

Bacterial soft rot and club root

Bacterial soft rot (BSR)

Summary	BSR causes damage as a secondary invader following infection by other pathogens (e.g. dry rot) or through tissue damaged by insects or weather. It is caused by the bacterium <i>Erwinia carotovora</i> .
Identification	BSR produces a soft, watery light brown-grey rot often with an unpleasant odour. Although similar to <i>Sclerotinia</i> infection, no white mycelium are associated with the damage and no sclerotia are produced.
Importance	Under conducive conditions, BSR can cause considerable additional damage to the original infection or damaging agent.
Spread	BSR is mostly soil-borne and enters the host through rain splash from wet soil onto damaged areas. It then spreads by direct plant contact, animal/machinery movement and by insects.
Prevention and management	BSR can be greatly reduced by minimising plant damage and the carry over of host debris. Good crop rotation and cultivation practices are essential to limit the damage caused by this disease.



Secondary BSR of swede following dry rot infection.

Club root (CR)

Summary	CR, caused by the fungus <i>Plasmodiophora brassicae</i> , affects most brassicas, causing galls to form on roots and reducing yield.
Identification	Symptoms of CR are plants wilting in the heat of the day and recovering in the evening. On inspection of roots, infected plants have swollen galls ranging from a few cm in diameter to the size of a clenched fist. As CR progresses, lower leaves turn yellow and droop permanently, the plant may die, and yield is severely affected.
Importance	CR is the most destructive disease of brassicas and severe outbreaks can completely destroy crops.
Spread	CR can remain dormant in the soil for many years as spores. In the presence of susceptible hosts, these spores germinate, infecting the host through root hairs or wounds. It survives through weeds such as wild turnip, shepherd's purse or hedge mustard.
Prevention and management	CR can be minimised through good crop rotations, avoiding multi-cropping of the same variety. Good weed control, good drainage and high soil pH through liming also limit the development of CR. There are many varieties with good CR resistance available on the market.



CR symptoms on roots of young swedes.