

Environmental control for *Bombyx mori* larvae during the first to third instars using a saw dust fired hot water space heating system

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Abstract:

Quality silk is known to be produced by the commercial silkworm, *Bombyx mori* larvae. The technique of raising this silkworm can be exploited as the eco-climatic conditions available in Kenya offer a great scope of mulberry cultivation. However, adoption of sericultural technologies developed elsewhere pose major difficulties. The study investigates the development of an appropriate technique for young silkworm rearing. An attempt is made to utilise one of the cheapest industrial and timber industries wastes, saw dust. A system is developed for space heating purposes of the silkworm environment. For the *Bombyx mori* larvae, maintenance of temperature and humidity of the silkworm environment is a prime requirement for the early instars. In Kenyan sericulture, these environmental conditions are normally obtained by electrical thermal conditioning, floor wetting and paraffin paper covering of the rearing bed. The system performance is studied with respect to operating conditions found in the preliminary design; the system is used to rear silkworms during the early instars. The system is evaluated by monitoring its behaviour and that of the silkworms reared in it. The silkworms are monitored with respect to yield and compared with normal practice. Post-young silkworm rearing is done to determine other cocoon quality parameters and hence compare with other rearing standards.