

# Pacific Pests, Pathogens and Weeds - Online edition

## Cowpea Cercospora leaf spot (303)

### Common Name

Cowpea Cercospora leaf spot

### Scientific Name

*Pseudocercospora cruenta*. Previous names are *Cercospora cruenta* and *Mycosphaerella cruenta* (the sexual state). Note that some taxonomists consider that this fungus is the same as *Cercospora canescens* (see **Fact sheet no. 301**).

### Distribution

Asia, Africa, North, South and Central America, the Caribbean, Oceania. It is recorded from Australia, American Samoa, Fiji, Nauru, New Caledonia, Niue, Papua New Guinea, Samoa, Solomon Islands, and Tonga.

### Hosts

Many legumes, e.g., *Canavalia galeata* (sword bean), *Lablab purpureus* (hyacinth bean), *Mucuna aterrima* (Mauritius bean), *Mucuna puriens* (velvet bean), *Phaseolus lunatus* (lima bean), *Phaseolus vulgaris* (French bean), *Vigna marina* (sea bean), *Vigna radiata* (mung bean), *Vigna unguiculata* ssp. *sesquipedalis* (long bean), *Vigna unguiculata* ssp. *unguiculata* (cowpea). In Africa, *bambara* groundnut (*Vigna subterranea*) is also a host.

### Symptoms & Life Cycle

A serious leaf disease of cowpea, but also a problem on *bambara* groundnut (West Africa), mung and French (or common) beans. Reddish-brown fungal spots occur, up to 15 mm diameter, circular to angular, merging, often with a yellow halo (Photo 1). Sometimes the spots are limited by the veins. Infected leaves yellow and fall prematurely (Photo 2).

On mung bean, the centres of the spots become grey or white.

Spread is by spores blown in the wind, and splashed in rain. Survival is in debris left after harvest, and on alternative hosts. In Fiji, the disease is worse during cool times with temperatures of 20-25°C.

### Impact

The disease is important in West Africa. Pod yields (numbers of pods and number of seeds per pod) are reduced by the leaf infections, and lower yields up to 40% are likely on susceptible varieties. Similar findings have been reported from the USA, where numbers of pods per plant are likely to be 25% lower on susceptible varieties. The impact of the disease has been reduced in the last 15-20 years because of the use of resistant varieties. However, new fungal strains are present, and there is always the potential for severe outbreaks of the disease.

### Detection & inspection

Look for large reddish-brown spots (up to 15 mm), merging and causing leaves to yellow and fall. Look for the dark powdery spore masses on the spots on the lower leaf surfaces (Photo 3). When held to the light the older spots show a distinct ring around them. Dead areas fall out giving a shot-hole appearance.



Photo 1. Top and underside of a cowpea leaf showing the large reddish brown spots *Pseudocercospora cruenta*, mostly restricted by the veins.



Photo 2. As the spots caused by *Pseudocercospora cruenta* enlarge and merge, the leaves yellow and die.



Photo 3. Powdery spores form on the spots on the underside of leaves infected by *Pseudocercospora cruenta*.

## Management

### CULTURAL CONTROL

Before planting:

- Use clean seed; either obtain the seed from a reliable seed supplier or clean the seed of plant debris.
- Remove volunteer plants of cowpea and other legumes before field planting.
- Reduce spread of the disease by alternating rows of cowpea (or other legumes) with maize or sorghum.
- Plant new crops from older ones with disease.

After harvest:

- Collect and burn or bury the trash after harvest.

### RESISTANT VARIETIES

There are resistant cowpea varieties. Screening for resistance to *Pseudocercospora cruenta* has also involved evaluation for resistance to *Cercospora canescens*. Resistance has also been found in mung bean varieties.

### CHEMICAL CONTROL

If susceptible varieties are grown, and weather conditions occur that experience suggests will result in disease outbreaks, spray with mancozeb. Begin after the crop has flowered and pods have started to develop. The number of sprays should be limited to 2-3 per crop.

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*When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate pesticides to use should always be sought from local agricultural authorities.*

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AUTHORS Grahame Jackson & Eric McKenzie

Information from *Cercospora leaf spot of cowpea* Mycosphaerella cruenta. Africa Soil Health Consortium. Plantwise. (<http://africasoilhealth.cabi.org/wp-content/uploads/2015/02/38-legumes-cercospora-leaf-spot.pdf>); and from (including Photo 2) McKenzie E (2013) *Pseudocercospora cruenta*: PaDIL - (<http://www.padil.gov.au>). Photos 1&2 Howard F. Schwartz, Colorado State University. Bugwood.org.

Produced with support from the Australian Centre for International Agricultural Research under project PC/2010/090: *Strengthening integrated crop management research in the Pacific Islands in support of sustainable intensification of high-value crop production*, implemented by the University of Queensland and the Secretariat of the Pacific Community.

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