

## Chemical Control of Shoot Borer *Dichocrocis punctiferalis* Guen. on Ginger *Zingiber officinale* Rosc. \*

Among the various insect pests recorded on ginger *Zingiber officinale* Rosc. in India, the shoot borer *Dichocrocis punctiferalis* Guen. (Lepidoptera: Pyralidae) is the most important pest. The larvae bore into the pseudostems and feed on the inner tissues resulting in yellowing and drying of the infested shoots. The pest causes a loss of 38 g green ginger per clump when the pseudostem damage per clump exceeds 50% (Abdulla Koya et al., 1986). Only very few studies have been conducted for the control of the pest on ginger. Earlier recommendations for its control included spraying of endrin 0.05% (Kannan and Nair, 1965), dimethoate 0.05% or quinalphos 0.05% (Anonymous, 1978), dimethoate 0.05% or phosphamidon 0.05% (Anonymous, 1979), 0.1% quinalphos or 0.1% dimethoate (Jacob, 1986). Field control trials were laid out with six insecticides during 1979-81 at the farm of the National Research Centre for Spices, at Peruvannamuzhi and the results of the same are reported here.

The insecticides included in the trial were monocrotophos 0.05%, methyl demeton 0.05%, carbaryl + molasses 0.05%, quinalphos 0.05%, malathion 0.1% and endosulfan 0.05%. Carbaryl + molasses was included as one of the treatments to see whether the molasses has got some attractant effect on the moth. The trial was conducted using a completely randomised block design with a

plot size of 3 × 1 m bed per treatment which was replicated four times. The ginger cultivar 'Maran' was raised in beds with 40 plants per bed. An untreated control was also maintained. The spraying of various insecticides was carried out at monthly intervals during July-October (4 sprayings) using a rocker sprayer to run off level. Observations on the percentage of pseudostem damaged by the pest were recorded prior to treatment and also at the end of October by counting the pseudostem showing 'dead heart'/the presence of bore hole made by the larvae and the data analysed.

The relative efficacy of various insecticides tested are given in Table I. The percentage of pest incidence was significantly less in plots treated with malathion when compared to that in untreated control. The efficacy of malathion was found to be consistent during the two years under study. The cost of application of malathion was Rs. 460/- per ha whereas the same for monocrotophos was Rs. 550/- per ha. Hence spraying of malathion at monthly intervals from July to October is recommended for the effective control of *D. punctiferalis* on ginger. A sequential sampling strategy evolved for assessing the level of pest infestation in a field as a guidance for undertaking control measures has been reported elsewhere (Abdulla Koya et al., 1986).

\* Contribution No. 109 of National Research Centre for Spices, Calicut 673 012, Kerala

Table I. *Efficacy of various insecticides for the control of Dichocrocis punctiferalis on ginger*

| Treatments               | % infestation |             |             |
|--------------------------|---------------|-------------|-------------|
|                          | 1979          | 1981        | Pooled data |
| Monocrotophos 0.05%      | 3.6 (10.7)    | 3.6 (10.7)  | 3.6 (10.7)  |
| Carbaryl+ Molasses 0.05% | 5.4 (13.1)    | 5.4 (13.1)  | 5.4 (13.1)  |
| Methyl demeton 0.05%     | 6.6 (13.9)    | 6.3 (13.5)  | 6.4 (13.7)  |
| Quinalphos 0.05%         | 4.5 (11.8)    | 4.4 (11.6)  | 4.4 (11.7)  |
| Malathion 0.1%           | 2.8 ( 9.4)    | 3.3 (10.4)  | 3.0 ( 9.9)  |
| Endosulfan 0.05%         | 4.3 (11.8)    | 4.4 (12.1)  | 4.3 (11.9)  |
| Control                  | 14.5 (22.0)   | 15.8 (23.2) | 15.1 (22.6) |
| CD 5%                    | (11.3)        | ( 5.4)      | ( 3.4)      |

Figures in parantheses are transformed values

#### REFERENCES

- ABDULLA KOYA, K. M., BALAKRISHNAN, R., DEVASAHAYAM, S. and BANERJEE, S. K. 1986. A sequential sampling strategy for the control of shoot borer *Dichocrocis punctiferalis* Guen. in ginger (*Zingiber officinale* Rosc.) in India. *Tropical Pest Management*. 32 (4): 343-346.
- ANONYMOUS. 1979. *Package of practices for ginger*. Pamphlet No. 9, Central Plantation Crops Research Institute, Kasaragod, Kerala. pp. 7.
- JACOB, S. A. 1986. Important pests of ginger and turmeric and their control. *Indian Cocoa Arecanut & Spices Journal*. 9 (3) : 61-62.
- ANONYMOUS. 1978. *Package of practices recommendations*, Directorate of Extension Education, Kerala Agricultural University. pp.144.
- KANNAN, K. and NAIR VASUDEVAN, K. P. 1965. *Zingiber officinale* (ginger) in Kerala. *Madras Agric. J.* 52 (4) : 168-176.

National Research Centre for Spices  
Calicut 673 012, Kerala, India

K. M. ABDULLA KOYA  
T. PREMKUMAR  
S. S. S. GAUTAM<sup>1</sup>

Present address : <sup>1</sup> Food Corporation of India, Shillong