

Table of Common Citrus Diseases

Disease name	Identification	Details	Symptoms and damage caused	Prevention / control
Soil-borne diseases				
<i>Phytophthora</i> (<i>Phytophthora citrophthora</i>)		• Fungal disease • Affects plant parts below and above ground (root systems, trunks, branches, leaves) • Especially prevalent during prolonged rainy periods • Trees in poorly-drained growth medium that may cause anaerobic conditions are highly susceptible	• Poor growth, smaller trees • Nutrient deficiencies due to damage to feeder roots • Gummosis	• Sterilisation of growth media • Sterilisation of germination and seedling trays • Sterilisation of nursery tools and equipments • General nursery sanitation • Water treatment • Raising plants off the ground • Regular growth medium sampling and testing • If tested positive, trees can be treated once • If tested positive again, trees must be destroyed • Chemicals with preventative and curative actions are registered
Nematodes		• Nematodes are seldom found in citrus nurseries because of sterilisation of growth media • Plant parasitic nematodes are very small worms that cannot be seen with naked eye • Especially citrus nematodes are known to attack root system of citrus trees	• Trees have nutrient deficiency symptoms • Visible damage to root systems	• Proper sterilisation of growth media • Send samples once per year to diagnostic centre for testing • Use registered nematicides if growth medial samples show any level of infestation

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Citrus blackspot		- Citrus blackspot is a zero-tolerance disease in a nursery - Infection is favoured by warm, wet conditions in summer and presence of abundant inoculum - The primary source of infection is spores produced on the ground - Spores are forcibly projected onto leaves during rains or irrigation	- Effected leaves seldom show symptoms of the disease - If symptoms are present they appear as small necrotic spots with a grey centre surrounded by a dark brown ring and a yellow halo.	- In areas where blackspot occurs, apply approved contact fungicides every 28 days in preventative chemical spray program, which is compulsory in the nursery from mid-October to mid-January - General nursery sanitation, specifically the removal of leaf litter
Graft transmissible diseases				
Tristeza		- Viral disease - Virus transmitted by aphids - Tree decline results from the necrosis and death of the conductive tissue (phloem) at the bud union - Sugars produced in leaves by photosynthesis are blocked from being transported to roots	- Decline / quick decline - Wilting - Dieback - Leaf chlorosis and curling - Honeycombing - Bud union staining - Scion overgrowth - Thickened bark at bud union - Starch depletion in roots - Loss of feeder roots	- Control the vector (aphids) - Use propagation material that is pre-immunised with mild strain Tristeza virus

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Citrus greening disease		- Bacterial disease - Results in a chronic decline of citrus - Citrus psylla (Trioza) are vector of the bacteria	- Leaf veins initially turn yellow - Leaf symptoms may resemble zinc deficiency - Leaves are small, point upright, and show chlorosis	- Control the vector (Psylla) – in greening area there must be no evidence of Psylla in the nursery - Use preventative spray program - Keep trees in insect-proof house - Remove inoculum source by removing infected trees
<i>Exocortis</i>		- Viral disease - Mostly on trees grafted on trifoliate, citrange and Rangpur lime rootstocks - Spread by infected budwood	- Bark scaling and tree stunting - Some cultivars also show stem blotching, bark splitting, or vein necrosis - Some cultivars such as grapefruit, sweet orange and mandarins can have symptomless infections, but if grafted onto sensitive rootstocks, bark scaling and stunting can be expressed	- Use viroid-free budwood obtained by shoot tip grafting - Sterilise pruning equipment