

Cabbage ring spot (286)

Common Name

Cabbage ringspot

Scientific Name

Mycosphaerella brassicicola

Distribution

In temperate and sub-tropical regions, and also in the tropics at higher elevations. Asia, Africa, North and South America, the Caribbean, Europe, Oceania. It is recorded from Australia, New Zealand, and the highlands of Papua New Guinea.

Hosts

Members of the cabbage (brassica) family, e.g., broccoli, Brussels sprout, cabbage, cauliflower. Weeds in the brassica family can be hosts.

Symptoms & Life Cycle

A major disease of brassicas, caused by a fungus; it is common in areas of intensive production, with overlapping crops. It can be especially severe when wet weather occurs for 1-2 weeks, in temperatures of 16-20°C. Ringspot disease is most important on Brussels sprout, cabbage, and cauliflower.

The fungus causes light brown to grey spots surrounded by a yellow halo (Photo 1). The spots are often limited by the veins and are angular, up to 20 mm across. Characteristically, tiny black fruiting bodies containing large numbers of spores, develop in concentric circles in the centre of the spots (Photo 2). These give the disease its 'ringspot' name.

The spots occur on seedlings, but are more often seen on mature plants, on older leaves. If there are many spots they join together, the leaves turn yellow and die early. Spots also occur on the buds of Brussels sprout.

Spread of the fungus occurs when the fruiting bodies release spores, which are spread short distance by water splash, and in wind and rain. Long-distance spread can occur in seed.

Impact

Economic damage is caused by early death of leaves, by bud infection on Brussels sprout, and spots on cabbages that penetrate through several layers of leaves in storage, and need to be removed before sale.

Detection & inspection

Look for dark spots, up to 20 mm, with light centres containing fruiting bodies, which appear as black dots. Look to see if the spots are angular because they are prevented from growing through the leaf veins - a difference between this disease and cabbage leaf spot, caused by the fungus *Alternaria brassicicola* (see **Fact Sheet No. 133**). Look to see that the fruiting bodies are in concentric circles.



Photo 1. Brown spots with light green haloes of cabbage ring spot, *Mycosphaerella brassicicola*.



Photo 2. Close-up of cabbage ring spot, *Mycosphaerella brassicicola*, showing the fruiting bodies in the centre of the spot that contain the spores.

Management

A difficult disease to control, especially in areas of intensive vegetable production, because of large numbers of airborne spores where environmental conditions are cool and wet, favouring spread and infection.

CULTURAL CONTROL

Before planting:

- Establish nurseries as far as possible from diseased fields.
- Grow seedlings in soilless or pasteurized media in clean trays.
- Check each seedling in the nursery for leaf spots and, if seen, remove the infected leaf, or if several leaves are infected, destroy the seedling. Do not spread the disease from the nursery to the field.
- Do not plant overlapping crops of brassicas, or if you do, plant the younger crop far away, and upwind of the older crop.

During growth:

- Remove weeds in the brassica family that may be alternative hosts of ringspot.

After harvest:

- Collect the remains of the crop, and destroy by burning or burying.
- Alternatively, plough in the diseased crop remains soon after harvest.
- Do not replant on the same land until all the crop residues have rotted away.
- Use a crop rotation of 2-3 years between brassica crops on the same land.

CHEMICAL CONTROL

If growing crops commercially, apply regular sprays of chlorothalonil, mancozeb or copper during cool moist weather. If farmers are keeping their own seed, and getting infections in the nursery, treat seed before planting with thiram, or mancozeb; alternatively, treat seed with hotwater at 50°C for 30 minutes.

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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Information from Pest & disease fact sheet - *Mycosphaerella brassicicola*. HorticultureWeek. (<http://www.hortweek.com/pest-disease-factsheet-mycosphaerella-brassicicola/plant-health/article/1341919>); and from (including Photos 1&2) *Diseases of vegetable crops in Australia* (2010). Editors, Denis Persley, et al. CSIRO Publishing.

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