

# Storage and Market Diseases of Fruit. XII

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### GREY MOULD ROT ON GRAPES

The fungus *Botrytis cinerea* is widespread and causes decay in many kinds of fruits,\* vegetables, and ornamentals. Grey mould, caused by this fungus, is usually the principal cause of spoilage of grapes in cool storage. This is particularly so in wet seasons when infection and losses of fruit on the vine may be serious. In wet, cool seasons flowers, stems, and young berries may be infected, leading to a high spore load at harvest which may cause heavy losses in storage. Varieties of grapes that form tight bunches are worst affected because of

\* See Grey mould of apples and pears, Figs. 31-2, Suppl. No. VIII, 1971.

damage to berries by growth pressure and because the bunches dry out slowly.

In the early stages the infection is inside the berry and the symptoms are a 'slip-skin' condition or a slight browning of the affected areas of the berry. Later it grows to the surface and spreads to other berries, forming a cottony white mass which becomes grey by the production of immense numbers of spores and a slight darkening of the mycelium; in storage a large 'nest rot', involving whole bunches, may be formed (Fig. 45).

Initial infection is via breaks in the skin, e.g. rain cracks, or into berries loosened by rough handling.

Control requires:

- Spraying with a fungicide in the vineyard to prevent early infections; this is essential in wet or cool weather. Benomyl is very effective and Captan is also recommended.
- Careful handling.
- Prompt cooling.
- In storage—fumigation with sulphur dioxide or packing with sulphur dioxide-releasing chemicals; post-harvest treatment with benomyl is also effective.



45

Grey mould rot (*Botrytis* sp.) on Purple Cornichon grapes.



46

Blue mould rot (*Penicillium* sp.) on Purple Cornichon grapes.

### BLUE MOULD ROT ON GRAPES

Blue mould rot caused by *Penicillium* sp. is relatively common on grapes in storage. It is characterized by a rather scanty growth of mycelium which later turns bluish green as spore masses develop (Fig. 46). The fungus is a weak parasite and commonly first attacks dead or damaged stem tissue or damaged berries. It is usually only a problem on grapes after relatively long storage, when stems and cracked or loosened berries may be extensively affected. Berries on affected bunches commonly have a noticeably musty or mouldy taste.

Control is by careful handling, treatment before storage with a suitable fungicide such as benomyl, prompt cooling, and avoidance of over-long storage. Treatment with sulphur dioxide is also useful.



### SULPHUR DIOXIDE INJURY ON GRAPES

Treatment of grapes in storage or transport with sulphur dioxide is most effective in reducing decay and 'shatter' (loosening and dropping of berries from the bunch) and in preventing blackening of the stems. Nevertheless, injury by sulphur dioxide can readily occur unless adequate precautions are taken.

The injury is commonly a bleaching or discoloration of the berries which is most pronounced and first occurs at breaks in the skin or the loosened attachment of the berry to the pedicel, thus allowing ready absorption of the gas (Fig. 47). Because of the bleaching effect the injury is more apparent on dark-skinned varieties (Fig. 48).

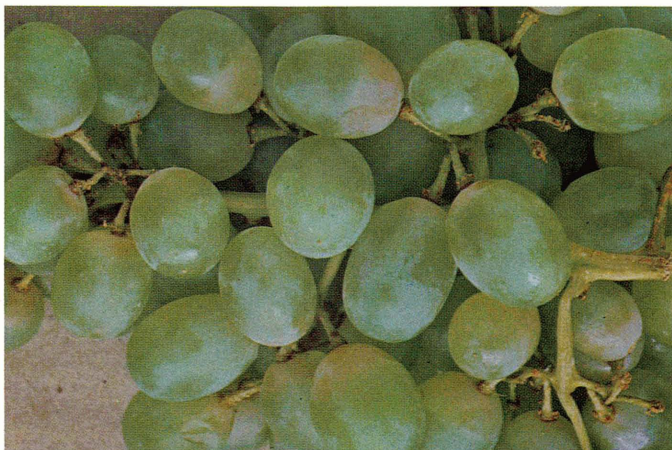
When milder injury occurs at the point of attachment of the berry, that part of the skin and flesh may dry out and collapse forming a small, pale straw-coloured pit or depression which is a characteristic symptom. Under warm conditions the injured tissue generally turns brown. Badly injured berries have a disagreeable, astringent, 'sulphur' taste.

Injury can be prevented by avoiding excessive levels of sulphur dioxide and by careful handling to avoid mechanical damage to the berries. Grapes that are weak, immature, or very warm take up the gas more readily and are therefore more likely to be injured than grapes that are firm, mature, or cold.

#### Further reading

Beattie, B. B., and Outhred, N. L. (1970).—Packaging treatments for the storage and export of Australian grapes. *Aust. J. exp. Agric. Anim. Husb.* **10**, 124–8.

Ryall, A. L., and Harvey, J. M. (1959).—The cold storage of *Vinifera* table grapes. U.S. Dep. Agric. Agric. Handb. No. 159.



Sulphur dioxide injury on Sultana (Thompson's Seedless) grapes.



Sulphur dioxide injury on Purple Cornichon grapes.