Department of Primary Industries and Regional Department

Primefact

Crown gall

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Kevin Dodds, Development Officer – Temperate Fruits, Batlow, NSW

Jessica Fearnley, Development Officer – Temperate Fruits, Orange, NSW

Crown gall is caused by the bacterium *Agrobacterium tumefaciens*. It occurs mostly on stone fruit and some ornamentals, for example roses, but less commonly on pome fruit, grapes and olives.

Disease identification

Galls form on the crown of the plant (the point at the soil line where the main roots join the stem) and on the roots. They can also form on the main stem above the soil level or on branches (Figure 1). There might not be any visible effect on the plant other than the galls. If infection is severe and many galls are present, plants, particularly young ones, can be stunted and unthrifty, and can die if they are stressed by dry conditions. However, these symptoms are not diagnostic for crown gall; the presence of galls identifies the disease.

Figure 1. Crown gall. Illustration: Margaret Senior.

Damage

Galls first appear as small, pale, roughened lumps of tissue. They enlarge, darken and become convoluted. The galls can be 25–50 mm in diameter on nursery plants and up to 300 mm on trees in the field. Crown gall causes the greatest financial loss in the nursery; up to 80% of plants can be lost, with the symptoms only being noticed when the plants are dug up for sale. Suppliers are legally required to reject all infected plants before sale.

Monitoring

Check nursery stock and new trees for galls on receipt and before planting; notify the nursery supplier if crown gall is suspected. Young trees that look weak or stunted can be dug up and the crown area can be inspected for galls.

Management

Cultural and physical: the disease can be transferred between trees on pruning and grafting equipment. Frequently disinfecting tools will help prevent this method of spread. Avoid unnecessary damage to the root system. The bacterium is thought to spread in water, so selecting a well-drained orchard site for establishment might help minimise the risk. Resistant rootstocks might also have a role in preventing crown gall in some tree crops. Speak with the nursery supplier to enquire about rootstock choices for your crop.

Chemical: check the APVMA PubCRIS database for registered controls (https://portal.apvma.gov.au/pubcris).

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