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OIL PLANTS

Olive

Coco-nut and Oil-palm

Sesame

Castor

Ground-nuts

Olive

(*Olea europaea L.*)

Most important pests: 549, 557, 558, 560, 561, 562

Trees stunted, some parts chlorotic. Roots with brown lesions and elongated thickenings. (Damage occurs only after several years of cultivation.)	root
<i>Tylenchulus semipenetrans Cobb.</i>	
<i>Citrus root nematode.</i>	542
NEMATODA	465
see page 257 (Citrus)	
<i>Distribution:</i> all olive tree growing countries, especially in the Mediterranean region	
Growth checked, especially among saplings. Chlorosis. Roots with necrotic patches or dark lesions. (Damage occurs usually only after several years of cultivation.)	543
<i>Pratylenchus coffeeae Z.</i>	3, 53, 103, 404
<i>Coffee nematode.</i>	772
NEMATODA	
see page 63 (Coffee)	
Partial dieback (twigs and branches).	branches
<i>Hylobius perforatus Roel.</i>	
COLEOPTERA; Curculionidae	
Robust weevil, dark-grey to brown, about 15 mm long, which mines in the cambium.	544
<i>Distribution:</i> Japan	
Signs of partial dieback (twigs and branches). Bore-holes, about 1.5 mm in diameter, become visible.	
<i>Hylesinus toranio Bern.</i>	
COLEOPTERA; Scolytidae	545
Small, oval and convex beetle, about 3 mm long. It is dark in colour with yellow hairs on its elytra. The female mines into branches and twigs and there lays its eggs. The bore-holes run horizontally, while the larvae bore indiscriminately deep into the sapwood.	
<i>Distribution:</i> Southern Europe, North Africa	

branches

Leaf-shedding and dieback of some branches, in which small circular holes become visible. Yield considerably reduced.

Phloeotribus oleae F.

Fleotribo.

COLEOPTERA; *Scolytidae*

546

Small, blackish-brown, round beetle, about 2 mm long, its back clothed with grey hairs. The beetle mines in branches and trunks. It oviposits in June/July into the branches. The larvae bore tunnels which are filled with frass and run at right angles to those of adults. Several (3) generations.

Distribution: Mediterranean region (Africa)

Dieback of branches, which show large bore-holes filled with frass. Masses of frass also found on the ground.

Zeuzera pyrina L.

Wood leopard moth.

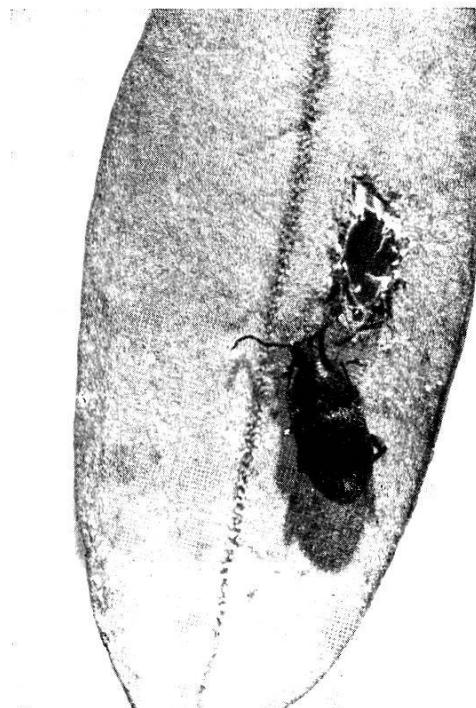
LEPIDOPTERA; *Cossidae*

547

Moth with dirty-white wings, flecked with steel blue to black, expanding to 40-50 mm. The eggs are inserted in clusters in cracks of the bark. The caterpillars are yellowish-red, with black head, prothorax and shield. They tunnel into trunks and branches, evacuating reddish-brown to yellow excrement through the bore-holes.

Distribution: Europe

shoots



548

Leaves and shoots heavily attacked. Shoots often with deep lesions.

Otiorrhynchus cibricollis Gyll.

COLEOPTERA; *Curculionidae*

Dark-brown, hairless weevil, 7-8 mm long. The thorax is narrower than the elytra. The legs are red and yellow.

Distribution: Southern Europe, North Africa



Development of leaves and fruits disturbed. Shoots and leaves wither and fade. Heavy infestation with sooty mould. Presence of conspicuous scales.

Saissetia oleae Bern.
Olive scale.

HOMOPTERA; Lecaniidae

shoots

549

Oval and convex, dark brown scale insect, 3 mm long, which lays its eggs (up to 1500) under its scale. Older insects are found on shoots and twigs, while the larvae live along the leaf veins. 2-3 generations a year.

Distribution: Africa, North, Central and South America

Twigs, leaves and fruits covered with whitish-yellow to greyish scales, about 2 mm in size. Plant development considerably disturbed, leading to malformations.

Selenaspis articulatus Morg.
West Indian red scale.

HOMOPTERA; Diaspididae

550

536

see page 291 (Citrus)

Distribution: widespread throughout the Tropics and Subtropics.

Shoots and leaves heavily attacked.

Mylabris oleae Chevr.

COLEOPTERA; Meloidae

551

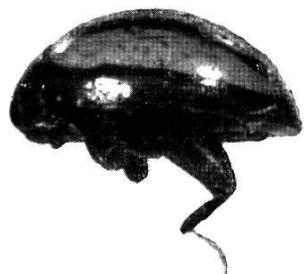
Black beetle, about 25 mm long, its elytra banded with red.

Distribution: North Africa

leaves

Linear mines along the leaf margin.*Argopistes oleae* Bryant.

COLEOPTERA; Chrysomelidae



552

Convex, oval beetle, about 5 mm long, dark metallic with light bands. When disturbed it leaps off. The eggs are deposited in hollows on the underside of the leaves. The larvae mine in the leaves but individuals can move from one leaf to another. Egg to adult life cycle: 6-8 weeks.

Distribution: Africa (South)

Leaf buds and young, unopened leaves spun together and injured. Shoots often attacked also.

Margaronia quadristigmalis Guen.

LEPIDOPTERA; Pyralidae

553

Light coloured moth with a dark costal margin on its front wings. The caterpillars are light green to greyish-white. Development cycle of one generation 6 weeks. Several generations a year.

Distribution: South America (Peru)

Leaves heavily attacked. Trees denuded of leaves.

Acherontia atropos L.

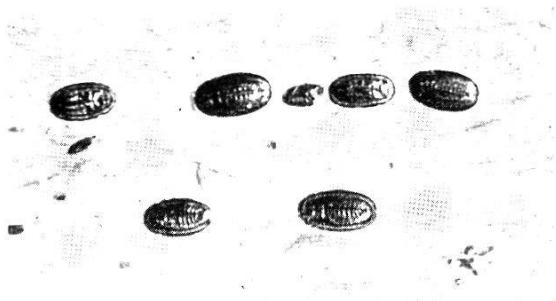
Sphinx moth.

LEPIDOPTERA; Sphingidae

554

Large, robust moth, with a wing span of up to 120 mm. Its front wings are dark brown, marked with light brown, while the hind wings are ochrous, crossed by two black bands. The thorax also is dark brown with a design like a death's head of light colour. The abdomen has yellow and brown crossbands. The caterpillars are hairless, lemon-coloured with blue stripes along the sides and provided with a strong, reddish-brown tubercular horn dorsally near the caudal end. When full grown, the caterpillars may reach 100 mm in length. Pupation takes place in the soil. Emergence in June/August. The pest also attacks egg-plants.

Distribution: Europe, Africa, Madagascar, South Asia



Leaves brittle, slightly folded over, the lower surface beset with small, oval, black scales. Heavy infestation with sooty mould.

Aleurolobus olivinus Silv.
Olive white fly.

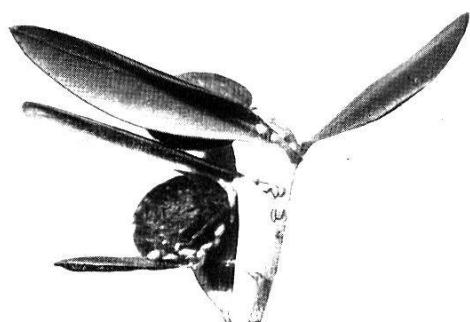
HOMOPTERA; Aleyrodidae

Small, frail insects, about 1.5 mm long. The body and wings are sprinkled with a white waxy powder. The dorsum of the pupae is black, the margin fringed with wax (cf. Citrus: *Aleurotrachelus citri*). The subelliptical eggs are attached by a short pedicel. New laid they are straw-coloured, turning brown later on. One generation a year.

Distribution: Italy, Africa

leaves

555



Leaf stalks and underside of leaves infested with colonies of white, fluffy bodies. Heavy infestation with sooty mould. Growth disturbed; often flowers and pedicels also attacked.

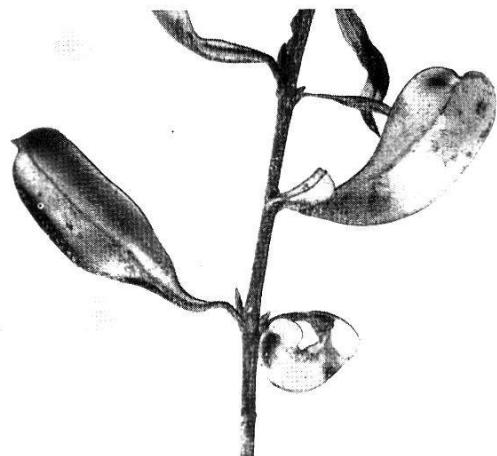
Spilococcus simulator James.

556

HOMOPTERA; Pseudococcidae

Oval mealybug, 2-3 mm long, which is covered with white wax. The colour of its body is orange to ochrous. Several generations.

Distribution: Africa



Buds deformed and failing to open. Leaves misshapen.

Liothrips oleae Costa
Olive thrips.

THYSANOPTERA; Tubulifera

557

Light to dark brown thrips, 1.5-2 mm long, which lays its eggs on the twigs. The hatching larvae invade the leaves and buds, where they suck the plant juice. Three generations each season.

Distribution: Mediterranean region, Africa

buds



558

Flower buds and stalks discoloured and seriously dwarfed. Intense formation of sooty mould.

Euphyllura olivina Costa
Olive psyllid.

HOMOPTERA; Psyllidae

Grey to light brown Psyllid, about 2 mm long, which places its eggs in the terminal shoots (in Spring). 3-4 generations.

Distribution: Mediterranean region

Leaves turn yellow and fall. Buds wither. Leaves covered with sticky substance.

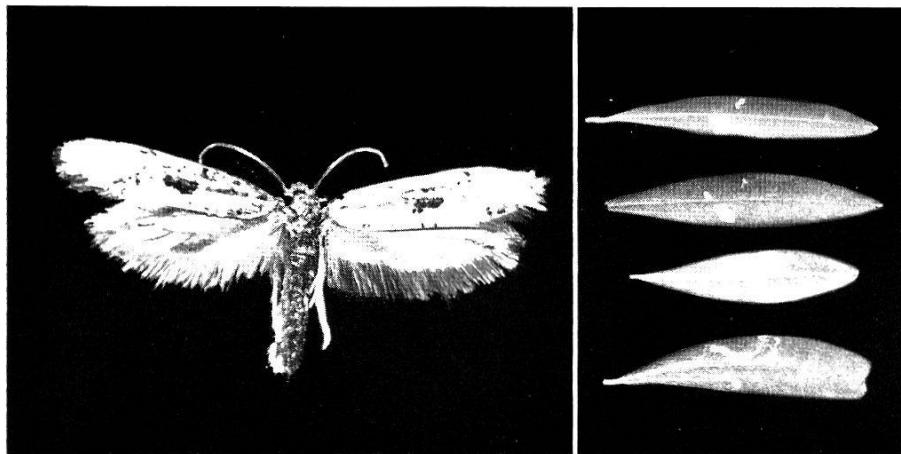
Teleonemia australis Dist.
Olive bug.

HETEROPTERA; Tingidae

559

Small, slender, light greyish-brown plant bug, about 3 mm long, with 3 thin, pale stripes along the prothorax. The venation of the wings is reticulate. The last antennal segment is black, the other segments as well as the legs are light brown. The eggs are laid in batches on the underside of the leaves. The nymphs are gregarious.

Distribution: South Africa, Rhodesia, Nyasaland



fruits

Autumn and winter: leaves with blotch-mines and tunnels.

560

May: Flower buds gnawed and covered with webs and excrement. Presence of caterpillars.

July/August: Fruits slightly stained and partly shrivelled, falling off.

Prays oleae (oleellus) F.

LEPIDOPTERA; *Pyponomeutidae*

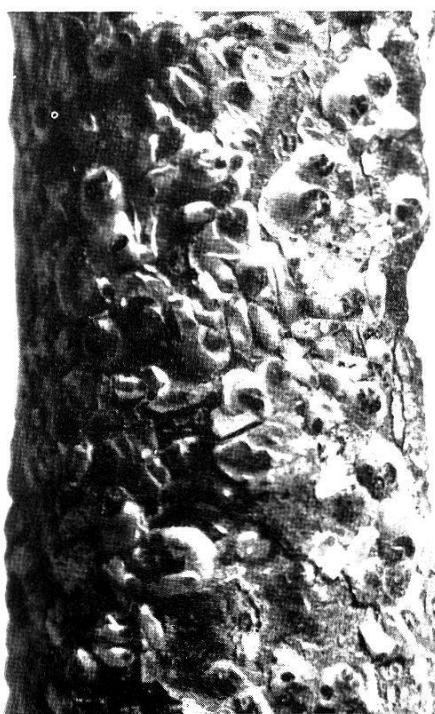
Small moth, about 5 mm long when its wings are folded. The front wings are speckled grey and brown, fringed, while the hindwings are light grey. The caterpillars are small, creamy-white with a dark head capsule; when full grown, they are dusky with two olive-green stripes on the back.

First generation: October/November. Leaf mining.

Second generation: April/May. Injury to flowers. Larvae feed on flower buds.

Third generation: June/July. Larvae penetrate into the fruits, feeding on the pulp. Very small bore-holes.

Distribution: Mediterranean region, South Africa



Fruits mottled and deformed. Scales on fruits and shoots.

Parlatoria oleae Colv.
Olive scale.

HOMOPTERA; *Diaspididae*

561

Greyish-brown, fairly convex, pear-shaped scale insects having 2 generations.

Distribution: Mediterranean region, Europe, India, Africa

fruits



Fruits fall off before ripening; they are mottled and hollowed out by white maggots. Injured fruits yield oil of poor quality.

562

Dacus oleae Gmelin

DIPTERA; *Trypetidae*

Small fly, about 5 mm long, of chestnut-brown to yellow colour. The female is provided with a well developed ovipositor with which it lays its eggs singly (up to 1000) in the young fruit. The white, footless maggot feeds on fruit pulp. Development period of one generation: about 4 weeks, 3-4 generations occurring each year. The larvae of the last generation (October) hibernate as pupae underground.

Distribution: Mediterranean region

Coco-nut and Oil-palm

(*Cocos nucifera L.* and *Elaeis guineensis Jacq.*)

Most important pests: 563, 564, 565, 566, 567, 568, 575, 576, 590, 595, 597, 604, 605

Nuts fail to ripen and fall off. Leaves chlorotic. Section through trunk base reveals red peripheral stains (red ring disease).

trunk

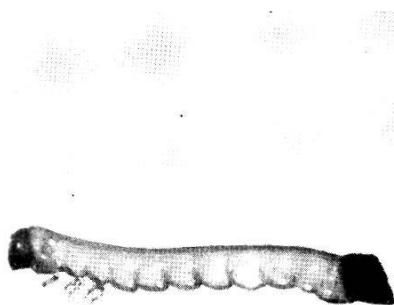
Aphelenchoides cocophilus Cobb.

NEMATODA

563

Slender, endoparasitic worm, about 1 mm long, which attacks the roots and trunk of coconut palms.

Distribution: Africa, Antilles, South America



Palms break immediately above the ground while roots remain intact. Trunk heavily tunnelled in rupture zone. Palms still erect show dark stains around bore-holes at the trunk base. Exudation of gum marks tunnel entries. Tissue of trunk shows stained zones along the tunnels. General symptoms: growth of palms impaired; leaves stained yellow, fruits dwarfed.

564

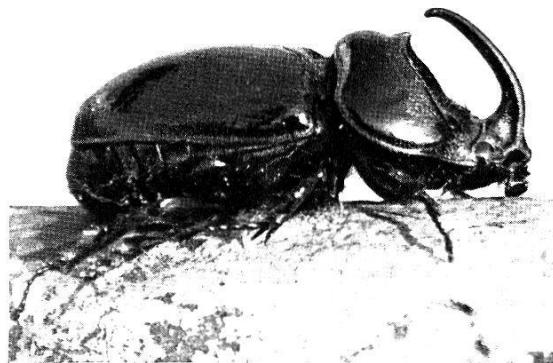
Melittomma insulare Fairm.

COLEOPTERA; *Lymexylonidae*

Dark brown, slender beetle, 10-15 mm long, its head provided with large eyes and comb-like antennae, 4-5 mm long. The female is furnished with an ovipositor up to 5 mm in length. The eggs are laid at the trunk base. When full grown the larvae are about 20 mm by 3 mm and creamy-white. The first segment forms a shield, covering part of the head. The last abdominal segment is dark brown, round and concave, the posterior end bearing 18 pits and its edge being jagged. The larvae eat into the soft tissue of the trunk.

Distribution: Seychelles, Madagascar

trunk



565

Leaves drooping along the trunk. Nuts fall off. Inner leaves dead, while outer ones are still green.

Oryctes boas F.
Rhinoceros beetle or black beetle.

COLEOPTERA; Scarabaeidae

Shining dark brown rhinoceros beetle, 25-30 mm long (like *Oryctes rhinoceros*), which attacks both coconut and oil palms. Its life history is similar to that of *O. rhinoceros*. The female is apt to oviposit in dung. Development period of one generation: about 9 months.

Distribution: Africa



566

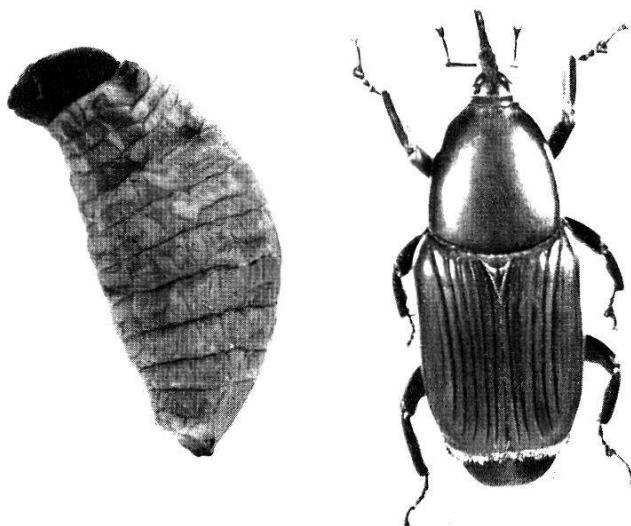
Flowers fade. Leaf stems broken. Leaves drooping or "dead hearts". Outer leaves often left uninjured. Fruits drop.

Oryctes rhinoceros L.
Rhinoceros beetle or black beetle.

COLEOPTERA; Scarabaeidae

Dark to brilliant reddish-brown, convex beetle, 35-45 mm long. The head of the male bears a prominent horn (see No. 565). The adults fly at the beginning of the rainy season, circling round the palms at night. The beetle gnaws through the leaf base or at its lower edge, and penetrates into the trunk. It also attacks the leaf buds, the unfolded fronds thus showing triangular segments (see No. 568). Gnawing is done *only* for feeding and never for oviposition purposes. The bore holes proceed horizontally from the periphery towards the centre tissue, then vertically downwards into the vegetative cone. Fibers and chippings are often found on the ground, and each palm may be attacked by several beetles. The eggs are laid in old decayed trunks (rotten wood) or in cow dung. The larvae are large grubs, up to 70 mm long, with a transverse anal fold. Development cycle of one generation: 6-8 months. Bore holes of black beetles may also be used by red palm weevils (*Rhynchophorus*) when these attack palm trees.

Distribution: India, Indonesia, Philippine Islands



**Sudden dieback of palms,
or breaking of the crown,
caused by wind. (As a rule
there are no easily detect-
able symptoms.)**

trunk

*Rhynchophorus
ferrugineus* Ol.
Red palm weevil.

COLEOPTERA;
Curculionidae

567

Large, very robust, dark brown snout weevil, about 30 mm long. The female places its eggs in wounds along the trunk (also in bore-holes of *Oryctes*). The young larvae immediately bore into the trunk, making deep tunnels. Attacks on the lower parts of the trunk are not harmful, but those on the upper parts are dangerous, the vegetative cone being destroyed. The larvae reach up to 50 mm in size. They pupate in a cocoon under the bark. Often several larvae are found in one trunk. Development period of larvae: several months. The adults are on the wing during the rainy season.

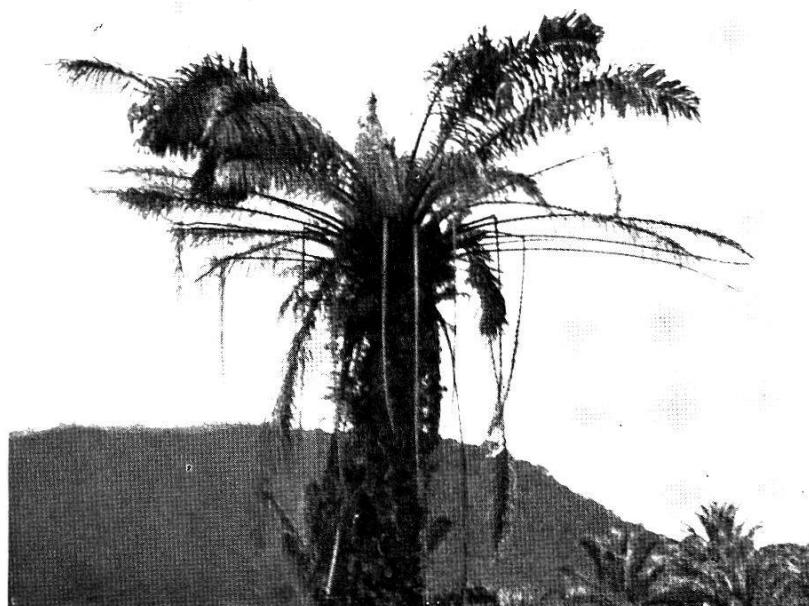
Distribution: Asia, Australia, Philippine Islands

**Fronds drooping,
"dead heart".**

*Rhynchophorus
phoenicis* F.
Palm weevil.

COLEOPTERA;
Curculionidae

568



Large, robust weevil, about 30 mm long, with dark brown and reddish-brown markings (see No. 567). The eggs are laid on the bark or in the heart. The larvae bore into the trunk, sometimes also into the roots of young palms. They pupate in a cocoon made of plant fibres. Development from larva to adult: 5-6 months.

Distribution: Africa

trunk



Foliage turns yellow; palms become stunted and die or may be broken by the wind. Zone of rupture severely mined and occupied by white, footless larvae.

Rhina barbirostris L.
Bearded weevil.

COLEOPTERA;
Curculionidae

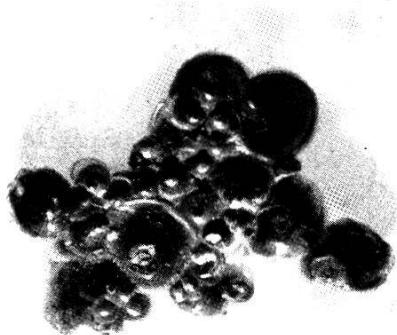
569

Dark brown, almost black weevil, 30-40 mm long excluding the snout; the latter measures 10-12 mm and is clothed with reddish-brown hairs. The forelegs are strikingly long. The female chooses unhealthy palms in the trunk of which it bores small holes, about 2 mm in diameter, where it deposits the eggs. The larvae are white, yellow-headed and decorated with dark dots on the segments. They emerge after a few days and tunnel horizontally into the trunk, often several larvae attacking one trunk. Pupation takes place in the trunk, inside crate-like cocoons.

Distribution: the West Indies

570

533



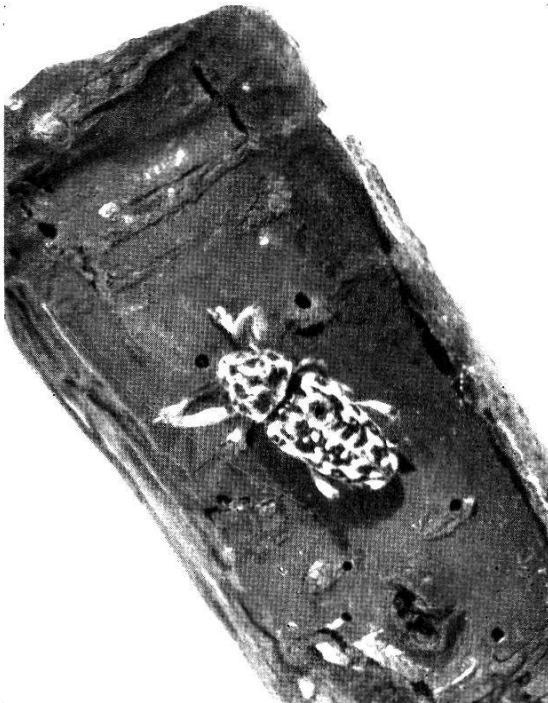
Young fruits shrivel and fall. Trunks of young palms often densely beset with dark scales, measuring about 2 mm. Plant development impaired.

Chrysomphalus ficus
Ashm.
Florida red scale.

HOMOPTERA;
Diaspididae

see page 290 (Citrus)

Distribution: widespread



Leaf stalks break, causing fronds to droop. Nut yield severely impaired. leaves

Amerrhinus pantherinus Ol.

COLEOPTERA; Curculionidae

571

Longish-oval, dark weevil, about 20 mm long. The upper surface of the body is marked with pale stripes. The legs are long and thin. The female places its eggs in the leaf stalks where the resulting larvae bore long tunnels.

Distribution: Brazil



Leaves with yellow and brown mines, turning completely yellow and curling up.

Coelaenomenodera elaeidis Maul.
Oil palm leaf miner.

COLEOPTERA; Chrysomelidae

572

Dark metallic beetle, with fairly straight sides, about 6 mm long. The thorax is considerably smaller than the elytra, these latter have prominent longitudinal ribs. The eggs are fixed to the underside of the leaves, where the larvae hatch after about 4 weeks, mining into the leaves. Development period of one generation: 2-3 months.

Distribution: Africa

leaves



573

Linear, necrotic brown stripes on freshly opened fronds, or partial dieback. Young palms die; older ones show a somewhat brownish crown.

Brontispa longissima Gestro.
Coconut hispid.

COLEOPTERA; Chrysomelidae

Slender beetle, 8-10 mm long. Its thorax, legs and costal portion of the elytra are reddish-yellow. The eggs are placed in the soft, unopened fronds. The larvae are creamy-white to white, bearing a lateral spiny protuberance on each segment and a pair of calliper-shaped processes at the tip of the abdomen. Both adults and larvae feed in the unopened fronds. Development period of one generation: about 6 weeks. Several generations.

Distribution: Solomon Islands

574



Leaves turn yellow and wither, due to streaky mines caused by feeding.

Plesispa Reichei Chap.

COLEOPTERA; Chrysomelidae

Small beetle, measuring 6-7 mm by 2 mm. The head and elytra are dark brown, the thorax and legs reddish-brown, the antennae dark. The female lays its eggs on the young leaves where the larvae eat streaks in the upper surface, leaving the lower epidermis intact. Several generations a year.

Distribution: Indonesia



Leaves greyish-brown, withering. Fruit leaves formation impaired.

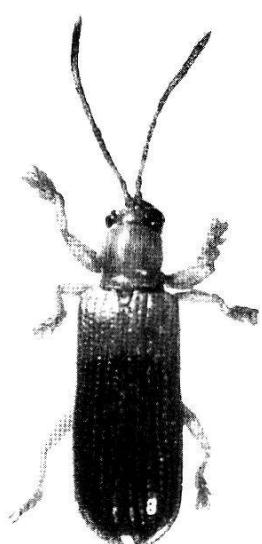
Promecotheca Cumingi Baly.
Coconut leaf miner.

COLEOPTERA; Chrysomelidae

575

Oval, metallic beetle, about 8 mm long, which gnaws holes in the leaves, wherein it lays its eggs. The larvae penetrate into the leaves and pupate in the mines thus produced. Several generations.

Distribution: Borneo, Philippine Islands, Malacca



Leaves with long and broad, reddish-brown mines. Plants considerably weakened when heavily attacked.

Promecotheca Reichei Chap.
Coconut leaf miner.

COLEOPTERA; Chrysomelidae

576

Beetle of various colours, 8 mm long. Head, thorax, antennae, legs and anterior portion of elytra are yellowish-red, while the remainder of the elytra is metallic blue. The eggs are deposited on younger leaves, where the resulting larvae feed, making linear mines. Several generations.

Distribution: Fiji-Islands, Hawaii, Tonga, Tahiti, Samoa

leaves **Leaflets devoured and withered. Injury proceeds from leaf base upwards.**

Nephantis serinopa Meyr.
Coconut caterpillar
or black-headed caterpillar.

LEPIDOPTERA; *Cryptophasidae*

577 Moth with a wing span of 20-25 mm. The forewings are pale brownish-grey with minute dots scattered here and there. The hindwings are pale greyish-brown, without any dots, but with a distinct seam along the inner margin. The body is also greyish-brown. The eggs are deposited on the leaves. The caterpillars feed on leaf tissue, stripping the leaves to the midrib. Pupation takes place on the palm. Development period: 5-6 weeks.

Distribution: Ceylon, Burma

Underside of fronds with long, brown feeding marks. Heavy attacks cause silvery-grey to brown discolorations and curling up of leaves.

Homaledra sabatella Chamb.
Palm leaf skeletonizer.

578 LEPIDOPTERA; *Momphidae*

Small moth with a wing span of about 25 mm, which lays its eggs on the leaves. The whitish caterpillars, occurring singly, feed on the lower surface of the leaves.

Distribution: the West Indies

Underside of leaves streaked with feeding mines, 2 mm wide and of various length. Leaves wither. Presence of pupal cocoons.

Agonoxena argaula Meyr.

LEPIDOPTERA; *Agonoxenidae*

579

Small moth of peculiarly flat shape, pale yellow with darker lines. When at rest a silvery band shows along the back and a silvery spot on each wing near the tip. The wing span reaches up to 15 mm. The caterpillar is very slender, pale yellow to green; it lives in a fine web on the underside of the leaves where it destroys the lower epidermis and the parenchymatous tissue, leaving the upper epidermis intact.

Distribution: Fiji Islands

Leaves with long, brown streaks, about 3-4 mm wide. Older caterpillars strip leaflets to midrib. leaves

Parasa lepida Cram.

Bluestripped nettle grub.

LEPIDOPTERA; *Limacodidae*

580

79, 439

Moth with green forewings, edged with brown, while the hind wings are beige. They expand up to 35-40 mm. The eggs are fixed in batches on the underside of the leaves. The caterpillars are yellow to green, the back and sides of the body marked with blue stripes. The stinging hairs are arranged in tufts. The insects fly at the beginning of the rainy season.

Distribution: India, Ceylon, Indonesia

Leaves severely attacked.

Ploneta diducta Snell.

LEPIDOPTERA; *Limacodidae*

581

Robust moth with a wing span of 20-25 mm. The forewings are dark brown with a pale crossband and small dots. The tip extends to a lobe. The hindwings are plain dark brown. The eggs are deposited on the leaves. The variegated caterpillars are armed with spines. Developmental cycle: 6-8 weeks.

Distribution: Indonesia



Leaves heavily attacked.

Narosa conspersa Walk.

Small gelatine grub.

LEPIDOPTERA; *Limacodidae*

582

Moth with yellowish-white forewings, spotted with reddish-brown, and pale yellow hind wings. The eggs are laid on the leaves. The caterpillars are naked, oval, light green; their back is humped. They pupate on the leaves in oval cocoons decorated with brown spots at the end. Development period: 8 weeks.

Distribution: South-East Asia

leaves **Young leaves with window-like feeding patches (upper epidermis intact). Young palms more exposed to damage than older ones.**

Natada nararia Moore

Fringed nettle grub.

LEPIDOPTERA; *Limacodidae*

583

126 Moth with reddish-brown forewings, dotted with black; wing span 25 mm. The eggs are laid on leaflets. The green to yellowish caterpillars feed on the underside of leaves. Several generations.

Distribution: India, Ceylon

Leaves largely destroyed, often stripped bare.

Thosea asigna v. Eecke.

LEPIDOPTERA; *Limacodidae*

584

Moth with a wing span of 30-40 mm. The forewings are brownish-red with a dark, pale-edged crossband and a small, dark dot. The hindwings are plain light brown. The pupae are dark brown, hard and globular, 1.5 mm in diameter. The eggs are placed by hundreds on the underside of the leaves. The caterpillars are provided with strong spines.

Distribution: Indonesia

Leaves largely destroyed, often stripped bare.

Thosea sinensis Walk.

LEPIDOPTERA; *Limacodidae*

585

318, 736

Slug caterpillar moth with a wing span of 40 mm. Both fore and hind wings are beige to brown, the former crossed with a thin, dark brown line. The eggs are laid on the leaves. The caterpillars are green to yellow, with a distinct line along the back, terminated at each end by green and red spines. 2 mm long. Development period of one generation: 10 weeks.

Distribution: India, Indonesia, China

Leaves heavily attacked. Presence on the underside of leaves of thick, slug-like gelatinous grubs.

Chalcocelides alboguttata Sn.

LEPIDOPTERA; *Limacodidae*

586

128

Moth with ochrous to light brown forewings, marked with a dark spot in the centre. They expand to about 40 mm. The eggs are fixed to the underside of the leaves, where the greenish, naked, slug-like caterpillars feed on leaf tissue. Pupation takes place in an egg-shaped or almost spherical cocoon on the leaves. Development period of one generation: about 3 months.

Distribution: India, Ceylon, Indonesia, Australia



Leaves with long, thin, brown streaks, about 3 mm wide. Feathers turn yellow and brown and wither.

Levuana iridesca Beth.-Bak.

LEPIDOPTERA; Zygaenidae

leaves

587

Small, bluish-red moth with long, comb-like antennae, which fixes its eggs in batches on the underside of the leaves. The caterpillars are slug-like and white; they bear a black line with tufts of short spines on each side. They feed from the underside of leaves, eating elongated stripes into the tissue and leaving the upper epidermis intact.

Distribution: Fiji Islands

Leaves skeletonized or mined, which causes them to turn brown. Fruits ripen precociously and fall off. Heavy attack during the rainy season.

Artona catoxantha Hamps.

Coconut leaf moth.

LEPIDOPTERA; Zygaenidae

588

Moth with plain, dark brown fore- and hindwings, which expand to 10-15 mm. The eggs are placed on the underside of the leaves. The caterpillars have a broad, hirsute head. The body segments also are furnished with hair tufts, the last segment bearing long hairs directed backwards. The caterpillars create gallery mines in the leaves. The pest reaches peak numbers in April and August. Several generations a year.

Distribution: Indonesia, Philippine Islands, Malayan Peninsula

leaves **Leaves of fronds turn yellow. Buds often destroyed.**

Castnia licus Drury
Gigant moth borer.

589 LEPIDOPTERA; *Castniidae*

272

The caterpillars attack young coconut palms, eating the soft tissue of the developing fronds. *C. licus* attacks also bananas.

see page 173 (Sugar-cane)

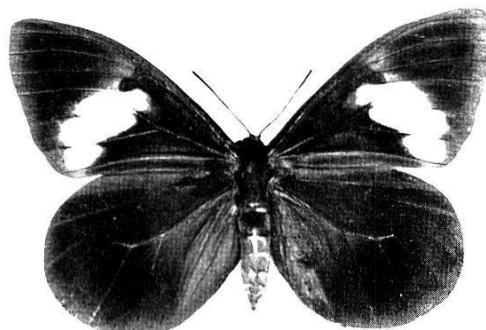
Freshly unfolded leaves with symmetrical feeding injuries. Older fronds break at the base, owing to deep, serpentine tunnels in the rupture zone. Oil palms, 2-5 years old, particularly liable to damage.

Pimelephila ghesquierei Tams
Pyrale du palmier.

LEPIDOPTERA; *Pyralidae*

590 Moth with dark brown forewings, speckled with orange and beige, while the hind wings are pale olive-green and also speckled with beige. The wings expand to about 30 mm. The body is slender, greyish-brown with one dark brown segment. The eggs are laid in the unopened leaves. The caterpillars are dark at first, turning dirty white to yellow-red later on. They are about 20 mm long when full grown. The young caterpillars bore into the unopened leaves; when these unfold, symmetrical damage becomes visible. Older caterpillars migrate towards the base of fronds, where they tunnel deep galleries into the stalks. Gum exudation marks the bore-holes.

Distribution: Congo



Leaves heavily attacked, often stripped bare. Presence on coconut palms of sac-like nests made of leaves spun together, up to 50 cm in size.

Brassolis sophorae L.
Coconut caterpillar.

LEPIDOPTERA; *Nymphalidae*

591

Moth with dark brown forewings, a pale zone at the centre. The hind wings are also dark, having a broad, pale margin. Oviposition takes place at dusk, the eggs being placed in slimy heaps, up to 1500 per female, on the underside of the leaves. The hairless caterpillars are dark green to grey, marked with two lateral, thin, pale lines. They live in great numbers in nests and feed at night. The pupae cling to the leaves. Several generations. Outbreak only every 4-5 years.

Distribution: South America (Brazil)

Leaves heavily attacked, trees often stripped bare. Fruit yield reduced.

leaves

*Sexava coriacea L.*ORTHOPTERA; *Tettigoniidae*

Large, light green grasshopper. The venation of the wings is very marked, almost similar to leaf venation. The antennae are very long and thin. The eggs are laid in the ground. The hoppers climb on the palms where they feed on leaves. *Sexava coriacea* is a serious pest only when occurring in great masses.

Distribution: Indo-Malayan Isles, New Guinea.

Leaf margin destroyed, young palms often stripped bare.*Aularches miliaris L.**Spotted locust.*ORTHOPTERA; *Acridiidae*

592

593

Brownish-green locust, about 50 mm long. The elytra are brownish with lighter spots. The thorax has a median keel. The female oviposits in the earth. Total egg to adult development: 1 year.

Distribution: India, Ceylon, Indonesia

Leaves heavily attacked, stripped to the midrib. Young plants particularly exposed to injury.*Tropidacris latreillei Pt.**Grasshopper.*ORTHOPTERA; *Acridiidae*

594

Large, robust grasshopper, about 40 mm long. Its body is brown with lighter markings. The forewings are light brown while the hind wings are hyaline, with a dense row of dark dots along the inner margin. The eggs are laid in the ground. The hoppers are brownish-yellow and brown, their thorax bearing a distinctly projecting keel.

Distribution: Brazil

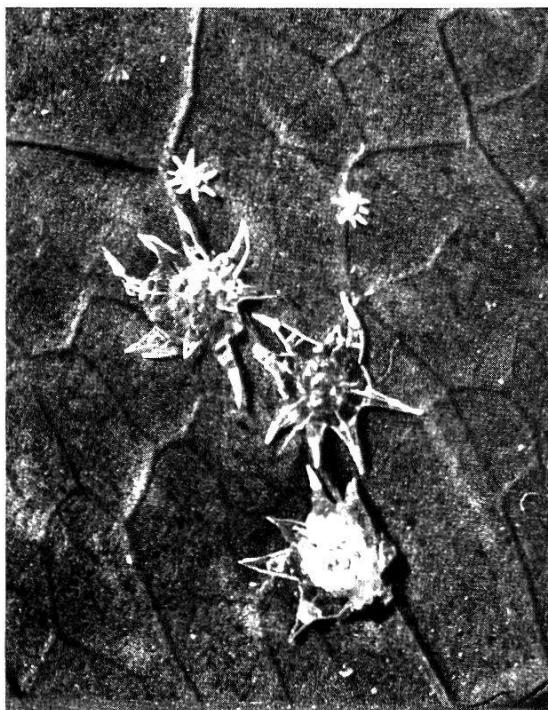
Leaves stained with yellow patches. Sooty mould formation. Fruit yield impaired (especially of 6-8 year-old palms).*Aleurodicus destructor Quaint**Coconut white fly.*HOMOPTERA; *Aleyrodidae*

595

The underside of the leaves is covered with waxy material, which conceals small "white flies", 1.5 mm by about 1 mm. These have 6 pores on their back which ensure the wax secretion. The waxy filaments may be up to 10 mm long. The insect is particularly active during the dry season.

Distribution: Indonesia

leaves



596

Star-shaped insect, with oval, dark coloured body and 7 long, star-like, waxy filaments. The total size of the insect, including the filaments is 2-3 mm.

Distribution: East Africa, Seychelles, Zanzibar, India, South America

597

420



Thousands of female scale insects on both sides of the leaves, small, round and flat, greyish-white or almost transparent and about 1.5 mm in diameter. They also infest the leaf stalks and fruits. Their sucking alters the chlorophyll, producing circular yellow zones round the punctures. With heavy infestation the puncture stains overlap. The pest disperses downwind. Several generations.

Distribution: Africa, India, Indonesia (practically wherever coconut palms are grown).

Fronds stained light yellow to brown, the stains eventually interlacing. Underside of leaves beset with star-like insects.

Vinsonia stellifera Westw.
Wax scale.

HOMOPTERA; Lecaniidae

Leaves turn yellow and brown, wither and fall. Underside of leaves beset with scales. Yellow and brown stains proceed from leaf base upwards, while tops of fronds are still green.

Aspidiotus destructor Sign.
Coconut scale.

HOMOPTERA; Diaspididae



Leaves with yellow and brownish-red spots, withering when heavily attacked. Lower surface infested with white, waxy scales. Young fruits mottled and shrivelled, ripening precociously and falling off.

Diaspis boisduvalii Sign.

HOMOPTERA; Diaspididae

leaves

598

23

Small, white sacs, about 1 mm long, with longitudinal ridges. The light brown exuviae are at the front end.

Distribution: Tropics and Subtropics



Leaves stained yellow. Presence of scales on the underside of leaves.

Ischnaspis longirostris Sign.
Black thread scale.

HOMOPTERA; Diaspididae

599

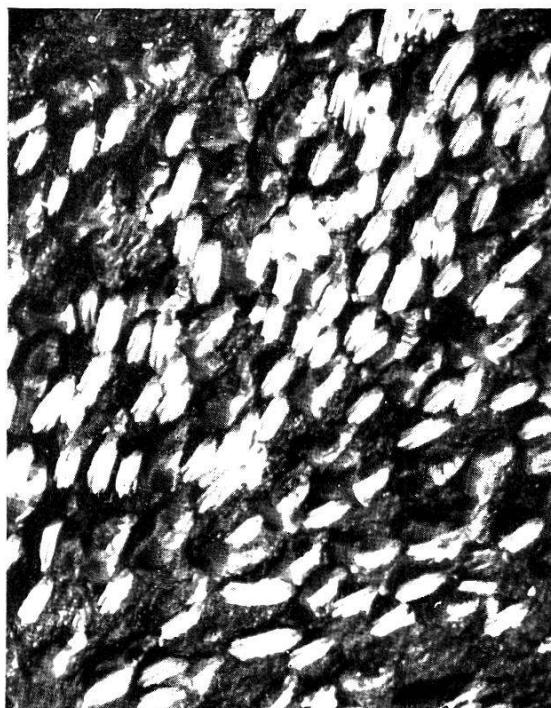
42

Dark-brown, elongated and narrow scales, slightly broader towards the posterior end. The females under the scales are yellowish, elongated and narrow.

Distribution: Africa, Seychelles, Indonesia, Central and South America

leaves

600



Leaves stained yellow or reddish, the whole crown turning yellow when heavily attacked. Nut yield reduced.

Pinnaspis buxi Bché.

HOMOPTERA; *Diaspididae*

flower-
buds

601

Unopened flower spikes with small dark spots. Feeding injury inside the flower spikes.

Acritocera negligera Butl.

LEPIDOPTERA; *Cossidae*

Moth, about 20 mm long, with brownish-red forewings, marked with light lines and light venation, while the hind wings are whitish to greyish, with a span of up to 50 mm. The adult moths are very swift fliers. They deposit their eggs at the leaf base. The caterpillars are white with yellow mandibles and thoracic shield; the anal segment is red-yellow, horny and pointed. They bore through the flower buds in the unopened spathes.

Distribution: Fiji Islands

nuts

Young nuts (2-4 weeks old) drop off, showing often considerably large and deep gnawing wounds from feeding.

Diacalandra taitensis Gue.

COLEOPTERA; *Curculionidae*

602

Reddish-brown weevil, about 6 mm long, the elytra of which show dark markings. The eggs are placed in the trunk. The weevils attack the trunk, leaf base and especially young nuts. The pest is only of local importance and then only when occurring in great masses.

Distribution: Fiji Islands

Stamens and stems destroyed and covered with webbing. Young fruits with bore-holes, falling off. Often presence of numerous caterpillars in one fruit. nuts

Tirathaba rufivena Walk.
Greater coconut spike moth.

LEPIDOPTERA; *Pyralidae*

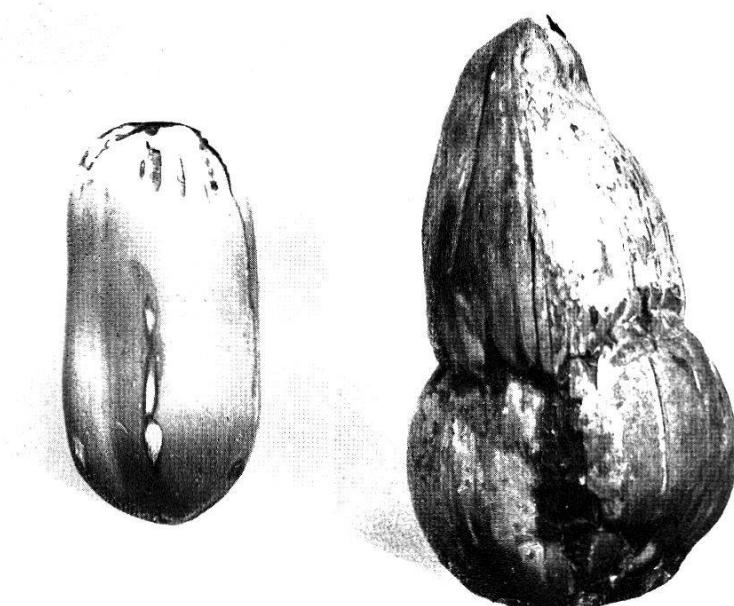
Moth with brownish-yellow forewings and pale hindwings, expanding to 25 mm. The female possesses a distinct ovipositor with which it inserts the eggs into the male flowers. The caterpillars are dirty yellow to brownish. They attack the flower spikes, stems, stamens and young fruits, and pupate at the base of the flower spikes. Development period: 5-6 weeks. Several generations.

Distribution: Ceylon, from Indonesia to Queensland

603

Young nuts drop off. Dark, long, necrotic lesions near the fruit base or in the middle of the fruit. Older nuts surrounded by dark, deep scars of decayed tissue. Strangulation impairs fruit development. Yield reduction up to 50%. Flowers also attacked, badly developed (lesions). Often formation of abnormally dense foliage while fruit production is poor.

604



Pseudotheraptus wayi Brown
Coreid bug.

HETEROPTERA; *Coreidae*

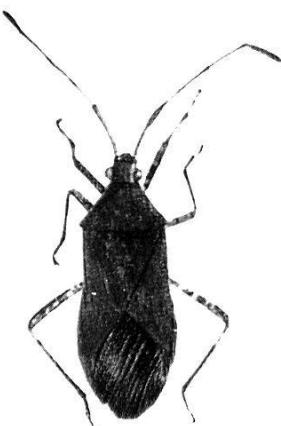
Slender, reddish-brown plant bug, 12-14 mm long when full grown. The membrane is dark brown. The body is densely and distinctly spotted above and yellowish-brown beneath. The antennae, legs and eyes are also yellowish-brown, the latter protuberant. Both adults and nymphs suck on flowers, young and half-ripe fruits. The pest is very lively, infesting the crown of the palms. Several generations.

Distribution: East Africa (Zanzibar)

nuts

605

464



Young nuts drop off. Dark, long, necrotic lesions near the fruit base or in the middle of the fruit. Older nuts surrounded by dark, deep scars of decayed tissue. Strangulation impairs fruit development. Yield reduction up to 50%. Flowers also attacked, badly developed (lesions). Often formation of abnormally dense foliage while fruit production is poor.

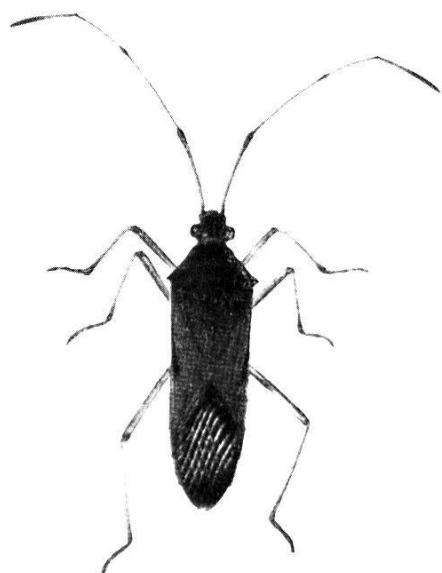
Amblypelta lutescens Dist.

HETEROPTERA; Coreidae

Brownish-yellow to greyish-brown plant bug, 12-15 mm long, resembling *Pseudotheraptus wayi*.

Distribution: Queensland

606



Young fruits drop off. Deep necrotic lesions all around the pericarp. Fruits distinctly strangulated in their middle.

Amblypelta cocophaga China
Coreid bug.

HETEROPTERA; Coreidae

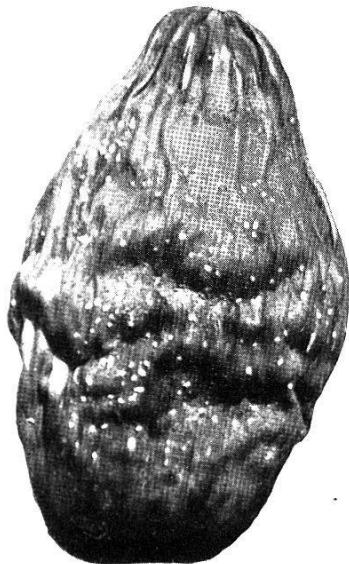
Very active and lively plant bug, 10-15 mm long, with a brownish-yellow head. The prothorax is brownish-yellow in front and brown behind. The shield and wings are reddish-brown; the costal margin of the latter is pale and transparent. The legs and the ventral side of the body are yellowish-brown, while the dorsal side of the abdomen is brown. The antennae are frail, the antennal segments of the nymphs distinctly broad and flattened. Development period of one generation: 6-7 weeks.

Distribution: Solomon and Fiji Islands

Well developed, ripening fruits shrivelled and infested with white, flat scales. nuts

Phenacaspis cockerelli Cooley

HOMOPTERA; *Diaspididae*



607

448

Shell-shaped, flat, white scales, about 3 mm long. The light and dark brown exuviae are at the pointed end (cf. also No. 448).

Distribution: East and South Africa, Madagascar, Seychelles, China, Japan, Hawaii, Australia

Sesame

(*Sesamum indicum L.*)

Most important pests: 614, 616, 617, 619, 620, 624

Plants turn yellow and die. Roots destroyed. Presence of white grubs.

root

Holotrichia Helleri Brsk.

COLEOPTERA; *Scarabaeidae*

608

Rusty-red cockchafer, 15-20 mm in size, which deposits its eggs in the ground. One generation a year.

Distribution: Indonesia



Tips of shoots deformed. Numerous necrotic patches. shoots

Agonoscelis pubescens Thunb.
Cluster bug.

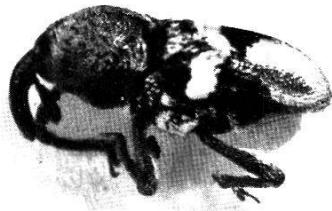
HETEROPTERA; *Pentatomidae*

609

Greyish-brown plant bug, 8-10 mm long, with a pale, V-shaped design on the wings. The brown and red abdominal segments extend laterally beyond the elytra. The legs are light brown. Total development period of one generation: 4-5 weeks. *A. pubescens* attacks also sorghum, cotton and beans.

Distribution: Africa

stem



All parts of plants withered when heavily attacked. Stems or pods with dark spots and often slight thickenings.

Baris helleri Hartm.

COLEOPTERA; Curculionidae

610

Small, dark brown weevil, about 3 mm in size, its elytra marked with small, inconspicuous white dots. The eggs are inserted into the stems or pods, where the resultant larvae mine.

Distribution: Africa (East)

leaves

Leaves of young plants riddled with holes. Plant growth stunted when heavily attacked.

Aphthona bimaculata Jac.

COLEOPTERA; Chrysomelidae

611

Small, oval, shiny metallic beetle with two spots on the elytra. The eggs are laid at the plant base. The beetles feed on foliage, leaping off when disturbed. Several generations.

Distribution: East Africa, Nyasaland

Young leaves heavily attacked.

Oothecca mutabilis Sahlb.

Leaf beetle.

COLEOPTERA; Chrysomelidae

612

Oval, fairly convex beetle, about 8 mm long, yellowish-red with black legs and head. The peak of attack occurs in March/April.

Distribution: East Africa

Leaves partially destroyed, sometimes stripped to the midrib. Fruits also heavily attacked outside, often stem injured as well.

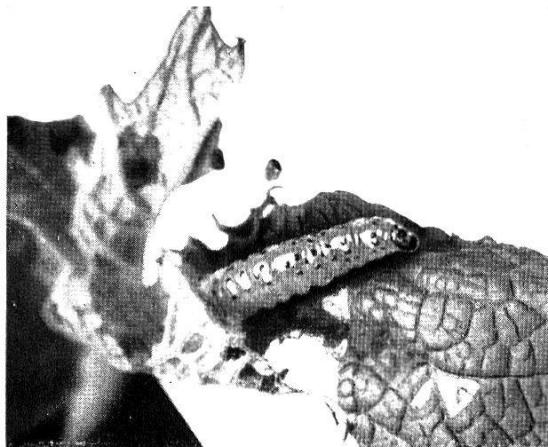
Epilachna chrysomelina F.

COLEOPTERA; Coccinellidae

613

Oval, reddish to brownish-yellow beetle, 6-8 mm long. The elytra are marked with 12 coarse, black dots. The eggs are placed in clusters on the underside of the leaves. The oval and fairly convex larvae are furnished with pinnate processes all over the body. Both larvae and adults feed on foliage. Development period of one generation: 5-6 weeks. Several generations.

Distribution: Mediterranean countries, Africa



Leaves and flower buds spun together and destroyed. Heaviest damage in March/April.

Maruca testulalis Geyer
Mung-moth.

LEPIDOPTERA; Pyralidae

leaves

614

331, 658

Small moth with brown forewings, flecked white and greyish-white hindwings. The eggs are laid on the leaves on which the hatching dark to greyish-green caterpillars feed, spinning them together. They often occur in vast numbers and emerge in March/May. Several generations.

Distribution: widespread in tropical countries

Young plants stripped to stem and leaf veins. Plants often completely denuded.

Hieroglyphus banian F.

615

ORTHOPTERA; Acrididae

245

see page 163 (Rice)

Leaves glossy white, curled downwards.

Thrips sp.
Thrips.

THYSANOPTERA; Terebrantia



616

Slender, pale yellow to light brown thrips, about 2 mm long. Several generations.

Distribution: East Africa

leaves



617

711

Leaves wrinkled, often deformed. Tips of shoots also deformed, bearing distinct swellings. Plant growth disturbed.

Cyrtopeltis tenuis Reut.
Tobacco-Capsid.

HETEROPTERA; Miridae

Frail, slender, brownish-yellow plant bug, 3 mm long, with black, protuberant eyes and yellowish antennal segments with a black base. The wings are marked with a black fleck in the centre of the margin. The legs are yellow. The eggs are laid on the underside of the leaves. Both nymphs and adults suck the plant sap. Development period of one generation: 5-6 weeks. Several generations a year. *C. tenuis* attacks also tobacco.

Distribution: Africa, India, Indonesia, Australia, Central America

Leaves mottled, drooping and slightly curled. Necrotic patches, drying up and falling off, thus causing perforation of leaves. Growth stunted.

Lygus vosseleri Popp.
Plant bug.

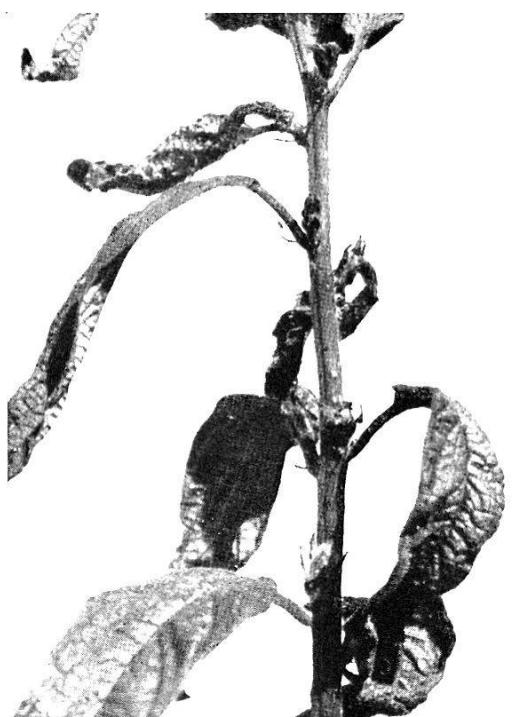
HETEROPTERA; Miridae

618

812



see page 411 (Cotton)



Leaves strongly wrinkled and curled downwards. Shoots deformed. Growth and fruit formation severely impaired. Presence of dense colonies of lice on the plant (see No. 503).

Myzodes persicae Sulz.
Green peach aphid.

HOMOPTERA; Aphididae

leaves

619

717, 728, 875

Light green or yellowish aphid, about 2 mm long, with indefinite stripes of darker colour on the abdomen. The siphuncles are relatively long. The forehead bears distinct humps. The antennae are as long as the body. The aphid is an important vector of virus diseases. Reproduction may occur parthenogenetically as well as bisexual. Many generations a year.

Distribution: cosmopolitan



Leaves with white patches, spun together and destroyed. Young leaves, i.e. those near the tips of shoots are preferred. Capsules are also attacked, caterpillars being visible inside them.

Antigastra catalaunalis Dup.

LEPIDOPTERA; Pyralididae

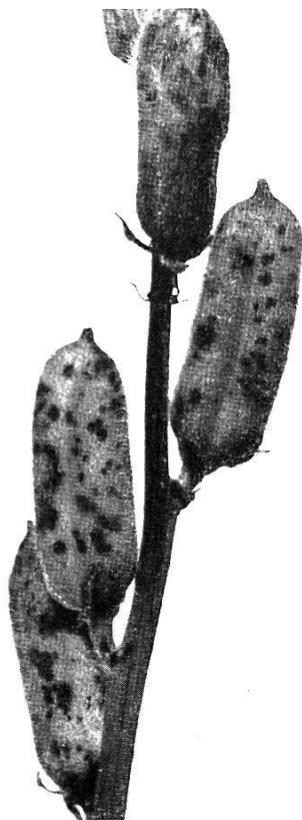
capsules

620

Moth with a wing span of 15-20 mm. The forewings are brownish-yellow with a reddish hue, decorated with indistinct zigzag lines. The apex tapers to a point. The hindwings are pale yellow, almost transparent. The eggs are laid on the shoots and leaves. The caterpillars are green to yellowish-green, speckled with black. Full grown they may be up to 15 mm long.

Distribution: Southern Europe, Africa, India, Indonesia, South and East Asia

capsules

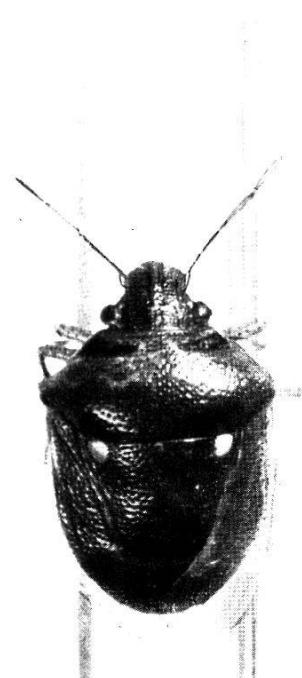


Pods chlorotic, showing dark sucking punctures and slight malformation. Development impaired.

Aspavia sp.
Stink bug.

HETEROPTERA; Pentatomidae

621



Young, recently formed capsules misshapen and stained yellow. Development severely impaired.

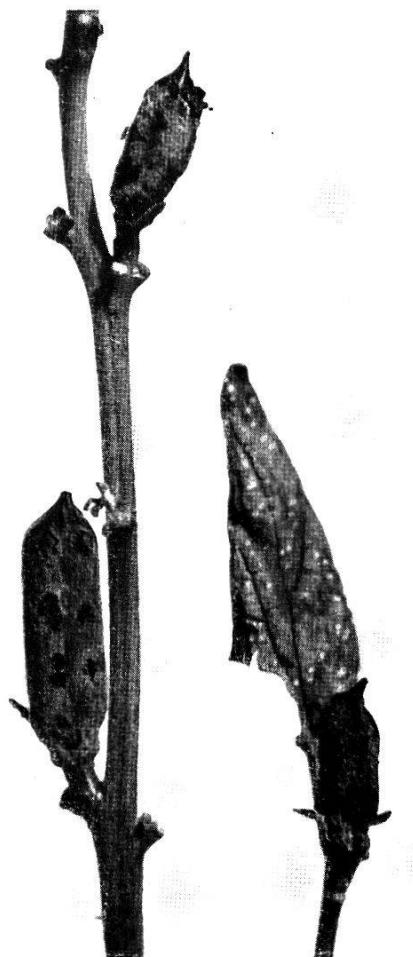
Eusarcoris ventralis W.
Stink bug.

HETEROPTERA; Pentatomidae

622

Broad plant bug, 5-6 mm long, brownish to ochrous, with dark dots and two large, transverse spots. The legs and underside of the body are ochrous, darkly punctate, while the central disk of the abdomen is black. *E. ventralis* also attacks rice, the insect's sucking causes the ripening grains to turn black.

Distribution: India



Capsules with dark spots, withering and falling off.

Phricodus sp.
Stink bug.

HETEROPTERA; Pentatomidae

capsules

623

Broad and flat stink bug, 8-10 mm long, ochrous to reddish-brown, with dark, indistinct markings. The legs and antennae are yellowish-red. The peak of attack occurs in May/June when young bugs appear in great masses on shoots and young capsules.

Distribution: East Africa



Leaves turn grey to greyish-brown, curl slightly downwards and become brittle, before they are shed. Pods dry out, remain underdeveloped or ripen precociously.

Tetranychus urticae Koch
Common red spider.

ACARINA; Trombidiformes

624

327, 351, 380
637, 670, 769
789, 820, 868
874

see page 415 (Cotton)

Distribution: widespread

Castor

(*Ricinus communis L.*)

Most important pests: 628, 629, 631, 636, 637, 641

Growth stunted, especially among young plants. Roots with dark lesions.

root

Radopholus similis Cobb.

Burrowing nematode.

NEMATODA

625

2, 353, 382

466, 731, 7

see page 38

Distribution: widespread throughout the Tropics and Subtropics

Leaves heavily attacked. (Contact with caterpillars causes severe skin irritation.)

leaves

Parasa vividula Walk.

Stinging caterpillar.

LEPIDOPTERA; *Limacodidae*

626

29

Moth with light and dark green forewings, fringed with brown, while the hind-wings are pale yellow. The caterpillars are shield-like, furnished at both ends with long, cone-shaped processes. The whole body is armed with poisonous hairs and spines (see Fig. 38). The pupa, spherical in shape, is found in the topsoil. Development period of one generation: 3-4 months.

Distribution: Africa, India, Ceylon

Leaves riddled with holes, flowers often completely devoured.

Taragama diplocyma Hmps.

Tent caterpillar moth.

LEPIDOPTERA; *Lasiocampidae*

627

Robust, stout moth, with a wing span of 40-50 mm, light brown to beige in colour. The eggs are placed on the leaves and covered with a woolly extrusion. The caterpillars are densely clothed with dark brown hairs and black tufts of bristles.

Distribution: Africa

leaves



**Severe injury to leaves, plants often stripped bare.
Young plants preferred.**

Achaea janata L.
Castor semi-looper.

LEPIDOPTERA; Noctuidae

628

Moth with a wing span of 40-50 mm. Both fore- and hindwings are brownish-grey with dark zigzag lines and pale and dark brown spots. The eggs are fixed to the underside of the leaves. The hairless caterpillars are brownish-grey, with pale and dark lateral lines. The penultimate segment bears in addition two dark, erect dorsal tubercles. The caterpillars feed at night, hiding in day time in the topsoil.

Distribution: India, Ceylon

Young plants severely attacked. Leaves and stems often completely destroyed.

629

Prodenia litura F.

Cotton worm.

LEPIDOPTERA; Noctuidae

see page 423 (Cotton)

Leaves heavily attacked, often stripped to the midrib. The hairs of the caterpillars cause severe skin irritation (urticaria).

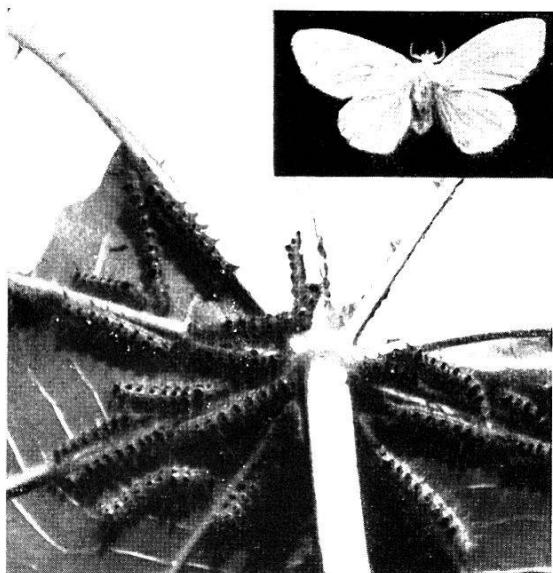
Euproctis rubricosta Fawc.

LEPIDOPTERA; Lymantriidae

630

White butterfly, densely clothed with scales. The wings expand to 25-30 mm. The egg clusters are covered with brown anal fluff and fixed to the underside of the leaves where the caterpillars hatch after a few days and feed gregariously. The larger caterpillars are densely hirsute and bear ochrous and black decorations; they devour the whole leaf tissue before pupating on or in the ground. Development period of one generation: 5-6 weeks. Peak in May/June. *E. rubricosta* attacks also cotton.

Distribution: Africa, Madagascar



Leaves severely attacked, skeletonized. Presence of clusters of caterpillars, covered with webs.

Euproctis producta Walk.

LEPIDOPTERA; Lymantriidae

leaves

631

Small, yellowish-white moth with a wing span of 30-35 mm. The female places its eggs on the leaves, covering them with a woolly extrusion. The caterpillars are reddish-brown, densely furnished with hairs which cause severe irritation of the human skin. The pest emerges during the rainy season.

Distribution: Africa



Leaves heavily attacked, skeletonized.

Dasychira georgiana Faw.

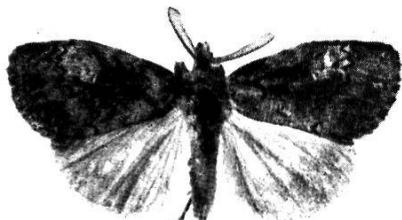
LEPIDOPTERA; Lymantriidae

632

Robust moth, its body and legs densely clothed with hairs. The antennae are comb-like, the forewings are greyish-white with undulating grey lines. When resting, the wings of the moth are folded roof-like. The upper side of the abdomen is furnished with ochrous hairs. The caterpillars are also densely clothed with hairs and armed on the back with characteristic hair tufts which cause severe skin irritation. Development period of one generation: 4-5 weeks.

Distribution: East Africa

leaves



Leaves heavily destroyed. Plants often stripped bare.

Dasychira inclusa Walk.

LEPIDOPTERA; Lymantriidae

633

Moth with a wing span of 30 mm and comb-like antennae. The forewings are dark brown with ochrous spots. The caterpillars are densely clothed with hairs and bear 4 robust white bristles on their back. The head and abdomen are furnished on left and right with a hair tuft directed forward. The hairs cause severe skin irritation.

Distribution: Asia

Leaves heavily attacked, skeletonized.

Orgyia mixta Sn.
Tussock moth.

634

LEPIDOPTERA; Lymantriidae

Small, robust, dark-coloured moth with a wing span of 30-40 mm. The egg-mass is covered with brownish-grey woolly extrusion. The caterpillars are densely furnished with ochrous hairs and black bristles on the back. Contact with them causes severe skin irritation.

Distribution: Africa

Leaves with pale spots. Necrotic patches on leaf stalks. Leaf-shedding.

Ptyelus grossus F.

635

HOMOPTERA; Cercopidae

Beige to brownish leafhopper, 15-18 mm long. The wings form a tent when at rest. The costal margin of the forewings is marked with 2 large, pale flecks. The hindwings are transparent with a few dark spots. The abdomen is dark, greenish at the base. The pest occurs mainly in January/February.

Distribution: East Africa



Leaves mottled with small, white, usually conjoint spots. Heavy attacks cause the leaf margins to curl downwards.

Empoasca flavescens F.
Green fly.

HOMOPTERA; Jassidae

leaves

636

140

Frail, bluish-green leafhopper, about 3 mm long (see Fig. 241) which lives on the underside of the leaves.

Distribution: widespread in the Tropics and Subtropics

Leaves stained greyish-white to reddish-brown, turning yellow. Leaf-shedding.

Tetranychus urticae Koch
Common red spider.

ACARINA; Trombidiformes

637

327, 351, 380
624, 670, 769
789, 820, 868
874

see page 415 (Cotton)

Distribution: widespread

Leaves partially wrinkled. Small young fruits greyish-green and withering.

fruits

Nezara viridula L.
Green plant bug.

HETEROPTERA; Pentatomidae

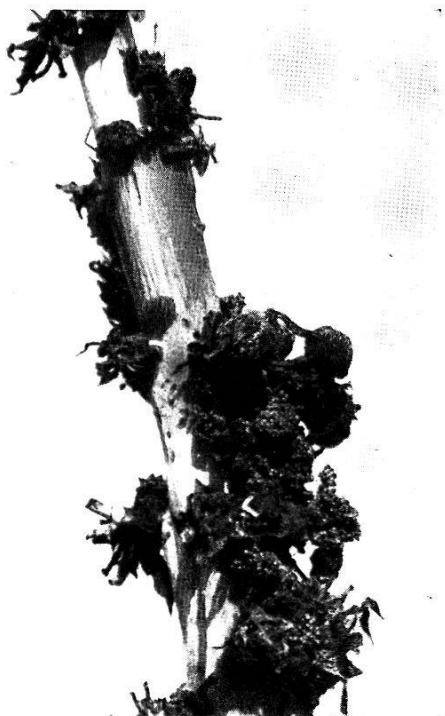
638

250, 312, 480
691, 841

see page 363 (Tobacco)

Distribution: widespread

fruits



639

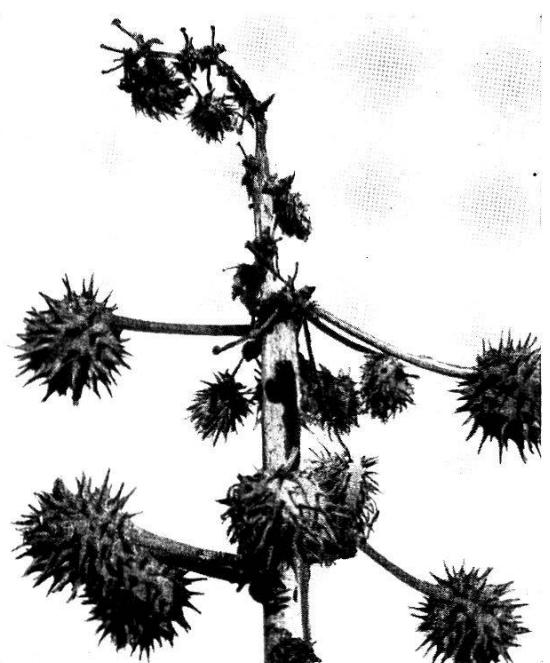
Flowers and young fruits turn black and die.

Lygus sp.
Plant bug.

HOMOPTERA; Miridae

Fairly slender, greenish plant bug, 6-8 mm long. The antennae are thin, the head small with distinctly protuberant eyes. The legs are pale green and thin (see Fig. 44).

Distribution: East Africa



640

182, 876

Shoots and fruits die.

Dichocrocis punctiferalis Guen.
Peach moth.

LEPIDOPTERA; Pyralididae

Small, inconspicuously dark coloured moth. The caterpillars are light to reddish-brown and have a dark head capsule. They attack the young fruits and the tips of the shoots.

Distribution: India, Burma, Ceylon, China, Japan, Australia

**Stalks of youngest leaves distorted, i.e.
twisted. Leaves fail to develop. Fruits die.** fruits



Adelphocoris apicalis Reut.

HETEROPTERA; Miridae

641

831

Elongate, oval, flattened plant bug, about 8 mm long, with light greyish-brown to dark reddish-brown wings. The membrane is hyaline. The head and prothorax are dark brown. The antennae and the first and second pairs of legs are light brown, while the hindlegs are dark brown. Several generations. The nymphs are green with dark wing rudiments. They suck on leaf stalks and young fruits. Peak in May. *A. apicalis* attacks also cotton plants.

Distribution: East, Central and West Africa

Ground-nuts (Pea-nuts)

(*Arachis hypogaea L.*)

Most important pests: 645, 649, 657, 660, 662, 667, 669, 670, 676

Roots of young plants bearing many small knots. Growth and fruit formation stunted.

root and nuts

Meloidogyne sp.

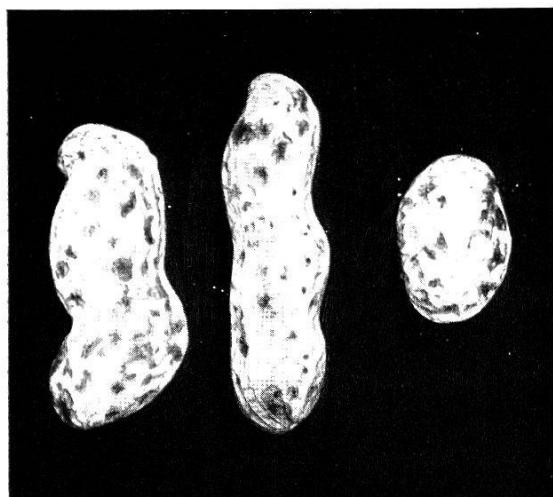
Root-knot nematode.

NEMATODA

642

see page 37

Distribution: widespread



Roots and fruits with dark patches.

Pratylenchus sp.

NEMATODA

643

Endoparasitic nematodes, 0.5-0.8 mm long, which live in the roots and in the pods.

Distribution: Africa



Roots and fruits destroyed. Presence of grubs.

Schizonycha africana Cast.

COLEOPTERA; Scarabaeidae

644

Dark brown cockchafer which is on the wing in February/March, and lays its eggs in the ground, where the larvae (grubs) feed on roots. One generation a year.

Distribution: Africa

root
nd nuts

645

70, 307, 747
796



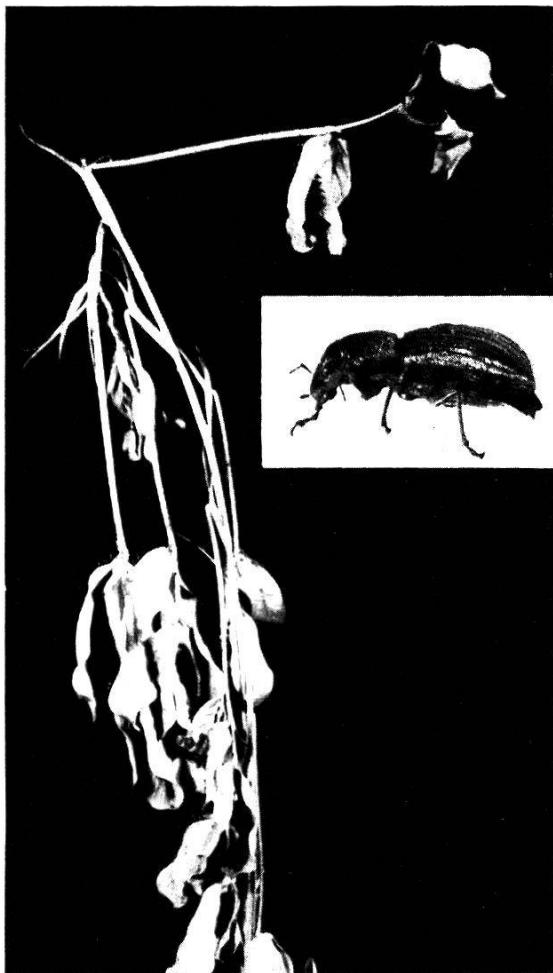
Plants stained yellow,
defoliated or dead.
Roots destroyed.

*Hodotermes mos-
sambicus* Hag.
Termite.

ISOPTERA;
Hodotermitidae

see page 383 (Chillies)

646



Plants turn yellow and die. Leaves and
roots destroyed.

Graphognathus leucoloma Buch.
White fringed weevil.

COLEOPTERA; Curculionidae

Large, dark grey weevils, 10-12 mm long, with white lateral bands. The eggs are laid at the base of the plant. Damage is done to the roots by the larvae and the foliage is destroyed by the feeding of the adults. They reproduce parthenogenetically.

Distribution: South Africa, North and South America, Australia

Partial dieback of plants. Presence of coleopterous larvae in the stem.

stem

Sphenoptera perotetti Fe.COLEOPTERA; *Buprestidae*

Beetle of metallic colouring, about 10-12 mm long (see No. 646), which deposits its eggs in the base of the plant or on the ground. The larvae mine into the stem and penetrate into the roots.

Distribution: India

647

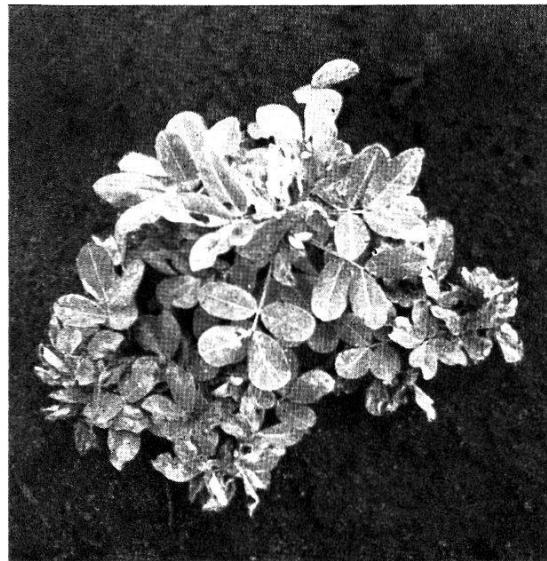
Partial chlorosis. Stem with deep feeding scars and dark stains.*Alcides arcuatus* Bohem.

Weevil.

COLEOPTERA; *Curculionidae*

648

Small, dark, convex weevil, fairly oval in shape, 3-4 mm long, which oviposits in the base of the stem. The larvae feed in the stem.

Distribution: East Africa

Stems stained and deformed. Leaves dwarfed and chlorotic.

Creontiades pallidus Ramb.
Shedder bug.

HETEROPTERA; *Miridae*

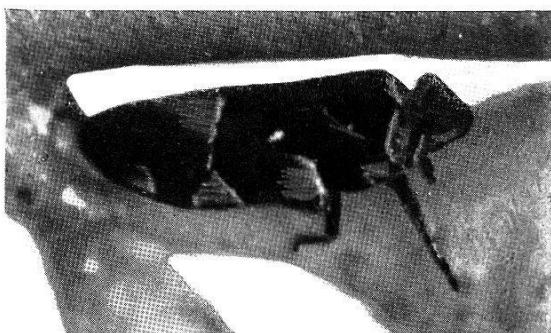
649

797

Thin and slender, brownish-yellow plant bug, 8 mm long, with dark markings on the inner margin of the forewing. The legs and antennae are long and thin, the latter dark yellow. The eyes are protuberant. The female lays its eggs in the shoots. Egg to adult life cycle about 5 weeks.

Distribution: West Africa, India

stem



650

Dark red and brown leafhopper, 4 mm long. The head, seen from above, appears triangular. The wings form a tent. The antennae, placed behind the eyes, have the appearance of small horns. The first third of the costal margin of the forewings has a white, comma-shaped fleck. The eggs are laid on the stem. Both nymphs and adults are protected by earth tubes built by ants at the stem base. Several generations a year.

Distribution: Africa

shoots

Plants chlorotic, growth dwarfed. Base of shoots infested with oval scale insects, about 3 mm long, covered with fine white dust.

Dysmicoccus brevipes Ckll.

Pineapple mealybug.

HOMOPTERA; *Pseudococcidae*

651

384

see page 220 (Pineapple)

leaves

Plants completely denuded of leaves.

Luperodes quaternus Fairm.

COLEOPTERA; *Chrysomelidae*

652

Small, longish oval, convex beetle, about 10 mm long, of metallic colouring (see Fig. 23). Both adults and larvae feed on leaves. The pest emerges at the beginning of the rainy season.

Distribution: Africa

Leaves and stems destroyed.

Spilosoma strigatula Walk.

LEPIDOPTERA; *Arctiidae*

653

Small, stocky moth, light in colour, which places its eggs on the leaves. The caterpillars are hirsute, brownish-yellow to ochrous with a light coloured line along the back.

Distribution: Indonesia.

Plants turn yellow and die.

Hilda patruelis Stål.

Leaf hopper.

HOMOPTERA; *Tettigometridae*

Leaves and stems mostly destroyed. leaves*Amsacta albistriga* Walk.*Red hairy caterpillar.*LEPIDOPTERA; *Arctiidae*

654

Reddish to brownish, hirsute caterpillar, 20-30 mm long, which occurs often in great masses. It is chiefly harmful in West-Monsoon regions. Several generations a year.

Distribution: India**Plants stripped bare.***Catopsilia eurythme* Boisd.*Alfalfa caterpillar.*LEPIDOPTERA; *Pieridae*

655

Small, yellow butterfly, which lays its eggs on the leaves. The caterpillars are green, covered with a fine pubescence. The pest sometimes occurs in great masses, especially in irrigated sections, but it only occasionally attacks groundnuts. Several generations a year.

Distribution: U.S.A., Mexico**Leaves heavily attacked, especially at the margin.***Myllocerus* sp.COLEOPTERA; *Curculionidae*

656

Stocky, convex weevil, about 10 mm long, with a short and stumpy snout. The insect, which attacks the leaves, is clothed with grey to silvery scales.

Distribution: India**Leaves spun together and destroyed. Presence of very active caterpillars.***Stomopteryx subsecivella* Zell.*Groundnut surul.*LEPIDOPTERA; *Gelechiidae*

657

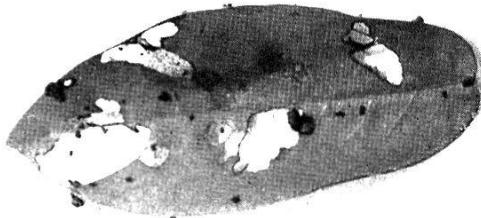
Dark green to brownish-green hairless caterpillars, about 20 mm long, the segments of which bear black spots. They skeletonize the leaves and spin them together.

Distribution: South Africa, India, Ceylon, Indonesia

leaves

658

331, 614

**Leaves spun together and destroyed.**

Maruca testulalis Geyer
Mung-moth.

LEPIDOPTERA; Pyralidae

Small moth with brown forewings and flecked white and greyish-white hindwings. The eggs are laid on the leaves on which the hatching dark to greyish-green caterpillars feed, spinning them together. They often occur in vast numbers and emerge in March/May. Several generations.

Distribution: practically wherever groundnuts are grown

Leaves heavily attacked.

Lamprosema indicata F.
Bean leaf webber.

659

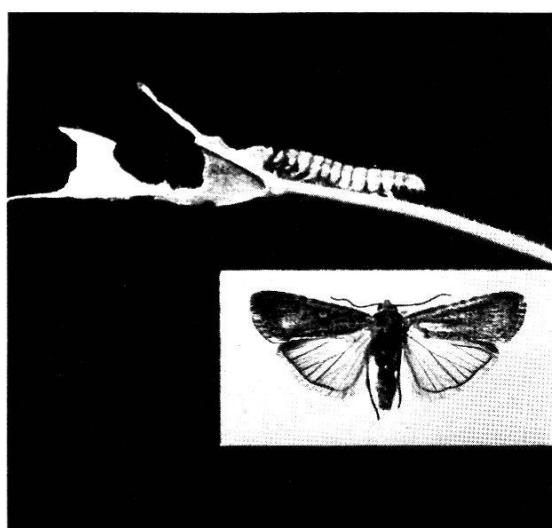
LEPIDOPTERA; Pyralidae

329

Small moth with light or dark markings. The light to dark green caterpillars feed on foliage. Several generations.

see page 196 (Beans)

Distribution: Africa, East Asia, the West Indies

**Most of the leaves and stems destroyed.**

Laphygma exigua Hb.
Beet armyworm.

LEPIDOPTERA; Noctuidae

660

35, 704, 807

see page 409 (Cotton)

Distribution: Europe, Africa, India, U.S.A., Japan

Severe injury to leaves, plants often stripped bare.

leaves

Achaea finita Gn.LEPIDOPTERA; *Noctuidae*

Moth with a wing span of 50-60 mm. Both fore- and hindwings are dark greyish-brown with dark, indistinct zigzag lines. The outer margin of the wings has a pale edge. The eggs are fixed to the underside of the leaves. The hairless caterpillars are brownish-grey to brownish-yellow, with a pale lateral line, and a black lateral dot on each segment. The penultimate segment bears in addition two dark, erect dorsal tubercles. The caterpillars feed at night, hiding in day time in the topsoil.

661

Distribution: Africa, Mauritius**Leaves and stems severely injured, plants often stripped bare.**

662

Prodenia litura F.*Cotton worm.*LEPIDOPTERA; *Noctuidae*
 132, 194, 32
 629, 703, 83
 867

see page 423 (Cotton)

Leaves destroyed, plants often stripped bare.

663

Chrotogonus sp.ORTHOPTERA; *Acridiidae*

Grasshopper with a broad, depressed body, 15-20 mm long, of ochrous to brownish-yellow colour.

Distribution: Africa

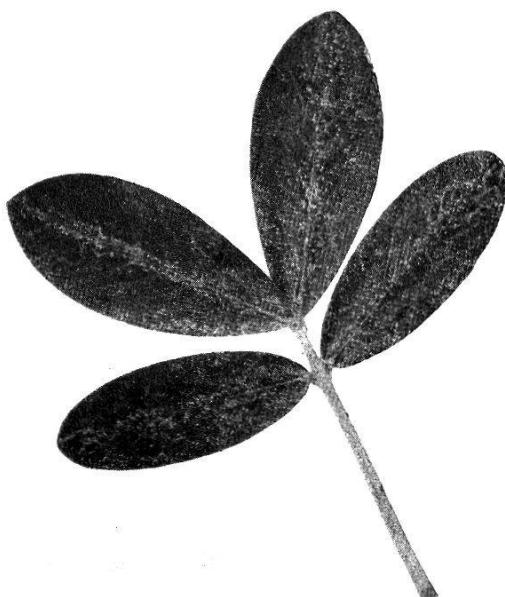
Leaves mottled white and yellow, and misshapen. Plants stunted.

Scirtothrips dorsalis Hood
Thrips.

THYSANOPTERA; *Terebrantia*

664

748



see page 384 (Chillies)

leaves

Leaves wither. Attacked flowers and leaves marked with tiny black dots (excrement).

Taeniothrips distalis Karny

Thrips.

THYSANOPTERA; *Terebrantia*

665

Small, light brown thrips, about 2.5 mm long (see Fig. 13), which lives mainly on the underside of the leaves and in the flowers. It oviposits in the leaves.

Distribution: India

Leaves turn yellow, their margins curling upwards. Often severe leaf-shedding.

Heliothrips indicus Bagn.

Cotton thrips.

666

THYSANOPTERA; *Terebrantia*

Minute, light brown thrips, about 2-3 mm long (see Fig. 13), which inserts its eggs into the leaves. Several generations.

Distribution: Africa, India



667

Growth stunted. "Groundnut rosette disease virus". Leaves stained yellow and shrivelled; internodes shortened. Fruits rudimentary.

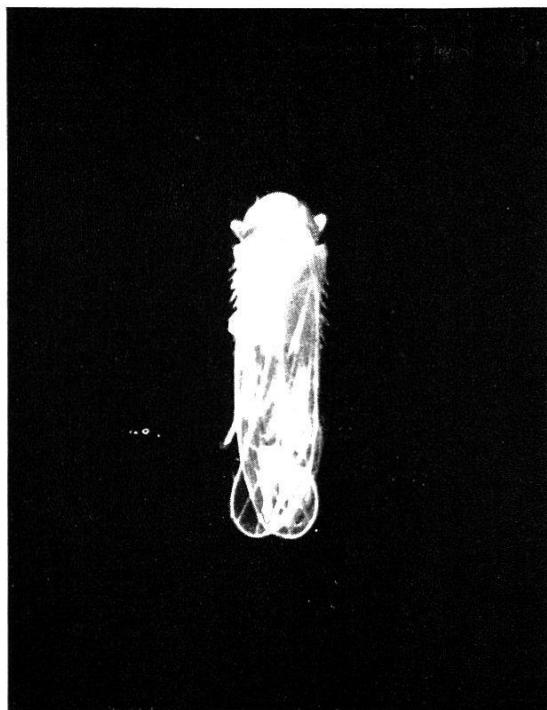
Cicadulina arachidis China

Cicadulina similis China

HOMOPTERA; *Jassidae*

Reddish-yellow to pale green leafhopper, 2 mm long. The dorsal side of the abdomen is brown, the ventral side yellow. The wings are transparent. *C. similis* resembles *C. arachidis* except that the head of the former is marked with 2 small dark dots. The adults and nymphs live on the underside of leaves and fly off at the slightest movement of the plant. The eggs are laid in the leaves. Several generations. The pest emerges in April/May.

Distribution: Africa



Leaves turn yellow and wither, from the margin inwards, curling downwards. Plants stunted.

Emoasca fabae Harr.
Bean leafhopper
Emoasca facialis Jac. (Africa).

HOMOPTERA; *Jassidae*

leaves

668

Small, pale green leafhopper, only 3-4 mm long, with white flecks on the front margin of the thorax. The nymphs are smaller than the adults, almost white and unable to fly. They live on the underside of the leaves where the exuviae can be found. The adults fly up in swarms when disturbed. Several generations each season.

Emoasca transmits also "Rosette disease".

Distribution: U.S.A., Bermudas, Peru, the West Indies



Leaves and stem covered with colonies of aphids. Growth stopped. Plants stunted.

Pergandeida
robiniae Macch.

HOMOPTERA;
Aphididae

669

426

Dark green to brownish aphids, covered with a thin layer of wax, their legs bearing fine hairs (see No. 503). *Pergandeida robiniae* transmits also the groundnut rosette disease.

Distribution: Tropics and Subtropics

leaves

670

7, 351, 380
4, 637, 769
9, 820, 868
874

see page 415 (Cotton)

Distribution: widespread

Leaves speckled white to grey, their margins curled up. Young leaves fail to unfold. Plants covered with webs in which small mites are visible.

Tetranychus urticae Koch
Common red spider.

ACARINA; *Trombidiformes*

Buds turn yellow and wither.

671

Frankliniella tritici Hinds.
Common flower thrips
THYSANOPTERA; *Terebrantia*

Small, brown thrips, 1-2 mm long, which deposits its eggs in the leaves and flower stalks. Egg to adult life cycle: 2-3 weeks. Several generations.

Distribution: U.S.A., South America

Buds turn yellow and wither. Leaves speckled white to grey.

672

708

Frankliniella fusca Hinds.
Tobacco thrips.
THYSANOPTERA; *Terebrantia*

Brown thrips, 1.5 mm long, which deposits its eggs in the leaves and flower stalks. Development period of one generation: 8-10 days.

Distribution: U.S.A., South America

Leaves riddled with holes, flowers often completely devoured.

673

Monolepta australis Jac.
Red shouldered leaf-beetle.
COLEOPTERA; *Chrysomelidae*

Oblong, bright metallic beetle, about 5 mm long, with reddish shoulder protuberances and light coloured legs. The adults emerge in large numbers, attacking the leaves.

Distribution: Australia

Flowers severely injured, often completely devoured. flowers

Oxycetonia versicolor F.
Flower beetle.

COLEOPTERA; Scarabaeidae



674

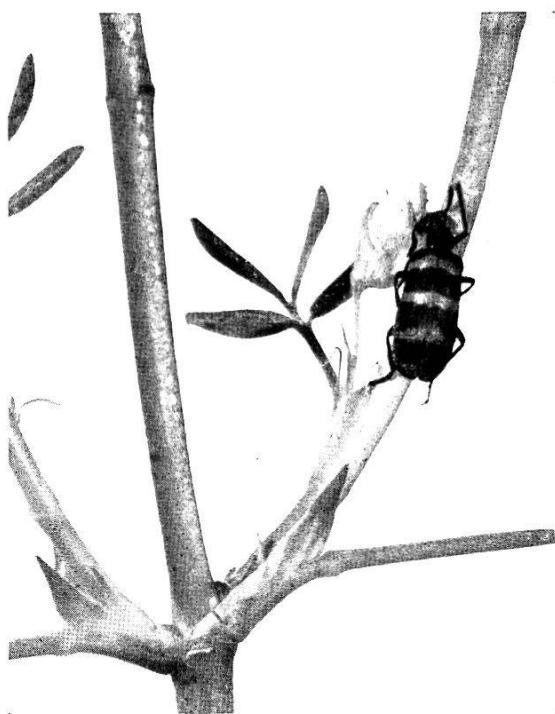
Rose chafer, about 15 mm long. The elytra are dull black with a few small, white spots placed crossways. The prothorax is dark and shiny. The pest attacks the flowers.

Distribution: India, Ceylon, Madagascar

Flowers completely or partially destroyed.

Coryna apicicornis Guér.

COLEOPTERA; Meloidea



675

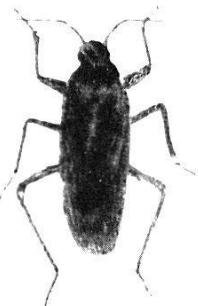
Oblong, black and yellow dotted beetle, about 20 mm long, with a strikingly large abdomen. The pest is especially abundant at flowering time (March/April).

Distribution: Africa

seed

Seeds shrivelled and stained black, failing to germinate.

Aphanus sordidus F.
Pod bug.



676

HETEROPTERA; *Lygaeidae*

Small, agile plant bug, 7-9 mm by about 3 mm. Its body is dark brown, with yellow markings; the wings are dark, and the antennae long. The eggs are laid on stored seed or in dust. The larvae (first to sixth instars) are mainly orange. One generation develops within about 60 days.

Distribution: Africa, India, China
