

Apple proliferation

What is it?

Apple proliferation, also known as apple witches' broom, is a serious disease of apples. Cultivars vary in reaction but most, including seedlings, appear to be susceptible. The most sensitive cultivars include Belle de Boskoop, Gravenstein, Starking, Golden Delicious and Winter Banana. Roja de Benejama seems able to tolerate infection.

Symptoms

Symptoms include the premature development of axillary buds to produce a proliferation of secondary shoots ('witches' brooms') near the apex of the main shoot in summer, small fruit, and late growth of terminal buds in the autumn. Elongate stipules and leaf rosettes develop on the terminal parts of shoots. Root systems are compact and result in stunted growth of infected trees.

Flowering may be delayed; flower parts are deformed and may resemble leaves. Leaves emerge earlier and are chlorotic, irregularly serrated and small. Trees may exhibit early autumn colour (lilac or purplish red).

Fruits are few, small, incompletely coloured, and poorly flavoured.

Affected trees lack vigour, shoots are thin and the bark has a reddish-brown colour. Young trees are more severely affected than older trees. Leaves on infected trees are particularly susceptible to powdery mildew. With severe infections, trees may die.



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UGA0454045
Apple proliferation phytoplasma in apple cv. Golden Delicious, showing premature development of axillary buds resulting in a witches' broom near the apex of the main shoot in spring



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UGA0660076
Plants infected with the phytoplasma produce large stipules at the base of the leaves (healthy leaf shown on the right)



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Apple proliferation phytoplasma in leaves of apple cv. Golden Delicious, showing reduced lamina size and enlarged stipules (healthy leaf on top)



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Fruits of apple cv. Jonathan, affected by apple proliferation phytoplasma. Symptoms include a marked reduction in fruit size; longer, thinner peduncles and shallower calyx end and peduncular cavities (healthy fruit shown on right).



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Witches broom on apple (cv. Golden Delicious), due to apple proliferation phytoplasma

How does it spread?

The natural means of transmission are unknown, though leafhoppers have been reported as vectors. The disease can also be spread from tree to tree by grafting.

Control

At present, resistant rootstocks are the most efficient way to control the disease. Since the vector is unknown, it is not possible to control the natural spread of the disease.

The best way to prevent the devastating impact of this disease on the Australian apple and pear industry is to report any suspicious disease symptoms immediately. Early detection will improve the chances of eradication.

How can I protect my orchard from Apple proliferation?

Check your farm frequently for the presence of new pests and unusual symptoms. Make sure you are familiar with common pome fruit pests so you can tell if you see something different.

If you see anything unusual, call the Exotic Plant Pest Hotline on 1800 084 881.



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