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Crisis Encountered by the Coconut Growers of Hassan District in Karnataka

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THE study was conducted in Arasikere and Channarayapattana taluks of Hassan district in Karnataka. Results show that due to mite infestation there was significant reduction in the yield of nuts and copra. Regarding extent of crisis experienced by coconut growers, majority over belonged to high crisis group (43%) followed by low (31%) and medium (26%) crisis groups.

Coconut is a traditional crop of India. It enjoys a prime position as a plantation crop in the country. Today, it forms an important component of socio-economic and cultural lives of ten million people of the country. Coconut is being infested by several pests like black headed caterpillar, rhinoceros beetle, red palm weevil, root grubs etc. apart from few diseases. Though these pests and diseases have been the cause of concern to the farmers since many years, there was no serious threat to the production of coconut in the country. But, recently reported Coconut Eriophyid mite is causing severe damage to the coconut growers of the country.

Coconut mite was first reported from the Guerrero state of Mexico in the year 1965 (Keifer, 1965). In India, it was first reported from Ernakulam district of Kerala in the year 1998. In the same year, it was reported from Bangalore also (Sathiamma *et al.*, 1998). Now the pest is present in all the South Indian states and in all the districts of Karnataka. In mite infested trees, as a reaction to the feeding of the mites, young nuts and middle sized nuts drop. This can be up to 25 per cent of the nuts (Mallik *et al.*, 2003), hence the number of nuts remaining in the in bunches gets reduced.

The restricted growth of nut is reflected ultimately in the reduction in copra content. This reduction can be to the extent of 30 per cent in a nut (Muralidharan *et al.*, 2001). In severely damaged nuts, there was 40 to 44 per cent loss in copra yield. In mite infested nuts, the outer tissues of nuts are dead, so that nuts will not be grown to their normal size. In severely affected nuts, the size will be half to one third of the normal size (Mallik *et al.*, 2003) and these nuts also fetch low price in the market. Due to mite infestation the husk regions will not contain usual soft fibres; the coir output from such affected nuts is also poor. Hence the farmer's supplementary income from the coir is affected. In severely affected nuts, the loss in husk weight was up to 42 per cent (Muralidharan *et al.*, 2001).In spite of all these, the coconut Eriophyid mite is one of the most difficult pests to control, because of small size of the pest, the wind that aids in its dispersal and the tall nature of coconut palm etc.

Keeping in view the problems faced by coconut growers due to mite infestation, the study was undertaken with the objective to know the extent of crisis experienced by coconut growers due to mite infestation.

This study was conducted during the year 2005 in Hassan district of Karnataka. Among the eight taluks of Hassan district, Arasikere and Channarayapatna taluks were purposively selected considering the largest area under coconut cultivation. Further, based on the secondary data obtained from the Office of the Assistant Director of Horticulture of both Arasikere and Channarayapatna taluks, the 'Kasaba' hobli of Arasikere taluk and 'Dandiganahalli' hobli of Channarayapatna taluk were purposively selected considering the largest area under coconut cultivation. One Grama Panchayat in each hobli was randomly selected; from each gram panchayat, five villages were selected randomly by using simple random sampling technique.

A list of coconut growers who have been cultivating coconut in an area of one acre and above was obtained from each of these ten villages with the help of local leaders and the concerned Horticultural Assistant. Ten coconut growers from

each of the selected villages were randomly selected using simple random sampling technique thus constituting a sample size of 100 for the study.

Measurement of extent of crisis

Extent of crisis experienced by the farmers due to mite infestation in coconut garden was measured using the items like number of nuts/bunch before and after mite infestation, cost of cultivation, reduction in the yield of copra, reduced price for nuts, then percentage of loss as assessed by the farmer. The farmers scored on the ordinal measurement for their extent of crisis experienced in each of the items mentioned above. Later scores were summed up for each of the farmers and later categorized in two low, medium and high crisis experienced by the farmers as the extent of crisis experienced by them.

Categorization of coconut growers based on extent of crisis experienced by them

It could be observed that 43 per cent of the respondents were found in high crisis group, followed by medium (39%) and low (31%) crisis groups, respectively (Table I).

Yield of nuts before and after mite infestation

There had been a drastic reduction in the yield of nuts due to mite infestation. Before mite infestation, majority (66%) have got 30 – 40 nuts per bunch and none of the respondents got less than 20 nuts per bunch. After mite infestation, majority (58%) could obtain only 20 – 30 nuts per bunch and a meager two per cent of the growers could get 30 – 40 nuts per bunch. None of the respondents obtained more than 40 nuts per bunch (Table II).

It could be clearly seen that after mite infestation, the growers have got very less number of nuts per bunch and they could not get more than 30 nuts per bunch. Thus, it could be concluded mite infestation has severely affected the production of nuts to a greater extent, which had aggravated the crisis and led to a serious situation. These findings are in line with those of Thamban *et al.* (2000).

TABLE I

Categorization of coconut growers based on extent of crisis experienced by them

(n =100)

Extent of crisis	Respondents
	Per cent
Low	18.00
Medium	39.00
High	43.00
Total	100.00

Mean = 19.52 SD = 3.28

TABLE II

Yield of nuts before and after mite infestation

(n = 100)

Number of nuts / bunch	After mite infestation	After mite infestation
	Per cent	Per cent
< 10	–	08.00
10 - 20	–	32.00
20 - 30	12.00	58.00
30 - 40	66.00	02.00
40 - 50	19.00	–
> 50	03.00	–
Total	100.00	100.00

Yield of copra in kg per 1000 nuts before and after mite infestation

The yield of copra has also declined sharply due to mite infestation. Before the attack of Eriophyid mite, all the respondents obtained more than 100 kg copra yield from 1000 nuts; whereas, after mite infestation, majority (89%) of the respondents got less than 100 Kg copra and only 11 per cent got a yield of 100–125 kg (Table III).

The restricted growth of nuts is reflected in reduction of copra content. The quality of copra would also be less from the coconut plantations infested with the mite. Decrease in copra yield means reduction in the returns, which adds on to the crisis. This finding is supported by the findings

of Thamban *et al.* (2000).

Price of nuts before and after mite infestation

Before mite infestation, 34 per cent of the farmers could get a price of Rs. 4 to 5 per nut (Table III); followed by Rs. 5 to 6 (26%), Rs. 3 to 4 (21%), Rs. 5 to 6 (11%) and Rs. 2 to 3 (8%). After mite infestation, majority (38%) of the respondents could get only a price of Rs. 3 to 4 per nut, followed by Rs. 4 to 5 (21%), Rs. 2 to 3 (16%), Rs. 5 to 6 (10%), less than Rs. 2 (9%). Only 9 per cent of the growers got more than Rs. 6 per nut.

TABLE III

Yield of copra in kgs per thousand nuts before and after mite infestation

(n = 100)

Copra yield (in kg) per '000 nuts	Before mite infestation	After mite infestation
	Per cent	Per cent
50 - 75	–	21.00
75 - 100	–	68.00
100 - 125	33.00	11.00
125 - 150	48.00	–
150 - 175	19.00	–
Total	100.00	100.00

Table IV

Price of nuts before and after mite infestation

(n = 100)

Price per nut (Rs.)	Before mite infestation	After mite infestation
	Per cent	Per cent
< 2	–	09.00
2 - 3	08.00	16.00
3 - 4	21.00	38.00
4 - 5	34.00	21.00
5 - 6	26.00	10.00
> 6	11.00	06.00
Total	100.00	100.00

In the mite infested nuts, the outer tissues of the nuts are dead; hence the nuts will not attain their normal size. In severely affected nuts, the size will be half to one-third of the normal size; so these nuts fetch low price in the market. Further, dehusking will also be a problem before selling the nuts. These are in line with the findings of Thamban *et al.* (2000).

Cost of cultivation before and after mite infestation

The cost of cultivation per acre has increased to 56 per cent; the total cost of cultivation being Rs. 2750 before the mite infestation and Rs. 4280 after the mite infestation. The highest expense incurred was for dehusking followed by chemical fertilizers and plant protection measures with an increase of 80, 72 and 67 per cent, respectively.

Hence, it is natural that the cost of cultivation has increased to the extent of 56 per cent. The cost of cultivation has got escalated to more than 50 per cent in almost all the components of cultivation aggravating the crisis situation. It supports the findings of Thamban *et al.* (2000).

TABLE IV

Cost of cultivation before and after mite infestation per acre

(n =100)

Particulars	Before mite infestation (Rs.)	After mite infestation (Rs.)	Per cent of increase
Cost of chemical fertilizers	900	1550	72.00
Cost of organic manure	1300	1850	42.00
Intercultivation	300	450	50.00
Cost of dehusking 1000 nuts	100	180	80.00
Cost of plant protection	150	250	67.00
Total	2750	4280	56.00

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