

Technology developed and recommended

➤ Crop Production (Agronomy)

1. Fertilizer management in *Kharif* maize GAYMH 1 (2020-21)

The farmers of middle Gujarat agroclimatic zone growing *Kharif* hybrid maize (GAYMH-1) are recommended to fertilize the crop with FYM 5 t/ha + 100 % RDF (160:20:00 NPK Kg/ha) to achieve higher grain yield with net return, the nitrogen should be applied in 4 equal split at basal, 4 leaf, 8 leaf, and tasseling stage, while phosphorus as basal.

2. Fertilizer management in *Rabi* maize GAYMH 1 (2020-21)

The farmers of middle Gujarat agroclimatic zone growing *Rabi* hybrid maize (GAYMH-1) are recommended to apply the crop with 60 Kg N/ha. (50% Basal +50 % at 30 DAS) and 20 Kg P₂O₅ to achieve higher yield with high net return (2020-21)

3. Fertilizer Management in *Rabi* hybrid Maize GAYMH-1 and GAWMH-2 (2018-19)

Middle Gujarat except Anand District

150 kg N₂ + 40 kg P₂O₅/ha (87 kg DAP + 292 kg urea/ha)

For Anand District

150 N₂ + 60 kg P₂O₅/ha (130 kg DAP + 230 kg urea/ha)

4. Fertilizer Management in *kharif* hybrid maize GAYMH-1 & GAWMH-2 (2017-18)

160 kg N₂ + 20 kg P₂O₅/ha for Panchmahal District (44 kg DAP, 331 kg urea required for 1 hacter)

160 kg N₂ + 60 kg P₂O₅/ha for Dahod District (130 kg DAP, 297 kg urea required for 1 hacter)

Pathology

1. IDM module for the effective management of BLSB (2022)

The farmers of Gujarat cultivating maize are recommended to adopt following IDM module for the effective management of banded leaf and sheath blight disease.

- Soil application of *Trichoderma viride* (2 x10⁸ cfu/g), 10 kg/ton FYM/ha
- Seed treatment with *T. viride* (2 x10⁸ cfu/g) 10 g/kg seeds and thiram 75 WS, 3 g/kg seeds
- One foliar spray of azadirachtin 1500 ppm @ 40 ml/10 litre of water at 35 days after sowing
- One foliar spray of azoxystrobin 18.2% + difenoconazole 11.4% SC @ 10 ml/ 10 litre of water at 50 days after sowing.

2. **Management of Foliar diseases (2019):** To soak the seeds in salicylic acid @ 0.75 mM concentration (104 mg/lit) for 18 hours followed by shade drying for 48 hours and apply two sprays of salicylic acid @ 3 mM concentration (4.14 g/10 lit.), first at 20 days after germination and second at 15 days after first spray for effective and economical management of foliar diseases *viz.*, Maydis leaf blight, Turicum leaf blight and *Curvularia* leaf spot. Dissolves the salicylic acid in minimum quantity of methanol to ensure complete solubility followed by dilution with required water.

3. **Avoidable yield loss assessment due curvularia leaf spot (2019):** The avoidable yield losses due to curvularia leaf spot (CLS) was estimated to 17.1 per cent when protected plots were sprayed with azoxystrobin @ 0.5% at 35 and 45 days after sowing. (AICRP)
4. **Banded leaf and sheath blight (2018):** Among the leaf stripped plant of maize with hybrid variety GM-6 was found best in checking banded leaf and sheath blight (BLSB) disease severity (25%) resulted in highest grain (33.65 q/ha) with 28.68% yield increase over unstripped with susceptible inbred CML-307. (AICRP)
5. **Effective and economic management banded leaf and sheath blight disease of maize (2018) :** Treat the seed with *Trichoderma viride*(10⁸cfu/g) 1% WP, 10g/kg seeds, its soil application (10 kg/tonne FYM/ha) at the time of sowing and four foliar sprays *T. viride*(60 g/10 lit.) (ICBR 1: 2.78), first spray at 30 days after germination and remaining at 10 days interval after first spray for in *kharif* season.
6. **Banded leaf and sheath blight (2017) :** Among the treatments 100 ppm salicylic acid (SA) (SP and foliar spray after 24 hrs after inoculation) was found best in checking banded leaf and sheath blight (BLSB) disease severity (22.22%) resulted in highest grain yield (34.68 q/ha) with 41.84% yield increase over check. (AICRP)

Entomology

1. **Seed treatment for fall armyworm (2022) :** Maize growers of Gujarat are recommended to treat maize seeds with ready-mix insecticide cyantraniliprole 19.8% + thiamethoxam FS 19.8%, 6 ml/ kg using equal quantity of water found effective against fall armyworm up to 40 days. The treated seeds should be dried under shade before sowing.
2. **Management of fall armyworm (2021):** Farmers of Gujarat growing maize and interested in non-chemical management are recommended to apply soil or sand 5 g/plant in whorl at 30 and 45 days after sowing for reducing the damage of fall armyworm.
3. **Chemical control for fall armyworm (2020):**Farmers of middle Gujarat Agro-climatic zone III are advised to spray spinetoram 11.7 SC, 0.0117 % (10 ml/ 10 litre of water) or emamectin benzoate 5 SG, 0.0025 % (5 g/ 10 litre of water) or chlorantraniliprole 18.5 SC, 0.006 % (3 ml/ 10 litre of water) or thiodicarb 75 WP, 0.11 % (15 g/ litre of water) first at initiation of pest and second at 15 days interval for effective and economical control of fall armyworm, *Spodoptera frugiperda* infesting maize.
4. **Granular for fall armyworm (2020):** Whorl application of chlorantraniliprole 0.4% CG and fipronil 0.6% CG @ 20 kg/ha first at appearance of pest and second after 15 days of first application were found effective against fall armyworm in maize.

- 5. Bio pesticide for fall armyworm (2020):** Farmers of middle Gujarat Agro-climatic zone III are advised to spray *Nomuraea rileyi* 1% WP (40 g/10 litre water) or *Bacillus thuringiensis* WG (20 g/10 litre water) first at initiation of pest and second and third at 10 days interval for effective and economical control of fall armyworm, *Spodoptera frugiperda* infesting maize.
- 6. Poison bait for fall armyworm (2020):** Farmers of middle (Gujarat Agro-climatic zone III) are advised to apply poison baits having: Rice bran 25 kg + jaggery 5 kg + thiodicarb 75 WP 250 g/ha **or** Maize flour 25 kg + jaggery 5 kg + thiodicarb 75 WP 250 g/ha **or** Rice bran 25 kg + jaggery 5 kg + emamectin benzoate 5 SG 125 g/ha. First at initiation of pest and second at 15 days interval for effective and economical control of fall armyworm in maize.
- 7. Stem borer management (2017):** Farmers of the middle Gujarat growing *kharif* maize for grain purpose are advised to apply whorl application of carbofuran 3G@10kg/ha two times at 30 and 40 days after germination for effective and ecological management of stem borer