

# Ring spot and viruses

## Ring spot (RS)

<b>Summary</b>	RS, caused by the fungus <i>Mycosphaerella brassicicola</i> , occurs sporadically from season to season.
<b>Identification</b>	It produces dark spots scattered across the leaves with characteristic rings of dark fruiting bodies. Lesion margins are yellow, and leaf yellowing and early leaf drop occurs as RS progresses. RS can easily be confused with <i>Alternaria</i> (see page 142), and needs microscopic examination to differentiate.
<b>Importance</b>	Can be important in some seasons on some crops.
<b>Spread</b>	RS overwinters in crop debris, on weeds or volunteer brassicas. In spring spores are produced, infecting leaves and seed pods.
<b>Prevention and management</b>	Use certified disease free seed to ensure no new source of infection, while good cultivation and crop rotations ensure low levels of crop debris and weeds for RS to over-winter on. Early grazing of infected plants limits the spread of RS.



Early RS symptoms on kale leaf.

## Viruses

<b>Summary</b>	The three main brassica viruses are beet western yellows virus (BWYV), cauliflower mosaic virus (CuMV) and turnip mosaic virus (TuMV). All are common in brassica crops throughout NZ.
<b>Identification</b>	BWYV is characterised by colouring in the leaves, especially purples and reds, eventually turning yellow. CuMV and TuMV cause similar symptoms (test often required to differentiate). Infected plants show patterns, distortion and mottling in the leaves. Infected plants are stunted and often die if infection occurs early.
<b>Importance</b>	Early infection with any of these viruses can cause severe crop losses.
<b>Spread</b>	All are introduced into crops by aphids. The two main aphid species in brassicas, the green peach and grey cabbage aphid are their main vectors. The main primary sources of these viruses are weeds and brassica volunteers in the vicinity of the crop.
<b>Prevention and management</b>	The application of aphicides can prevent the introduction of these viruses, however correct timing is difficult to achieve. Seed treatments can give seedlings up to 6 weeks protection, often long enough to protect through the critical period when aphids are flying. Seed beds should also be kept free of weeds and volunteers, especially for second year crops.



BWYV on swedes.