

Leaflet V.

Spraying Vineyards

New York Agricultural Experiment Station
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Diseases and insects of the grape.

Many diseases and insects attack vineyards. The common grape diseases are black rot, powdery mildew and downy mildew. These diseases are

controlled by fungicides such as bordeaux mixture, etc. The most destructive grape insects are the grape root-worm, the rose chafer, the grape flea-beetle, the grape berry-moth and the grape leaf-hopper. These are divided into two classes—(1) fruit-and leaf-chewing insects, and (2) sucking insects. Chewing insects are controlled by poisons; sucking insects by materials that kill by contact.

Black rot and other diseases.

In vineyard sections where the black rot is common, the scheme of spraying necessary to control that disease will generally be found efficient

for powdery mildew and downy mildew. This is as follows: Spray thoroughly. In general, apply the spray before instead of after rains. Spray (1) with bordeaux mixture 4-4-50 when the second or third leaf is showing, (2) with the same material shortly after the blossoms have fallen, (3) ten days to two weeks after second application, and (4) two weeks after third spraying. Apply the mixture to clusters and tips of the vines. (See Cornell Bulletins 266 and 296.)

Powdery mildew.

In certain portions of New York State bordeaux mixture sometimes fails to control powdery mildew. In Europe

and California dusting with flowers of sulphur has been used with much success. This also has shown good results in New York, but as it has only been tested in a few experiments the use of sulphur is recommended in an experimental way only. In Chautauqua county two applications of bordeaux mixture applied (1) the latter part of June or first of July, and (2) about two weeks later has been found effective in controlling powdery mildew.

Grape root-worm and other beetles.

Use sweetened poisons for the control of beetles infesting grapes. The rose chafer appears on the grape vines shortly before the blossoms open.

Spray with arsenate of lead 8 lbs., common molasses 2 gals., water 100 gals. If necessary spray one week later. (See Geneva Bul. 331). The grape root-worm appears on the vines the latter part of June or the first week in July, depending on the temperature. Spray the vines (1) about a week after the first beetles appear, using arsenate of lead 6 lbs., molasses 2 gals., water 100 gals. Spray during the hotter portions of the day or on hottest days as beetles are more active. (See Geneva Bulletin 331.)

Grape flea-beetle.

The "steely" beetle or grape flea-beetle appears on the vines early in the spring before the grape buds are open and eats the buds, thus reducing the crop. Spray when the beetles first appear on the vines, using the same material as for the grape root-worm. The

larvæ of this species are feeding on the grape leaves during June when the usual spraying operations will suffice to control them. Use about 6 lbs. of arsenate of lead for every 100 gals. of water or bordeaux mixture. (See Geneva Bul. 331.)

**Controlling
grape berry-
moth and
other insects.**

Arsenate of lead either with water or with the bordeaux mixture will control chewing insects except beetles if used at the right time. The grape berry-moth can be killed by spraying the young grapes (1) shortly after they set, (2) about ten days later, (3) about the middle of July when eggs of second brood are hatching, (4) if necessary, about ten days after third application. Use arsenate of lead 6 lbs. with 100 gallons bordeaux mixture, except for the fourth treatment when the bordeaux mixture should be omitted. The first three sprayings are the same as the second, third and fourth sprayings for black rot.

**Grape
Leaf-hopper
or thrips.**

Spray with a contact insecticide when the insects are in the nymphal stage. (During July.) One spraying is sufficient if done when the maximum number of nymphs are on the leaves. Use "Black Leaf Tobacco Extract" one part to 150 parts of water, or "Black Leaf 40" one part to 1600 parts of water. Either of these preparations can be added to bordeaux mixture. Use coarse spray applied to the under surfaces of the leaves at high pressure (125-150 lbs.) using about 150 gallons per acre. (See Geneva Buls. 331, 334 and 359.)