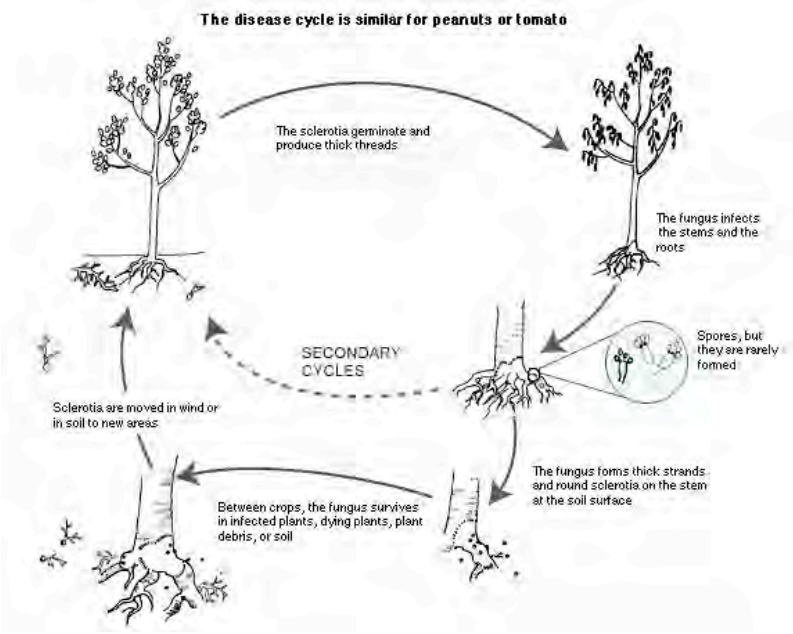
Extension Fact Sheet 11: *Athelia* Wilt

Common name: Wilt; Southern blight; Athelia wilt.

Scientific name: *Athelia rolfsii*. This is the name of the sexual state of the fungus. It is also known by the asexual state, *Sclerotium rolfsii*. The sexual stage (see secondary cycle, below) is not commonly seen.

Hosts: The fungus has a very wide host range. In Solomon Islands, it is common on carrot, beans, cucurbits, sweet pepper, peanut (photo, right), sweet potato (photo, left), taro and tomato.



Damage

The fungus is soil borne. It usually infects the lower stem near the soil surface. On peanut, the first sign of the disease is a wilt of a single leaf and soon after the wilt of the entire plant. During warm wet weather, the fungus spreads from plant to plant.

Biology and Life Cycle

When the cotton wool-like like growth of the fungus comes into contact with susceptible roots, leaves or stems, direct penetration occurs, but it can also penetrate through wounds. The fungus produces chemicals that produce soft rots in 2-4 days

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after infection. When the soft rots girdle the stem, the foliage wilts and plant death follows soon after. The fungal growth can easily be seen with the naked eye.

About 7 days after infection, the cotton wool-like growth begins to form sclerotia. These are 0.5-2 mm diameter and made up of tightly packed bundles of the fungus. They are white and then light brown as they mature. Sclerotia are the resting stage of the fungus, keeping it alive when there are no plants to infect. Sclerotia may remain viable for several years in soil, potting media, or in plant debris. Other than sclerotia, the fungus can survive between crops in the remains of plants. The life cycle of *A rolfsii* is given above (see diagram[1]).

Spread over short distances is by the cotton wool-like growth; spread over long distances is by movement of infected plant material or infested soil. The wind can carry soil containing the sclerotia.

Signs and Symptoms

The presence of the thick white cotton wool-like growth at soil level and the presence of sclerotia are very typical of this fungus. Look for plants that have wilted suddenly.

Management

Cultural control:

The fungus has such a large number of hosts that crop rotation is not a practical solution. However, bananas appear resistant to infection and maize and cabbages are little affected. The following measures are important:

- Avoid land where there is a previous history of this disease;
- After harvest, remove plant remains and burn them;
- Where possible, plough the land deeply: sclerotia do not survive for more than 45 days if buried 20-30 cm;
- Check that plants taken from a nursery are free of the fungus;
- Remove infected plants with soil around the roots as soon as they start to wilt, taking care not to spread the fungus by dropping soil/sclerotia onto other plants;

Resistant varieties:

Little success has been reported in finding varieties - of the crops that are susceptible - with resistance to this fungus.

Chemical control:

Many fungicides have been recommended for the control of *A rolfsii*, but they are either not available and/or too expensive for use in Solomon Islands.

[1] The diagram of the life cycle is from APSnet Education Center. Southern blight. The permission of The American Phytopathological Society to use this diagram is gratefully acknowledged.
http://www.apsnet.org/education/LessonsPlantPath/SouthernBlight/default.htm

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