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EVALUATION OF INSECTICIDES AGAINST
BARK-FEEDING CATERPILLAR
AETHERASTIS CIRCULATA (MEYR.)
INFESTING RUBBER

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ABSTRACT

The comparative efficacy of five insecticidal dusts namely, BHC, carbaryl, malathion, methyl parathion and phosalone was evaluated against the bark-feeding caterpillar, *Aetherastis circulata* Meyr. infesting rubber (*Hevea brasiliensis* Muell. Arg.). All the insecticidal treatments were significantly superior to control after seven and 14 days of dusting. Methyl parathion, carbaryl and phosalone proved to be most effective in relative performance.

INTRODUCTION

Of all the insect pests reported on rubber crops in India, the bark-feeding caterpillar *Aetherastis circulata* is the most serious endemic pest (Nehru et al., 1983 a, b). Around 90 per cent of the country's rubber planted area is in Kerala. In the Southern districts of Kerala and Kanyakumari district of Tamil Nadu, the attack of bark-feeding caterpillars is recorded every year and takes on serious proportions when there is a long dry spell. The bark-feeding caterpillars build galleries on the trunk and branches with chewed bark, faeces and silk, and live within. They feed on the bark and latex oozes out from certain points where they feed very deep. These points provide easy entrance

to pathogens causing diseases of the rubber bark like canker and bark rot (Jayarathnam, 1980). Severe incidence of this pest was continuously recorded on rubber since 1980, which led to the initiation of the present study on the chemical control of the bark-feeding caterpillar. Nehru et al. (1983b) published the first report of a field trial against the bark-feeding caterpillar infesting rubber in India.

MATERIALS AND METHODS

A replicated trial was conducted during 1984 in a randomized block design at the Shaliacary Estate, Punalur to evaluate the comparative effectiveness of five insecticides as dusts namely, BHC 10 per cent, carbaryl 5 per cent, malathion 5 per cent, methyl parathion 2 per cent and phosalone 4 per cent at the rate of 15 kg/ha against the bark-feeding caterpillar infesting rubber. The chemicals along with a control were replicated three times. The plot size was 1250 m², and the spacing between two adjacent plots was 30 m. There were 18 plots, each with 50 trees. For evaluating the efficacy of treatments, the pest population counts were recorded on 20 randomly selected plants from each plot, a day before and seven and 14 days after the treatment. The data were statistically analysed using angular transformation.

RESULTS AND DISCUSSION

The data recorded in different treatments are presented in Table 1. All the insecticidal treatments significantly reduced the caterpillar population compared to the control. Methyl parathion and carbaryl dusts were on par and were highly effective in reducing the caterpillar population namely 99.87 per cent and 98.93 per cent respectively as against 7.6 per cent reduction in control and these two treatments were significantly superior to all other treatments in seven days. At this interval, malathion was at par with BHC but both were significantly inferior to phosalone. Data recorded 14 days after insecticidal application indicated that methyl parathion, carbaryl and phosalone were at par but, significantly superior to the untreated check in controlling the caterpillar population and proved to be significantly

Table 1. Efficacy of different insecticidal dusts against bark-feeding caterpillars

Treatments	Dosage kg/ha	Mean percentage/population reduction after	
		7 days	14 days
BHC 10% dust	15 kg/ha	76.23 (61.27)*	78.27 (62.80)*
Malathion 5% dust	"	81.50 (64.60)	88.57 (71.03)
Methyl parathion 2% dust	"	99.87 (87.93)	100.00 (88.70)
Carbaryl 5% dust	"	98.93 (84.73)	100.00 (88.70)
Phosalone 4% dust	"	94.20 (76.50)	99.40 (85.97)
Control	—	7.60 (16.00)	3.80 (11.20)
C.D at 5%		(7.33)	(9.09)

* Figures in parentheses are angular transformed values.

superior to BHC and malathion. Malathion was significantly better than BHC in minimising the population of caterpillars at 14 days after treatment. Thus, overall methyl parathion, carbaryl and phosalone significantly proved better in checking *A. circulata* Meyr. and one of these can be recommended for the control of the bark-feeding caterpillar infesting rubber. Incidence of the bark-feeding caterpillar on rubber and its control measures were reported by earlier workers (Radhakrishna Pillai, 1968; Jayaraman, 1980; Nehru, 1983a). Nehru et al. (1983b) found methyl parathion to be most effective recording 98.52 per cent reduction in larval population and the corresponding reduction for carbaryl, BHC and malathion was 95.96 per cent, 77.14 per cent and 74.31 per cent respectively. These findings thus support the present investigation especially on the comparative efficacy of insecticides such as methyl parathion and carbaryl against this pest. It is observed that even after 30 days from the date of dusting, there was no fresh infestation of the bark-feeding caterpillar in the treated plots.

Considering the overall efficacy of different insecticides tested, it is concluded that methyl parathion, carbaryl and phosalone are effective against bark-feeding caterpillars. Since rubber is a tree crop, carbaryl is a safer insecticide for this purpose.

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DISCUSSION

- Q : Have you studied the biology and population dynamics of this insect?
- Ans: Studies on the biology has been carried out and the study of population dynamics is in progress.
- Q : Have you come across any naturally occurring parasites and predators, and if so, do dusting of these insecticides have any effect on these?
- Ans: Yes. Some chalcids have been identified as prepupal parasitoids of *A. circulata*. No predator has been observed so far. Dusting of safer insecticides may not affect them.
- Q : To what age of rubber tree is this pests a problem?
- Ans: There is no age specificity as far as infestation is concerned.

Q : Why the dusts only are tested. Could it not be economical to use insecticidal sprays rather than dusts?

Ans: Dusts are found to be more economical than sprays. One round of dusting is sufficient.