

## Technology developed and recommended

Sr. No	Recommendations
1	<p><b>Study the feasibility of conservation tillage in rice - wheat cropping system under middle Gujarat conditions (2023-24)</b></p> <p>The farmers of middle Gujarat Agro-climatic Zone growing wheat crop after rice harvested with combined harvester are recommended to drill wheat seed with happy seeder followed by spraying of Anubhav Bacterial Biodegradable Consortium (ABBC) @ 2 L/ha (5 x 10<sup>9</sup> CFU/ml) on rice residues to obtain higher wheat equivalent yield and net returns. Further, conservation tillage practices with ABBC improve the physico-chemical and biological properties of soil.</p>
2	<p><b>Impact of storage bag container, application methods and insecticide against <i>Callosobruchus maculatus</i> (Fabricius) infesting green gram during storage (2023-24)</b></p> <p>Green gram seeds can be stored for 135 days by managing pulse beetle effectively by adopting following measures:</p> <ul style="list-style-type: none"> <li>• Jute bag treated by spraying or impregnation with deltamethrin 2.8 EC (0.7 ml/ liter water) for 10 minutes OR</li> <li>• Seed treated with deltamethrin 2.8 EC (0.7 ml/ liter water) or spinosad 45 SC (0.04 ml/ liter water) or fipronil 5 SC (0.40 ml /liter water) and stored in jute bag.</li> </ul>
3	<p><b>Effect of insecticidal hydropriming on sucking pests of mungbean (2022-23)</b></p> <p>Farmers of Gujarat growing mungbean in summer season are recommended to prime one kg of seeds for 5 hrs with imidacloprid 17.8 SL @ 2.5 ml in 1.25 litre water followed by drying under shade for 12 hrs. for effective to manage infestation of sucking insect-pests viz., thrips, jassid and whitefly up to 30 days after sowing which resulted in higher seed yield and plant vigour.</p>
4	<p><b>Seed treatment for Green gram seeds (2020-21)</b></p> <p>The farmers and seed producers of Gujarat are recommended to smear green gram seeds with spinosad 45SC, 0.0004 % (0.13 ml in 15 liter water for 1000 kg seed) or fipronil 5 SC, 0.0004 % (1.20 ml in 15 liter water for 1000 kg seed) for short duration storage (up to 3 months) and deltamethrin 2.8EC, 0.0004 % (2.15 ml in 15 liter water for 1000 kg seeds) for long duration storage (up to 6 months) to protect seeds from pulse beetle infestation.</p>
5	<p><b>Bio-efficacy of insecticides against pest complex in greengram (2019-20)</b></p> <p>Seed treatment in greengram with imidacloprid 48 FS, 5 ml/kg and spray of flubendiamide 48 SC, 0.01% (2 ml/10 l water) at 50% flowering stage can effectively manage thrips, spotted pod borer and pod borer. The farmers and seed producers of Gujarat are recommended to smear green gram seeds with spinosad 45 SC, 0.0004% (0.13 ml in 15 litre water for 1000 kg seed) or fipronil 5 SC, 0.0004% (1.20 ml in 15 litre water for 1000 kg seed) or deltamethrin 2.8 EC, 0.0004% (2.15 ml in 15 litre water for 1000 kg seeds) to protect seeds from pulse beetle infestation up to six months.</p>
6	<p><b>Effect of sowing interval and ethephon on fresh dormancy in groundnut (<i>Arachis hypogea</i> L.) var. GG 34 (2022-23)</b></p> <p>The farmers of Middle Gujarat Agro-climatic Zone cultivating kharif groundnut var. GG 34 using seeds of preceding summer season are recommended to keep the seed for minimum 14 days storage period then give seed treatment of 150 ppm Ethephon 39%SL (3.75 mL Ethaphone in 10 litre water for 100 kg seed and dry under shed) one day before sowing for better germination, seedling growth and higher yield of kharif groundnut.</p>

7	<p><b>Effect of spacing and fertilizer on summer groundnut variety GG 34 (2022-23)</b>  Summer groundnut var. GG 34 can be sown at 40 cm spacing between the row with application of gypsum @ 250 kg/ha as a basal and foliar spray of nano NP fertilizer (1.5 % N) 5.0 mL/L at 25 and 50 DAS recorded higher yield. Biosafety guidelines of nano fertilizer should be followed at the time of spraying.</p>
8	<p><b>Performance of hybrid maize under different levels of nitrogen and phosphorus in rabi season (2017-18)</b>  The farmers of middle Gujarat Agroclimatic zone III growing rabi hybrid GAYMH-1 and GAWMH-2 are advised to fertilize the crop with 150 kg Nitrogen and 40 kg P<sub>2</sub>O<sub>5</sub> per hectare for securing higher grain yield with higher net return in Panchmahal District. While in Anand District maize hybrid GAYMH-1 should be grown and fertilize with 150 kg N and 60 kg P<sub>2</sub>O<sub>5</sub> per ha. The nitrogen should be applied in four equal splits i.e., at basal, 4 leaves, 8 leaves and tasseling stage while P<sub>2</sub>O<sub>5</sub> as basal.  1st irrigation of 80 mm at transplanting; 2nd irrigation of 50 mm at 6 to 7 DATP. Subsequent six irrigations at 12-15 days interval; Remaining two irrigations at 8-10 days interval.</p>
9	<p><b>To study the castor based intercropping system preceding <i>kharif</i> crop under middle Gujarat conditions. (2016-17)</b>  The farmers of middle Gujarat Agro climatic zone III growing castor are advised for growing three rows of chickpea at 30 cm for green pod as an intercrop, between two rows of castor sown at 150 cm line spacing for getting more castor equivalent yield and net income.</p>
10	<p><b>Relay cropping of castor in legume crops (2016-17)</b>  The farmers of middle Gujarat Agro climatic zone are advised to adopt soybean-castor relay cropping system for getting castor equivalent higher yield and net return. Soybean cv. NRC-37 sown at 45 cm apart in first fortnight of July and castor sown in second fortnight of August wherein, skip one row for sowing of castor after two rows of soybean.</p>
11	<p><b>Method of sowing and seed rate in wheat (2015-16)</b>  The farmers of middle Gujarat Agro climatic zone III growing wheat crop after transplanted rice under kyari land are advised for line sowing of wheat in dry seedbed by keeping higher seed rate @ 150 kg ha<sup>-1</sup> then apply irrigation after sowing for higher yield and net income.</p>