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GRAPES FOR HOME AND MARKET.

By

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The date at which man commenced using the grape is unknown. The first authentic record of its use was made at a very ancient time, but the fruit was then extensively cultivated, being used in primitive wine making. However, the history of grape culture, so far as it affects the people of the United States, is a record of recent date. When the early settlers first came to America they found wild grape vines growing in such abundance that they named the country Vineland, and sent back to the old country hyperbolic reports about the wonderful fertility of the newly-discovered continent.

In the last two hundred years, and especially in the last fifty years, unparalleled progress has been made in viticulture. Taking the native wild grapes experimenters and growers have produced innumerable varieties of large size and excellent quality. Success has been attained through the use of the native species alone, for the European species were found to be too tender to be grown with profit in any of the States of the Union except California.

The grape is one of the best of fruits and is quite easily grown, yet with it as with the majority of other fruits, there is an insignificant number of growers compared with the multitude of people who might reap the benefits of its use. It grows in almost every variety of soil and practically every person has sufficient knowledge and skill to grow it with success. Every farmer has it within his power to grow grapes and should grow at least a few vines to supply his own table with the fruit. If a little care is taken in selecting varieties and in caring for the fruit, one may have it

on the table three months out of every year.

In dealing with the subject, my object is not to go into details, but to treat the subject in a general way only. It is impossible to go into much detail for conditions vary so greatly, even in an area of only a few miles extent, that to deal in detail with the whole United States would be clearly out of the question. Dividing the country into five districts I shall attempt to give a brief general view of the cultural methods and especially the varieties best adapted to each district. It will, of course, give but a meagre idea of what is necessary to attain success with grapes, but it may point the way to further investigation. My divisions are the East, South, Middle West, Northwest, and Southwest. The East shall comprise all states north of the thirty-fifth parallel as far west as the ninetieth meridian; the South shall be the States south of the thirty-fifth parallel as far west as the one hundred and fifth meridian; the middle division shall be north of the thirty-fifth parallel and between the ninetieth and one hundred and fifth meridians; the Northwest shall be the territory north of the fortieth parallel and west of the one hundred and fifth meridian, and the Southwest shall be that part of the United States south of the fortieth parallel and west of the one hundred and fifth meridian. California shall not be included because it grows only the European grape, while I purpose to deal with American varieties only. This division of the territory is made merely for convenience in indicating in which states certain varieties do the best.

The location of the vineyard is not of very great importance, but a south or southeast slope generally gives the best results. Any kind of soil is good, if it is well drained and fairly

fertile. Rocky hillsides may often be used to advantage. In order that the soil may be light and dry it must be perfectly drained. If it is too wet resort may be made to tile drainage. Three-inch tiles laid three feet below the surface in parallel lines two rods apart will be effective even in very wet soils. A gentle slope must be given the tiles so that the water will easily pass through the connected line. Before setting the plants the soil should be plowed deeply and thoroughly pulverized. Sub-soiling will be beneficial in case the soil is of a compact nature. A liberal application of well-rotted barnyard manure thoroughly worked into the soil at the time of plowing greatly improves the fertility and texture of the soil.

Grapes are propagated by layering, grafting, and cuttings. The use of cuttings is the method most generally used though some varieties have to be propagated by other methods. In any case the young vine is ready to be transferred to its permanent position after one season's growth, that is, when it is one year old. The young vines should be transplanted in the spring and set in rows, seven or eight feet apart in the row. The distance may vary directly as the vigor of the variety.

The trellis to be used may well be one of two kinds: the fan trellis or the Munson trellis. The former is made fence-style, two or three wires being used, the first wire being about eighteen inches from the ground and the others above this one at intervals of from fifteen to twenty inches. The latter method consists in using three wires, arranging them in parallel eight to twelve inches apart, the middle wire being placed about six inches above or below

the other two wires. If the country is very wet the fan trellis is preferable, but if the climate is at all arid, the Munson trellis is the one to use, for it gives a denser shade to the trunk and roots of the vine.

The vineyard should be cultivated throughout the season to keep a dust mulch on the surface and to keep down weeds. All weeds should be kept out of the vineyard. The greater part of the work may be done by horse-power, using either single or double cultivator. It is not advisable to plow deeply with a stirring plow, for the roots are injured to too great an extent thereby. After cultivating with a cultivator a little hand work with hoes is all that will be necessary. It is well to put a manure mulch on the ground in the fall. This may be worked into the soil the following spring and will be quite beneficial to the crop.

After the vine has had a season's growth in its permanent location, it should be cut to a single cane, this cane being cut back to a length of about two feet. The next season two lateral shoots are trained out in opposite directions on the lowest wire and are pruned back to two buds each. Pruning may be done at any time after the season's growth is matured and is ready for its winter rest. If the renewal system is used the two buds on the stub will develop the shoots for the season's fruiting. The old wood should be limited in extent for the fruit is borne upon the shoots of the same season's growth. Care should be taken to have the new shoots start out near the trunk of the vine. A little judicious training and removal of the wood will always leave canes

of quite recent growth for the side arms. Summer pruning will often lessen the amount of winter pruning and will increase the size of the fruit. This method consists of removing all superfluous shoots from the trunk and main branches, and in retarding growth by pinching off the ends of the vigorous shoots. This treatment begins early and continues throughout the season. If one does the work when the shoots are young and tender the amount of labor will be insignificant.

Varieties that are too tender to withstand intense cold may be protected by banking. The vine is pruned as soon as the leaves have fallen, and the canes are bent down and placed in shallow trenches, after which they are covered with earth to a depth of from eight to ten inches. The next spring, after danger of cold is past, the earth is removed and the canes fastened to the trellises.

After all other conditions necessary for success have been complied with there still remains fungous diseases and insect enemies to fight. Of the fungous diseases, black rot, brown rot, downy mildew, powdery mildew, and anthracnose are most prevalent. For these diseases Bordeaux mixture is the best remedy to use. The formula giving best results is:

Copper Sulphate. . . .6 pounds.
 Lime. 4 "
 Water50 gallons.

The copper sulphate is dissolved in water, the lime is slaked and diluted until it is the consistency of milk, then the two are strained through a fine strainer into the water and the

mixture is thoroughly stirred to mix the ingredients well. If the sulphate is placed in a sack and hung in a barrel of water the water will become saturated with the sulphate. Two gallons of this saturated water will contain six pounds of copper sulphate. The first spraying should be made just before the buds start. In a few days after growth commences, spray again taking care to spray the vines thoroughly. The treatment should be repeated about every fifteen days throughout the season, and oftener if the season is rainy. In all, about six sprayings per season will be sufficient. Spraying is a preventive rather than a cure, so in all cases should be done at the proper time.

Of the insects especillay destructive to grapes the following are most prevalent: phylloxera, grapevine fidia, cane-borer, flea-beetle, rose chafer, leaf folder, leaf hopper, and berry moth. The phylloxera is not especially injurious to the American grape, for the species is quite resistant to the attacks of the insect. Carbon bisulphide is the chief remedy to use. For the fidia, some arsenical compound is effective. A very good method of using this is to add one pound of paris green to the fifty gallons of Bordeaux mixture and apply both remedies at the same time. For the first spraying with Bordeaux the arsenic does not need to be added, and it is not necessary to add it every time thereafter that the Bordeaux is used. A good power sprayer is the best apparatus with which to apply the spray. Cutting out the wood infected by the cane-borer is the best method for combatting this pest. Bordeaux-parisgreen-solution is the best remedy for the

flea-beetle. For the rose-chafer, a spray made of one gallon of crude carbolic acid to one hundred gallons of water is effective. If one goes through the vineyard and crushes the folded leaves early in the season when they are first seen, little further trouble from the leaf-folder will ensue. The leaf-hopper is controlled with great difficulty. Clean culture is one of the best preventives. A shield wet with kerosene or covered with tar, drawn between the rows of grapes, while the vines are disturbed, will cause many of the insects to be caught and killed. If this is repeated every day the results will be valuable. Spraying with kerosene is the only spray of much value. To control the berry-moth gather and burn all trash and leaves as soon as they fall. Hibernating larvae will thus be destroyed. The most effective method of control is by bagging the grapes. This will also prevent injury to the fruit by fungous diseases. Two-pound sacks are about the right size. Slip a sack over the bunch soon after the blooming period, and pin or tie it firmly to the stem. This will insure a much finer bunch of fruit than if no protection was used.

The dividing line between the two classes of grapes is an indistinct one. Between the distinctly home variety and the variety best for shipping, there is great variation. A grape for market must be a good keeper and stand shipment well, such requirements are not necessary for a home grape. As a rule, the varieties for home use have better flavor and tenderer skins than have the varieties for market. The following list is a

list of those recommended in general for the various districts and will indicate whether a variety is available or not:

Agawam	Gold Coin
Barry	Isabella
Brighton	Lenoir
Brilliant	Lindley
Catawba	Moore
Concord	Niagra
Cottage	Packlington
Delaware	Prentiss
Diamond	Salem
Dracut Amber	Winchell
Duchess	Worden
Goethe	

For early fruit the following varieties should be used: Brighton, Brilliant, Winchell. The first two are red while the last is white.

The medium-seasoned varieties are the best and are most numerous. Under this head come the following: Barry, Concord, Cottage, Isabella, Moore, Salem, ^{for black;} Dracut Amber, Lindley, red; Diamond, Duchess, Gold Coin, Packlington, Prentiss, white.

The following varieties are late: Worden, Lenoir, black; Catawba, red; Goethe, Niagara, white.

Arranged according to my divisions the varieties are placed as follows:

EAST.

Home

Agawam
Brighton
Brilliant
Catawba
Delaware
Diamond
Moore
Salem
Worden

Market

Agawam
Brilliant
Catawba
Concord
Delaware
Diamond
Moore
Niagra
Salem
Worden

SOUTH.

Brighton
Brilliant
Catawba
Delaware
Diamond
Dracut Amber
Goethe
Gold Coin
Lenoir
Moore
Winchell

Brilliant
Catawba
Concord
Delaware
Diamond
Dracut Amber
Lenoir
Moore
Niagra

MIDDLE WEST.

<u>Home</u>	<u>Market</u>
Agawam	Agawam
Catawba	Catawba
Delaware	Concord
Goethe	Delaware
Moore	Moore
Winchell	Niagara
Worden	Pecklington
	Worden

NORTHWEST.

Brighton	Concord
Delaware	Delaware
Diamond	Diamond
Isabella	Isabella
	Niagara
	Pecklington

SOUTHWEST.

Agawam	Agawam
Barry	Barry
Brighton	Concord
Delaware	Cottage
Diamond	Delaware
Duchess	Diamond
Goethe	Isabella
Isabella	Lindley
Lindley	Niagara
Prentiss	Salem
Salem	Worden
Worden	

Some varieties are placed in both the list for home and the list for market. In such case the variety is equally good for either use.

There are numerous other varieties that may be profitably grown in certain localities and even in certain entire states. Some varieties which I have listed may not do well in some state in the division, but it has been my object to list such varieties as are most likely to give satisfaction in the particular district to which they are assigned. There is always a possibility that a variety selected may not do well in a particular locality, even though it may do well throughout the state in general. The best method is to plant only such varieties as have been tested and proved good in one's immediate locality. The work of the State Experiment Station in testing varieties will be an excellent guide, but it is even better to plant only such varieties as have been successfully grown in the neighborhood. Before planting other recommended varieties, test them in a small way. If the wild grape grows in one's vicinity, cultivated varieties will succeed, and no one need hesitate, for any reason whatever, to plant a vine or vineyard on his property. It will be ornamental as well as useful and in many places will give what has been a luxury a common place in one's diet.

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