

Storage and Market Diseases of Fruit. XXIII

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MARKET AND STORAGE DISEASES OF FRUIT

Fruit Rots of Bananas

Bananas, in common with mangoes, papaws, avocados and some other tropical fruits, are very subject to fruit rots when ripening. They are mainly the result of infections, during growth of the fruit, by the anthracnose fungus *Gloeosporium* (*Colletotrichum*), usually *G. musarum*, but other species may be involved. These infections remain latent until the fruit starts to ripen and its resistance is lowered; at this stage the fungus becomes active and sunken anthracnose spots and rots develop (Fig. 94).



94 Black end and anthracnose.



95 Cushion rot.

A single fruit may carry a large number of infections so that the anthracnose spots may be very numerous; the flecking of very ripe bananas is due to anthracnose (Fig. 94, centre fruit). Wound infections can also occur especially as the fruit approaches maturity. In bananas, black end of single fruits (Fig. 94, top fruit) and cushion rot or crown rot of 'hands' (Fig. 95) develop from infections at knife cuts and broken stems occurring when the bunches are dissected for packing. Fruit rots may also be caused by infection of wounds by a similar fungus, *Botryodiplodia theobromae*.

Anthracnose and the wound infections unless greatly advanced, do not affect the pulp so that the fruit is edible although it is unsightly. Advanced lesions may develop pinkish, shiny masses of spores.

Control of anthracnose in the plantation is difficult as infection can occur at any stage of the growth of the fruit.

Effective control is now possible by the use after harvest of the newer semi-systemic fungicides such as benzimidazole. As soon as possible after the hands are cut from the bunches or dissected into 'clusters' or 'singles', the fruit should be dipped in a suspension of the fungicide. Treatment by dipping in 250–500 ppm w/v of thiabendazole or thiophanate methyl for a few seconds is recommended; spraying is less effective. When the fruit is packed in bags of polyethylene film to lengthen its post-harvest life the higher concentrations of the fungicides are recommended.

Sanitation in the plantation and packing shed is an important aspect of control; trash and bunch and fruit debris should be regularly removed. Because of the importance of wound infections after harvest the fruit should be handled carefully.

Washing, which is generally necessary, should be done only with clean water or water containing chlorine.

Squirter

Squirter is a soft, almost watery, rot of the pulp of bananas, usually commencing at the stem end, and showing externally as a pale, water-soaked appearance of the peel. It is caused by the fungus *Nigrospora sphaerica* (Fig. 96). The common name is derived from the fact that in an advanced rot the rotted pulp may squirt out when the fruit is handled.

The disease is a wound infection and was serious in fruit harvested in the winter in New South Wales until treatment of the fruit with a

fungicide was made compulsory. Salicylanilide used to be required but now complete control is obtained with the treatments recommended for control of anthracnose and black end.

Squirter is not a problem in fruit grown in the summer or in tropical areas.

Further reading

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Anthracnose of Mango

Anthracnose can be serious during the ripening of mangoes causing unsightly blemishes and loss of fruit. The lesions are typically dark and relatively dry; pinkish pustules of spore masses are often seen (Fig. 97).

Infection occurs during the growth of the fruit, but unfortunately the fungicides effective against anthracnose in bananas have little effect on the disease in mangoes, papaws and avocados, apparently because they have a thicker cuticle. It can be reduced by close attention to sanitation and careful handling. However, it can be controlled by immersing the fruit after harvest in water at 50–52 °C for 15 min or 55 °C for 5–6 min. Although the treatment may hasten ripening it is not damaging to most varieties. Addition of a fungicide such as TBZ may lower the effective temperature and make the treatment easier and safer.

Further reading

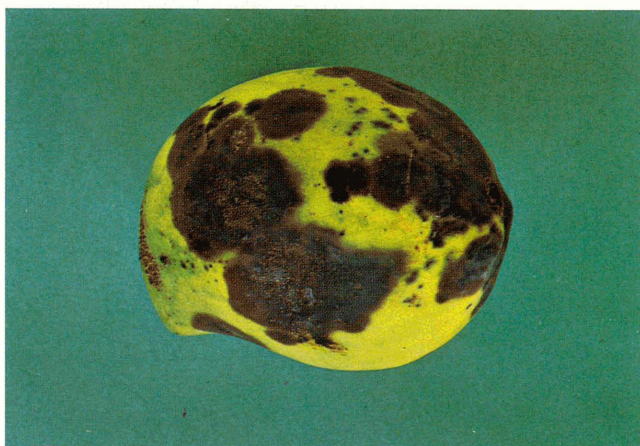
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Squirter.

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Anthracnose.

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