

THE WHITE GRUB PEST OF ARECANUT

By

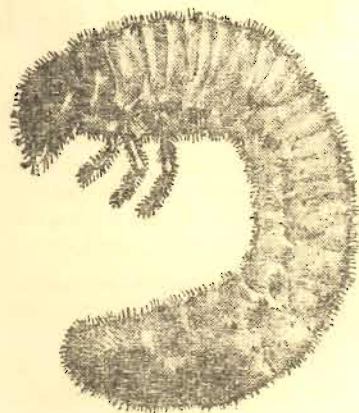
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THE root system of arecanut palm has not been reported to be attacked by any serious pest so far. Puttarudraiah and Channabasayanna (1957) have mentioned the damage caused by the grubs of *Leucopholis Lepidophora*, a cochchafer beetle to the arecanut root in some parts of Mysore. Apart from this no mention of such grubs as a pest on arecanut roots has been made.

From certain parts of South Kanara (average rainfall 135 inches) large number of palms were reported to be showing a general sickly pale yellowing of leaves. There was also considerable reduction in the yield due to the production of less number of inflorescences as well as due to the fall of immature nuts. The base of the diseased palms when dug out and examined showed large number of 'U' shaped soft bodied white grubs with six prominent legs and a brown head. The hind part of the body is smooth and shiny with dark body contents showing through the skin. The ventral surface of the last abdominal segment was noticed to bear two longitudinal rows of short spinules which is characteristic of parasitic grubs. They were identified to be the larvae of a Melolonthid beetle belonging to the genus *Lepidiota*. Grubs, when fully grown, measure about 60 mm. in length and about 12 mm. in breadth. At the slightest provocation they curl up

and form a flattened ring. Grubs numbering 40-50 could be dug out from the base of each of the severely attacked palms. Arecanut palms in South Kanara are heavily manured with compost and green leaves

WHITE GRUB FROM ARECA GARDEN



GRUB (LARVA)



EGG



BEETLE

applied to the base of the palms annually, which induces fresh root growth and provides a congenial media for the growth of the grubs. They were found to be feeding on the roots particularly the tender ones. In one particular garden at Paivalike (Kasargode taluk), where an observation trial was taken up, it was seen that during the months of February, March and April, the grubs were on the surface, i. e. within 9 inches of soil depth and in other months, they were found to be as low as 18 inches. This might have been possibly due to the very high water table prevailing in the garden during the months of February, March and April, due to the temporary mudbund put up for the "nalla" or rivulet nearby the garden. In one part of this garden, where the field was free from weed and grass growth, the incidence of the pest was not noticed.

The roots are damaged near the boles either by eating the tender roots from the tip or cutting them across at various points. Rare instances of the above grubs attacking young palms of varied ages could also be met within one garden at Kanthukodi (Puttur taluk), where in some cases of severe infestation, even the boles of young palms were seen to have been bored by the grubs. When all the roots had been damaged the trees were found to have lost hold on the soil and could easily be pushed down.

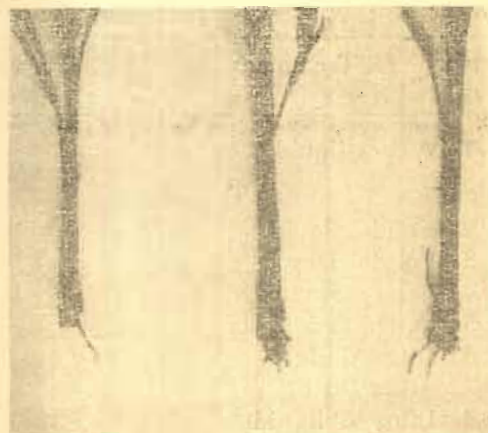
In the maidan parts of Mysore State (average rainfall 60 inches) white grubs are not a serious pest on the grown-up palms. This may be due to the fact that no leaf mould is applied to the plants and only well rotten compost or farm yard manure is generally broadcasted or applied to the garden. Hence the breeding area of the pests is minimised. They were found to attack only young palms below the age of five years. The incidence of these grubs was found to be prevalent in the Kadur-Birur area in the North, K. R. Nagar in

the South and round about Tumkur. In all these areas, lack of proper drainage, inter cultivation and garden cleanliness, and abundance of weed growth was a common feature. The usual symptoms of the grub attack in the nursery are the drooping of the leaves and complete drying of the leaves within a day or two. The affected



Seedling infested with rootgrub

seedlings when pulled out came off easily showing the entire root system being eaten away just below the ground level.



Roots of seedlings eaten away by the grubs

In the case of older plants yellowing and drooping of the leaves are quite common but the affected palms may continue to live for a little longer. On digging at the base of such palms, grubs ranging from three to eighteen were found to be attacking the roots.

In order to find out an effective control measure against these grubs, a badly

affected garden was selected at Paivalika village. The field was divided into plots of 2 cents each with 8 palms per plot. The following insecticides were applied to the soil. Dusts were mixed with sand, spread by broadcast, and incorporated by digging to a depth of 3-4 inches, whereas in the case of liquids, the soil was dug and drenched.

S.No.	Name of the chemical	Dilution	Dose per acre.
1.	Aldrex liquid	One pint in 60 gallons of water	5 pints.
2.	Folidol liquid	8 oz. in 100 gallons of water	290 oz.
3.	Folidol Dust	17½ Lb. per acre	17½ Lb.
4.	Lead arsenate	One Lb. in 40 gallons of water	25 Lb.
5.	D. D. T.-50% wettable	One Lb. in 16 gallons of water	62.5 Lb.
6.	Intox '8' dust	Mixed with sand or earth in 1:6 proportion	20 Lb.
7.	Aldrex dust	—	40 Lbs. (broadcast.
8.	Intox '8' liquid	8 oz. in 100 gallons of water	290 oz.

The above chemicals were applied in the month of May so as to take advantage of the distributed pre-monsoon showers for the proper penetration of the insecticides into the soil. A pre-treatment count of grubs was taken just before the application of insecticides and a post-treatment count

was taken in the month of October. The condition of the crown of the plant in the trial prior to the treatment as well as about 6 months after the treatment were noted for foliage colour and inflorescence production. The results are furnished below.

(A) Before application of pesticides.

S. No.	Treatment	Average number of grubs.	Condition of crown and inflorescence.
1	Aldrex liquid	10	Reduction in number and yellowing of leaves; poor nut set.
2	Folidol liquid	12	Do.
3	Folidol Dust	15	Do.
4	Lead arsenate	12	Do.
5	D. D. T. 50%	15	Do.
6	Intox '8' dust	14	Do.
7	Aldrex Dust	12	Do.
8	Intox '8' liquid	20	Do.
9	Control	15-20	Do.

(B) After application of pesticides

S. No.	Treatment	Average number of grubs.	Condition of crown and inflorescence.
1	Aldrex liquid	5	Slightly improved.
2	Folidol liquid	7	Root very satisfactory.
3	Folidol dust	8	Slight improvement.
4	Lead arsenate	8	Root satisfactory.
5	D. D. T. 50%	7	Slight improvement.
6	Intox '8' dust	6	Slight improvement.
7	Aldrex dust	5	Root very satisfactory.
8	Intox '8' liquid.	1	Good improvement; good root set.
9	Control	10-15	Poor.

In the maidan parts of Mysore trial with Heptachlor (20%) was undertaken. One ounce of the chemical dissolved in one gallon of water was applied to the base of the seedlings at 1/2 gallon each after loosening the soil. This works out to about 2 gallons of Heptachlor per acre of a freshly planted garden.

Summary

The incidence of a species of *Lepidiota* as a pest on arecanut was recorded for the

first time. The extent of damage caused by the pest was found to be severe on palms of all ages. From the trials conducted for controlling the pest, it is seen that Intox '8' liquid (Chlordane) and Heptachlor were found to be satisfactory. Keeping the garden free of weed growth, grass etc., was found to check the incidence of the pest to a certain extent. Further studies are underway at the Central Arecanut Research Station, Vittal.

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