

Grafting Tomatoes for Bacterial Wilt Control

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Bacterial wilt is a serious problem of tomatoes in coastal areas in the tropics; it is caused by a soil-borne bacteria *Pseudomonas solanacearum*, which infects the plants through the roots, especially if they are damaged during transplanting. Over-watering or periods of heavy rainfall increase the chances of infection.

SYMPTOMS

The symptoms are the sudden wilting and collapse of the plants, usually overnight. In some cases it may be over a period of two to three days. If a section is cut out of the lower stem of an infected plant and placed in a container of water, cloudiness may be observed around the section after a few minutes. This is caused by the bacteria oozing out of the cut section.

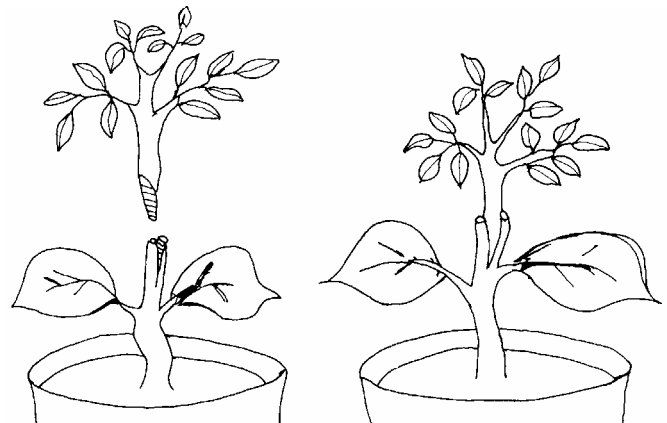
CONTROL

Bacterial wilt can be controlled by:

Sterilising the soil - a costly exercise.

The use of resistant tomato varieties - these are not commercially available at present, as research is still being conducted on them. Generally they are small in size, tart to the taste and unacceptable to the European palate.

By grafting onto any resistant solonaceae rootstock, tomatoes can be produced in an area infested with bacterial wilt.



WHAT DO YOU GRAFT ONTO?

A tomato rootstock generally produces better than other solonaceous rootstocks but all members of the solonaceae family are compatible and can be used as rootstocks provided they are resistant to bacterial wilt.

These include tomato, egg plant, Devil's fig and wild Malay egg plant. Seed of these are currently not available from commercial outlets in the Northern Territory.

GRAFTING

Generally root stock plants (Devil's fig, wild Malay egg plant, etc.) are sown into pots two to three weeks earlier than the tomatoes. When the tomato seedlings have reached a height of about 100 mm cut off the top 50 mm. This is then cut into a wedge shape by cutting down each side. The root stock is then cut off at the height where it is the same thickness as the tomato. This is then split down the centre to the same depth as the wedge (about 15 mm).

When the tomato cutting is inserted, ensure that the sides are making good contact. This can then be held in position using a hair clip or by binding it with tape or string. Special "grafting clips" are available which have been designed for this purpose.

Keep the plant in a shade house for a couple of days, until the plant begins to take. After about two weeks the hair clip, tape or string can be removed.

As with all grafted plants the grafted area must be kept above the soil or mulch, otherwise the plant may become infected. Some form of support such as trellising or stakes is necessary to prevent contact with the soil.

By grafting onto a perennial root stock, such as wild Malay egg plant or Devil's fig, the tomato plant will bear fruit over a much longer period. It must be remembered however that the grafted part is still subject to all the insect pests and diseases which normally attack the leaves, stems, fruit and growing points of any tomato plant.

They will also be susceptible to climatic conditions, i.e. grafted plants will not produce better crops in the "Wet" than ungrafted.

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