulching of farm byproduct @ 10t/ha (castor shell or Bajra)</td>
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<tr>
<td></td>
<td>- weeding</td>
<td>- Postponed the top dressing of N fertilizers</td>
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<td></td>
<td>- Mulching material under RKVY or Govt. subsidies rate</td>
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<td>- Water harvested structure can be constructed under NAREGA</td>
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<td></td>
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</tr>
</tbody>
</table>

<p>| Fodder_crop  |                                                                                |                                                                                |
|--------------|                                                                                |                                                                                |
| Jowar:       | - Interculturing                                                                | - Restrict the fertilizer application if moisture is insufficient                 |
|              | - Soil mulch by selo interculturing                                            | - Reduce 25% plant population                                                    |
|              | - Life saving irrigation if possible.                                          |                                                                                |
|              |                                                                                |                                                                                |
| Maize local: | - Interculturing                                                                | - Restrict the fertilizer application if moisture is insufficient                 |
|              | - Soil mulch by selo interculturing                                            | - Reduce 25% plant population                                                    |
|              | - Life saving irrigation if possible.                                          |                                                                                |
|              |                                                                                |                                                                                |
| High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur, Bayad, Vadali, Vijaynagar) | - Thinning of 20 to 25 % plants within row                                     |
|              |                                                                                | - Conservation of soil moisture by hoeing and weeding                            |
|              |                                                                                | - Postponed the top dressing of N fertilizers                                    |
|              |                                                                                | - Spraying of 5 % kaoline solution                                                |
|              |                                                                                |                                                                                |
| Cropping system: Cotton-Wheat, Maize-Wheat &amp; Groundnut-Wheat                    |                                                                                |
| Bairra:      |                                                                                |                                                                                |
|              |                                                                                |                                                                                |
|              |                                                                                |                                                                                |</p>
<table>
<thead>
<tr>
<th>Crop</th>
<th>Varieties</th>
<th>Management Measures</th>
<th>Subsidies/Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>-Private Hybrids-Pusa early hybrids-1 &amp; 2</td>
<td>- Thining of 20 Per Cent plant from the line and use as fodder&lt;br&gt;- Life saving irrigation&lt;br&gt;- Earthingup by harrowing&lt;br&gt;- Control of leaf borer apply 3 to 4 granules of tenic in leaf hole</td>
<td>Soil earthing up implement be procured under RKVY or Govt. subsidies rate</td>
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<td>Castor</td>
<td>GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td>- Reduce the plant population by 10 to 15 Per Cent and use as mulch&lt;br&gt;- Alternate furrow irrigation&lt;br&gt;- If possible life saving irrigation through MIS</td>
<td></td>
</tr>
<tr>
<td>Groundnut</td>
<td>-Spreading type GAUG-10, GG-11, 12 &amp; 13.</td>
<td>- Weeding &amp; hoeing&lt;br&gt;- Protection against sucking pest(Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)&lt;br&gt;- If possible life saving irrigation through MIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1&lt;br&gt;-Semi spreading GG-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cotton (Bt)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Avoid top dressing of N fertilizers&lt;br&gt;- Mulching of farm byproduct @ 10t/ha (castor cell or Bajra husk)&lt;br&gt;- Mulching (Plastic film 25 micron @ 200 kg/ha )</td>
<td></td>
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</table>

- Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
- Mulching material under RKVY or Govt. subsidies rate
- Water harvested structure can be constructed under NAREGA
- MIS can be provided under subsidies rate through GGRC
<table>
<thead>
<tr>
<th>Crop</th>
<th>Recommended Practices</th>
<th>Recommended Practices</th>
<th>Recommended Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigeon pea</td>
<td>- Reduce the plant population by 10 to 15 Per Cent and use as mulch</td>
<td>- Conservation of soil moisture by hoeing and weeds use as mulch</td>
<td>- Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsidies rate</td>
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<tr>
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<td>- Alternate furrow irrigation</td>
<td>- Mulching of farm byproduct @ 10t/ha (castor shell or Bajra)</td>
<td>- Mulching material under RKVY or Govt. subsidies rate</td>
</tr>
<tr>
<td></td>
<td>- weeding</td>
<td>- Postponed the top dressing of N fertilizers</td>
<td>- Water harvested structure can be constructed under NAREGA</td>
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<tr>
<td></td>
<td>- Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)</td>
<td>- Mulching (Plastic film 25 micron @ 200 kg/ha )</td>
<td>- MIS can be provided under subsidies rate through GGRC</td>
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<tr>
<td></td>
<td>- If possible life saving irrigation through MIS</td>
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<tr>
<td>Fodder crop</td>
<td>- Interculturing</td>
<td>- Restrict the fertilizer application if moisture is insufficient</td>
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<tr>
<td>Jojawar</td>
<td>- Soil mulch by selo interculturing</td>
<td>- Reduce 25% plant population</td>
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<tr>
<td></td>
<td>- Life saving irrigation if possible.</td>
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<tr>
<td>Maize local:</td>
<td>do</td>
<td>do</td>
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<tr>
<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Crop management</td>
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<tr>
<td>Mid season drought (long dry spell)</td>
<td>High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)</td>
<td>Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)</td>
<td>• Reduce the plant population by 15 to 20 Per Cent and use as mulching material&lt;br&gt;• Alternate furrow irrigation or irrigation through drip system&lt;br&gt;• Protect the crop against parawilt:&lt;br&gt;• Band application of organic manures and 25% NPK as additional dose&lt;br&gt;• Spraying of 0.5 % MgSO₄ solution&lt;br&gt;• Drenching of Trichoderma Viride and Pseudomonas fluorescence (PGPS) 100 gm in 10 lit. water</td>
</tr>
<tr>
<td>At flowering/fruiting stage</td>
<td>Groundnut -Spreading type GAUG-10, GG-11, 12 &amp; 13.&lt;br&gt;-Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1&lt;br&gt;-Semi spreading GG-20</td>
<td>Life saving irrigation</td>
<td>• Mulching of farm byproduct @ 10t/ha (castor cell, Bajra, wheat husk)&lt;br&gt;• Mulching (Plastic film 25 micron @ 200 kg/ha )</td>
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<tr>
<td></td>
<td>Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</td>
<td></td>
<td>• Removal of plant population from 20% and use as mulch&lt;br&gt;• Alternate furrow irrigation or irrigation through MIS if possible&lt;br&gt;• Remove the 2 lower elder leaves and use as mulch</td>
</tr>
<tr>
<td>Crop</td>
<td>Variety</td>
<td>Management Measures</td>
<td>GGRC</td>
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</table>
| Maize     | Private Hybrids-Pusa early hybrids-1 & 2, Improved Var. Farm sameri, Guj. Maize-1, 2, 3, 4 & 6, Narmada moti | - Removal of 20% plant and use as fodder  
- Removal of barren plants and use as fodder  
- Life saving irrigation  
- De tasseling of every third row and use as fodder | Mulching of farm byproduct as mulching material @ 10 t/ha (castor shell or Bajra)  
- Postponed the top dressing of N fertilizers  
- Mulching (Plastic film 25 micron @ 200 kg/ha)  
- Mulching material under RKVY or Govt. subsides rate |
| Pigeonpea | T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1 | - Removal of 20% to 25% plant from the row and use as fodder  
- Life saving irrigation  
- Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 l of water)  
- Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 l of water at 50% flowering followed by 15 day) | ---  
Sprayers and duster be procured under RKVY or pulse production mission |
| Green gram | Guj. Mung-1, 2, 3 & 4, K-851 | do                                                                                  | ---                                       |
| Black gram | Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1 | do                                                                                | ---                                       |
| Fodder crop | Jowar: GFS-4, S-1049 (sundhiya jowar) | Life saving irrigation if possible.  
- Restrict the fertilizer application if moisture is insufficient  
- Reduce 30% plant population | ---                                       |
| Maize local | Life saving irrigation if possible. | Reduce 25% plant population | ---                                       |

Medium Cropping system:
<table>
<thead>
<tr>
<th>Rainfall, Medium black soil (Khedbrahma, Meghraj)</th>
<th>Cotton-Wheat, Maize-Wheat &amp; Paddy-Wheat Cotton (Bt)</th>
<th>Castor GCH-2, GCH-3, GCH-5, GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1</th>
<th>Rice -Transplanting Var. GR-3,4,5,6 GR-7(Scented), GR-8, 11, IR-22, IR-28, Gurjary, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118. -Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28,</th>
<th></th>
<th>Mulching material like plastic film can be provided under RKVY or Cotton Mission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the plant population by 15 to 20 Per Cent and use as mulching material</td>
<td>Alternate furrow irrigation or irrigation through drip system</td>
<td>Removal of plant population from 20% and use as mulch</td>
<td>Life saving irrigation</td>
<td>Avoid top dressing of N fertilizers</td>
<td>Avoid top dressing of N fertilizers</td>
</tr>
<tr>
<td>Protect the crop against parawilt</td>
<td>Band application of organic manures and 25% NPK as additional dose</td>
<td>Alternate furrow irrigation or irrigation through MIS if possible</td>
<td>Protect crop against stem borer and leaf roller (apply carbosulphan 5% 20 kg/ha or kartep hydrochloride 4 % granules 25 kg/ha in standing crop )</td>
<td>Spraying of 5% kaolin solution</td>
<td>Spraying of 5% kaolin solution</td>
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<tr>
<td>Spraying of 0.5 % MgSO₄ solution</td>
<td>Drenching of Trichoderma Viride and Pseudomonas fluorescence (PGPS) 100 gm in 10 lit. water</td>
<td>Remove the 2 lower elder leaves and use as mulch</td>
<td>Delayed top dressing</td>
<td>Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk)</td>
<td>Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk)</td>
</tr>
<tr>
<td>Mulching material like plastic film can be provided under RKVY or other Govt. Agency</td>
<td>MIS can be provided under GGRC</td>
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</tr>
<tr>
<td>Crop</td>
<td>Varieties/ methods</td>
<td>Measures</td>
<td>Remarks</td>
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</tr>
</tbody>
</table>
| Maize                 | Pusa early hybrids-1 & 2, Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti | - Removal of 20% plant and use as fodder  
- Removal of barren plants and use as fodder  
- Life saving irrigation  
- De tasseling of every third row and use as fodder | Mulching of farm byproduct as mulching material @ 10t/ha (castor shell or Bajra)  
- Postponed the top dressing of N fertilizers  
- Mulching (Plastic film 25 micron @ 200 kg/ha) | Mulching material under RKVY or Govt. subsidies rate |
| Groundnut             | GAUG-10, GG-11, 12 & 13, J-11, GG-2, GL-24, GG4, & 6, GAUG-1                        | Life saving irrigation                                                                                                                    | Mulching of farm byproduct @ 10t/ha (castor cell, Bajra, wheat husk)  
- Mulching (Plastic film 25 micron @ 200 kg/ha) | Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate  
- Mulching material under RKVY or Govt. subsidies rate |
| Green gram            | Guj.Mung-1,2,3 & 4, K-851                                                         | - Removal of 20% to 25% plant from the row and use as fodder  
- Life saving irrigation  
- Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)  
- Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day) | --- | Sprayers and duster be procured under RKVY or pulse production mission |
<p>| Black gram            | Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1                                         | do                                                                                                                                       | --- | do |
| Pigeonpea             | T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1          | do                                                                                                                                       | --- | Sprayers and duster be procured under RKVY or pulse production mission |</p>
<table>
<thead>
<tr>
<th><strong>Fodder crop</strong></th>
<th><strong>Crop</strong></th>
<th><strong>Life saving irrigation if possible.</strong></th>
<th><strong>Restrict the fertilizer application if moisture is insufficient</strong></th>
<th><strong>Reduce 30% plant population</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jowar: GFS-4,5, S-1049 (sundhiya jowar)</td>
<td>Life saving irrigation if possible.</td>
<td>- Remove the barren tillers and use as fodder</td>
<td>- Spraying of 5% kaolin solution</td>
<td>- Labour for harvesting can be provided under MANREGA</td>
</tr>
<tr>
<td>Maize local: do</td>
<td>Reduce 25% plant population</td>
<td>- Remove the every fourth row and use as dry fodder</td>
<td>- De tesseling of every third row and use as fodder</td>
<td>- Kaolin provided under RKVY or NFSM</td>
</tr>
</tbody>
</table>

**Cropping system:**
- Cotton-Wheat,
- Maize-Wheat & Groundnut-Wheat

**Bajra**
- GHB-558,538,577,719,732

- Remove the barren tillers and use as fodder
- Remove the every fourth row and use as dry fodder
- Life saving irrigation if possible

**Maize**
- Private Hybrids-Pusa early hybrids-1 & 2
- Improved Var. Farm sameri,
- Guj.Maize-1,2,3,4 & 6,
- Narmada moti

- Removal of 20% plant and use as fodder
- Removal of barren plants and use as fodder
- Life saving irrigation
- De tesseling of every third row and use as fodder

**Castor**
- GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance),
- GAUCH-1

- Removal of plant population from 20% and use as mulch
- Alternate furrow irrigation or irrigation through MIS if possible
- Remove the lower elder leaves and use as mulch
- Avoid top dressing of N fertilizers
- Spraying of 5% kaolin solution
- Mulching of farm byproduct as mulching material @ 10t/ha (castor shell or Bajra)
- Postponed the top dressing of N fertilizers
- Mulching (Plastic film 25 micron @ 200 kg/ha)

**Mulching material under RKVY or Govt. subsides rate**

**Kaolin and mulching material provided under RKVY or other Govt. Agency**

**MIS can be provided under GGRC**
<table>
<thead>
<tr>
<th>Crop</th>
<th>Varieties</th>
<th>Life saving irrigation</th>
<th>FYM</th>
<th>Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsides rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundnut</td>
<td>Spreading type GAUG-10, GG-11, 12 &amp; 13, Bunch type (Erect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1, Semi spreading GG-20</td>
<td>Life saving irrigation</td>
<td>Mulching of farm byproduct @ 10t/ha (castor cell, Bajra, wheat husk)</td>
<td>Implements for hoeing &amp; weeding be procured under RKVY or Govt. subsides rate</td>
</tr>
<tr>
<td>Cotton (Bt)</td>
<td>Life saving irrigation</td>
<td>Mulching (Plastic film 25 micron @ 200 kg/ha)</td>
<td>Mulching material under RKVY or Govt. subsides rate</td>
<td></td>
</tr>
<tr>
<td>Pigeonpea</td>
<td>T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1</td>
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<tr>
<td></td>
<td>Removal of 20% to 25% plant from the row and use as fodder</td>
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<td></td>
<td>life saving irrigation</td>
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<tr>
<td></td>
<td>Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)</td>
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<td></td>
<td>Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day)</td>
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<tr>
<td>Fodder crop Jowar: GFS-4, S-1049 (sundhiya jowar)</td>
<td>Life saving irrigation if possible.</td>
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<td></td>
<td>Restrict the fertilizer application if moisture is insufficient</td>
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<td></td>
<td>Reduce 30% plant population</td>
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<tr>
<td>Maize local:</td>
<td>do</td>
<td>Reduce 25% plant population</td>
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<tr>
<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Crop management</td>
<td>Rabi Crop planning</td>
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</tbody>
</table>
| Terminal drought (Early withdrawal of monsoon) | High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura) | Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt) | • Pick up lint from brusted ball  
• Alternate furrow irrigation  
• Cut down the lower unproductive twings and kept as mulch | • Land preparation for rabi crop according to ground water recharging  
• Procurements of inputs | --- |
| **At Maturity stage** | Groundnut -Spreading type GAUG-10, GG-11, 12 & 13.  
-Bunch type (Erect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1  
-Semi spreading GG-20 | | • Harvest the crop at physiological maturity stage  
• Life saving irrigation | • Land preparation for rabi crop according to ground water recharging  
• Procurements of inputs | --- |
| | Castor GCH-2, GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1 | | • Alternate furrow irrigation  
• Harvest the mature spike  
• Harvest the spike at physiological maturity stage | --- | --- |
| | Maize -Private Hybrids- Pusa early hybrids-1 & 2  
-Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti | | • Harvest the crop at physiological maturity stage  
• Life saving irrigation in alternate furrow  
• Harvest the green cob and sale it | • Land preparation for rabi crop according to ground water recharging  
• Procurements of inputs | --- |
<p>| | Pigeonpea | | • Alternate furrow irrigation | • Land preparation for rabi crop | --- |</p>
<table>
<thead>
<tr>
<th>Crop Name</th>
<th>Protection against sucking pest</th>
<th>Protection against podborer</th>
<th>Pickup green pod and market as green vegetable</th>
<th>Harvest the crop at physiological maturity stage</th>
<th>Procurements of inputs</th>
<th>Land preparation for rabi crops</th>
<th>Procurement of inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green gram</td>
<td>• Life saving irrigation</td>
<td>• Harvest mature pods</td>
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<tr>
<td>Guj.Mung-1,2,3 &amp; 4, K-851</td>
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<tr>
<td>Black gram</td>
<td>• Life saving irrigation</td>
<td>• Harvest mature pods</td>
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<tr>
<td>Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1</td>
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<td><strong>Fodder crop</strong></td>
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<td>Jowar:</td>
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<td>GFS-4,5</td>
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<tr>
<td>S-1049 (sundhiya jowar)</td>
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<tr>
<td>Maize local:</td>
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<tr>
<td><strong>Medium rainfall, Medium black soil (Khedbrahma, Meghraj)</strong></td>
<td>• Pick up lint from brusted ball</td>
<td>• Alternate furrow irrigation</td>
<td>• Cut down the lower unproductive twings and kept as mulch</td>
<td>• Land preparation for rabi crop according to ground water recharging</td>
<td>• Procurements of inputs</td>
<td>• Land preparation for rabi crops</td>
<td>• Procurement of inputs</td>
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<tr>
<td>Cropping system:</td>
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<td>Cotton-Wheat</td>
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<td>Cotton (Bt)</td>
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<td>• Alternate furrow irrigation</td>
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<tr>
<td>Crop</td>
<td>Varieties</td>
<td>Instructions</td>
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<tr>
<td>Rice</td>
<td>Transplanting Var. GR 3,4,5,6,7 GR-7, GR-8, IR-22, IR-28, Gurjar, Masoori, Jaya, GR-101, GR-103, Ambica, Jirasal, Kamod-118, Drill paddy Sathi-34, 36, GR-3, Sukhvel-20, IR-28, GR-5,8 &amp; 9</td>
<td>Harvest the mature spike, Harvest the spike at physiological maturity stage, Land preparation for rabi crop according to ground water recharging, Procurements of inputs</td>
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<tr>
<td>Maize</td>
<td>Private Hybrids- Pusa early hybrids-1 &amp; 2, Improved Var. Farm sameri, Guj, Maize-1,2,3,4 &amp; 6, Narmada moti</td>
<td>Harvest the crop at physiological maturity stage, Life saving irrigation in alternate furrow, Harvest the green cob and sale it</td>
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<tr>
<td>Groundnut</td>
<td>Spreading type GAUG-10, GG-11, 12 &amp; 13, Bunch type (Erect) J-11, GG-2, GL-24, GG4, 5 &amp; 6, GAUG-1, Semi spreading GG-20</td>
<td>Harvest the crop at physiological maturity stage, Life saving irrigation</td>
<td></td>
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<tr>
<td>Green gram</td>
<td></td>
<td>Life saving irrigation, do</td>
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<tr>
<td>Crop Type</td>
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<tr>
<td>Guj.Mung-1,2,3 &amp; 4, K-851</td>
<td>- Harvest mature pods</td>
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</table>

<table>
<thead>
<tr>
<th>Black gram</th>
<th>Details</th>
</tr>
</thead>
</table>
| Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1 | - Life saving irrigation  
- Harvest mature pods  
- Land preparation for rabi crop according to ground water recharging  
- Procurements of inputs |

<table>
<thead>
<tr>
<th>Pigeonpea</th>
<th>Details</th>
</tr>
</thead>
</table>
| T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1 | - Alternate furrow irrigation  
- Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)  
- Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day)  
- Pickup green pod and market as green vegetable  
- Harvest the crop at physiological maturity stage  
- Land preparation for rabi crop according to ground water recharging  
- Procurements of inputs |

<table>
<thead>
<tr>
<th>Fodder crop</th>
<th>Details</th>
</tr>
</thead>
</table>
| Jowar: GFS-4,5 S-1049 (sundhiya jowar) | - Harvest the crop and drying  
- Land preparation for rabi crops  
- Procurement of inputs  
- Breeder seeds from SAUs  
- Certified seeds from GUICOMOSOL, GSSC, NSC, NFSM |

<table>
<thead>
<tr>
<th>Maize local</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>do</td>
<td>do</td>
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</table>

<table>
<thead>
<tr>
<th>Cropping system: Cotton-Wheat, Maize-Wheat &amp; Groundnut-Wheat</th>
<th>Details</th>
</tr>
</thead>
</table>
| Bajra GHB- | - Harvest the crop at physiological maturity stage  
- Land preparation for rabi crop according to ground water recharging  
- Procurements of inputs |

<table>
<thead>
<tr>
<th>High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur, Bayad, Vadali,</th>
<th>Details</th>
</tr>
</thead>
</table>
| Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat | - Harvest the crop at physiological maturity stage  
- Land preparation for rabi crop according to ground water recharging  
- Procurements of inputs |
<table>
<thead>
<tr>
<th>Crop</th>
<th>Variety/Details</th>
<th>Harvest Stage</th>
<th>Water Management</th>
<th>Nematode Resistance</th>
<th>Root Rot Resistance</th>
<th>Wilt Resistance</th>
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<tbody>
<tr>
<td>Maize</td>
<td>Private Hybrids - Pusa early hybrids</td>
<td>Harvest at physiological maturity</td>
<td>Life saving irrigation</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>Maize</td>
<td>Farm sameri, Guj Maize - 1, 2, 3, 4 &amp; 6</td>
<td>Harvest at physiological maturity</td>
<td>Life saving irrigation</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Castor</td>
<td>GCH-2, GCH-3, GCH-5, GCH-6</td>
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<tr>
<td>Groundnut</td>
<td>GAUG-10, GG-11, GG-12, 13</td>
<td>Harvest the mature spike</td>
<td>Life saving irrigation</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Cotton (Bt)</td>
<td></td>
<td>Harvest the crop at physiological maturity</td>
<td>Life saving irrigation</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Groundnut</td>
<td>GAUG-1, GAU-2</td>
<td>Harvest the green cob and sale it</td>
<td>-</td>
<td></td>
<td>-</td>
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</tr>
</tbody>
</table>
| Pigeonpea | **Alternate furrow irrigation**  
**Protection against sucking pest** (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water)  
**Protection against podborer** (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day)  
**Pickup green pod and market as green vegetable**  
**Harvest the crop at physiological maturity stage** | **Land preparation for rabi crop according to ground water recharging**  
**Procurements of inputs** | --- |
| Fodder crop | **Harvest the crop and drying** | **Land preparation for rabi crops**  
**Procurement of inputs** | **Breeder seeds from SAUs**  
**Certified seeds from GUICOMOSOL, GSSC, NSC, NFSM** |
| Jowar:  
GFS-4,5  
S-1049 (sundhiya jowar) |  |  |  |
| Maize local: | do | do | do |
### 2.1.2 Drought - Irrigated situation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Major Farming situation</th>
<th>Normal Crop/cropping system</th>
<th>Change in crop/cropping system</th>
<th>Agronomic measures</th>
<th>Remarks on Implementation</th>
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<tbody>
<tr>
<td>Delayed release of water in canals due to low rainfall</td>
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<td>Situation does not arise</td>
</tr>
<tr>
<td>Non released of water in canals under delayed onset of monsoon in catchment</td>
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<td>Situation does not arise</td>
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<tr>
<td>Lack of inflows into tanks due to insufficient /delayed onset of monsoon</td>
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<td>Situation does not arise</td>
</tr>
<tr>
<td>Condition</td>
<td>Major Farming situation</td>
<td>Normal Crop/cropping system</td>
<td>Change in crop/cropping system</td>
<td>Agronomic measures</td>
<td>Remarks on Implementation</td>
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</tbody>
</table>
| Insufficient groundwater recharge due to low rainfall | High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura) | Wheat: GW 496, GW 273, GW 322, GW 366 | •GW 11 & GW 173  
•Reduce area under wheat and replace by  
Guj 4  
Gram: ICC 4,Gram Gujarat 1 & 2,  
Cumin: Guj 4  
Fenugreek: Guj Fenugreek 1  
Leafy Vegetables:  
Palak, Methi  
Dill Seed: Guj, Dillseed 1  
Barley: RD 2052  
Isabgol: Guj,Isabgul 1 & 2 | •Pressurized irrigation at critical stage  
•Narrow and short water basin in all the crops | •Seed sources  
Breeder-SAUs  
Certified: GSSC, GUJCOMASOL, NSC  
•Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate. |
| | | | | | |
| Cotton: Bt cotton | - | - | •Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha) | Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate. do |
| Castor | - | - | •Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha) | |
| Cucurbits | Bottle guard: Pusa navin, Anand-1  
Bitter gourd: Arka harit  
Musk melon: Durgapura Madhu, Durgapura selection | - | •Double row furrow basin planting  
Alternate furrow irrigation | |
<table>
<thead>
<tr>
<th>Crop</th>
<th>Varieties/Treatment</th>
<th>Remarks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Okra:</strong></td>
<td>Guj Okra-1, Parbhani kranti, Pusa Navabahar</td>
<td>Double row furrow basin planting, Alternate furrow irrigation</td>
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<tr>
<td><strong>Brinjal:</strong></td>
<td>GoB-1, Doli-5, Pusa Purple round, Pusa Purple long</td>
<td>Alternate furrow irrigation through drip system</td>
<td>Mulching material can be provided under RKVY</td>
</tr>
<tr>
<td><strong>Tomato:</strong></td>
<td>Vaishali, Abhinav, Cluster bean, Pusa Navabahar Reduce the 25% area</td>
<td>Trailing system</td>
<td>—</td>
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<tr>
<td><strong>Cluster bean:</strong></td>
<td>Pusa Navabahar</td>
<td>Alternate furrow irrigation through drip system</td>
<td>Drip system can be provided under GGRG</td>
</tr>
<tr>
<td>Cowpea (summer)</td>
<td>Pusa falguni do</td>
<td>Ridge &amp; furrow method</td>
<td>Implement can be provided under RKVY</td>
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<tr>
<td>Ginger:</td>
<td>Sugandha -</td>
<td>Ridge &amp; furrow irrigation</td>
<td>Ridge &amp; furrow system can be provided under RKVY</td>
</tr>
<tr>
<td>Turmeric:</td>
<td>Kesar ----</td>
<td>do</td>
<td>do</td>
</tr>
<tr>
<td>Lucerne:</td>
<td>GALL-1 (Anand-2), Local (Kachchhi)</td>
<td>As such</td>
<td>Seed source from NSSC</td>
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<tr>
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<td>GALL-1</td>
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<tr>
<td>Crop</td>
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<td>Wheat: GW 496, GW 273, GW 322, GW 366</td>
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<td>GW 11 &amp; GW 173</td>
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<td>Reduce area under wheat and replace by</td>
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<td>Guj, Isabgul 1 &amp; 2</td>
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<td>Pusa navin, Anand-1</td>
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<td>Arka harit</td>
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<td>Durgapura Madhu, Durgapura selection</td>
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<td>Cluster bean</td>
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<td>Brinjal</td>
<td>GOB-1, Doli-5, Pusa Purple round, Pusa Purple long</td>
<td>Gram ICCC-4, Guj-1 &amp; 2 Cumin Guj- 1.2.3 &amp; 4/ Cumin Guj-1 &amp; 2 Coriander Guj- 1, Fenugreek Guj- 1, Leafy vegetable Radish Japanese white, Pusa hemani, Pusa resham/ Carrot/ cauliflower Snow ball-16, hissar-1, Cabbage Pride of India, Early drum head, Pusa drum head,</td>
<td>Alternate furrow irrigation through drip system Mulching material can be provided under RKVY</td>
</tr>
<tr>
<td>Tomato</td>
<td>Vaishali, Abhinav</td>
<td>Cluster bean Pusa Navabahar</td>
<td>Trailing system</td>
</tr>
<tr>
<td>Cluster bean</td>
<td>Pusa Navabahar</td>
<td>• Reduce the 25% area • Alternate furrow irrigation through drip system</td>
<td>• Drip system can be provided under GGRC</td>
</tr>
<tr>
<td>Cowpea (summer)</td>
<td>Pusa falguni</td>
<td>do</td>
<td>• Ridge &amp; furrow method Sowing • Alternate furrow irrigation</td>
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<tr>
<td>Ginger</td>
<td>Sugandha</td>
<td>• Ridge &amp; furrow irrigation</td>
<td>• Ridge &amp; furrow system can be provided under RKVY</td>
</tr>
<tr>
<td>Turmeric</td>
<td>Kesar</td>
<td>----</td>
<td>do</td>
</tr>
<tr>
<td>Lucerne</td>
<td>GALL-1 (Anand-2) Local (Kachchhi)</td>
<td>GALL-1</td>
<td>As such Seed source from NSSC</td>
</tr>
<tr>
<td>Oat</td>
<td>Cant, Local</td>
<td>Bajra (multicut) GF Bajra-1</td>
<td>As such do</td>
</tr>
<tr>
<td>Crop</td>
<td>Varieties</td>
<td>Management</td>
<td>Seed Sources</td>
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<td>Wheat</td>
<td>GW 496, GW 273, GW 322, GW 366</td>
<td>• GW 11 &amp; GW 173&lt;br&gt;• Reduce area under wheat and replace by Gram:&lt;br&gt;ICC 4, Gram Gujarat 1 &amp; 2, Cumin: Guj 4, Fenugreek: Guj Fenugreek 1&lt;br&gt;Leafy Vegetables: Palak, Methi Dill Seed: Guj. Dillseed 1&lt;br&gt;Barley: RD 2052&lt;br&gt;Isabgol: Guj. Isabgul 1 &amp; 2</td>
<td>• Pressurized irrigation at critical stage&lt;br&gt;• Narrow and short water basin in all the crops</td>
</tr>
<tr>
<td>Cotton</td>
<td>Bt cotton</td>
<td>-</td>
<td>Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha)</td>
</tr>
<tr>
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<td>do</td>
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<td>Cucurbits</td>
<td>Bottle guard: Pusa navin, Anand-1 Bitter gourd: Arka harit Musk melon: Durgapura Madhu, Durgapura selection</td>
<td>Double row furrow basin planting Alternate furrow irrigation</td>
<td>do</td>
</tr>
<tr>
<td>Okra</td>
<td>Guj Okra-1, Parbhani kranti</td>
<td>Cluster bean Pusa Navabahar</td>
<td>do</td>
</tr>
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<td>Crop</td>
<td>Details</td>
<td>Irrigation Method</td>
<td>Mulching Material can be provided under RKVS</td>
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<td>Brinjal</td>
<td>GOB-1, Doli-5, Pusa Purple round, Pusa Purple long</td>
<td>Alternate furrow irrigation through drip system</td>
<td>Mulching material can be provided under RKVS</td>
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<td>Japanese white, Pusa hemani, Pusa resham/</td>
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<td>Carrot/ cauliflower</td>
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<td>Snow ball-16, hissar-1, Cabbage</td>
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<td>Pride of India, Early drum head, Pusa drum head</td>
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<td>Drip system can be provided under GGRSC</td>
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<td>Ridge &amp; furrow method</td>
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<td>Kesar</td>
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</tr>
<tr>
<td>Lucerne</td>
<td>GALL-1</td>
<td>As such</td>
<td>Seed source from NSSC</td>
</tr>
<tr>
<td>(Anand-2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local (Kachchhi)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oat</td>
<td>Bajra (multicut)</td>
<td>As such</td>
<td>do</td>
</tr>
<tr>
<td>Cant, Local</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Vegetative stage</th>
<th>Flowering stage</th>
<th>Crop maturity stage</th>
<th>Post harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous high rainfall in a short span leading to water logging</td>
<td>-</td>
<td>-</td>
<td>Harvest mature cobs</td>
<td>To cover produce with plastic sheet (100 µm, UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,</td>
</tr>
<tr>
<td>Maize</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Surface drainage(for water logging)</td>
<td>Surface drainage(for water logging)</td>
<td>Surface drainage (for water logging)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Interculturing for aeration</td>
<td>Apply 25 kg N/ha as additional dose</td>
<td>Protect the crop against Ball Warm(Endosulphan 35 EC Politreen C 44 EC 20 ml in 10 lit of water)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Apply 25 kg N/ha as additional dose</td>
<td>Protect the crop against whitefly and sucking pest(acefet 75 CE 15 gm, Trizophos 40 EC 25 ml, Emidachloropid 2.5 ml in 10 lit of water)</td>
<td>Apply 25 kg N/ha as additional dose</td>
<td>Cover the produce with plasticsheet(100 micron UV stabilized colour plastic)</td>
</tr>
<tr>
<td>Cotton</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wheat</td>
<td>-</td>
<td>-</td>
<td>Surface drainage (for management of water logging, lodging crop and to control black point in grain.) Spray Mancozeb 0.2%</td>
<td>To cover produce with plastic sheet (100 µm, UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,</td>
</tr>
<tr>
<td>Groundnut</td>
<td>-</td>
<td>-</td>
<td>Quick surface drainage, Ditch channel around field</td>
<td>do</td>
</tr>
<tr>
<td>Pulses</td>
<td>-</td>
<td>-</td>
<td>Quick drainage, Harvest mature pods</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>To cover produce with plastic sheet (100 µm, UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage</td>
<td>-</td>
</tr>
<tr>
<td>Horticulture</td>
<td></td>
<td></td>
<td>etc,</td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Mango</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur or 0.005% Hexaconazole for protection against PM</td>
<td>-</td>
<td>Unripe fruit may be used for pickles.</td>
</tr>
<tr>
<td><strong>Ber</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur for protection against PM</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Citrus</strong></td>
<td>-</td>
<td>Control citrus canker by spray of Copper Oxy chloride 0.2% &amp; streptocycline 100 ppm</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Control citrus canker by spray of Copper Oxy chloride 0.2% &amp; streptocycline 100 ppm</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Control citrus canker by spray of Copper Oxy chloride 0.2% &amp; streptocycline 100 ppm, collect mature fruits</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sapota</strong></td>
<td>-</td>
<td>-</td>
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<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Aonla</strong></td>
<td>-</td>
<td>Harvest the matured fruits</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Mango</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ber</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Citrus</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Aonla</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Heavy rainfall with high speed winds in a short span</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maize</strong></td>
<td>-</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Cotton</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
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<td></td>
</tr>
</tbody>
</table>

Cover the produce with plastic sheet (100 micron UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,
<table>
<thead>
<tr>
<th><strong>Wheat</strong></th>
<th>Surface drainage (to control water logging condition)</th>
<th>Surface drainage (to control water logging condition)</th>
<th>Surface drainage (for management of water logging, lodging crop and to control black point in grain, Spray Mancozeb 0.2%)</th>
<th>To cover produce with plastic sheet (100 µm, UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groundnut</strong></td>
<td>-</td>
<td>-</td>
<td>Quick surface drainage, Ditch channel around field</td>
<td>do</td>
</tr>
<tr>
<td><strong>Pulses</strong></td>
<td>-</td>
<td>-</td>
<td>Quick drainage, Harvest mature pods</td>
<td>do</td>
</tr>
<tr>
<td><strong>Horticulture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mango</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur or 0.005% Hexaconazole for protection against PM</td>
<td>Collect fallen fruits</td>
<td>Unripe fruit may be used for pickles.</td>
</tr>
<tr>
<td><strong>Ber</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur for protection against PM</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Citrus</strong></td>
<td>Control citrus canker by spray of Copper Oxy chloride 0.2% &amp; streptocycline 100 ppm</td>
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<td>Control citrus canker by spray of Copper Oxy chloride 0.2% &amp; streptocycline 100 ppm, collect mature fruits</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sapota</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew, Provide drainage</td>
<td>Harvest the matured fruits, Provide drainage, Protect the fruit against fruit spot (Difenconazole 0.05% spray)</td>
<td>Transfer the fruits to safer place</td>
</tr>
<tr>
<td><strong>Aonla</strong></td>
<td>-</td>
<td>Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew, Provide drainage</td>
<td>Harvest the fruits, Protect the crop against fruit spots disease (Carbendazin 0.025%)</td>
<td>Transfer the fruits to safer place</td>
</tr>
</tbody>
</table>

**Outbreak of pests and diseases due to unseasonal rains**
| **Cotton** | • Surface drainage (for water logging)  
• Interculturing for aeration  
• Apply 25 kg N/ha as additional dose | • Surface drainage (for water logging)  
• Apply 25 kg N/ha as additional dose  
• Protect the crop against whitefly and sucking pest (acefet 75 CE 15 gm, Trizophos 40 EC 25 ml, Emidachloropid 2.5 ml in 10 lit of water) | • Surface drainage (for water logging)  
• Protect the crop against Ball Warm (Endosulphan 35 EC Politreen C 44 EC 20 ml in 10 lit of water)  
• Apply 25 kg N/ha as additional dose | Cover the produce with plasticsheet (100 micron UV stabilized colour plastic) |
| --- | --- | --- | --- | --- |
| **Wheat** | Spray Mancozeb 0.2% (To control leaf Blight & rust) | Spray Mancozeb 0.2% (To control leaf Blight & rust) | To control black point in grain  
Spray Mancozeb 0.2% | - |
| **Groundnut** | • Spray 0.005% Hexaconazole for rust & tikka | Spray 0.005% Hexaconazole for rust & tikka | Spray 0.005% Hexaconazole for rust & tikka | - |
| **Horticulture** | --- | --- | --- | --- |
| **Mango** | - | Spray 0.2% wettable sulphur or 0.005% Hexaconazole for protection against PM | Collect fallen fruits | Unripe fruit may be used for pickles. |
| **Ber** | - | Spray 0.2% wettable sulphur for protection against PM | - | - |
| **Citrus** | Control citrus canker by spray of Copper Oxy chloride 0.2% & streptocycline 100 ppm | Control citrus canker by spray of Copper Oxy chloride 0.2% & streptocycline 100 ppm | • Control citrus canker by spray of Copper Oxy chloride 0.2% & streptocycline 100 ppm,  
• collect mature fruits | - |
| **Sapota** | - | • Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew  
• Provide drainage | • Harvest the matured fruits  
• Provide drainage  
• Protect the fruit against fruit spot (Difenconazole 0.05% spray) | Transfer the fruits to safer place |
| **Aonla** | - | • Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew  
• Provide drainage | • Harvest the fruits  
• Protect the crop against fruit spots disease (Carbendazin) | do |
mildew
  • Provide drainage

0.025 %

2.3 Floods

<table>
<thead>
<tr>
<th>Condition</th>
<th>Suggested contingency measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seedling / nursery stage</td>
<td>Vegetative stage</td>
</tr>
<tr>
<td>Transient water logging/ partial inundation¹</td>
<td>Not Expected in this District</td>
</tr>
<tr>
<td>Continuous submergence for more than 2 days²</td>
<td>Not Expected in this District</td>
</tr>
<tr>
<td>Sea water intrusion³</td>
<td>Not Expected in this District</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Extreme event type</th>
<th>Suggested contingency measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seedling / nursery stage</td>
</tr>
<tr>
<td>Heat Wave</td>
<td>Light &amp; frequent irrigation to all crops</td>
</tr>
<tr>
<td>Cold wave</td>
<td>NA</td>
</tr>
<tr>
<td>Frost</td>
<td>NA</td>
</tr>
<tr>
<td>Hailstorm</td>
<td>NA</td>
</tr>
<tr>
<td>Cyclone</td>
<td>NA</td>
</tr>
</tbody>
</table>
### Contingent strategies for Livestock, Poultry & Fisheries

#### 2.5.1 Livestock

<table>
<thead>
<tr>
<th>Suggested contingency measures</th>
<th>Before the event</th>
<th>During the event</th>
<th>After the event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drought</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Veterinary preparedness</td>
<td></td>
<td>- Assure and mobilize water supply</td>
<td></td>
</tr>
<tr>
<td>- Assessment of resources</td>
<td></td>
<td></td>
<td>- Impact assessment</td>
</tr>
<tr>
<td>- Integration with the district system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Plan for rapid mobilization of resources specially Silage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Dry fodder (fodder bank), complete feed blocks (CFBs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Feed and fodder availability</strong></td>
<td>As the district is occasionally prone to drought the following measures to be taken to ameliorate the fodder deficiency</td>
<td>Harvest and use biomass of dried up crops (Groundnut, Wheat, Maize, Sorghum, Green gram etc..) material as fodder</td>
<td>Training/educating farmers for feed &amp; fodder storage. Maintenance / repair of silo pits and feed/fodder stores. Encourage progressive farmers to grow multi cut fodder crops of sorghum/bajra/maize/UP chari, MP chari, HC-136, HD-2, GAIN? BAJRA, L-74, K-677, Ananad/African Tall etc..</td>
</tr>
<tr>
<td>- Avoid burning of wheat straw</td>
<td></td>
<td>Use of unconventional and locally available cheap feed ingredients especially groundnut cake and haulms as supplement for livestock during drought</td>
<td>Supply of quality fodder seed (multi cut</td>
</tr>
<tr>
<td>- Establishment of fodder bank at village level with available dry fodder (wheat straw and stover of bajra/sorghum and also groundnut haulms)</td>
<td></td>
<td>Utilizing fodder from fodder bank reserves.</td>
<td></td>
</tr>
<tr>
<td>- Increase area under perennial fodder cultivation with high yielding Hybrid Napier varieties.</td>
<td></td>
<td>Utilizing stored silage/hay.</td>
<td></td>
</tr>
<tr>
<td>- Conservation of maize/bajra/sorghum green fodder as silage</td>
<td></td>
<td>Transporting complete feed/fodder and dry roughages to the affected areas.</td>
<td></td>
</tr>
<tr>
<td>- Sowing of cereals (Sorghum/Bajra) and leguminous crops (Lucerne, Berseem, Horse gram, Cowpea) during early</td>
<td></td>
<td>Concentrate ingredients such as Grains, brans, chunnies &amp; oilseed cakes, low grade grains etc. unfit for human consumption should be procured from Govt. Godowns for feeding as supplement for high productive animals</td>
<td></td>
</tr>
</tbody>
</table>
### Drinking water

- Adopt various water conservation methods at village level to improve the ground water level for adequate water supply.
- Identification of water resources
- Desilting of ponds
- Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals)
- Construction of drinking water tanks in herding places/village junctions/relief camp locations
- Community drinking water trough can be arranged in shandies/community grazing areas

### Health and disease management

- Procure and stock emergency medicines and vaccines for important endemic diseases of the area
- All the stock must be immunized for endemic diseases of the area
- Vaccination for HS & FMD
- Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district

### During drought

- Encourage fodder production with Maize, Jowar, Bajra, Cowpea, Barseem, Lucerne etc.,
- Processing & storage of feed/fodder and roughages in the form of complete feed/blocks.
- Continuous supplementation of mineral mixture to prevent infertility.
- Encourage mixing available kitchen waste with dry fodder while feeding to the milch animals

### Sorghum/bajra/maize varieties) and fodder slips of Napier, guinea grass well before monsoon

### Replenish the feed and fodder banks

### Adequate supply of drinking water.

- Restrict wallowing of animals in water bodies/resources
- Add alum in stagnated water bodies

### Watershed management practices shall be promoted to conserve the rainwater.

- Bleach (0.1%) drinking water / water sources
- Provide clean drinking water

### Keep close surveillance on disease outbreak.

- Undertake the vaccination depending on need
- Keep the animal houses clean and spray disinfectants
- Farmers should be advised to breed their milch animals during July-September so that the
<table>
<thead>
<tr>
<th>Event</th>
<th>Action</th>
<th>Action</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate refreshment training on draught management to be given to VAS, Jr.VAS, LI with regard to health &amp; management measures Procure and stock multivitamins &amp; area specific mineral mixture</td>
<td>Drainage of water from and around animal sheds, pasture areas. Tick control measures be undertaken to prevent tick borne diseases in animals Rescue of sick and injured animals and their treatment Organize with community, daily lifting of dung from relief camps</td>
<td>peak milk production does not coincide with mid summer</td>
<td></td>
</tr>
<tr>
<td>Floods</td>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclone</td>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold wave</td>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat wave</td>
<td>Arrangement for protection from <strong>heat wave</strong></td>
<td>Allow the animals early in the morning or late in the evening for grazing during heat waves Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves Put on the foggerts / sprinklers/fans during heat weaves in case of high yielders (Jersey/HF crosses) In severe cases, vitamin ‘C’ and electrolytes should be added in H₂O during heat waves.</td>
<td>Feed the animals as per routine schedule Allow the animals for grazing (normal timings)</td>
</tr>
<tr>
<td>Insurance</td>
<td>Encouraging insurance of livestock</td>
<td>Listing out the details of the dead animals</td>
<td>Submission for insurance claim and availing insurance benefit Purchase of new productive animals</td>
</tr>
</tbody>
</table>
### 2.5.2 Poultry

#### 2.5.3

<table>
<thead>
<tr>
<th>Suggested contingency measures</th>
<th>Convergence/ linkages with ongoing programs, if any</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before the event</strong></td>
<td><strong>During the event</strong></td>
</tr>
<tr>
<td>Drought</td>
<td></td>
</tr>
<tr>
<td>Shortage of feed ingredients</td>
<td>Buffer stock of readymade feed</td>
</tr>
<tr>
<td>Drinking water</td>
<td></td>
</tr>
<tr>
<td>Health and disease management</td>
<td>Routine vaccination and medication should be followed</td>
</tr>
<tr>
<td><strong>Floods</strong></td>
<td>Poultry requires excellence in general management in respect of litter management and bio- security</td>
</tr>
<tr>
<td>Shortage of feed ingredients</td>
<td></td>
</tr>
<tr>
<td>Drinking water</td>
<td></td>
</tr>
<tr>
<td>Health and disease management</td>
<td></td>
</tr>
<tr>
<td><strong>Cyclone</strong></td>
<td>In case of uncontrollable condition it is advisable to sell of the flock at the earliest</td>
</tr>
<tr>
<td>Shortage of feed ingredients</td>
<td></td>
</tr>
<tr>
<td>Drinking water</td>
<td></td>
</tr>
<tr>
<td>Health and disease management</td>
<td></td>
</tr>
<tr>
<td>Heat wave and cold wave</td>
<td>Adopting measures for maintaining the in house temperature at or near to physiological optimum temperature</td>
</tr>
<tr>
<td>Shelter/environment management</td>
<td>Measures to maintain at or near physiological optimum temperature</td>
</tr>
<tr>
<td>Health and disease management</td>
<td>Nutritional manipulation like use of fats/edible oil in the ration, extra supplementation of methionine, biotin, choline chloride and vitamin C etc.</td>
</tr>
</tbody>
</table>
## 2.5.3 Fisheries/ Aquaculture

<table>
<thead>
<tr>
<th>Event</th>
<th>Before the event</th>
<th>During the event</th>
<th>After the event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drought</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capture</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Marine</td>
<td>Nil</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Inland</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (i) Shallow water depth due to insufficient rains/inflow | • Insure water storage & supply well in advance  
• Harvesting & marketing | • Watering of the ponds  
• Harvesting & marketing | • Restocking of the ponds  
• Fertilization & manuring of ponds |
| (ii) Changes in water quality | • First to ensure the water supply to maintain minimum level of water for fishes in that particular period. If not possible then harvesting & marketing | • To maintain water level is the only option otherwise harvesting & marketing | • Regular operations for the remaining stock and also restoring of newone |
| (iii) Any other | | | |
| **Aquaculture** | | | |
| (i) Shallow water in ponds due to insufficient rains/inflow | • Water is only the major component or necessity for such operations  
• Ensure water supply or otherwise stoppage of the operation / culling temporary  
• Water managemental practices | | |
| (ii) Impact of salt load build up in ponds / change in water quality | • Attempts to be made to minimize oxygen depletion from water and also for oxygenation of water | • Oxygenation of water  
• Stirring of water with pumps | • Re-establishment of normal managemental conditions |
| (iii) Any other | | | |
| **Floods** | | | |
| **Capture** | | | |
| Marine | -Not applicable | | |
| Inland | | | |
| (i) Average compensation paid due to loss of human life | • Fishing should be prohibited because of breeding season | | |
| (ii) No. of boats / nets/damaged | | | |

---

1) Drought
2) Floods
| (iii) No. of houses damaged | • Arrangement of boats, nets etc in surplus | • Co-ordination with the district administration & assurance to fisherman | • Rescue & Help  
• Programme in collaboration with district system | • Rehabilitation of fisherman for all their necessities |
| (iv) Loss of stock | • Training & Awareness | • Compensation | • Compensation |
| (v) Changes in water quality | • Preparation for checking the inflow of outside runoff water in to the pond runoff water into the ponds | • Arrangement of checking overflow of ponds  
• Overflow of ponds  
• Net installations to capture the fishes going out due to overflow | • Proper oxygenation  
• Maintenance of water pH |
| (vi) Health and diseases | | | • Water treatment to minimize ectoparasite infestation |

**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**  
Not applicable

**Marine**  
Not applicable

(i) Average compensation paid due to loss of fishermen lives

(ii) Avg. no. of boats / nets/damaged

(iii) Avg. no. of houses damaged
<table>
<thead>
<tr>
<th>Inland</th>
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</thead>
<tbody>
<tr>
<td>B. Aquaculture</td>
<td></td>
<td></td>
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<tr>
<td>(i) Overflow / flooding of ponds</td>
<td></td>
<td></td>
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<tr>
<td>(ii) Changes in water quality (fresh water / brackish water ratio)</td>
<td></td>
<td></td>
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<tr>
<td>(iii) Health and diseases</td>
<td></td>
<td></td>
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<tr>
<td>(iv) Loss of stock and inputs (feed, chemicals etc)</td>
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<td></td>
</tr>
<tr>
<td>(v) Infrastructure damage (pumps, aerators, shelters/huts etc)</td>
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<tr>
<td>(vi) Any other</td>
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</table>

4. Heat wave and cold wave

A. Capture

Marine

Inland

<table>
<thead>
<tr>
<th>B. Aquaculture</th>
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</thead>
<tbody>
<tr>
<td>(i) Changes in pond environment (water quality)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) Health and Disease management</td>
<td></td>
<td></td>
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<tr>
<td>(iii) Any other</td>
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</tbody>
</table>
Annexure-I

LOCATION MAP OF SABARKANTHA DISTRICT (GUJARAT)
Annexure-II

Monthly rainfall distribution of Sabarkantha district (Gujarat)

Rainfall (mm)

2005 2006 2007 2008 2009 2010