

Pests and Diseases in Cacao

A field guide to unwanted pests and diseases of cacao in Samoa



SPS Biota

ECOSYSTEM
SERVICES

This 'field guide to unwanted pests and diseases in Samoa's cacao industry' has been created by **SPS Biota**

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Black Pod

Phytophthora spp

Common names:

Black pod, pod rot

Syptoms:

Pod necrosis

Part of the plant attacked:

Fruit

Pest present in Samoa:

Yes

Other countries present in:

Unkown

Link to Samoa:

n/a

Entry pathway risk:

n/a

Alt host plants:

nil



Present in Samoa

BLACK POD

Black Pod

Phytophthora megakarya

Common names:

Black pod, pod rot

Syptoms:

Pod necrosis
(necrotic lesions
have irregular
edges)

Part of the plant attacked:

Fruit

Pest present in Samoa:

Probably not

Other countries present in:

West Africa, PNG

Link to Samoa:

People, live plants

Entry pathway risk:

High

Alt host plants:

Avocado, taro,
mango, pawpaw,
pineapple



Probably not present in Samoa

Black Pod

***Phytophthora palmivora*, *P. capsici*,
*P. citrophthora***

Common names:

Black pod, pod rot

Syptoms:

Pod necrosis

Part of the plant attacked:

Fruit

Pest present in Samoa:

No?

Other countries present in:

Oceania, Asia,
Central and South
America

Link to Samoa:

People, live plants

Entry pathway risk:

High

Alt host plants:

Nil



Not present in Samoa ?

Fungus

Moniliophthora roreri (Basidiomycota)

Common names:

Frosty pod rot

Syptoms:

White fungal mat on pod surface

Part of the plant attacked:

Fruit

Pest present in Samoa:

No

Other countries present in:

South & Central America

Link to Samoa:

Nil

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa

Fungus

***Rhizoctonia theobromae* (Basidiomycota) (=Oncobasidium theobromae)**

Common names:

Vascular-streak
dieback (VSD)

Syptoms:

Leaf chlorosis. Tree
decline/death

Part of the plant attacked:

Leaves, shoot,
branch dieback

Pest present in Samoa:

No?

Other countries present in:

PNG (New Britain
Is), India, China,
Malaysia & other
SE Asia locations,
(possibly Solomon
Is?)

Link to Samoa:

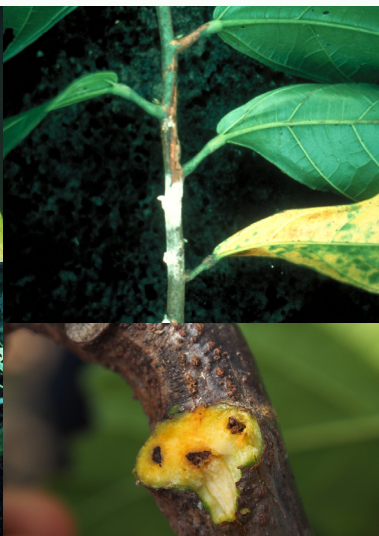
Nil

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa ?

Fungus
Moniliophthora perniciosa
(*Basidiomycota*)

Common names:

Cacao Witches'
Broom

Syptoms:

Fruitless branches,
distorted leaves

**Part of the plant
attacked:**

Shoots, flowers and
pods

**Pest present in
Samoa:**

No

**Other countries
present in:**

South & Central
America, Carribbean

Link to Samoa:

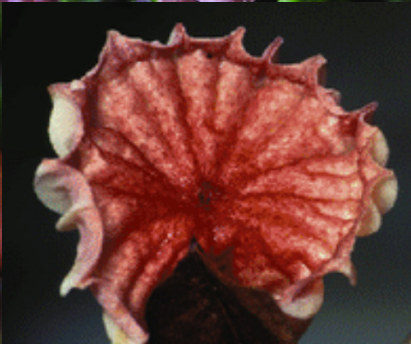
People

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa

Fungus

Ceratocystis cacaofunesta

(Ascomycota)

Common names:

Ceratocystis wilt of cacao

Syptoms:

Leaf yellowing/
brown, wilting, then
tree death

Part of the plant attacked:

Entire plant

Pest present in Samoa:

No

Other countries present in:

South America

Link to Samoa:

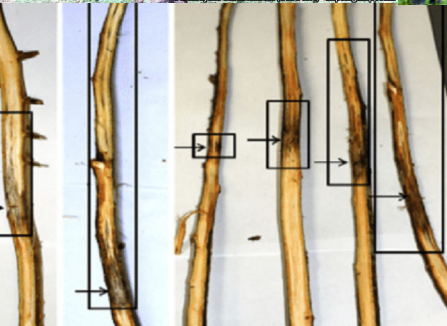
People

Entry pathway risk:

Low

Alt host plants:

Nil



Not present in Samoa

Virus

***Badnavirus Cocoa swollen shoot virus* (*Caulimoviridae*)**

Common names:

CSSV

Syptoms:

Can include: leaf & root chlorosis, red vein banding in young leaves, small mottled pods, and stem/root swelling followed by die-back

Part of the plant attacked:

Leaf, shoot tip distortion. Transmission by *Pseudococcus* spp mealy bugs (see below)

Pest present in Samoa:

No

Other countries present in:

West Africa (Côte d'Ivoire, Ghana, Togo)

Link to Samoa:

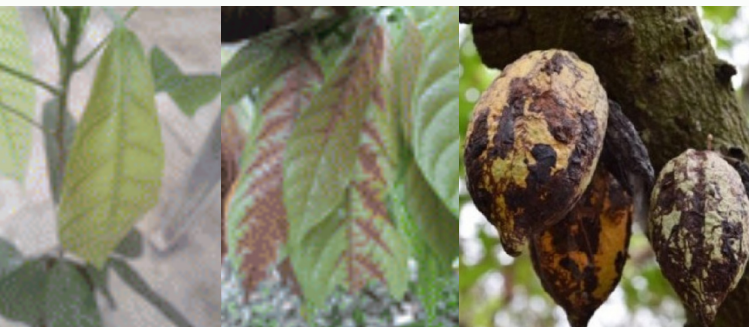
Nil

Entry pathway risk:

Nil

Alt host plants:

Cola chlamydanta,
Ceiba pentandra,
Adansonia digitata,
Cola gigantea and
Sterculia tragacantha



Not present in Samoa

Insect - Virus vector
Planococcoides njalensis
(*Pseudococcidae*)

Common names:

West African mealy bug

Syptoms:

n/a

Part of the plant attacked:

Vector for Badna viruses

Pest present in Samoa:

No

Other countries present in:

West Africa & Central Africa

Link to Samoa:

Nil

Entry pathway risk:

Nil

Alt host plants:

Coffee



Not present in Samoa

Insect - Virus vector

***Planococcus citri* (Pseudococcidae)**

Common names:

Citrus mealy bug

Syptoms:

n/a

Part of the plant attacked:

Vector for Badna viruses

Pest present in Samoa:

Yes

Other countries present in:

Cosmopolitan (most countries globally)

Link to Samoa:

Yes

Entry pathway risk:

Nil

Alt host plants:

Mango, avocado



Present in Samoa

Insect - Mirid/capsid bug ***Helopeltis spp (Miridae)***

Common names:

Cocoa mirid

Syptoms:

Necrotic lesions form from feeding sites on the surface of cocoa stems, branches and pods

Part of the plant attacked:

Fruit

Pest present in Samoa:

No

Other countries present in:

PNG, SE Asia

Link to Samoa:

Nil

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa

Insect - Mirid/capsid bug

Monalonion spp

Common names:

Cocoa mirid

Syptoms:

Necrotic lesions form from feeding sites on the surface of cocoa stems, branches and pods

Part of the plant attacked:

Fruit

Pest present in Samoa:

No

Other countries present in:

Sth & Central America, SE Asia

Link to Samoa:

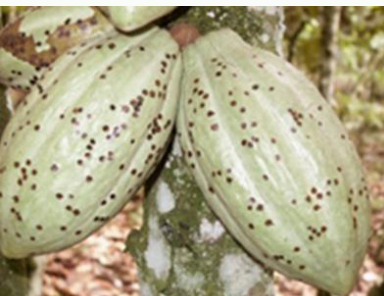
Nil

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa

Insect - Mirid/capsid bug ***Sahlbergella singularis* (Miridae)**

Common names:

Brown cocoa mirid

Syptoms:

Necrotic lesions form from feeding sites on the surface of cocoa stems, branches and pods

Part of the plant attacked:

Fruit

Pest present in Samoa:

No

Other countries present in:

West Africa

Link to Samoa:

Nil

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa

Insect - Mirid/capsid bug

Distantiella theobroma (Miridae)

Common names:

Cocoa capsid

Syptoms:

Necrotic lesions form from feeding sites on the surface of cocoa stems, branches and pods

Part of the plant attacked:

Fruit

Pest present in Samoa:

No

Other countries present in:

West Africa

Link to Samoa:

Nil

Entry pathway risk:

Nil

Alt host plants:

Nil



Not present in Samoa

Insect - Caterpillar

Conogethes punctiferalis (Crambidae)

Common names:

Castor capsule borer, corn moth, peach moth, peach pyralid moth, shoot borer, yellow peach moth, durian moth

Syptoms:

Feeding damage internal to pod.
Associated rot

Part of the plant attacked:

Fruit. Larva feed inside young and mature pods

Pest present in Samoa:

No

Other countries present in:

Brunei, Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Korea, Philippines, Thailand, Vietnam, Queensland, PNG.

Link to Samoa:

Yes. Wide host range (refer link for spp).

Entry pathway risk:

Med/high

Alt host plants:

Nil



Not present in Samoa

Insect - Caterpillar

***Zeuzera* spp, including *Zeuzera coffeae* (Lepidoptera)**

Common names:

Carpenter worm,
cocoa pod borer,
coffee leopard moth,
red branch borer

Syptoms:

Feeding damage
internal to pod and
shoots. Associated
rot/wilting

Part of the plant attacked:

Fruit and stem
borer.

Pest present in Samoa:

No

Other countries present in:

China, India,
Cambodia,
Indonesia,
Loas, Malaysia,
Philippines, Sri
Lanka, PNG

Link to Samoa:

Yes. Wide host
range (refer link for
spp)

Entry pathway risk:

Med/high

Alt host plants:

Nil



Not present in Samoa

Insect - Caterpillar
Conopomorpha cramerella
(Lepidoptera) (=Acrocercops cramerella)

Common names

Cocoa pod borer, cacao moth, cocoa moth, javanese cocoa moth, rambutan borer, ram-ram borer

Syptoms

Unevenness and premature pod ripening. Mishapen fruit. Feeding spots/ lesions

Part of the plant attacked

Young fruit

Pest present in Samoa

Yes

Other countries present in

Samoa, PNG, Solomon Is, Sth & SE Asia, Oceania. Eradicated from Australia in 2014. India, China, Philippines

Link to Samoa

n/a

Entry pathway risk

n/a

Alt host plants

Nil



Present in Samoa

Insect - Beetle (Weevil) ***Pantorhytes sp (Coleoptera)***

Common names:

Cacao weevil borer

Syptoms:

Larvae borer into trunk and branches

Part of the plant attacked:

Trunk and branches

Pest present in Samoa:

No?

Other countries present in:

Irian Jaya, PNG, Solomon Islands

Link to Samoa:

People & plant material

Entry pathway risk:

Med/high

Alt host plants:

commercial forest trees, e.g., Eucalyptus and Terminalia



Not present in Samoa ?

Insect - Beetle

Glenea lefebvrei (Cerambycidae)

Common names:

Longhorn beetle

Syptoms:

Unknown. Reported as a primary cocoa pest in PNG.

Part of the plant attacked:

Unknown. Reported as a primary cocoa pest in PNG.

Pest present in Samoa:

No?

Other countries present in:

Indonesia, PNG, possibly Solomon Is

Link to Samoa:

Nil

Entry pathway risk:

Low/med



Not present in Samoa ?

Mite

***Polyphagotarsonemus latus* (Tarsonemidae)**

Common names:

Broad mite

Syptoms:

Leaf/shoot distortion, leading to shoot dieback

Part of the plant attacked:

Microscopic. Leaf, shoot tip distortion

Pest present in Samoa:

No?

Other countries present in:

Present in most countries globally

Link to Samoa:

Nil

Entry pathway risk:

Med/high

Alt host plants:

Very wide host range

Not present in Samoa ?

Process flow for reporting

Have you recognised a new pest or disease affecting any part of cacao plants?

(fruit, trunk, branches, leaves, shoots, flowers, overall plant health)

Take a photo of the pest or disease you have found



Using your 'Pests and Diseases in Cacao' field guide, do your best to **identify the pest or disease** you have found

(your identification can be broad- e.g., 'Insect', or specific- e.g., 'Fungus- cacao witches broom')



Option 1

Using ____ **send the photo** you've taken and what you believe the pest or disease to be (identification) to: ____

You should receive a reply within 3 days

Option 2

For an immediate response:
Call ____, you'll be asked to describe the pest or disease symptoms