

**Research recommendations made by the department for Farming community (Since 2004)**

Sr. No.	Recommendation	Year
01	Farmers Middle Gujarat zone (AES-3 )growing pigeon pea crop (BDN-2 ) In kharif are advised to use Rhizobium ( RBA- 5) + <i>Azotobacter</i> (ABA-1) or Rhizobium ( RBA - 5) + <i>Azotobacter</i> (ABA-1) + Phosphorus solubilizer (PBA-22)through either seed treatment or soil application along with recommendation dose of nitrogen (25 kg ha <sup>-1</sup> ) and phosphorus (50 kg ha <sup>-1</sup> ) (Year - 2006)	2006
02	The farmers of middle Gujarat Agro-climatic zone III (AES-P1-2) are advised to apply 100 % N as per soil test from inorganic fertilizes to both pearlmillet in kharif and wheat in rabi grown in a sequence under irrigated conditions for getting higher production and net realization. Application of 100 % N from FYM reduced the yield of both the crops grown in pearlmillet –wheat crop sequence. (Year - 2007) (Collaboration with Agronomy Department).	2007
03	The farmers of middle Gujarat Agro-climatic zone (AES- P1-2) having pearl millet (kharif) –potato (rabi) crop sequence under irrigated condition are advised to apply 100 % recommended NPK dose from inorganic fertilizers to both the crops for getting higher production and maximum net realization. Application of 100 % N from FYM to both the crops grown in a sequence recorded the maximum reduction in yield. (Year - 2007) (Collaboration with Agronomy Department).	2007
04	The farmer of AES-II of middle Gujarat Agro-climatic zone are advised to adopt drip irrigation system in rabi cabbage (cv. Golden Acre) planted in paired row system (45-75 X 45 cm) with fertigation of water soluble NPK 160-60-60 kg ha <sup>-1</sup> {(N and P through urea and urea phosphate) (70:44 N:P) and K through MOP} in five equal split starting from 15 DATP at an interval of 10 days along with 25 t FYM ha <sup>-1</sup> to get maximum yield and net realization with 40 % saving of water. The system should be laid out by keeping 120 cm distances between two laterals with drippers (Four LPH) at 45 cm distance. The system should be run 1.2 kg cm <sup>2</sup> for 43 minutes at alternate day. (2008)	2008
05	The farmers of middle Gujarat Agro climatic zone III (AES II ) adopting onion – sorghum (fodder) cropping sequence are advised to fertilize the onion (Pusa red) as per soil test value ( NPK )along with 20 kg S ha <sup>1</sup> through gypsum in S deficient soil to get the higher yield and net realization. (Year - 2009)	2009
06	The farmers of middle Gujarat of Agro-climatic zone-III (AES-P1-2) growing hybrid pearl millet in summer season advised to apply 2 tones ha <sup>-1</sup> vermicompost and 120 kg nitrogen ha <sup>-1</sup> (60 kg N ha <sup>-1</sup> at the time of transplanting + 60 kg ha <sup>-1</sup> at 30 days after transplanting) for securing higher yield, quality as well as net return. (2011)	2011
07	The farmers of middle Gujarat Agro-climatic zone-III (AES-P1-2) growing Bt cotton are advised to apply 240 Kg N / ha with FYM 10 t/ha for securing higher yield. Application of phosphorus and micronutrients were not found beneficial (Year-2011) (Collaboration with Agronomy Department).	2011
08	The farmers of middle Gujarat agroclimatic Zone-III (AES-II) growing soybean in <i>kharif</i> season are advised to give 45 kg N/ha + 60 kg P <sub>2</sub> O <sub>5</sub> /ha and 20 kg S/ha to get higher yield and net return. (year-2011) (Collaboration with TRTC, Devgadh Baria).	2011

<b>09</b>	The farmers of middle Gujarat agroclimatic Zone-III (AES-II) growing soybean in <i>kharif</i> season are advised to apply 15 kg N and 30 kg P <sub>2</sub> O <sub>5</sub> /ha along with seed treatment of PSB + <i>Rhizobium</i> @ 5ml/l each to reduce 50% of RD of 30 kg N and 60 kg P <sub>2</sub> O <sub>5</sub> /ha without affecting the seed quality and get higher yield as well as net return (year-2012) (Collaboration with TRTC, Devgadha Baria).	<b>2012</b>
<b>10</b>	The farmers of middle Gujarat agroclimatic Zone-III (AES-II) adopting Bt cotton-wheat crop sequence are advised to apply 10 t FYM/ha or 1 t castor cake/ha along with 70 % RDF to cotton ( 240 kg N/ha) and wheat (90-45-0 NPK kg/ha) crops to get higher yield and net income from this cropping system. The Bt. cotton should be shown during 3 <sup>rd</sup> week of June. (Year-2014) (Collaboration with RRS, AAU, Anand).	<b>2014</b>
<b>11</b>	The farmers of middle Gujarat Agro-climatic zone-III growing soybean-wheat crop are advised to apply NPK (120-60-120 kg/ha) along with ZnSO <sub>4</sub> /ha, 20 kg S/ha through gypsum (110 kg/ha)and one foliar spray of 0.5 % FeSO <sub>4</sub> (5 g/lit + 1g/lit citric acid) at 30 DAS to wheat crop getting higher yield of wheat and net return.	<b>2016</b>
<b>12</b>	The farmers of Middle Gujarat Agro-climatic Zone growing summer pearl millet are advised to carry out IC and HW at 20 and 40 DAS or apply recommended atrazine 500 g/ha as pre-emergence for weed management. For minimizing phytotoxic effect of atrazine, better yield and nutrient 16 status of soil, apply 10 t FYM/ha at the time of sowing in furrows.	<b>2018</b>
<b>13</b>	The farmers of middle Gujarat agro-climatic zone growing potato are recommended to apply 75 % RDK (165 kg/ha) through potassium schoenite as a basal dose followed by 1 % foliar spray of potassium schoenite at 30 and 50 DAP for obtaining higher yield and net return. In addition, FYM 10 t/ha as basal and recommended dose of N (220 kg/ha) and P <sub>2</sub> O <sub>5</sub> (110 kg/ha) is to be applied.	<b>2022</b>

#### Research recommendations made by the department for Scientific community (Since 2004)

<b>Sr. No.</b>	<b>Recommendation</b>	<b>Year</b>
<b>01</b>	The NO <sub>3</sub> and F contents in well water samples of Ahmedabad, Anand, Kheda and Vadodara districts were found higher before monsoon as compared to after monsoon conditions. None of the well water sample was found above the permissible limit for heavy metals in all districts except Cd in few villages of Vadodara district and Cr in few villages of Ahmedabad and Vadodara districts. No contamination of pesticide residues was found in well water samples of all districts Majority of well water samples fell under C3 S1 class (34.9% in before monsoon and 39.5% after monsoon condition). While, none of the well water samples were found suitable for irrigation purpose (C1 S1 class).	<b>2021</b>
<b>02</b>	Reverse osmosis (RO) waste water can be used as irrigation water along with 3% sand (30 g/kg soil) and FYM 10 t/ha (4.5 g/kg soil) or dilution of RO waste water with normal irrigation water 1:2 to get more growth of fodder sorghum as compared to normal irrigation water. The salt deposition in soil after irrigation should be monitored periodically to avoid the salt accumulation.	<b>2022</b>