

Potato Ring rot – *Clavibacter michiganensis* subsp. *sepedonicus*

What is it?

Potato ring rot is caused by the bacterium *Clavibacter michiganensis* subsp. *sepedonicus*. It is found in parts of North America and the former Soviet Union and is also established in northern and Eastern Europe. Within the EC, it has been found in all Member States except Ireland, Italy Portugal and Luxembourg. The disease is favoured by cool climates and it is thought that it could easily establish under our conditions. The disease can cause plants to wilt but, as with brown rot, you are more likely to come across symptoms in tubers.

This disease poses no risk to human health.

What are its symptoms?

The symptoms shown by infected plants are variable and can sometimes be mistaken for potato blight, wilt or stem canker. The first symptoms are wilting in the lower leaves, either all around the plant or on one side of the plant. The margins of the leaves roll inwards and upwards and the leaf surface loses its light shiny appearance. Leaves become progressively dull light green, then grey-green with occasional mottling, then yellow and finally brown and necrotic. Symptoms are enhanced by hot, dry weather conditions. Tuber infection occurs through the stolon. The initial symptom is a soft cheese-like rotting of the vascular ring (hence the name "ring rot"). In severe cases the vascular ring rots completely and the skin of the potato may crack. External symptoms may consist of reddish brown blotches around the eyes, or irregular shaped cracks on the skin.

How does the disease spread?

The bacterium is thought to be unable to over-winter in the soil, but it can certainly do so in volunteer plants or ground-keepers (un-harvested potatoes from a previous crop) and debris from infected crops. Infected ground-keepers lifted at the same time as an otherwise clean seed crop can infect that crop. Bacteria can also survive and remain infectious for a long period on potato bags, barn walls, machinery and other equipment that have been contaminated by rotting ooze and, although this is not the main means of disease transmission, it can make eradication of the disease very difficult. The primary source of infection is infected seed potato lots.

Action following discovery of Ring rot

Clavibacter michiganensis subsp. *sepedonicus* is a quarantine disease, listed in the EC Plant Health Directive, and is notifiable in Ireland. All infected plants/tubers must be destroyed under the supervision of the Department of Agriculture, Fisheries and Food. The source of the infected material is then traced so that other infected plants/tubers may also be destroyed.

What can you do?

The following preventative measures should be implemented to prevent the introduction/spread of ring rot and other potato diseases:

- Only plant basic certified seed from a reliable source. All basic certified seed produced in the EU is derived from material that is tested for all quarantine diseases, including Brown rot.
- Groundkeepers are an important factor in the survival of various potato diseases. Their control eliminates a key source of disease inoculum.
- Implement good hygiene practices. Regular cleaning and disinfection of all machinery, equipment, containers and storage facilities is recommended
- Don't dump waste on agricultural land. Discarded potatoes and potato processing waste can harbour disease.
- Practice good crop rotation. A one in four (or more) rotation should be practiced.
- Accurate record keeping is of paramount importance

Action in the event of suspect cases:

Seed and ware growers, potato merchants and importers are requested by the Department of Agriculture to examine potato tubers regularly for signs and symptoms of the disease. If it is suspected that plants/tubers are infected please contact your local plant health inspector or contact:

**The Department of Agriculture, Fisheries and Food
Crop Production & Safety Division
Admin Building
Celbridge
Co. Kildare
Tel 01-5058885
Fax 01-6275994**

Symptoms of Ring rot



**Symptoms on a potato plant:
advanced stage of infection showing wilt,
rolling of leaf margins, mottling and
necrotic tissue.**



**Transverse section of potato tuber infected
by ring rot: discoloration of vascular
ring and adjacent tissue, bacterial ooze.**

Further symptoms and information on the disease can be viewed on the website of the European and Mediterranean Plant Protection Organization (EPPO) by clicking on the following links:

[Ring rot - data sheet](#)

[Ring rot - symptoms](#)