

COCONUT PESTS AND DISEASES

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ALTHOUGH the coconut palm is considered a herby plant and grows or thrives in different types of location, yet, like certain other palms, it has one great disadvantage in that normally it has only one growing point. Once this growing point (the cabbage or "ubod") is vitally hurt, the plant succumbs. This fact is important to bear in mind in the control of coconut pests and diseases some of which, unfortunately, attack this vital part—the cabbage or "ubod". The maladies that damage this vital part of coconuts are the black beetle or "uang" and the so-called coconut bud rot disease. There are several others, however, that attack other parts of the plant to such an extent that its vitality may be impaired temporarily for several years or permanently as to cause it to be unproductive or sterile as to be practically useless. Among these are the coconut leaf miner, scale in-

sects, slug caterpillars and stem bleeding disease of coconut and the so-called "cadang-cadang" disease.

The Black or Rhinoceros Beetle or "Uang" and Red Beetle

This insect is so common that every coconut planter is familiar with it. Its body is horny and has strong jaws or mandibles and legs and strong projection on top of its head which enable it to dig into piles of decaying organic matter where it lays its eggs or tearing its way into the crown of coconut where it feeds.

The favorite breeding places or media of this beetle are dead coconut trunks, compost, manure and sawdust piles. Hundreds, nay thousands, of the grubs are often encountered in such places. In localities where these media abound, many coconut trees often suffer from serious injury and later succumb. The life cycle of this insect is estimated to be about a year.

Different stages of the black beetle or "Uang"
Oryctes rhinoceros.

Control

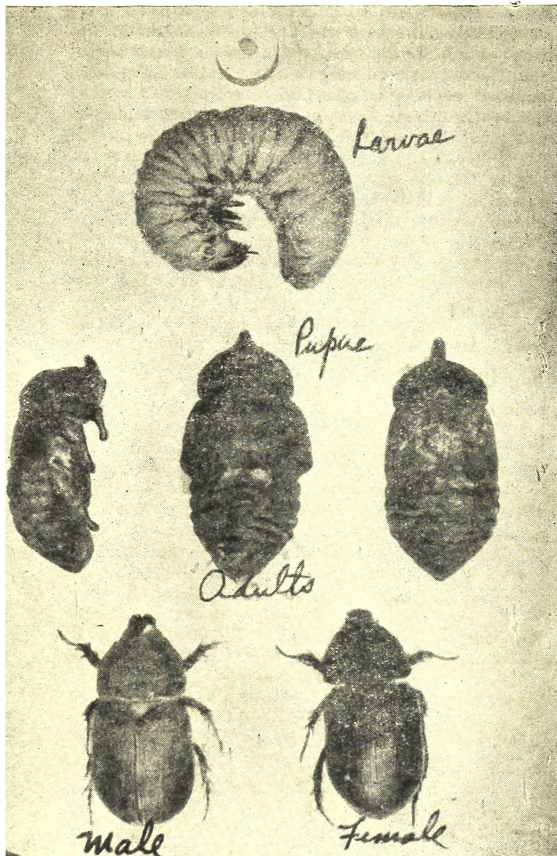
The first requisite in the control of this pest, therefore, is cleanliness in coconut groves. In order to protect coconut trees, the Government, through the Bureau of Plant Industry, has promulgated an administrative order by which all parties concerned can be compelled to keep their premises and coconut groves free of all decaying organic matter in order to prevent the breeding of the insect. Sawdust piles in particular breed countless numbers of grubs and, therefore, sawmill owners can be compelled to dispose of their sawdust piles.

It is only by keeping the coconut groves clean that it pays to get after the beetles that are in the trees. These can be collected from the trees with hooked wires or rods and traps. One way of trapping the beetles is to construct rectangular pits in the groves. Compost, pieces of coconut trunks, etc., are put into the pits and these are provided with covers with slits in the middle which will allow the beetles to get into the pits but will prevent their getting out. Such traps should be examined now and then so that the insects caught therein may be destroyed.

The Red or Asiatic Palm Weevil

Another destructive beetle—a weevil—is the so-called red or Asiatic palm weevil, known in science as *Rhynchophorus ferrugineus*. The insects lay their eggs in the trunks of the trees, especially in injured portions of coconut trees, and the resulting larvae or grubs may tunnel their way into the young or growing portion of the coconut. Trees attacked by the grubs usually succumb.

To prevent attack by this beetle, coconut trees should not be injured in any way. Where the beetles are prevalent, the practice of making cuts on the coconut trunks should be stopped as this predisposes the trees to attack. Trees in which larvae are pres-



ent may be treated with carbon bisulphide to kill the insects. The chemical may be injected into the trees by means of syringes.

The beetles may also be trapped as in the case of the black beetles.

The Coconut Leaf Miner

Because of its extensive ravages in Laguna, Tayabas and Batangas during 1929, 1930 and 1931, no other insect of the coconut has received as much publicity as the coconut leaf miner, known in science as *Promecothea cumingi*. The insect is a yellowish brown beetle of the size of a firefly. The insect lays its eggs in the coconut leaflets and these hatch into footless, flattish and whitish larvae which feed within the leaves causing blotches or mines; hence the name of the pest. The adult beetles feed on the surfaces of the leaves. If the beetles and their larvae are abundant their combined attack cause the rapid drying up of the coconut leaves and the trees may not bear any fruits for one or two years.

The methods of control employed under the Bureau of Plant Industry and which are recommended to coconut planters are as follows:

1. Systematic cutting off of the infested leaves under close and expert supervision in order to destroy the larvae and pupae.
2. Collecting the beetles.
3. Spraying infested trees and those around them with soap solution and lead arsenate to destroy the adults.
4. Rearing and liberation of the parasites that attack the eggs, larvae and pupae.

Scale Insects

There are several scale insects that have been observed rather harmful to coconuts. One of these is the Florida red scale. The insects suck the juice of the leaves. In some places, they often become abundant and cause the drying up of the leaves of many trees.

Closely allied to the red scales are mealy bugs and white flies. These also suck the juices from the leaves. These are quite common and destructive in certain provinces.

Control

The chief method of control against these insects is periodical spraying with soap solution or oil emulsion. Cutting of the badly infested leaves also helps. Under proper technical supervision, the rearing and liberation of the parasites that attack the insects may be undertaken as has been done and is being done in other countries.

Caterpillars

There are at least four kinds of caterpillars that at times become abundant as to cause considerable destructions. Two of these are two kinds of caterpillars, known as slug caterpillars, because they resemble slugs in shape and in habits—being slow moving. These are green in color about 2½ centimeters long when full grown and with spines, which when touched, cause skin irritation. The other two caterpillars are the young of certain moths known

as skippers. These are light greenish or whitish caterpillars which fold the coconut leaves.

Control

1. Spraying with soap solution either with lead arsenate or derris.
2. Collecting the caterpillars and pupae.
3. Encouragement of insectivorous birds in the plantation.
4. Rearing and liberation of insects that are parasitic and predatory on the eggs, caterpillars and pupae.

Oriental Migratory Locust

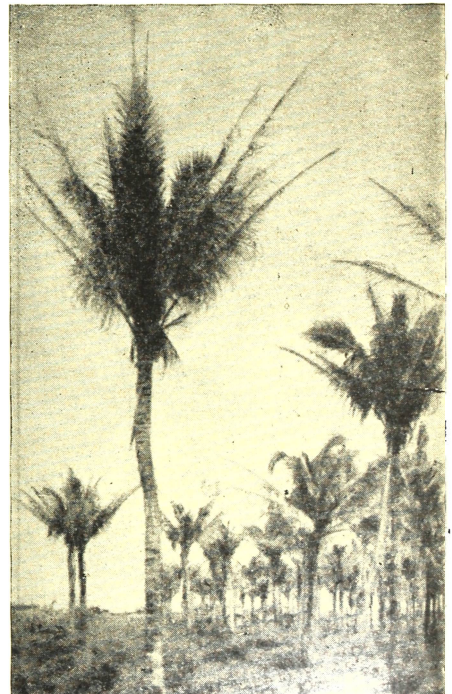
The Oriental Migratory Locust is not a regular pest of coconuts. However, whenever there is an outbreak coconut groves, especially those along the paths of invasion, often suffer from the attack. The defoliated coconuts may not bear any fruits for one or two years.

The migratory locust is known to breed into enormous swarms chiefly in the out-of-the-way places, that is in the vast isolated grasslands, especially in Mindanao. Outbreaks of this pest occur at intervals of ten or eleven years and each outbreak usually lasts for several or many years, depending upon natural factors and the campaigns waged against the pest.

Between outbreaks (that is when there are no migratory swarms in cultivated and populated areas), the insects are known to live as solitary locusts, like ordinary grasshoppers. When certain unusual conditions of climate obtain, such as drought conditions, these solitary locusts are known to come together in certain areas and their getting together apparently stimulate their mating instinct and they

Coconut trees destroyed by both black-beetle and leaf miners.

(Courtesy Dept. of Agri. & Commerce)



produce small or loose swarms called **transiens**. Where conditions appear to be most favorable for their multiplication, these small swarms go on increasing into huge migratory swarms, which invade the cultivated and populated areas. Such swarms persist for sometime, the length of the period of their existence depending on natural factors, such as those of weather, natural enemies and the campaigns waged against the insects. When their numbers are greatly reduced, those that are left sooner or later produce progeny consisting of solitary forms that live and behave like ordinary grasshoppers. Such solitary forms look so different from the migratory that they were previously considered as a distinct species, when in reality they constitute merely a phase of the same species to which the migratory forms also belong.

Control Measures

1. Catching the flyers with nets and coralling the hoppers into pits. These methods are effective, especially in more or less well populated provinces and where the people comply strictly with the provisions of the Locust Act (Act No. 2472).

2. Spraying the hoppers with contact poisons, such as soap solution.

3. Dusting with poison, such as calcium arsenate, derris powder, etc.

4. Application of poisoned bait—such as bagasse bait.

Factors Essential to Locust Control

1. Better compliance on the part of the provincial and municipal officials with the provisions of the Locust Act.

2. Wider application of the scientific methods of control, such as the use of various effective poisons.

3. More financial outlay for the locusts at the sources, that is at their outbreak or breeding places. The locust evil should be combatted at its very roots, so to state.

Other Pests of Coconuts

Rats cause considerable damage at times to young coconuts. These can best be controlled by the use of poisons such as white arsenic, strychnine, etc., which are mixed with attractive baits, such as boiled rice and fish or grated coconut.

Wild pigs, like rats, also cause havoc to young coconuts in many places. These can also be controlled by certain poisons, like phosphorus compounds, strychnine, white arsenic, etc. Hunting them will also help minimize damage. Fencing is resorted to in some places.

Large fruit bats are at times harmful in some places by eating the young fruits. The most effective way of controlling these is by shooting them in their roosting places during the day time. Poisoning against these is not considered practical. The use of certain devices to scare away the bats is also practical.

Coconut trees showing leaf miner devastation.

(Courtesy Dept. of Agri. & Com.)



Bud Rot Disease

The most serious disease of coconut is the so-called bud rot disease. It is so called because it attacks the bud causing it to rot. The causal organism is known to be a fungus.

Control

The most effective control for this disease is sanitation and persistent cutting down and thorough burning of the affected parts, for it is known that the disease is infectious. Proper cultural measures should be practised so as to increase the vigor of the trees.

Spraying the healthy trees around infected ones with Bordeaux mixture may also be practised as a preventive measure. The control of insects, such as black beetles, will also help minimize, if not prevent the dissemination of the disease.

Cadang-Cadang Disease

This disease manifests itself in the general yellowing and stunting of the growth of the trees. It is known to be chiefly a physiological disease owing to water-logging, malnutrition, etc.

The chief remedies are proper drainage and application of fertilizers or green manuring.

Concluding Remarks

In the control of pests and diseases of coconuts the preventive and cultural measures should be given due attention. Remedial measures are, of course, effective but because of the size of the trees such measures may entail considerable expenses. They should be timely and properly applied and under expert advice at first. All coconut planters should co-operate especially with the Government

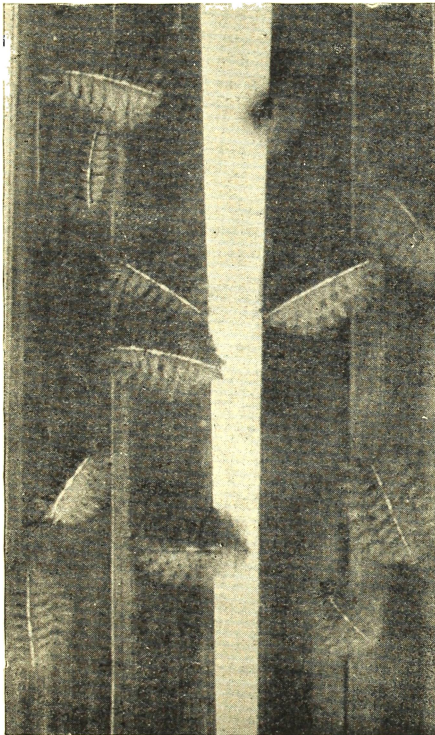
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in its efforts to prevent the spread of such maladies as leaf miner, locusts, black beetles, scale insects and bud rot, which may vitally affect the coconut industry if they occur as epidemics. This is bound to occur if planters in particular slacken in their joint efforts to stamp them out while still greatly localized.

In no other phase of agriculture is cooperation more greatly needed than in the control of plant pests and diseases. The efforts of any individual planter in controlling beetles, bud rot and the like in his grove may not be of much avail if his neighbors neglect the infestations and infections in their own groves.



Slug caterpillars attacking coconut leaves.

(Courtesy Dept. of Agri. & Com.)



*The General Manager,
National Coconut Corporation
Manila.*

Dear sir:

I write to seek information with regards to the current price of buri-braids as paid by your Corporation. I am of the information that at present you are paying a good price for such merchandise. For this reason, I beg to ask you the prices for the different kinds of braids, and if possible to furnish me with the detailed list of them all and the dates of good prices.

As the braid industry here is our important source of livelihood, I am requesting you for their exact prices as you buy them together with the quantity you need in case we intend to send them to you directly.

Thanking you in advance and hoping for your kind attention and reply, I remain,

Very respectfully yours,
Antonio M. Rose

In reply to your letter, please be informed that we are in the market for the following buri braids;

- 1. Apatan-Khaki 20 mm. wide and 60 yards long @ ₱.28 per roll-already pressed and packed.*
- 2. Siyaman-Khaki 18-to 20 mm. wide and 60 yards long @ ₱.45 per roll-already pressed and packed.*

As we will need about 10,000 rolls of each type mentioned above, please let us know as soon as possible if you could supply us these braids at the prices quoted and also indicate how many rolls you can supply in one month.

*The National Coconut Corporation
Manila.*

Dear sirs:

In your "Coconut Journal" of April, 1941, my attention was called in the article MAKE YOUR OWN SOAP AT HOME THE NACOCO WAY. Since then I have tried to buy Nacoco Sosa and Nacoco Langis Ng Niyog (beer bottle size) but sorry to inform you that I cannot find any in the market. In this connection, I hereby respectfully request that I be furnished with the names of persons or stores from where I can be able to buy the above mentioned articles.

Furthermore, I want to inform you that I want to try the SIMPLE METHOD of soap making you have published in that Journal, which interested me more.

Very respectfully yours,
(Mrs.) Mercedes Pagtalunan

*We are selling Nacoco Sosa right in our office.
You may buy your coconut oil from Chinese stores
or direct from oil manufacturers like, Spencer Kellog
& Sons, Philippine Refining Co. and Luzon Industrial
Corporation.*