METHOD OF USE OF BED DISINFECTANTS FOR ENHANCING COCOON PRODUCTIVITY

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ABSTRACT
On account domestication of silkworm Bombyx mori L. has acquired delicacy towards biotic and abiotic stress. Though, it protects itself due to its own protective mechanism, even then during course of rearing it is exposed and comes into contact of contagion atmosphere of different kind of pathogens through various means and measures. As such it calls for the need of using the bed disinfectants in silk worm rearing to keep the disease menace pathogens under the control. Present paper deals with information about usages of Various Disinfectants for better cocoon harvest and enhancing cocoon productivity and as well as to improve economic return for viability of mulberry sericulture.

Keywords: Silk Worm, Bombyxi Mori, Bed Disinfectants Biotic & Aboiotic

INTRODUCTION
“Queen of Textiles”, unchallenged so far by other fibbers, is a nature’s gift for human kind. India is one of the leading silk producing countries in world. To increase the silk production, there is a need to develop highly productive mulberry varieties and silkworm races which are tolerant to adverse climatic conditions and diseases (Jolly et al., 1987). Jolly et al., (1987) silkworms have been domesticated over centuries become very delicate and susceptible to diseases due to the infection by a number of pathogens. The infection by the pathogens and crop losses due to diseases is prevalent in all leading silk producing countries. Silkworms are susceptible to a number of diseases caused by different infectious organisms. The cocoon loss due to weak Silkworm Bombyx Mori L (Doreswamy, 2004). Due to its body constitution and physiology has acquired delicacy towards biotic and abiotic stress (Balavenkatasubbaiah et al., 1989). During rearing due to its Own protective mechanism , it protect itself, but when it comes into contact of contagion atmosphere and different kind of Pathogens through various means and leads to possibility of various , infection in turn crop performance is badly affected leading to crop loss by which stakeholders fail to get expected returns (Balavenkatasubbaiah et al., 1989). Following possible causative factors are responsible source of contamination and epidemic outbreak of silkworm diseases.

1. Excessive humidity cause weak larvae, susceptible for disease causing organisms. Non availability of required humidity during rearing hours of silkworm.
2. Fluctuations in temperature and RH during course of rearing Starvation and feeding of worms not in conformity with the stage of worms results in promotion of susceptibility of worms (Irfanillahi and Khan, 2004).
3. Temperature during the silkworm rearing is much high or low humidity .It is sufficient for influencing change in biochemical reactions as well as enhances rate of multiplication of pathogens.
4. Thickness of rearing bed and dense Population of silkworm promote favourable atmosphere for out bread of diseases.
5. The quality of mulberry leaves decided the health, growth and survival of rearing worms. A high nutritive value of leaf depends on nitrogen content in Mulberry leaves and amino acids in particulars proteins are the most important organic nitrogenous compound in the food stuff of silk worm which are involved practically in all the structure and function of the cells, is derived from leaf.

It is well know that more than 80% sericulture beneficiaries do not make use of Slaked lime and bed disinfectant properly and in rearing environment through different routes such as mulberry leaf water and
the rarer are routes of entry and spread of pathogens in rearing environment and becomes mode of secondary contamination.

In view of enforcing constraint pertaining to effective disinfection of farmers rearing house and appliances, as rearing of silkworm progresses pathogen load in Silk worm bed simultaneously increase and attain optimum level as and when silk worm comes out of IVth molting and expresses disease symptoms therein.

To have control over multiplication and accumulation of pathogen in rearing bed and use of slaked lime (Irfanllahi and Khan, 2004) and bed disinfectant as recommended is essential and most important to disinfect the silk worm body as rearing seat for better harvest of silk worm crop (Swathi, 2004).

MATERIALS AND METHODS

Use of Bed Disinfectant in Sericulture

In Sericulture history many of bed disinfectants gained importance from time to time (Balavenkatasubbaiah, 1983). These methods are following:

1. Formalin Chaff
2. Labex
3. Resham keet oushad (RKO)
4. Sanjeevini and suraksha
5. Resham jyothi
6. vijetha

1. **Formalin chaff**: - It was being used against fungal, viral, bacterial pathogens influencing silkworm health. Its use scheduled and recommended dilution is as follows.
   a. Ist & IInd age worms - 0.4%
   b. IIIrd age worms - 0.5%
   c. IVth age Worms - 0.6%
   d. Vth age Worms -0.8%

One part of formalin solution + 10 part of chaff (Paddy Husk) (Shiva, 2003)

1. **Labex**: - It has been recommended against Silk worm disease in general for grasserie and muncardine labex mixture of 97 part of slaked lime and 3 part of bleaching powder. Labex is cheaper than other bed disinfectants.

2. **Resham keet oushad (RKO)** Effective against Grasserie and Muscardine and gained population as RKO (Subbarao et al., 1992).

RKO ingredients are
   i. Staked lime powder
   ii. Benzoic Acid
   iii. Captan / Diathan
   iv. Formaldehyde

It is very much essential to mix homogenously all components / ingredients of RKO for its effectiveness (Subbarrao et al., 1992).

3. **Sanjeevini**: - It is an effective bed & seat disinfectant for grasserie and Flacherie (Subbarrao et al., 1992) and its prior dusting on the tray surface before brushing of silk worm in recommended does is capable to control surface contamination by the pathogens and disinfectants has shelf Life of six month.

4. **Suraksha**: - Effective to control white Muscardine and is effective for use for six months
5. Vijetha:- It has claim for its efficacy against all the four diseases:- Pebrine, Grasserie, Flacherie, Muscardine (Subbarrao et al., 1992) It is for one year period.

Vijetha supplement effective against white Muscardine and does not have any smell and do not causes discomfort.

RESULTS AND DISCUSSION

Bed Disinfectants – Precautions & Direction for Use

Use recommended bed disinfectant in conformity to the schedule may boost up productivity to the tune of 24 to 40% and thus giving additional income generation. Label, RKO, Sanjeevani, Suraksha Resham Jyoti and Vijetha methods have different recommended methods of bed disinfection and different reactions on different stages of silkworm larvae. In transfer before brushing to empty tray Label, RKO, Resham Jyoti and Vijetha are no need to use, Whereas as Sanjeevani and Suraksha have effect of 20 (Samson et al., 1992). In newly hatched stage all methods are not applicable except Resham Jyoti.

After 1st molting Label play important role Whereas after 2nd, 3rd and 4th molting Vijetha show maximum use. On 4th day of 5th instar Resham Jyoti has maximum consumed. So in total use of Vijetha is more than others (Samson et al., 1987).

### Stages Contemplated For Application Of Disinfectant

<table>
<thead>
<tr>
<th>Stages</th>
<th>Label</th>
<th>Resham</th>
<th>Sanjeevini</th>
<th>Suraksha</th>
<th>Resham</th>
<th>Vijetha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Keet</td>
<td>Aushad</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before brushing to empty tray</td>
<td>NA</td>
<td>NA</td>
<td>20</td>
<td>20</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Newly hatched larvae</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>3</td>
<td>NA</td>
</tr>
<tr>
<td>After 1st molting</td>
<td>120</td>
<td>80</td>
<td>50</td>
<td>50</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>After 2nd molting</td>
<td>180</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>105</td>
<td>150</td>
</tr>
<tr>
<td>After 3rd molting</td>
<td>300</td>
<td>560</td>
<td>350</td>
<td>350</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>After 4th molting</td>
<td>800</td>
<td>960</td>
<td>750</td>
<td>750</td>
<td>850</td>
<td>1200</td>
</tr>
<tr>
<td>On 4th day of 5th instar</td>
<td>2100</td>
<td>1550</td>
<td>1500</td>
<td>1500</td>
<td>2150</td>
<td>2000</td>
</tr>
<tr>
<td>Total</td>
<td>3500</td>
<td>3270</td>
<td>2790</td>
<td>2790</td>
<td>3443</td>
<td>4000</td>
</tr>
<tr>
<td>Or in kg</td>
<td>3.5</td>
<td>3.270</td>
<td>2.790</td>
<td>2.790</td>
<td>3.443</td>
<td>4.0</td>
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</table>
as to have check on outbreak of silk worm diseases and technology has to be fully disseminated amongst the farmers as well as the extension personnel (Dandin et al., 2003).

REFERENCES


