Storage and Market Diseases of Fruit. XXI

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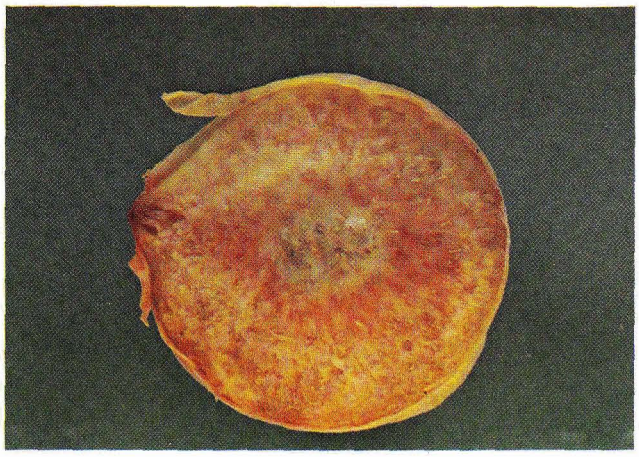
Cold Storage Breakdown

If peaches in cool storage do not succumb to attack from rots, their storage life is terminated by loss of ability to ripen normally after removal to ripening temperatures. While fruit that is already ripening can be stored for short periods, longest life is obtained when fruit is harvested still hard and unripe but sufficiently mature to be capable of ripening with good development of juiciness and flavour and no discoloration. Fruit which is stored too long will, for a time, look normal while it is at low temperature but will be unable to ripen normally.

Physiological breakdown in cool storage is progressive. Abnormal ripening shows as a loss of natural bright colour and a failure to develop juice; the flesh becomes dry and 'woolly', the whole fruit has a 'soft tennis ball' feel and flavour deteriorates. Varieties which normally show red pigmentation of the skin or around the stone commonly show excessive reddening of the flesh (Fig. 86). With further storage the flesh becomes increasingly brown (Fig. 87). Varieties without natural red pigmentation first show a paler flesh as woolliness develops, the flesh becoming brown later. After prolonged storage the flesh will dry out and discolour even at low temperature.

The length of life of peaches in cool storage depends on maturity, variety, season and storage temperature. At the optimum temperature of −1°C, storage life will vary from 2 to 7 weeks; it will tend to be longest in a warm dry season.

86 Cold storage breakdown.



87 Cold storage breakdown.

Brown Rot

Brown rot is a serious disease of peaches, nectarines, plums and cherries on the tree and during marketing and storage. In most cases it is caused by the fungus, *Sclerotinia fructicola,* which produces both blossom and twig blight and rapid rotting of mature fruit. Trees must be wet for infection to occur in the field. Infected flowers turn brown, remain attached to the twig and become dry and brittle; grey or buff coloured spores may be seen on them.

The rot appears first as a light brown watery spot which enlarges rapidly and darkens in colour. At higher temperatures it soon becomes partly covered with powdery tufts of grey or buff spores (Fig. 88). The whole fruit may rot in 3–4 days. Eventually the rotted fruit darkens further and mummifies, remaining as a major source of infection for the next season.

Control is by careful handling, good sanitation, quick cooling and, most important, by pre-harvest spraying and immediate post-harvest treatment with an effective fungicide. Benzimidazole compounds such as TBZ and benomyl are particularly effective against brown rot and can be used on the tree and after harvest. Temperature has a marked effect on development of the rot: there is practically no growth at 0° C and very little at 5° ; growth is most rapid at 20–30° but virtually stops at 39°.

To control both brown rot and transit rot it is recommended that, in addition to tree sprays, the fruit should be dipped as soon as possible after harvest in a mixture of 500 ppm of benomyl and 400 ppm of dichloran (w/v), thoroughly wetting and dipping the fruit for at least 30 seconds.

Further reading

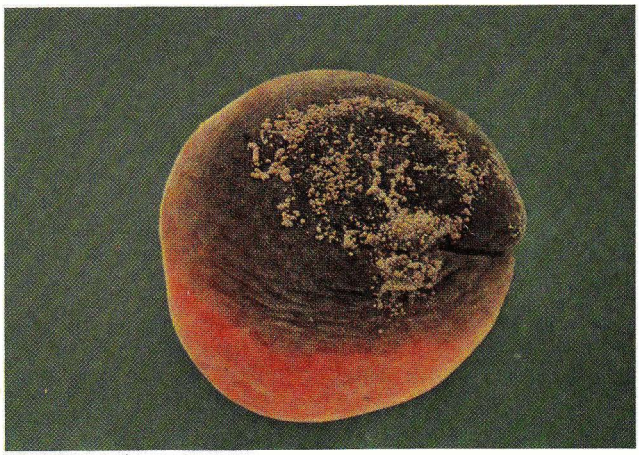
Stone, J. G., Wade, N. L., and Beattie, B. B. (1972). Controlling post-harvest rots of peaches. N.S.W. Dep. Agric. Bull. No. H224.

Transit Rot or *Rhizopus* Rot

This soft wet rot develops very rapidly under warm conditions; it is characterized by a coarse white fungal growth on which grey or black sporangia (spore-bearing bodies) appear, like tiny dark pinheads on stalks. It spreads readily by contact, producing a characteristic nest of several rotted fruits (Fig. 89). The rot is inhibited at 0° C and grows only very slowly at 5°, but is less inhibited than brown rot by holding the fruit at 39°. The causal organisms are *Rhizopus* spp., mainly *Rhizopus nigricans,* and they attack all kinds of stone fruit. An acidic odour is usually noticeable when the rot is well advanced.

The danger of attack by *Rhizopus* during transit is greatly increased by the presence of skin breaks and moisture.

Control is by careful handling, good sanitation and, most important, by using an effective fungicide and cooling the fruit to below 10° C within 24 hours of harvest. Benzimidazole compounds are not particularly effective against *Rhizopus* but dichloran has consistently given good control in trials and in commercial practice.



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Brown rot.

89

Transit (*Rhizopus*) rot.