Disinfectants: Formalin, Bleaching Powder, RKO

Disinfection is the process of eliminating the infective germs causing disease from an environment. It can be either through exposing the appliances or environment to heat or strong light or strong gases or chemicals. Chemicals like formalin (now banned), bleaching powder and chlorine dioxide are used for disinfecting the rearing house as well as the appliances. Rarely, steam is used as a source of heat and burning sulphur to produce sulphur dioxide gas for disinfection. Usually, the rearing trays and other appliances are exposed to sunlight to kill the germs. Bleaching powder in water and chlorine dioxide with around 2% chlorine in the solution is used as disinfectants. Slaked lime is used on the floor and around the rearing house to prevent entry of live germs carried by feet of workers.

Formalin

It is commercially available as 36% formaldehyde in solution form. A mixture of 2 % formalin + 0.05 % detergent is an effective solution that can be used for disinfection purpose as spray. Formalin is effective only in rearing houses, which can be made airtight and it is faster and more pronounced at temperature above 25 ^{0} C and humidity more than 70 %.

Bleaching powder

It is white amorphous powder, with a pungent smell of chlorine. For effective disinfection, a high-grade bleaching powder with an active chlorine content of 30 % must be used. It should be stored in sealed bags, away from moisture, failing which it will be rendered ineffective. The action of bleaching powder is optimal under wet and contact conditions and therefore the surfaces of equipment and walls should be drenched with this solution. A 2% bleaching powder in 0.3 % slaked lime solution is used for disinfection as spray.

Slaked lime

A very useful bed disinfectant in sericulture. especially against viruses. It absorbs moisture and can be used to regulate bed humidity and maintain hygiene. Application of lime dust in combination with bleaching powder in and around rearing houses and premises improves hygiene in the environment.

Chlorine dioxide

Chlorine dioxide marketed as sanitech is an ideal disinfectant available at 20,000 ppm concentration is a strong oxidizing agent, effective at broader pH range and at 2.5 % concentration in combination with 0.5 % slaked lime is effective against all silkworm pathogens. It is stable and may be activated at the time of its use. it possesses tolerable odour and is least corrosive at the suggested concentration.

Material required for disinfection

Disinfectants, detergent, sprayer – Rocking or Power sprayer, buckets, measuring jar, weighing scales, gas masks, metal pans, room heaters, slaked lime powder, hand gloves and muslin cloth.

RKO:

Resham Keet Oushadh (RKO is a bed disinfectant which can be applied on the silkworm rearing bed to inactivate pathogenic microbes responsible for muscardine, Grasserie and nuclear polyhedrosis diseases in silkworm. RKO is economical and its usage increases the cocoon yield on an average of 7.00 kg per 100 diseases free layings (dfls). It is easy to use and has no adverse effect on silkworm health, human beings and domestic animals. The quantity of RKO required for treating 100 dfl's is 3.25 kg. RKO is produced from locally available chemicals and the shelf life of RKO is six months from the date of manufacture.

In order to maintain hygiene in silkworm rearing house, following steps should be followed:

- Avoid borrowing the rearing appliances.
- Avoid overlapping of rearing.
- Restrict the entry of persons into the rearing house.
- Any person entering the rearing house should disinfect the foot and hand before entry.
- Clean the rearing bed by using bed cleaning nets. After the bed cleaning, disinfect the cleaning net.
- Disinfect the hands after picking the diseased worms.
- Rear silkworms always on rearing seat papers (Paraffin/old newspaper), change as and when soiled.
- Do not store mulberry leaves in the rearing house. Store in a separate room.
- Use separate baskets for harvesting of mulberry leaves and collect litter and left-over leaves.
- Litter/compost pit should be away from the rearing house.
- Dust the disinfectant as per the recommendation.
- Pick diseased and dead larvae from the mountages and dispose-off properly by throwing them into burning coal or a trough containing formalin or lime followed by burying them in soil.
- At the passage to entrance of rearing house, sprinkle 5% bleaching powder in slaked lime.
- Collect bed refuse in polythene bags/vinyl sheet and shift into the manure pit.
- Feed sufficient quantity of good quality leaves. Provide recommended spacing, good ventilation for healthy growth of late instar larvae.