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The Grape--Its Cultivation and Care

A. Bonar Balfour, Pilrig Fruit Farm, Port Dalhousie, Ont.

UNDOUBTEDLY the best method of pruning the grape in Ontario is the true or four arm Kniffen system, possibly excepting the weaker growing varieties as Delaware and Moyer. The canes for the season's crop should spring from short spurs on the main upright trunk having the connecting base just below the supporting wires. This makes the ideal form of vine. The endeavor to equalize growth on the lower arms by growing these canes as a division of the main trunk, is in my opinion a fallacy. I have not found that it gives any advantage in this way. It is not obligatory to select the new canes for the season's crop from those found nearest to the main trunk, but it is highly desirable to do so, provided they are strong and well ripened. It is also desirable to bring out new canes from the main trunk every three or four years to renew the spur in order to eliminate the sprawly growth and the undesirable long knotty old wood forming these spurs. The upper canes should carry three to four more buds than those on the lower wires, and the total number of buds allowed to remain will depend entirely upon the variety and the strength of growth.

These four pruned canes should be tied securely to the wires before the buds swell in the spring and the best method of procedure is to twist each cane carefully around the wire tying the outer end securely with grape twine, two wrappings and a secure knot. This permits the weight of the entire crop to be carried by the trellis wires and not by the canes themselves or the main trunk. It is seldom necessary to support the main trunk where this method is used, but when found advisable to do so, use a short piece of wire shaped like a U, placing the same around the trunk and giving the ends a half turn around the trellis wire. Never encircle the trunk with twine; if you must use twine thus, tie to the wire, carry around the trunk, and tie to the wire again. This will prevent strangulation.

The shoots from the horizontal canes grow out obliquely, but soon fall and hang down with the weight of the fruit and foliage. Any tendency on their part to cling to the trellising must be checked by tearing off, so that they may hang free. There is no necessity for summer pruning, excepting the removal of sprouts and suckers, and the cutting off of the ends of the bearing wood when this

reaches the ground and hinders cultivation.

FERTILIZATION

The fertility of the vineyard is an important consideration. The land must be rich to produce a good quality of grape, though an over-abundance of barnyard manure is not advisable. A moderate allowance, together with such commercial fertilizers as are necessary to supplement those elements most required by the grape is essential, nor must there be any stint. The practice of manuring only around the base of the main trunk, where the feeding roots are erroneously supposed to be, is bad. The fertilizing material must be spread or scattered broadcast over the whole surface of the ground to produce the best results.

Large crops of the finest quality of fruit may be grown without the use of barnyard manure provided cover crops

a limited extent, but that alone is not sufficient.

Sulphur to be efficacious must cover the whole vine. Throwing sulphur over the vines or dusting on the same by means of perforated tins or through sacking is improvident of substance and imperfect in application. Sulphur acts by means of the fumes it gives off when the temperature is sufficiently high. These fumes destroy the mycelium and summer spores of the fungus, but in order to obtain this desirable end the sulphur must be in close contact and must therefore cover the vine in its entirety. The nearer a spore or a piece of mycelium is to a particle of sulphur, the more quickly it is killed. Practice has shown that sulphur placed on the ground under the vines is wholly useless, though one might reasonably suppose otherwise, when it is considered that there we find the warmest air.

Several forms of hand sulphur dusters are to be found on the market, though the best I know of is manufactured in France, by M. Vermorel, who has an agency in Montreal. The sulphur from this machine is thrown out with violence by means of a current of air produced by a valve bellows. The result is to cover the whole vine with minute particles. This machine, which is cheap, may also be used to dust air-slaked lime on asparagus or poisons in dust form on such plants as require such application.

The time of day to apply sulphur is of little moment provided the weather is suitable. It is less effective when applied to vines wet with dew as the tendency of the moisture is to gather the sulphur into patches. No~~s~~ can sulphuring be done in a high wind, though a light breeze will aid the sulphur to penetrate to all parts of the vine.

The treatment should first be given when the vines begin to open their blossoms—this seems to ensure a thorough fertilization and consequent fine bunches—and again when the fruit is the size of buckshot. Two applications seem to suffice as a rule, though some seasons may be exceptional. I have always found that these two applications are effective and will produce a fine quality grape.

SPRAYING

Unless grapes are sprayed with Bordeaux, one must expect annual losses from the rot, some seasons, and in some varieties, to a serious extent. Spraying with the 4-4-40 formula is effective if the

Will Recommend it

I congratulate you upon the great improvement I notice in The Canadian Horticulturist, especially along the line of caring for the apple orchard. I will recommend it to every fruit grower.—J. G. Jarvis, Black River Bridge, Ont.

are grown to maintain the proper mechanical condition of the soil together with the liberal use of commercial fertilizers of such composition as is suited to start and *maintain* growth throughout the season. Nitrogen, in any of its special concentrated forms, is not adapted to the grape and its use especially by those not versed in the matter of these special fertilizers, has a tendency to delay ripening of the fruit and canes, whereas bone and potash salts will hasten the maturing of both in a marked degree—under proper conditions.

SULPHURING

Few growers in Ontario sulphur, or if they do they do it so imperfectly as to be of little value, and it is a pity that sulphuring is not given the same careful attention as is given the pruning.

Mildew, the oidium of Europe, is responsible for much of the poor fruit which may annually be seen on our markets. This can absolutely be controlled by the proper application of sulphur. It is true that cultural methods help the control to