



Pacific Pests and Pathogens - Fact Sheets

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Yam rusts (097)



Photo 1. Yam rust, *Goplana dioscoreae*, (upper leaf surface).



Photo 2. Yam rust, *Goplana australis* (underside of leaf).



Photo 3. Yam rust of undetermined species from Papua New Guinea, showing typical rust symptoms on upper and lower leaf surfaces.



Photo 4. General view of yam rust of undetermined species, Papua New Guinea.

Common Name

Yam rusts

Scientific Name

Goplana dioscoreae and *Goplana australis*

Distribution

Narrow. *Goplana dioscoreae* is reported from Southeast Asia, Oceania. It is recorded from Samoa and Solomon Islands. *Goplana australis* has a more limited distribution, and has only been recorded from Samoa and Papua New Guinea.

Hosts

Yam species, *Dioscorea alata* (greater yam), and *Dioscorea bulbifera* (bitter yam or air potato).

Symptoms & Life Cycle

Goplana dioscoreae: Yellow spots or pustules (Photo 1) develop on the upper leaf surface (rarely on the lower leaf surface), and sometimes on the petioles and stems.

Goplana australis: Pale yellow pustules, mostly on the under surface of the leaf in groups, 2-4 mm diameter (Photo 2). Pale brown,

circular spots with pale green-yellow haloes occur on the upper leaf surface.

Note, the identity of the rust (Photo 3&4) is unknown. It was taken in Papua New Guinea and is provided here to illustrate the general appearance of either of these rusts on the plant. Note the rust on the leaf petioles and veins (Photo 3).

Impact

These are minor diseases in most Pacific island countries, and it is unlikely to affect tuber yields. They occur late and the damage is relatively small.

In recent years, severe outbreaks of a rust disease were reported from Pohnpei, Federated States of Micronesia, so it is important to check if symptoms have changed and, perhaps, a more aggressive strain of either of these rusts has developed.

Detection & inspection

For both species, look for the yellow to light orange pustules on the leaf. Pustules of *Goplana dioscoreae* are more obvious on the upper surface, and sometimes present on the leaf stalks and stems. Pustules of *Goplana australis* are mostly on the undersurface.

Symptoms from these rusts are similar and need microscopic examination to identify them.

Management

The disease is usually of only minor importance and controls are not needed.

QUARANTINE

In the 2000/2001 yam season in Pohnpei, Federated States of Micronesia, there was a widespread epidemic of yam rust. The rust had been recorded in Pohnpei previously, but was unknown as a serious disease. During the epidemic, more than 80% of the plants were affected in some areas.

It was not entirely clear, however, if the disease referred to as a severe leaf blight, with stem dieback, was due to the rust alone. It was possible that another fungus was present. The description of symptoms and photos resembled those caused by the yam anthracnose, *Colletotrichum gloeosporioides* (see **Fact Sheet no. 16**).

Nevertheless, the symptoms of rust were more severe than described previously, either in Pohnpei or elsewhere in the Pacific. The presence of pustules on the stems was particularly noticeable, and unusual. The presence of these pustule caused speculation that a new race might be involved. If true, this has quarantine implications for the movement of planting material between countries.

As the unrestricted movement of plant propagating material has the potential of further spreading yam rust, it should be done with caution, following the FAO/IBPGR *Technical Guidelines for the Safe Movement of Yam Germplasm* (<http://www.bioversityinternational.org/e-library/publications/detail/yam/>).

AUTHORS Helen Tsatsia & Grahame Jackson

Photo 1&2 Kohler F, Pellegrin F, Jackson G, McKenzie E (1997) *Diseases of cultivated crops in Pacific Island countries*. South Pacific Commission. Pirie Printers Pty Limited, Canberra, Australia.

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