

Forewarning

HOW TO MANAGE WHITE MUSCARDINE DISEASE DURING RAINY AND WINTER SEASONS?

Dr. M. Balavenkatasubbaiah, A. R. Narasimha Nayaka and Dr. B. B. Bindroo
Central Sericultural Research and Training Institute, Mysore – 570 008.

Among the silkworm diseases, white muscardine poses a major threat to silk cocoon production during rainy and winter seasons. The rainy and winter seasons are congenial for the spread of white muscardine disease. This year, rainfall is good and well spread with the high environmental humidity, which may cause the outbreak of the disease. Hence, it is important to resort to appropriate management practices to prevent the outbreak of the disease at the field level.

Causative agent: White muscardine in silkworm is caused by a fungus known as *Beauveria bassiana*. This pathogen also infects many lepidopteron insects including the mulberry leaf roller (Fig. 1) and Bihar hairy caterpillars.

Predisposing factors: Low temperature with high humidity in silkworm rearing environment which generally prevail during rainy and winter seasons, may work as a pre-requisite for outbreak of the disease.

Source of pathogen, infection and disease spread: White mummified silkworms / mummified alternate hosts are the major source of infection. On the surface of mummified larva, large number of conidia grows, which are spherical and light in weight. Later, the conidia detach from the larva, remain drifting in the air and spread the infection in the whole village. One diseased silkworm larva of the final instar produces millions of conidia and each one of them is capable of causing infection to new host through the integument. The infected larva dies within 3 -5 days under low temperature and high humidity conditions.

Symptoms:

- The silkworm larva affected with the disease becomes sluggish, ceases to move and finally dies.
- After death, the corpse gradually hardens and fungus protrudes from the body and covered with white mycelia and finally conidia develop on the body.
- The larva mummifies and looks like a chalky white (Fig. 2).
- The pupa and moth are also infected by white muscardine and pupal body gets covered with conidia.

Management of White muscardine disease:

- Conduct disinfection of rearing house, its surroundings and rearing appliances using recommended disinfectant with due care for its concentration, quantity and schedule.

- Control alternate hosts of the pathogen in and around mulberry garden and silkworm rearing environment.
- Manage the humidity in the rearing house by providing good cross-ventilation.
- Dust dry slaked lime powder when silkworms settle for moult.
- Feed silkworms with adequate quantity of mulberry leaves to avoid the accumulation of left over leaves in the rearing bed. Make sure that the silkworm bed is dry and thin.
- If the silkworm rearing house temperature falls below 22°C, raise it using room heater / charcoal stove.
- Collect muscardine affected larvae from the rearing bed before mummification, dust anti-muscardine bed disinfectant and finally burn them. Do not throw them on the street or feed to animals / birds.
- Dust Vijetha and Vijetha Supplement **or** Ankush bed disinfectant as per recommended schedule (Table 1) **or** dust any recommended anti-muscardine bed disinfectant as per the schedule.

Table 1: Bed disinfectant and Schedule of dusting

Schedule	Bed disinfectant
After each moult and on 4 th day of final instar	Vijetha
On 3 rd day of 4 th instar, 2 nd and 6 th day of final instar	Vijetha Supplement
or	
After each moult and on 3 rd day of 4 th instar, 3 rd and 5 th day of final instar.	Ankush

These management practices will prevent the incidence of disease and help in ensuring successful cocoon crop harvest in rainy and winter seasons.



Fig. 1 : Leaf roller larvae infected with white muscardine



Fig. 2: Silkworm larvae infected with white muscardine