

Storage and Market Diseases of Fruit. XVII

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MARKET AND STORAGE DISEASES OF CITRUS FRUITS

Wind Rub

Very young and young fruits may be abraded by wind action causing them to rub against a twig or the edge of a leaf. As such damaged fruits mature they develop characteristic silvery, scurfy areas on the rind (Fig. 70). The rind of injured lemons may thicken into ridges.

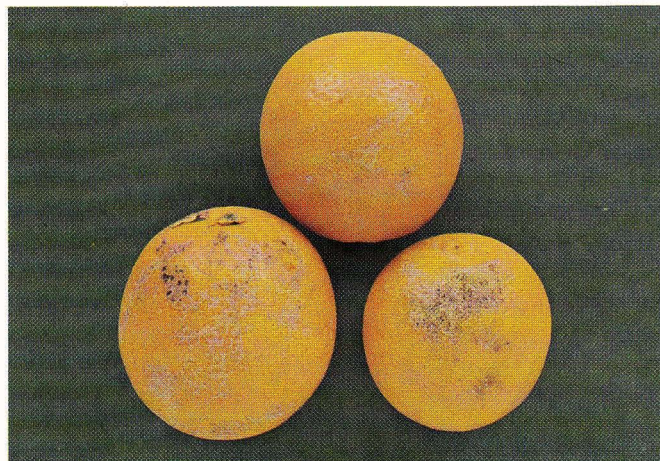
Although young fruits with their delicate rind are more susceptible to wind injury, older fruits may also be blemished by being tossed about by wind. This

may result in twig or thorn punctures or scratches, or rub damage. Such injuries occurring later in the development of the fruit are less silvery and scurfy and more brown in colour.

Control is by sheltering the trees and fruit from wind—by selection of site and aspect, by growing trees for wind-breaks or erecting artificial wind-breaks, and also by pruning out dead wood and twigs and avoiding or getting rid of strong thorny growths in the tree.

Further reading

Freeman, B. (1973).—Control of rind blemishes in citrus fruits. *Agric. Gaz. N.S.W.* **84**(1), 23-5.



Blemish due to wind rub.



Crinkle or creasing.

Crinkle or Creasing

This condition occurs in mature and over-mature oranges and is characterized by narrow sunken grooves in the rind, commonly longitudinally but often crosswise. In severe cases they may run together giving the fruit a lumpy appearance and a soft feel. It is a consequence of the cracking of the underlying albedo or inner white part of the rind (Fig. 71). At first, crinkle is not discoloured but larger grooves are usually yellowish green or greyish in colour. The flavedo, or outer yellow part of the rind, may also split if the rind is thin and brittle, and this opens the way for development of rots.

The condition develops on the tree and the cause is not known, but water stresses and associated growth stresses are probably involved. It has been more common when rain has followed long periods of dry weather.

Rust Mite Injury

There are two species of mites which attack oranges and grapefruit in Australia, producing rusty stains on the fruit as a result of their feeding. One, *Tegolothus australis*, produces a brown shiny superficial stain-like blemish (Fig. 72). The other, *Phyllocoptruta oleivorus*, occurs in several countries and produces a silvery grey russetting of the rind. Injury is often due to mixed populations of both species.

Affected fruit shrivels more rapidly than unaffected fruit.

Control is achieved by sulphur sprays or more commonly, in coastal areas of Australia, by spraying with a fungicide with a miticidal action, such as zineb.

Lemon Scab

This is an orchard disease which disfigures the fruit as well as attacking twigs and leaves. It is caused by infection with the parasitic fungus, *Sphaceloma fawcetti scabiosa*, and although other kinds of citrus may be attacked, it mainly affects lemons in coastal districts where climatic conditions are favourable for its development. Fruit is infected at the time of blossoming and petal fall and only in damp weather. The infection produces irregular, scabby areas, ridging, russetting, and wart-like, deforming outgrowths of the rind (Fig. 73).

Control is readily obtained by spraying with Bordeaux mixture at blossom time in the spring and again in summer with zineb to protect the young fruit developing from a summer bloom.

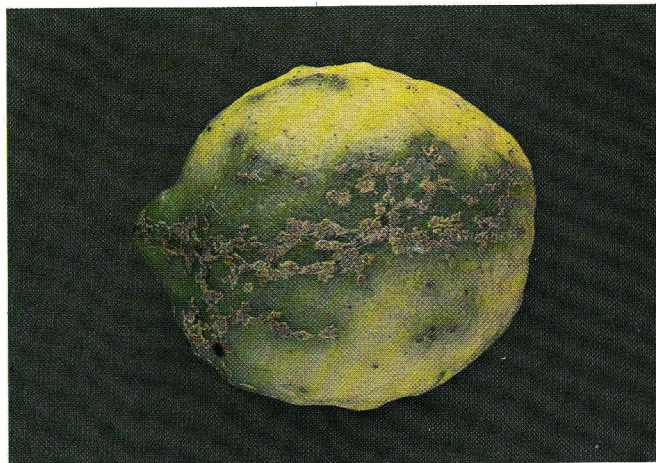
Further reading on market diseases of citrus fruits

Kelly, T.B., and Long, J.K. (1960).—Market diseases of citrus. *Agric. Gaz. N.S.W.* **71**, 132-5, 157, 187-92.

Rose, D.H., *et al.* (1943).—Market diseases of fruit and vegetables—citrus and subtropicals. U.S. Dep. Agric. Misc. Publ. No. 498.



Rust mite injury.



Common or lemon scab.