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Sapota Seed Borer (*Trymalitis margarias* Meyrick): An Emerging Problem in Sapota Orchards

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The sapota seed borer, *Trymalitis margarias* (family Tortricidae), is a specialized internal borer that primarily attacks immature sapota (chikoo) fruits, significantly reducing both fruit quality and marketability. Originally reported from Sri Lanka, it was first detected in India around 2000 in Dahanu, Maharashtra, and has since spread to major sapota-growing regions including Gujarat, Karnataka, and Andhra Pradesh. Its concealed feeding habit inside the fruit makes management particularly challenging, resulting in substantial economic losses to growers.

Life Cycle

The complete developmental period of the sapota seed borer under field conditions ranges from 38 to 46 days. The key stages are as follows:
Egg stage: ~11 days
Larval stage: ~12 days
Pupal stage: ~13 days
Adult stage: 4–5 days (female adults typically live slightly longer than males)
Females lay an average of 160 eggs, primarily on young fruits. Neonate larvae bore directly into the developing seed, which renders early chemical control difficult.

Seasonal Incidence and Environmental Influences

Infestation generally begins in September, peaks during December–January, and again rises in March–April. Seasonal incidence is influenced by environmental factors:
Positive correlation: Maximum temperature, relative humidity, and sunshine hours
Negative correlation: Rainfall
Infestation levels vary widely, ranging from 5% to 50%, depending on the season, locality, and orchard management practices.

Nature of Damage and Identification Marks

Larvae feed internally on the seed, creating characteristic tunnels filled with frass. Key symptoms include:
Small external entry holes on the fruit surface
Premature yellowing of fruits
Rotting of affected fruits
Internal seed tunneling and destruction
Severely infested fruits become unfit for consumption or sale, leading to major economic losses.

Integrated Pest Management (IPM)

Effective management of the sapota seed borer requires a holistic, integrated approach, combining cultural, biological, chemical, and behavioral strategies:

1. Varietal Resistance

Varieties such as PKM-1 and DSH-1 exhibit lower infestation levels, while cultivars like Kalipatti are highly susceptible.

2. Sanitation Practices

Regular collection and destruction of infested fruits prevent carry-over of larvae to the next generation.

3. Biological Control

Natural enemies, especially Bracon spp., parasitize the larvae and reduce pest populations.

4. Chemical Control

Sprays of profenophos 50 EC, novaluron 10 EC, or emamectin benzoate 5 SG have proven effective when applied judiciously, particularly at early infestation stages.

5. Behavioral Control

Light traps can be used to monitor and suppress adult moth populations.

6. Orchard Management

Maintaining proper tree spacing, avoiding overcrowding, and regular pruning help reduce favorable habitats for the pest.

Conclusion

The sapota seed borer is an emerging and serious threat to sapota cultivation due to its destructive feeding inside the fruit. Adoption of integrated pest management strategies including resistant varieties, orchard sanitation, biological control, judicious chemical use, and appropriate orchard management offers the most sustainable and effective solution for managing this pest and safeguarding fruit quality and marketability.