SQUIRREL DAMAGE TO THE ARECANUT CROP AND ITS CONTROL

By

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It is not very commonly known that the dainty little squirrel is a major pest of arecanut crop in the 'maidan' tracts of Mysore. It causes enormous loss of crops, which sometimes amounts to as much as ten to fifteen per cent. It attacks the nuts when the contents are tender and tasty, that is, when the nuts are three to five months old. It seizes the nuts and eats away the soft developing embryos and discards the rest of the portion. From its habitations in the cool shade of the trees by the side of the garden fence it jumps on to the nearest palms and does its depredations. It rarely attacks the nuts after the fifth month.

Nambiar (1949) has reported that losses in yield of crop estimated at about 20% occur in certain years in Assam due to squirrels and infers that the bamboo clumps all round the garden area help the multiplication of the squirrels.

Review of existing practices

The control measures adopted by the growers at present are shooting them on sight and setting up baited traps. The first mentioned method, if only for the high cost, not to mention the other limitations, cannot be adopted by the general run of growers. The second mentioned mathod is more efficient and easy, and is being adopted widely in the gardens. Many types of traps, ranging from the ubiquitous rat trap to the improved stone traps with baits are employed. Of these, the stone trap has been found to be the cheapest and the most efficient for controlling the pest. The essential parts of the trap consist of:—

1. a 12″ long and half inch thick wooden stick forked at the top,

2. a stick of similar length and thickness pointed at one end and blunt at the other,

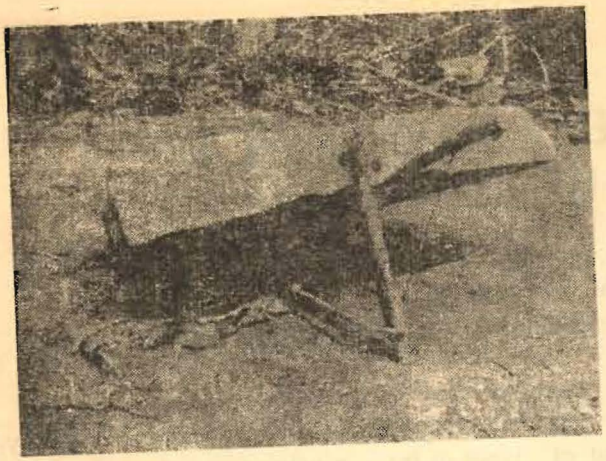
3. a cylindrical stick, one inch long and quarter inch in thickness, known as trigger,

4. an eighteen inch long stick of half an inch thickness known as bait stick, and

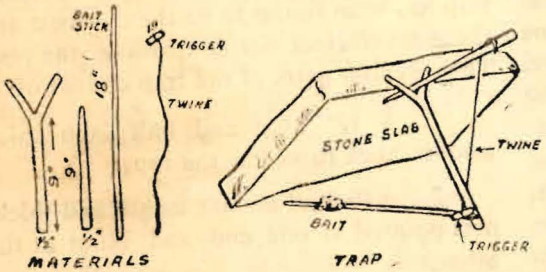
5. a stone slab, about 24″x24″x2″.

The different parts of the trap and method of erecting the same are shown in Plates I and II. The trap is erected in the following manner.

The forked stick is planted at a slight inclination at the spot, where the trap is proposed to be laid. The pointed stick referred to in (2) above is placed in the fork, and a string is now tied to the blunt end of the stick and the trigger referred to in (3) above is tied to the other end of the string. The stone slab is brought and is



The st ne trap in position with a victim caught pre iously



made to rest on the pointed side of the stick placed on the fork in an inclined position, and the trigger is fixed to the base of the forked stick in the manner shown in the plates. The length of the string is so adjusted that it is held taut. This arrangement holds the stone slab in position. One end of the bait stick is placed on the trigger and the other end is inserted below the stone slab. The bait substance is tied to the middle of the bait stick. Attracted by the odour of the bait substance, the squirrel or rat comes to the bait and tries to pull it off the bait stick. In this process, the trigger gets dislodged from the stick, and the stone slab comes down with full weight on the rodent and crushes it.

In order to prevent the rodents from getting bait-shy, the place of erection of the bait as well as the bait substance are changed frequently, but in spite of these precautions the rodents become bait-shy in due course and completely avoid them.

Spraying the bunches against the pest

In order to find out a more effective method of controlling the squirrels, some trials detailed below, were carried out by the author in a number of gardens around the Regional Arecanut Research Station, Hirehalli.

To start with, baits made of Zinc phosphide, a poisonus chemical, were laid in places frequented by the squirrels, such as the bases of palms along garden fences and even on the arecanut bunches. Boiled rice, milk and jaggery were added to the chemical to mask its taste. This method proved effective in the beginning, but gradually the squirrels started avoiding these baits also.

The only other method of effectively controlling these pests appeared to be spraying the bunches with deterrent substances or stomach poisons.

Accordingly, trials were undertaken in spraying the bunches with three different concentrations of Folidol and Zinc phosphide, both stomach poisons and with 'Morkit', a deterrent substance. Four palms were selected for each of the treatments. The nut fall on the date of spraying and the days following the spraying were recorded regularly. The data collected are glevn beiow:-

Treatments	Number of nut fall on the day of treatment	No. of nut fall after treatment*					
		1st day	2nd day	3rd day	4th day	5th day	6th day
1. Folidol 1%	36	14	5	14	13	4	16
2. Folidol 3%	37	4	7	11	17	8	6
3. Folidol 5%	35	—	—	4	8	14	6
4. Morkit 5%	29	11	14	8	14	16	9
5. Zinc phosphide 1%	28	18	13	10	8	14	4
6. Zinc phosphide 3%	28	9	6	5	3	8	9
7. Zinc phosphide 5%	26	3	2	—	—	—	—
8. Control	50	18	10	19	23	33	31

*Mean data from four palms.

(Where Zinc phosphide was used, a small quantity of sugar to mask its taste and a small quantity of gingely oil to give it adhesive property were added to the solution.)

The results indicate that spraying with 1% and 3% concentrations of 'Folidol' and 'Zinc phosphide' and with 5% 'Morkit' was ineffective as nut fall due to squirrel damage continued even after spraying these. Spraying with 5% Folidol prevented the attack for two days, but subsequently there was a recurrence of nut fall. Spraying with 5% zinc phosphide was the most effective, as nut fall ceased after the second day following spraying.

In order to confirm these observations, further trials on spraying with these chemicals were conducted. Seven gardens, where squirrel attack was frequent were selected for this purpose and the trees in the garden were sprayed with each of the seven chemicals as before in each of the gardens. The data on nut fall collected indicated that spraying with 3% and 5% solutions of Zinc phosphide were the most effective, as there was no shedding after the third day of spraying, indicating that the squirrels avoided the bunches. In the order other treatments, the nut fall reappeared after ceasing for two or three days, indicating that the squirrels started revisiting the bunches. In the bunches sprayed with 3% solution of Zinc phosphide, stray shedding was noticed in a few of the trees, but further shedding was completely absent in the bunches sprayed with 5% solution. These trials have thus indicated that spraying the bunches with 5 per cent solution of Zinc phosphide provides a very effective method of preventing loss of crops due to squirrels.

It has already been stated that the squirrels feed on the nuts only between the 3rd and 5th months. They rarely attack the bunches earlier than the 3rd month or after the 5th month. The spraying of the bunches, therefore, need be done only during this period.

In the 'maidan' tracts, the nuts are harvested when they are seven to eight months old, and the entire nut is processed for producing the local trade types, known as 'Choor'. The nuts are sprayed upto the 5th month and thus there is a time lag of atleast two to three months between the last spray and the harvesting of the nuts.

Within this period it may be expected that the entire spray deposit will be washed off the surface of the nuts by the rains. Therefore, spraying the nuts with the poisonous chemical is not accompanied by any harmful effect.

Summary

In places, where the squirrel, which is a major pest of arecanut crop, has developed tendency to avoid baits laid for it, spraying the bunches with 5% solution of Zinc phosphide can be adopted to effectively control the rodent. The spuirrel feeds on the nuts when they are three to five months old, and rarely earlier or later, and therefore spraying need be done only during this period.

Reference

Nambiar K. K. (1949) Survey of arecanut crop in Indian Union. Published by the Indian Central Arecanut Committee, Calicut