

### Farmers recommendation

Year	Topic	Recommendation text
2013	Management of reddening of leaves and physiological wilting of Bt cotton	The farmers of middle Gujarat growing Bt cotton are advised to apply 280 kg N/ha in four equal splits i.e., 70 kg N as basal application at the time of sowing and at 30, 60 and 90 days after sowing. In addition foliar spray each of 50 g urea, FeSO <sub>4</sub> , ZnSO <sub>4</sub> and MgSO <sub>4</sub> in 10 litre of water is also suggested for the management of reddening of leaves and physiological wilting of Bt cotton. (Professor & Head, Dept. of Plant Pathology, BACA, AAU, Anand)
2014	Management of bean common mosaic in mungbean vis-à-vis its vector (aphid) through insecticides	The farmers of middle Gujarat agro-climatic zone - III growing mungbean crop in Kharif are advised to treat the seeds with thiamethoxam 35 FS @ 10 ml/kg seed (3.5g a.i./kg) at the time of sowing and apply two sprays of thiamethoxam 25 WG 0.01% (4 g/10 litre of water; 30 g a.i./ha) first at 30 days and second at 45 days after sowing for the effective and economical management of aphid (vector) and thereby management of Bean Common Mosaic disease of mungbean. The PHI of thiamethoxam 25 WG is 45 days.
	Management of damping-off using new fungicides in bidi tobacco nursery	For effective and economical management of damping-off in bidi tobacco nursery, farmers are advised to apply two to three spray drenches of azoxystrobin 23 SC 0.023 % (230 g a.i./ha; 10 ml/ 10 l water/100 m <sup>2</sup> ) at the initiation of the disease and as and when required thereafter. (Research Scientist (Pl. Path), BTRS, AAU, Anand)
	Evaluation of new fungicides for the management of frog-eye spot disease in bidi tobacco nursery	For effective and economical management of frog eye spot disease in bidi tobacco nursery, farmers are advised to apply two sprays of carbendazim + mancozeb (75 WP) 0.225 % (1.125 kg. a.i./ha.; 30 g/10 l water /200 m <sup>2</sup> ) at 10 days interval starting from initiation of the disease. (Research Scientist (Pl. Path), BTRS, AAU, Anand)
2015	Management of damping off using fungicide in bidi tobacco nursery	Farmers of middle Gujarat are advised to apply metalaxyl MZ 68 WP, 2.16 kg a.i./ha, 0.0432%, 6.4 g/10 litre water using 5000 litre water/ha under wet soil conditions, as spray drench with sprayer or 0.0108%, 1.6 g/ 10 litre water using 20,000 litre water/ha under dry soil conditions with rose cane on seedlings as and when required for effective and economical control of damping-off disease in bidi tobacco nursery.

		(Res. Sci. (Patho.), BTRS, AAU, Anand)
2016	Management of wilt and root rot of chickpea through seed biopriming and soil application of bio-agents	Application of <i>Trichoderma viride</i> or <i>T. harzianum</i> ( $2 \times 10^8$ cfu/g) enriched FYM (10 kg bioagent/ ton FYM) in furrow @ 1 ton/ha, followed by seed biopriming at the time of sowing i.e. soaking of seeds for 10 hrs in suspension of talc based formulation 1 % WP ( $2 \times 10^8$ cfu/g) of <i>T. viride</i> or <i>T. harzianum</i> , respectively @ 50 g product/ 250 ml of water/kg of seed and shade dried, for the effective management of wilt - root rot complex of chickpea.
	Evaluation of bioagents for management of soil-borne diseases in soybean through seed treatment and soil application	Application of <i>Trichoderma viride</i> or <i>T. harzianum</i> ( $2 \times 10^8$ cfu/g 1% WP) enriched FYM (10 kg bioagent/ton FYM) in furrow @ 1 ton/ha, followed by seed treatment with <i>T. viride</i> or <i>T. harzianum</i> ( $2 \times 10^8$ cfu/g) @ 10 g/kg seeds, respectively at the time of sowing for the effective management of root rot disease of soybean.
	Evaluation of bioagents for management of soil-borne diseases in soybean through seed treatment and soil application	The farmers of middle Gujarat growing soybean are recommended for application of <i>Trichoderma viride</i> or <i>T. harzianum</i> ( $2 \times 10^8$ cfu/g- 1% WP) enriched FYM (10 kg bioagent/ ton FYM) in furrow @ 1 ton/ha, followed by seed treatment with <i>T. viride</i> or <i>T. harzianum</i> ( $2 \times 10^8$ cfu/g) @ 10 g/kg seeds, respectively at the time of sowing for the effective management of root rot disease.
	Evaluation of bio-fungicides for management of maydis leaf blight, turcicum leaf blight and curvularia leaf spot diseases in maize	Farmers of middle Gujarat growing kharif and rabi maize are recommended to treat the seeds with talc based formulation of <i>Trichoderma viride</i> 1% WP ( $2 \times 10^8$ cfu/g) @ 7 g/ kg seeds 22 at the time of sowing, followed by four sprays of cow urine 10 per cent (1 litre / 10 litre of water) or neem leaf extract 10 per cent (1 litre / 10 litre of water) at 30, 40, 50 and 60 days after sowing for the management of maydis and turcicum leaf blight and curvularia leaf spot diseases. (Asst. Res. Sci. (Pl.Path.), MMRS, AAU, Godhra)
2017	Management of cumin blight through fungicides	Apply three sprays of azoxystrobin 23 SC, 0.023% (10 ml/ 10 liter water) first at the initiation of disease and remaining sprays at 10 days interval for effective and economical management of blight.
	Field evaluation of fungicides for the management of Pyricularia leaf spot/ blast disease of pearl millet	For effective management of pyricularia leaf spot/blast disease of kharif pearl millet, treat the seeds with thiram 75 WS, 3 g/kg seed at the time of sowing and apply two sprays of tebuconazole (50% ) + trifloxystrobin (25%) 75 WG, 0.075% or azoxystrobin (18.2%) + difenoconazole ( 11.4%)

		29.6 SC, 0.03% starting at the appearance of disease and second at 15 days after first spray.
	Evaluation of seed treatment of bioagents for management of soil borne diseases in mungbean	Treat the seed with <i>Trichoderma viride</i> (10 <sup>8</sup> cfu/g) 1 WP, 10 g/kg seeds and <i>Pseudomonas fluorescens</i> (10 <sup>8</sup> cfu/ml) 1 WP, 10 ml/kg seeds at the time of sowing for effective management of root rot disease of mungbean in kharif season
2019	Management of <i>Alternaria solani</i> through seed treatment and foliar application of new fungicides application in tomato	Seed treatment with Captan 75 WS @ 2.5 gm / kg seed and subsequent two foliar sprays of Azoxystrobin (18.2 %) + Difenconazole (11.4 %) @ 0.03% at first appearance of the disease and second after 10 days has been found best amongst all other treatments and can be recommended to farmers involved in seed production of tomato against Alternaria blight disease.
2020	Management of root rot caused by <i>Macrophomina phaseolina</i> in mungbean through seed treatment of <i>Trichoderma viride</i> and <i>Glomus intraradices</i>	Farmers of Gujarat growing mungbean are recommended to give soil application of <i>Trichoderma viride</i> 1% WP (2×10 <sup>8</sup> cfu/g) enriched FYM (10 kg <i>T. viride</i> / ton FYM), 1 ton/ha in soil prior to 10 days of sowing as well as seed treatment with <i>T. viride</i> , 10 g/kg seeds and with mycorrhiza <i>Glomus intraradices</i> 3000 IP/g, 17 g/kg seeds at the time of sowing for effective management of root rot disease.
2020	Management of foliar diseases of turmeric through fungicides	All the three concentrations of azoxystrobin 18.2% + difenoconazole 11.4% SC, 0.030, 0.038 and 0.023% along with sticker, 0.1% was found effective in managing the leaf blotch disease. While only two concentrations of azoxystrobin 18.2% + difenoconazole 11.4% SC, 0.030 and 0.038% were found effective in managing the leaf spot disease in turmeric. The highest rhizome yield was found in all the three concentrations of azoxystrobin 18.2% + difenoconazole 11.4% SC, 0.030, 0.023, 0.038% and carbendazim 25% + flusilazole 12.5% SE, 0.042, 0.070, 0.056%. The lowest rhizome yield was found in the control.
2021	Management of root rot caused by <i>Macrophomina phaseolina</i> in mungbean through seed treatment of <i>Trichoderma viride</i> and <i>Glomus intraradices</i>	Farmers of Gujarat growing mungbean are recommended to give soil application of <i>Trichoderma viride</i> 1% WP (2×10 <sup>8</sup> cfu/g) enriched FYM (10 kg <i>T. viride</i> / ton FYM), 1 ton/ha in soil prior to 10 days of sowing as well as seed treatment with <i>T. viride</i> , 10 g/kg seeds and with mycorrhiza <i>Glomus intraradices</i> 3000 IP/g, 17 g/kg seeds at the time of sowing for effective management of root rot disease.

	Management of foliar diseases of turmeric through fungicides	Farmers of Gujarat growing turmeric are recommended to spray ready-mix fungicide, azoxystrobin 18.2% + difenoconazole 11.4% SC, 0.03% (10 mL/ 10 L of water) along with commercially available sticker, 0.1% (10 mL/ 10 L of water) first at the initiation of the disease and subsequent two sprays at 15 days interval for effective management of foliar (leaf blotch and leaf spot) diseases. PHI minimum of 60 days should be kept.
	Efficacy of different oils for the management of damping off disease caused by <i>Pythium aphanidermatum</i> in bidi tobacco nursery	Farmers of Gujarat are recommended to apply neem oil or castor oil, 1% (100 mL oil and 10 mL commercially available sticker/10 L of water) at pre-seeding followed by three applications after germination at 10 days interval as spray drench for management of damping-off disease and increase healthy transplantable seedlings in bidi tobacco nursery. <b>(Research Scientist, BTRS, AAU, Anand)</b>
	Management of false smut of rice	Rice growers of Gujarat are recommended to apply two sprays of ready-mix fungicides, tebuconazole 50% + trifloxystrobin 25% WG, 0.060% (8 g/ 10 L of water) (PHI 35 days) OR picoxystrobin 7.05% + propiconazole 11.7% SC, 0.037% (20 mL/ 10 L of water) (PHI minimum of 24 days), first at 50% flowering stage and second at the time of 100% flowering stage for effective management of false smut. <b>(Research Scientist, Main Rice Research Station, AAU, Nawagam)</b>
	Bio-efficacy of agrochemicals against bacterial canker ( <i>Xanthomonas axonopodis</i> pv. <i>citri</i> ) in citrus	The farmers of middle Gujarat Agro-climatic zone are advised to spray tank mixed solution of streptomycin sulphate 90% + tetracycline hydrochloride 10% SP, 1 g/10 L of water and copper oxychloride 50 WP, 20 g/10 L of water first at initiation of disease and subsequent three sprays at 20 days interval for effective and economical management of bacterial canker in citrus. <b>(Assistant Professor (Pl. Patho.), CoH, AAU, Anand)</b>
2022	Field evaluation of ready-mix fungicides against cumin blight	The farmers of Gujarat cultivating cumin are recommended to spray ready-mix fungicide, metiram 55% + pyraclostrobin 5% WG 0.18%, 30 g/10 litre of water along with commercially available sticker 0.1%, 10 ml/10 litre of water first at the initiation of the disease and subsequent two sprays at 15 days interval for effective management of blight disease. PHI should be kept minimum of 20 days.

2023	Effect of different supplementations on growth and yield of oyster mushroom	The oyster mushroom ( <i>Pleurotus sajor-caju</i> ) growers of Gujarat are recommended to supplement one kg of paddy dry substrate with 60 g of pre-sterilized groundnut or chickpea haulm or rice husk to get higher yield and income
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### Scientific Information

Year	Topic	Recommendation text
2017-18	Identification of sources of resistance in mungbean against bean common mosaic disease	Mungbean genotypes <i>viz.</i> , GM-02-07 and LGG 460 found resistant, while GM-9917, GM-02-01, GM-02-02, GM-02-05, GM-02-08, GM-02-10, GM-02-13, GM-02-15, GM-02-20, GM-03-04, GM-03-07, GM-03-13 and GM-03-14 found moderately resistant against bean common mosaic disease under field conditions. These genotypes can be used in breeding programme for developing varieties resistant to bean common mosaic.
2018-19	Detection of seed borne nature of MYMV and BCMV of urdbean and mungbean	Mungbean yellow mosaic virus was not detected as seed borne in urdbean, while bean common mosaic virus detected as seed borne in mungbean.
2018-19	Management of early blight of potato	For effective management of early blight disease of potato, dry seed (cut tubers) treatment with 5 kg talc powder followed by 1 kg mancozeb 75 WP for 100 kg potato seed tuber before 12 hrs. of planting followed by three foliar sprays <i>viz.</i> , first spray of propiconazole 25 EC, 0.025% at disease initiation, second of azoxystrobin 23 SC, 0.025% and third of propiconazole 25 EC, 0.025% at 15 days interval.
2019-20	Monitoring of seed borne viruses in pulses and soybean and standardization of methods of detection through biological, serological and molecular techniques	Protocol for detection of Bean Common mosaic virus from mungbean seeds and infected plants
2020-21	Evaluation of efficient <i>Trichoderma asperellum</i> (Ta1 AAU isolate) against wilt and root rot in chickpea	Application of solid talc-based bioformulation of <i>Trichoderma asperellum</i> ( $2 \times 10^8$ cfu/g) enriched FYM (10 kg/ton) in furrow @ 1 ton/ha prior to 10 days of sowing in soil found effective in management of wilt and root rot in chickpea.
2020-21	Management of tikka disease of groundnut through fungicides	Two sprays at 15 days interval starting from appearance of the symptoms with pyraclostrobin 13.3% + epoxiconazole 5%, 0.025% reduced the disease intensity of groundnut tikka disease significantly.