

Eco-Friendly Pest Management in Sericulture: The Role of Polyisobutene Glue

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Introduction

Sericulture ecosystems face significant challenges from a variety of insect and non-insect pests that damage both silkworms and the host plants. While pesticides are commonly used to manage these pests, their toxicity to silkworms presents a major drawback. This highlights the urgent need for eco-friendly pest management solutions in sericulture. In this regard, glue has proven to be an effective and sustainable material for controlling pest infestations in key areas of sericulture, including host plant cultivation, silkworm rearing, and cocoon protection. The glue, which is chemically a polyisobutene polymer, is commercially available under various brand names, such as Barrix Magic Glue. This method of pest control is labor-intensive, cost-effective, and significantly reduces the reliance on chemical pesticides. The glue offers numerous benefits, including being non-toxic, non-hazardous, waterproof, non-drying, and resistant to high temperatures (up to 60°C). Additionally, it has the ability to attract pests from long distances, enhancing its effectiveness. The application of glue in sericulture is therefore a promising alternative that supports more sustainable and safer pest management practices. The application of glue in sericulture is as follows:



Mulberry Protection through Glue-Smeared Sticky Traps

To protect mulberry gardens from various insect pests, the use of glue-smeared yellow and blue polythene sheets as sticky traps is a highly effective, eco-friendly pest management method. These traps are designed to capture a range of common pests, including: whiteflies,

aphids, jassids, thrips, leaf hoppers, mealybugs, moths of leaf rollers, hairy caterpillars, and cutworms.

Key Guidelines for Using Sticky Traps:

- 1. Trap Placement:** To achieve optimal results, around 20 sticky traps should be placed per acre of mulberry garden. The traps should be hung on poles at a height of about 5 feet. This ensures that they are positioned at the ideal level to capture flying pests while avoiding damage to the plants themselves.
- 2. Trap Maintenance:** Once the sticky traps become covered with pests, they should be replaced with fresh ones to maintain effective pest control. This helps to continuously monitor and manage the pest population in the garden.
- 3. Eco-Friendly Benefits:** The use of glue-smear polythene sheets significantly reduces the need for chemical pesticides, which can be harmful to the environment and beneficial insects. By using this eco-friendly method, farmers can help preserve the health of their mulberry plants and the surrounding ecosystem.



Silkworm and Cocoon Protection through Glue Application

The glue-based pest management techniques are used effectively to protect silkworms and cocoons from various pests. These methods are eco-friendly and help prevent damage from crawling predators, such as ants, rats, lizards, and spiders, as well as specific pests like the uzi fly. Here are some common glue-based pest control applications in sericulture:

- 1. Silkworm Rearing Stands:** A 5 cm smear of glue applied in a circle around the base of the silkworm rearing stand acts as a barrier to crawling predators. This helps prevent ants, lizards, and rats from entering the rearing area, providing a safe environment for the silkworms.

2. **Chandrike (Mountage):** During the spinning process, a 3 cm smear of glue around the base of the Chandrike, or spinning stand, effectively traps ants and rats, protecting the silkworms during this vulnerable phase.



3. **Muga and Tasar Silkworms:** Yellow polythene sheets smeared with glue are placed in the rearing area to capture the uzi fly, a major pest for these species of silkworms. This reduces the risk of uzi fly infestation, which can lead to significant losses.
4. **Host Plants for Muga and Tasar Silkworms:** A 6 cm smear of glue applied in a circle around the base of host plants helps to prevent crawling pests like ants, spiders, bugs, rats, and chameleons from harming the silkworms. This technique creates an effective barrier around the plants, safeguarding the worms as they feed.



- 5. Cocoon-Storing Stands:** A 5 cm smear of glue applied around the base of cocoon storage stands in grain age hall helps protect stored cocoons from pests such as ants, dermestid beetles, and rats. This ensures that the harvested cocoons remain safe from contamination or damage during storage.

