# PLANT PATHOLOGY NOTE: NO. 19

# CITRUS CANKER

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## INTRODUCTION

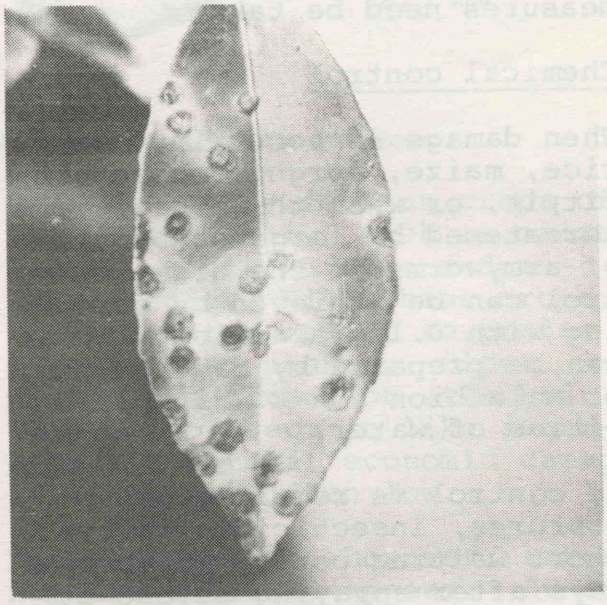
Citrus canker is caused by the bacterium *Xanthomonas campestris* pv. citri. It is one of the most serious diseases which affects plants belonging to the citrus family. Wherever it occurs it results in severe losses of yield. Also, the quality of the fruit is reduced, making it more difficult to sell.

Citrus canker attacks only members of the citrus family and is found on almost all citrus varieties. Some varieties are more likely to get the disease than others. The most susceptible is grapefruit, followed by key lime, navel orange, sweet orange, lemon, satsuma orange, tangerine, mandarin, king orange and kumquat.

The disease probably came from China and has since spread to the rest of Asia, Africa, South America and the Pacific Islands. The disease has now been eradicated from Mozambique, South Africa, the U.S.A., the Northern Territory of Australia, and New Zealand. It occurs widely in Papua New Guinea.

## SYMPTOMS

The disease attacks all aboveground parts of the tree, particularly young, tender leaves, twigs and fruit. It appears first as a small raised watery



*Typical mature canker spots on a Rough lemon leaf*

spot which grows and thickens. Typical mature canker spots are round and raised with a brown colour and corky appearance. They may occur singly or in groups. The size of the spots varies in different kinds of citrus. Spots on leaves are usually surrounded by a yellow area of dying tissue. They look the same on both the upper and lower leaf surfaces.

Spots on fruit are similar to those on leaves, except that the surrounding yellow area is absent. Infections do not penetrate deeply into the rind, but infected fruit is unattractive and much more difficult to sell.

## SPREAD OF THE DISEASE

The bacterium can survive indefinitely in stem cankers on infected trees. During the dry season, the bacterium is relatively inactive and does not grow much. The disease is most destructive in the wet season, when warm, wet weather stimulates growth of the bacterium in existing cankers.

The bacterium spreads from these cankers to new shoots and leaves in rain splash. Wind spreads it from tree to tree. Younger leaves and fruit get the disease more easily than older ones. Young leaves are first infected through stomata (pores) on the lower surface of the leaf. Older parts are usually infected through wounds. Seriously infected leaves and fruit may fall before they are ripe. Infected fruit and seeds may carry the disease to new areas.

## CONTROL

Chemical control of citrus canker is difficult and expensive. Many of the compounds used are very poisonous and not recommended for use in Papua New Guinea. Spraying with copper-containing fungicides has been reported to reduce spread of the disease, but control is rarely complete.

Other control measures include proper sanitation, such as disinfection of workers' clothing and tools after contact with the disease, use of specially purchased bacteria-free seed or budwood, or eradication.

Eradication involves removing and burning all infected citrus trees wherever they are found. This is very expensive. In the USA, almost 50 million trees were destroyed over a period of 25 years before the disease was finally eradicated from that country.

No control measures are currently recommended for Papua New Guinea, where intensive citrus growing is not yet established.

## FURTHER INFORMATION

Further information may be obtained from the Chief Plant Pathologist, D.P.I., P.O. Box 417, Konedobu.

Copies of this Plant Pathology Note, and of others in the series are available from the Publications Officer, Publications Section, D.P.I., P.O. Box 417, Konedobu.