

Reply by B. T. Galloway, Chief of Section of Vegetable Pathology, Washington, D.C.

The grapes are affected by what is known as Brown Rot, a form of the downy mildew which attacks the leaves. We send you a description of the disease. There is no doubt that the Bordeaux mixture, if used early enough in the season, will prevent the ravages of this parasite which seems to be the principal grape trouble north of and including New York state.

(1.)—DOWNY MILDEW, BROWN AND GREY-ROT.

These diseases are caused by a fungus known as *Peronospora viticola*. When the *Peronospora* attacks the leaves the disease is known as the downy mildew when it attacks the berries and destroys the pulp without forming external reproductive bodies it is brown-rot; when it occurs on the young fruit and covers the berries with its greyish conidia or "seed" grey-rot is the term applied to it.

Leaves affected with downy mildew show, upon the upper surface, greenish yellow or brownish spots of irregular size and shape, while opposite these discolorations, on the lower side, a downy, whitish, frost-like growth may be seen. In advanced stages of the disease, or after a heavy rain, the frost-like patches often disappear, leaving in their place light brown discolorations corresponding in size and shape with those on the upper side.

Brown-rot usually appears when the fruit is nearly full-grown and, as already stated, there is no external evidence of the presence of a fungus. Purplish brown discolorations appear as a first manifestation of this form of rot. Soon the entire berry turns brown, the pulp becomes soft and often shrinks, forming depressions, over which the wrinkled yet otherwise smooth and unbroken skin is stretched.

In the case of grey-rot the berries and often the pedicel are covered with a frost-like growth similar to that which occurs on the leaves. In fact the characters of this disease are so well marked that a further description is useless as it cannot well be mistaken for anything else.

(11.)—THE POWDERY MILDEW.

This mildew usually makes its appearance toward the middle of summer and continues until frost. It attacks the leaves, young shoots and fruit, covering them with a powdery meal-like growth altogether different from the downy mildew, also differs from the latter in that it occurs abundantly on the upper surface of the leaves where it forms mealy white patches of various sizes and shapes. Occasionally it is spread out quite evenly over the entire surface, resembling in some respects the delicate web of a spider. Fruit affected with the powdery mildew shows on the surface a coating of whitish, meal-like dust; this rapidly increases in thickness and soon the berries shrivel, the skin cracks, admitting other agents of decay, which soon finish the work of destruction.

Wine Making.

78. WOULD you kindly answer the following question in your excellent publication, viz., how to make a fair quality of wine from say from 3 or 4 gallons of grape juice? I have good receipts for large quantities with proper appliances but not in small quantities. I have made a good wine from red and white currants in small lots.—A. J. COLLINS, *Lis-towel*.

In reply to our correspondent we cannot do better than to give the following quotation from an exchange:

"The grapes are allowed to ripen well before being gathered, when the juice is expressed and bottled immediately. The bottles are filled to the brim and then placed, up to