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Powdery Mildew or Oidium of Grapes

By H. L. HARVEY, B.Sc. (Agric.), Senior Plant Pathologist

Powdery mildew or oidium, is a disease which is always present to a greater or lesser extent in grapevines in Western Australia. In seasons favourable for its development it stunts the growth of shoots and leaves and may seriously reduce fruit yields and quality. Most of our commonly-grown varieties are quite susceptible to the disease, but for the reason that currants are the most extensively grown variety, the overall losses are greatest in this variety.

In the early stages of infection, small light green to yellow spots may appear on the leaves. Later the disease becomes conspicuous as a dirty white powdery growth on all green parts including leaves (Fig. 1) shoots and fruit (Fig. 2). The mildew may be rubbed off easily and beneath it on the affected part, a dark mark with a web-like pattern may be seen (Fig. 4). Second-year canes often show these dark patches as a result of infection during the previous year. Fruit that is blemished in this way is unattractive on the local market and unacceptable for export. Furthermore, affected fruit may split (Fig. 3) and thus be rendered useless. “Shelling” or the drying up of the pulp may also follow cracking and is especially damaging in dried vine fruits such as currants.

CAUSE

Powdery mildew is caused by the fungus Uncinula necator (Schw.) Burr., (Oidium tuckeri) which spreads rapidly during
showery or overcast weather when conditions are cooler than normal in summer. Fortunately, in our commercial vineyards, this combination of weather conditions occurs only infrequently and consequently the occurrence of powdery mildew in severe form is correspondingly infrequent. This is illustrated by the fact that between the serious outbreaks of 1947-48 and 1959-60, there were 12 years of comparative freedom from disease.

On the other hand it occurs more frequently in home gardens where sheltered conditions and rank growth increase the powdery mildew risk. This is the result of the practice in many cases, of encouraging extensive foliage growth on trellises for shade purposes in the garden.

**CONTROL**

The main method of controlling this disease is by prevention, rather than by attempting to cure the disease after it has become established. Dusting sulphur, or alternatively spraying sulphur (e.g., Wetsul, Cosan, Spersul, Microtomic sulphur,
Fig. 4.—Dark, web-like marks on a leaf petiole as a result of powdery mildew attack.

Note.—It is convenient to incorporate spraying sulphur with the Ziram or Thiram sprays which are recommended at these stages for the control of black spot (Anthracnose).

(d) Any subsequent applications of sulphur would be dictated by weather conditions. For instance, whenever showery, overcast, relatively cool weather occurs during the summer, applications should be repeated at about ten-day intervals. Spraying sulphur and dusting sulphur are equally effective but in commercial vineyards the foliage has become dense about this time of year and power dusting probably gives better penetration and coverage than sprays. Dustings at 5 to 10 lb. per acre should be made at the first break in the weather, preferably in calm, dry weather.

Sulphur protects vines from powdery mildew, but will not eradicate it, once it has become established. Therefore, it is emphasised that adequate control can only be achieved by adhering strictly to the recommended schedule. To delay the early treatments or to apply sulphur too infrequently during favourable summer weather will increase the powdery mildew risk accordingly. It is pointed out that reliance should not be placed on sulphur acting at a distance and that a complete coverage of all green parts is necessary to give efficient protection. Spraying or dusting methods which do not achieve this should be discarded.

CEMENT WASH FOR HESSION

The ubiquitous chaff and cement bag can be turned to good account in the construction of outhouses, chicken sheds, feed rooms, etc. The following method which has been used with every success, is both economical and easy to manipulate.

A framework of timber is first of all built up, after which chaff or cement bags are opened out and stretched very tightly over it, being nailed down with ½ in. clout tacks. Next a mixture is made up as follows: Water 1½ gallons, cement 12 lb., lime 2 lb., salt 1 lb., alum ½ lb. (In damp weather use one pint less water). Sift the salt and lime together through a fine sieve to thoroughly mix and get rid of any big lumps, add this to the water, and then follow with the cement—stirring while adding—finally add the alum. Apply this mixture immediately with a fairly stiff brush to the stretched bags, first on the outside and then on the inside. Before the mixture sets, but after the initial wetness disappears, apply a second coat to the outside. When this sets the bags will be quite hard and stiff. Subsequent coatings will, of course, make a stronger board.
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(Department of Agriculture)

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The successful applicants then continue with Sub-Leaving, or higher studies, in 1961.

Before the course can be commenced students must have attained:

(a) Sub-Leaving Standard in English, Maths. A, Chemistry and Physics (including Magnetism and Electricity).
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Duration of Course.—Two years.

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Full details of the College are obtainable from the Principal, Muresk Agricultural College, Muresk, W.A., or the Department of Agriculture, Perth.