CROP PROTECTION NOTES

1. Fertilizer treatments in the control of a leaf blight disease on coconut palms.

One of the commonest diseases of the coconut palm in this Country is a leaf blight caused by the parasitic fungus, *Helminthosporium incurvatum*. Seldom does the disease strike palms fatally but the toll of motality it takes in its grip, during an epidemic has been found to be considerably heavy. The infection could invade young palms at a time they are growing up and it is then that the malignant nature of the disease becomes very obvious. It is the symptoms in the advanced stage that draws the attention of the planters who would find many fronds, having a scorched up appearance. The disease could take the form of an epidemic out-break when it would affect almost all the palms in a young plantation.

An Out-break

This disease broke-out in an epidemic form on young palms, 2 to 3 years old in a colonization scheme plantation.* Although there was a complaint that the disease was brought through the seedlings from the nurseries, it was found after inquiry that the nurseries were not the source of infection.

These palms had not been manured or watered during droughts. They had received only little care after transplanting. The land was heavily intercropped.

Cause and symptoms

Blighted leaves when examined were found to be infected by the parasitic fungus *Helminthosporium incurvatum*. The characteristic lesions appeared on the foliage, which were less visible on the tender leaves but appeared prominently on the older leaves as dried up patches surrounded by dark brown margins. In some palms entire leaves got dried up. The tips of leaflets in heavily blighted palms were curved inwards. Under water logged conditions the blight was found to be more pronounced.

Experimental work and results

An experiment was conducted using fertilizers to study their effects in controlling the disease. It has been observed earlier that imbalanced nutrition predisposes palms to infection by these types of fungi that cause the blight.

*The middle class Colonisation Scheme at Vanativillu in Puttalam District.

Different combinations of N.P.K. were tried out using Sulphate of Ammonia, Saphos Phosphate, Super Phosphate and Muriate of Potash. After three months of application it was observed that the severity of the diseased declined by about forty percent, with a treatment of 1 lb. of Saphos Phosphate and 1 lb. of Muriate of Potash per palm.

2. The Black Beetle in the role of an unseen foe

Insects generally have instinctive habits in their behaviour of selecting food material, breeding places and other life's processes. In such ways they follow a more or less constant time-table pattern when passing through from one generation to another. The damage done by pest insects remain also characteristically the same, but occasionally some abrupt and unusual change of habit is shown. Then the nature of damage can vary, the symptoms baffling to an observer and only a careful investigation will reveal the cause.

Every transplantation fails

A complaint of a failure to raise an underplantation was brought to our notice. When seedlings are planted over eighty percent failed to survive beyond two years of age. The seedlings die of a withering of leaves and a collapse of the tender buds. Three attempts have been made by the owner by supplying selected good seedlings but they would not grow long even after manuring and watering.

Inspection

At the time of inspection there were twelve seedlings which had dried up shoots. The ages of these palms ranged from 1½ to 3 years. These affected palms were found scattered about in an underplanted block of two and a half acres.

The early symptoms had been the withering of the central shoots. The dried up shoots when pulled they would come out easily as pulling out a cigarette from the cartoon. One after another, seedling after seedling, they have collapsed without any visible damage other than the withering and dying of foliage.

Those that were examined had only the bud leaves dried up. The older leaves were healthy, the ' stems ' at the base of the seedlings were stout and healthy.

Not a disease

The soil round a young palm was excavated carefully. The answer to the problem was not far deep. About four inches from ground level, the first form of attack was noticed. It was a deep seated wound on the stem. The open wound lead to a tunnel, wherein a rhinoceros beetle was found. With the aid of a bent speared hook, the insect was extricated.

When the soil was dug further it was not suprising to find larvae (grubs) and even pupae (cocoons) of the beetles. The boring beetles have injured the buds fatally to cause death of palms. Therefore the cause was a pest damage.

Cause for breeding

It was easy to find the reason why breeding of the beetles took place near the seedlings, and accelerated their multiplication. It was observed that liberal applications of coir dust, obtained from a nearby fibre mill has been done as a soil mulch. Whatever its beneficial effects could be, it provided breeding grounds for the beetles. It was a case of providing both 'bed and breakfast' because the seedling was there for the feeding into which they entered direct from the breeding place.

Unusual mode of entry

The pest has gone through its full life cycle in the soil and the adults have attacked the palms whilst in the soil. No appearance of its ravages were seen above the ground, except the withered or dried up leaves. The beetle holes below ground level were found in several examinations made ; in some the beetles were present. This is a very uncommon attack of *Oryctes* on seedlings and young palms.

Control measures recommended

The pest had got itself established to such an extent that mere mechanical removal of coir dust would not control the pest. Therefore chemical treatment was recommended besides the warning not to use fibre dust as a soil mulch. The insecticidal treatment was a soil application with Aldrin dust and a tree application with Dieldrin emulsifiable concentrate.

The dust was mixed with sand in the proportion of 1:5 cigarette tins full respectively. About 4 tins of the mixture were required for a single dose per seedling. The mixture was sprinkled and forked into the soil. The emulsifiable concentrate was diluted with water, 1 oz. in 3 gals. of water and the dilution was poured down the bud region of each seedling to wet it thoroughly.

Seek Advice

Agricultural practices rank high in importance from the ecological point of view for they may alter habits and reactions of many insect pests. There is little doubt that the prevalence of pests is influenced to a large extent by the conditions under which a crop is grown. Some agricultural practices have repercussions of an ecological kind. It will do well for planters to seek advice when agronomic practices such as mulching of coir dust is incorporated into the programme of work.