Package of Practices: Integrated Disease and Pest Management (IDPM) in Paddy

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Module: Integrated Disease and Pest Management (IDPM) in Paddy

Goal: To promote sustainable rice cultivation by integrating cultural, biological, mechanical/physical, and need-based chemical methods for effective and eco-friendly pest and disease control.

A. Cultural Methods

These practices create growing conditions that are unfavorable for pests and diseases, reducing the need for interventions.

- **Field Sanitation:** Remove and destroy crop residues and stubbles after harvest through deep ploughing to eliminate pest and disease carry-over.
- **Optimum Spacing:** Maintain a plant-to-plant spacing of **25 cm x 25 cm** to ensure proper aeration and sunlight penetration, reducing microclimates favorable for disease.
- **Balanced Nutrition:** Apply the recommended dose of fertilizers: **80:60:40 NPK kg/ha**. Avoid excessive nitrogen, which can attract pests like Brown Plant Hopper and exacerbate diseases like Blast.
- **Resistant Varieties:** Cultivate resistant varieties suitable for the region, such as **Naveen** (resistant to blast, brown spot, and stem borer) for the *Rabi* season.
- **Water Management:** Practice intermittent drying of the field to manage pests like **Brown Plant Hopper (BPH)** and diseases like **Bacterial Leaf Blight (BLB)**. Do not keep the field continuously flooded.

B. Biological / Botanical Methods

These methods use living organisms or natural products to suppress pest populations.

- **Seed Treatment:** Treat seeds before sowing with a mixture of **UmComb (@ 10 ml per kg seed)** and **CAU Bioenhancer (@ 10 ml per kg seed)** to protect against soil-borne diseases and enhance early vigor.
- **Seedling Root Dip:** Dip the roots of seedlings for **30 minutes** before transplanting using the same solution of **UmComb (@ 10 ml per kg seed)** and **CAU Bioenhancer (@ 10 ml per kg seed)**.
- **Foliar Application of Biopesticide:** Apply **UmComb (@ 10 ml/L of water)** as a foliar spray at critical growth stages: **15, 30, 45, 60, and 75 Days After Transplanting (DAT)**.
- **Botanical Sprays:** Apply **Neem Oil (@ 4 ml/L of water)** or **Neem Leaf Extract (1 kg leaf in 10 L water)** at **20, 35, 50, 65, and 80 DAT** to repel insects and manage early infestations.

- **Release of Biocontrol Agents:** Release ***Trichogramma chilonis*** (egg parasitoids) cards/tubes three times to control stem borers:
    - **First Release:** 30 DAT
    - **Second Release:** 40 DAT
    - **Third Release:** 50 DAT
    - **Dosage:** @ 5 cc (containing 1 lakh parasitized eggs) per hectare per release.

C. Mechanical / Physical Methods

These methods involve manual removal or physical barriers to prevent pest establishment and spread.

- **Manual Removal:** Regularly collect and destroy visible egg masses, larvae (e.g., of stem borer, leaf folder), and diseased plant parts.
- **Seedling Tip Clipping:** Clip the tips of rice seedlings at the time of transplanting. This minimizes the carryover of **Rice Hispa, Caseworm, and Stem Borer** eggs from the nursery to the main field.
- **Coir Rope Dragging:** Drag a coir rope across the crop canopy to dislodge and kill larvae of **Caseworm, Cutworm, Swarming Caterpillar, and Leaffolder**.
- **Pheromone Traps for Monitoring & Mass Trapping:** Install pheromone traps for Yellow Stem Borer (YSB).
    - **For Mass Trapping:** Install **12 traps/ha** at **15 DAT**, spaced approximately 50 meters apart.
    - **For Monitoring:** Install **2-3 traps/ha**.
- **Bird Perches:** Install **T-shaped bird perches @ 50 per hectare** to provide resting spots for insectivorous birds that feed on pests.
- **Dirty Traps:** Set up dirty traps using cloth pouches containing dead crabs or rotten meat @ 4-5 traps per hectare to attract and trap scavenging pests.

D. Chemical Methods

These methods are a last resort and should be applied only when pest populations cross the Economic Threshold Level (ETL).

- **Need-based Application:** Apply synthetic pesticides or fungicides only when absolutely necessary, based on regular field scouting and ETL. Choose chemicals that are specific to the target pest and safer for natural enemies

Additional Important Practice

- **Soil Amendment:** Apply Agricultural Lime @ **500 kg/ha once in three years**, ideally **21-30 days before sowing or transplanting**, to correct soil acidity and improve nutrient availability, leading to healthier plants.

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