

Integrated Pest Management Strategies In Maize

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Manuscript No: KN-V3-07/007

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I. Cultural Practices:

- * Follow Deep summer ploughing to expose the pests and disease resting stages to sunlight.
- * Use cotton, groundnuts, and pulses in crop rotation.
- * Follow Inter-cropping with legume reduces borers.

(Maize -Soybean/Cowpea/Green gram)

- * Utilization of resistant cultivars, such as Ganga 11, DHM 103, DHM-105, Trishulata, Pusa, Makka-1, Gujarat, Makka-1, HIM-129, Paras Navjot, Kargil 9001.
- * Timely sowing helps in reducing Pest & Disease incidence.
- * Spacing: In Kharif, plant (75 cm x 18 cm); In Rabi, plant (60 cm x 18 cm).
- * Use of recommended dosage of micronutrients and fertilizers@ (NPK 120:60:40)
- * Appropriate water management and drainage techniques without any stress conditions.

II. Mechanical Practices:

- * Sanitation: Collection and destruction of infected plants.
- * Removal of dead hearts will help to reduce second generation infestation.
- * Pheromone traps: to attract male moths of *Spodoptera frugiperda* (fall army worm) trap density of 50-60 traps/ha is recommended for effective mass trapping.
- * Bird Scarer: for the control of birds.

i.) Visual Deterrents: Scarecrows, Reflective Tape, Balloons, Decoys.

ii.) Auditory Deterrents: Sound Cannons, Ultrasonic Devices, Distress Calls.

iii.) Other Methods: Chemical Repellents, Laser Systems, Bird Hazers, Netting.

- * Collect mechanically and Destroy white grub beetles during adult emergence period to reduce the pest population.

III. Biological Control Practices:

1. Conservation:

- Conserve biocontrol agents like Trichogramma, Apanteles, Eriborus, Carabids, Coccinellids, Chrysopa, spiders and wasps etc.

2. Augmentation:

- Seed treatment with Trichoderma viridae and Trichoderma harzianum @ 4 g/kg seed against soil borne diseases.
- Release of Trichogramma chilonis @ 1,00,000/ha/week synchronising with appearance of eggs (2 releases).
- Certain insect parasitic nematodes can be introduced into the soil to infect and kill white grubs.
- Entamo-pathogen Metarhiziumanisopliae for effective control of white grub during earthing up operation.

IV. Botanical pesticides:

- * Use of neem cake @ 200 kg/ha for control of nematodes.

V. Chemical Control Measures:

The judicious & need based application of chemical pesticides

- * Spray of Endosulfan 35 EC 0.1% to control borer and shoot fly at 10-15 DAG.
- * Granular application of Carbofuran 3g @ 15 kg/ha control borer and shoot fly on 10-15 DAG.
- * Application of Mancozeb @ (2-2.5) kg/ha in 1000 lit of water twice at 10-15 days interval control Charcol rot and head smut.
- * In shootfly problematic areas follow any one of the chemical Monocrotophos 36% SL at 625 ml/ha (or) Dimethoate 30% EC at 1155 ml/ha (or) Oxydemeton-methyl 25% EC at 1000 ml/ha (or) Phorate 10% CG at 30 kg/ha.

VI. Weed Management Practices:

Summer ploughing for destroying stubbles and perennial weeds.

- * Timely sowing of crop to minimise crop weed competition.
- * Proper spacing to facilitate interweeding operation.
- * Two manual weeding 2-3 & 6 weeks after sowing.
- * Pre-emergence application of Atrazine @ 0.5 kg/ha followed by one manual weeding.

VII. Nematodes Management Practices:

- * Follow Deep ploughing followed by fallowing in summer.
- * Rotation of crop with Non-host crops.

- * Interplanting with Marigold
- * Destruction of Crop stubbles and residues.
- * Soil treatment with carbofuran granules.

VIII. Rodent Management Practices:

- * Trimming and plastering of bunds to minimise rodent harbourage.
- * Use of indigenous traps.
- * Demolish the existing rodent burrows.
- * Apply Zinc phosphide @ 2.5% bait + Bromodiolone @ 0.005% at (1:40)

References:

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