

LANDSCAPE PLANNING

Practical Techniques for the Home Gardener

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Ancient Grape Vines

“The Vine, too, here her curling tendrils and shoots,
Hangs out her cluster, glowing, to the south,
And scarcely wishes for a warmer sky.”

The Orchard & Fruit Garden
Charles McIntosh, 1839

If ever the gardener had something in common with Late Stone Age cultures, it would certainly be a willing surrender to the compelling nature of grapes. No one ever passes grapes by -- whether on the vine, in an ancient earthenware bowl, or on the supermarket shelf -- without desiring to taste the fruit of the vine. Domestic records (in the form of unearthed Neolithic kitchens) show that as early as 8500 BC, primitive agricultural societies were harvesting grapes from garden vines just as we might today. Grapes were then, and now, desired for their rich flavor and easy accessibility, and also for the large economic opportunities that came from trading raisins and wine. But of the several motivations, the foremost is pleasurable taste, for few garden fruits have such intense quality and naturalism.

Bible literature is full of references to grape vines and the planting of vineyards, which indicates how important the vines were in early cultures. Their presence symbolized fertility and well-being combined with a sense of lineal strength, as Ezekiel said (19: 10-11), “Thy mother is like a vine in thy blood, planted by the waters: she was fruitful and full of branches by reasons of many waters. And she had strong rods [branches]... and her stature was exalted among the thick branches, and she appeared in her height with the multitude of her branches.” Any plant that could elevate a woman’s status in that manner had value beyond culinary and economic purposes. And conversely, one of the great disasters to befall a planter was the failure of his grape vines and the loss of a crop. The sense of grief and affliction could be a personal tragedy reflecting on his worthiness and esteem within the tribal community. Jeremiah was distraught after such a failure, and wept (48: 32-33), “O vine of Sibmah, I will weep for thee with the weeping of Jazer: ...the spoiler [disease] is fallen upon thy summer fruits and upon thy vintage. And joy and gladness is taken from the plentiful field... and I have caused wine to fail from the winepresses: none shall tread with shouting; their shouting shall be no shouting.” Jeremiah may have been making an allegorical point to denounce the Israelites, but the spoiler he describes was probably a fungal disease, possibly botrytis, causing the berries to rot. The crop failure represented both loss of social stature and personal humiliation.

With attention to detail it is sometimes possible to understand the dilemma of biblical gardeners, which so often had to do with the blossoms on the vine. (And again, this is an allegorical point based on horticultural experiences.) Isaiah tells of a friend coming to grief when his plans for a vineyard yield unexpected results (5:

1-7) -- "My well-beloved hath a vineyard in a very fruitful hill. And he fenced it, and gathered out the stones thereof, and planted it with the choicest vines [early hybrids] and built a tower in the midst of it, and also made a winepress therein: and he looked that it should bring forth the grapes, and it brought forth wild grapes [primitive species]. And now, O inhabitants of Jerusalem and men of Judah, judge, I pray you, betwixt me and my vineyard. What could have been done more to my vineyard that I have not done in it? Wherefore, when I looked that it should bring forth grapes, brought it forth wild grapes? And now...I will tell you what I will do to my vineyard: I will take away the hedge thereof, and it shall be eaten up; and break down the wall thereof, and it shall be trodden down: And I will lay it waste: it shall not be pruned, nor digged; but there shall come up briars and thorns: I will also command the clouds that they rain no rain upon it."

Ancient vineyards were usually planted on hillsides and surrounded with walls or hedges to keep out wild boars, jackals and foxes. A stone tower was erected within the vineyard to house the vinedressers whose job was to prune and cultivate the vines and keep out thieves. As we understand the story, the fellow has planted in an area of fertile soil and acquired grape vines he previously has known to bear choice fruit. It is likely his vines have been grown from seed of cultivated plants (hybridized within the garden) and purchased or bartered from another gardener. He anticipates a crop of large and densely packed grape clusters, but is despondent to find the fruits produced are the typical loose bunches of small berries found on wild vines. After all his careful preparation and thoughtful acquisition of choice vines, this inexplicable failure could only be interpreted as a curse and damnation on his efforts. Perhaps he had bad advice or was without any consultation at all, but he ran afoul of the basic fact that the seeds of many cultivated or hybrid plants do not come true.

Ancient grape vines were dioecious plants, with male and female flowers (and corresponding reproductive organs) on different individuals, and were fertilized by open pollination. Cross-fertilization between males and females was necessary to produce grape berries, and accomplished by wind and insects visiting between the tiny grape flowers. Bees and wasps visited plants in the vineyard and also wild plants in the hills, carrying pollen containing genetic material from many different male vines capable of making flowers, but not fruit, through the process of sexual reproduction. Haphazard cross fertilization insured genetic variability in the population, and the seedlings grown from grape seeds were unlikely to carry the characteristics of the female fruit-bearing parent. Seedlings grown from a female vine producing large grape clusters could display features of other plants in the neighborhood, or revert to earlier generations of wild plants. Had the disappointed gardener bartered for rooted cuttings (vegetative reproduction) of the excellent female vines, he would have been acquiring true clones capable of producing the choice fruit he expected. And he could have grown those plants on to larger size and rooted more cuttings to enlarge the crop of reliably excellent fruit. Growing clones from cuttings could provide exact duplicates, but seeds of those plants would always be a gamble. (Modern viticulture reproduces vines exclusively from clones; consequently all the modern Chardonnay grape vines can be traced to one exceptional vine found decades ago in France.)

At the time of Isaiah's story, the earliest cultivated grape varieties were propagated from choice wild seedlings, the products of chance crosses between vines. Male stud plants were necessary in the garden to fertilize the berry-bearing female plants, but took up valuable room in fertile ground. The males were re-blooming and carried large numbers of flowers, but could not produce berries. They also maintained a state of genetic variability within seed produced by the female fruits and effectively prevented the development of true hybrid plants. At some point in the first few thousand years of grape cultivation, a spontaneous mutation occurred allowing grape vines to become domesticated garden plants with stable genetic reproduction. The mutation is thought to have occurred in a male plant, and produced vines with self-fertile flowers (called 'perfect' flowers) containing both male and female parts. Male flowers carry the genetic information of both sexes, but suppress the female genes, just as human females suppress testosterone production in favor of estrogen. The mutation allowed the development of female sexual parts in the male plant, resulting in bisexual perfect flowers with functional female pistils and normal male stamens on a single vine.

The dual-sex hermaphrodite vines no longer required the male stud plants with their unruly genes, and could reliably fertilize themselves with their own pollen. This allowed the development of a stable vineyard community which was also able to maximize space by excluding the male plants entirely. Vines affected by the mutation also inherited the male plant's propensity for large numbers of flowers, and for re-blooming, which added valuable crop insurance against the loss of flowers to late spring frosts. Most cultivated grapes continue to have perfect flowers, or female flowers that must be pollinated by another plant with perfect flowers. But male vines with exclusively masculine flowers have been retired from the vineyard and sent back to roam the hills of antiquity.

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