

Cardamom Thrips—and Its Control

By

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Cardamom—*Elettaria cardamom*—is a spice crop, the produce of which is of late commanding very attractive prices in the market. The cultivation of this crop is, therefore being extended wherever possible. One of the main factors that has discouraged the large-scale extension of this crop is its susceptibility to a few insect pests of which the cardamom thrips—*Taeniothrips cardamomi* is the most important. The damage caused by these insects is so severe that the entire crop is ruined during certain years. The author has known a few cases where some of the plantations were abandoned, as the cultivation was not worth the trouble, in such badly infested localities; nor were the planters uniformly enthusiastic about starting new areas due to their utter helplessness against these tiny insects. As the situation was very alarming a scheme of research for the control of this pest was instituted during October 1944 under the aegis of the Indian Council of Agricultural Research. The scheme has been running now for the past four years and some very useful information has been gathered regarding the control of these thrips. It is therefore thought that the publication of this short note on the results obtained may be helpful to the cardamom planters.

The cultivation of cardamom is at present restricted to the sub-montane regions of the Western Ghats on elevations ranging from 2,500–4,000 feet with an average annual rainfall of 100–200 inches. The crop thrives best in areas where the rainfall is evenly distributed throughout the year. Apart from the proper elevation and rainfall, this crop also requires adequate natural shade. No special arrangements are, however, made to grow these shade trees as in the case of coffee but the crop itself is planted in evergreen sholas well protected from high winds, after thinning out the superfluous trees. The crop is propagated either by bulbs themselves or by planting two to three years-old seedlings raised in carefully prepared nurseries. The planting is done during May–June just before the monsoon rains. The crop needs very little after-care, except for the filling up of gaps wherever necessary and an occasional weeding. The clumps grow and begin to flower from the third year onwards. The flower stalks spring out from the ground level and either shoot up to a height of two to three feet, a peculiar feature of the variety. These bushes flower practically

throughout the year. But the peak occurs from May to August and corresponding to the flowering the main harvest extends from September to December. There may be eight pickings in a year. Normal bearing commences from the fifth year onwards and continues up to the fifteenth year, the average yield being about 120 lb. per acre

The pest—*Taeniothrips cardamomi*—is a small dark-brown insect, provided with lacerating and sucking mouth parts. The eggs are thrust singly, partly embedded in the tender tissues of the leaf-sheaths, spindles, flower bracts, etc. The nymphs hatch out in about a week and these are wingless but resemble the adults in general features and in their mode of feeding. They moult thrice in the course of 15–21 days and then pupate. The adults emerge in 10–15 days after pupation. The whole life-cycle is completed in 32–46 days.

The insects hide under the green leaf-sheaths, spindles, floral bracts, flowers and on tender fruits and feed on the plant sap. They breed in enormous numbers from May to August, which synchronises with the main flush when the oviposition and feeding is more concentrated on the racemes, which then literally teem with insect population. On account of the heavy drain of the cell sap in the infested racemes, the flowers and tender fruits wither away and drop off. The few fruits that survive the damage develop characteristic scabs or pustules on the surface due to the irritation caused by the scraping of the insects. The degree of such scabbing varies with the intensity of the damage. The infested pods are undersized with only a few chaffy seeds without the fine aroma and taste and as such do not fetch a good price in the market. The damage therefore, consists in the appreciable reduction of the produce both in quantity and quality. As an outstanding example of the potentialities of this pest, the yield in one particular estate was reduced to 16 lb. per acre, while during normal years it was 120 lb.

Control Measures: The line of work in this direction lay in finding a cheap and efficient insecticide which has necessarily to be applied at frequent intervals to protect the flushes that come out almost throughout the year. A number of insecticides such as Paris green, sulphur, tobacco, Acorus, Tartar emetic, Lobelia, Nicotine sulphate, D.D.T., Dedetane and Gammexane were tried either as dusts or sprays, the treatments being restricted to the floral parts only. During the initial trials Nicotine sulphate spray at 0.05% gave some encouraging results. But the recent advent of the

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insecticide Benzene hexachloride (Gammexane) has practically revolutionised the method of control. This dust (Gammexane D. 025) when applied at the rate of 4 lb. per acre per application was found to have a remarkable effect against the pest. It was however necessary to repeat the treatments at monthly intervals or whenever there was an indication of either re-infestation or increase of pest population. A perusal of the statement showing the details of the insecticides tried at different intervals, would indicate that this pest can be very effectively checked and the yields increased by applying Gammexane at monthly intervals at 4 lb. per acre costing only Rs. 2—15—0 per dusting. The calculated net profit per acre from the plots treated with Gammexane is computed to be Rs. 243/0. In actual practice, however, the dustings need not be taken up during the rainy months and it is therefore suggested that eight applications judiciously regulated according to the incidence of the pest would effectively solve the problem of thrip damage in the cardamoms.

Statement Showing the Economics of the Different Treatments.

No.	Treatments	Interval	Yield per acre in dry weight	Percentage of scab free pods	Increase over controls	Gross value of Produce	Cost of treatment	Net value	Increase over control
1	2	3	4	5	6	7	8	9	10
						Rs. A.	Rs. A.	Rs. A.	Rs. A.
1	Gammexane @ 4 lbs. per acre.	Monthly	123.3 lb.	67	92.6 lb.	411 13	33 12	378 1	310 7
2	Do.	Once in two months	52.8 lb.	42	22.1 lb.	154 2	16 14	137 4	69 10
3	Nicotine sulphate 0.5% ; 20 gallons per acre.	Monthly	110.8 lb.	49	80.1 lb.	340 1	81 0	259 1	191 7
4	Do.	Once in two months	82.6 lb.	29	51.9 lb.	218 6	40 8	178 14	111 4
5	Controls—no treatment.	...	30.7 lb.	12	...	67 10	...	67 10	...

