

AGRICULTURAL EXPERIMENT STATION  
Oregon State College  
Wm. A. Schoenfeld, Director  
Corvallis

Station Circular of  
Information No. 323

January 1944

POWDERY MILDEW OF GRAPE

by

C. E. Owens, Plant Pathologist

Powdery Mildew of Grapes<sup>1/</sup> is rather prevalent in Oregon. Sometimes it may ruin an otherwise good crop of grapes. Both American and European varieties of grapes are susceptible to this disease, but the European varieties are generally said to be the more susceptible. Although the mildew is more severe some years than others, measures for its prevention should be taken each year.

Description of the Disease

The disease is caused by a fungus which attacks all green parts of the plant. In the early stages it shows as whitish or grayish patches on the leaves. These may spread to cover the surface of the entire leaf on either the upper or lower surface or both. The mildewed surface may take on a whitish, powdery appearance due to accumulated summer spores, and later in the season may turn darker and become peppered with minute black dots, the winter spore stage of the fungus. On the fruit the fungus at first may appear grayish or whitish as on the leaves, but later the berries may have a brownish, russeted appearance, finally cracking and shelling badly. The mildew may also show on the new shoots, and even the blossoms sometimes may be affected, causing them to dry up and fail to set fruit.

Overwintering

The powdery-mildew fungus may overwinter either on the old dead leaves on the ground or as an inconspicuous film of the mildew fungus in a dormant condition on the surface of the vines. In the spring the new growth may become infected either by means of spores coming from the old leaves on the ground or from the dormant mildew which has overwintered on the vines. The mildew fungus then continues to spread throughout the summer by means of the whitish, powdery summer spores which are produced in large numbers on the mildewed surfaces of the green leaves and other growing parts.

Control

Control of this disease involves attacking it at two phases of its development. (1) The overwintering stage on old leaves and on the dormant vines; (2) The spread from these overwintering sources to the new growth, and continued spread throughout the growing season.

---

<sup>1/</sup> Caused by Uncinula necator.

### A. Combating the Overwintering Stage

- (1) Plow under or destroy the old leaves on the ground before the new growth starts in the spring.
- (2) Dormant Spray. While the vines are completely dormant, spray them thoroughly with lime-sulfur, 6 to 100. The purpose of this spray is to burn off the dormant mildew fungus which is clinging to the surface of the canes. Be sure to do this before the buds start to grow in the spring.

### B. Preventing Spread During Growing Season

The simplest and best method of preventing spread of the disease during the spring and summer consists of several applications of a good, fine dusting sulfur. The recommended schedule follows:

- (1) First Dusting. Apply when the new shoot growth is about six to ten inches long.
- (2) Second Dusting. Make the second application just before blossoming.
- (3) Third Dusting. Soon after the berries are set and not later than when they are one-fourth grown.
- (4) Fourth Dusting. Between the time when the berries are one-half and grown.
- (5) Fifth Dusting. Just as the grapes begin to ripen.

#### Cautions

(1) Thoroughness and timeliness. The sulfur dust should thoroughly cover all the leaf, fruit, and new stem surfaces. It should be evenly distributed, covering all the plant and not put on in a haphazard manner. Be sure to begin dusting early and don't neglect to dust as often as necessary.

(2) Number of applications. The exact number of applications necessary to control cannot be definitely stated. The important thing is to start early and keep all green surfaces well covered with sulfur dust during the season so that the mildew cannot get a start. In some cases where mildew attacks are light, it may require less than the five recommended applications. In other cases, where the mildew is severe, more than five dustings may be necessary.

(3) Start early. If by any chance the mildew gets a start, because of neglect to dust at the proper time, do not give up but redouble your efforts to dust thoroughly and often. The crop possibly may be saved anyway, if the disease is not too far advanced and prompt action is taken.

(4) Pruning. Grape vines should be pruned properly each year while dormant. This will help to control the mildew in two ways: First, it makes dusting easier if the vines are not too thick; second, it will provide better air circulation, thus permitting more rapid drying of the foliage after rains and dewy mornings.

### Suggestions

(1) In large vineyards, a power duster is desirable or even necessary.

(2) In smaller plantings a hand duster may be used. Both the bellows type and the fan type of duster, run by hand, have been used satisfactorily.

(3) With only a few vines in the yard or garden, a small hand pump-gun type of duster may be satisfactory. Even a handful of sulfur in a cheesecloth or muslin bag, shaken over the vines, has been used. With this method, however, even distribution of dust is more difficult to obtain.