

Dessert Grapes—Selection of Varieties with Exceptional Quality

(Part I)

H. C. BARRETT*

Before listing and describing my favorite dessert grapes, I would like to discuss some of the aspects of quality that might be considered important in choosing grapes for dessert purposes.

Everyone who eats grapes for dessert usually has a preference for one variety over another. This varietal preference may change from year to year, and from person to person; but almost invariably it is quality that determines this preference. Quality has a personal meaning to everyone, even though the concept of what constitutes quality may vary widely among individuals.

The problem of quality interpretation and evaluation is quite a complex one, which arises from the fact that quality is a combination of characteristics which can not be measured in terms of physical constants. Certain fractional constituents of quality such as sugars, acids, color, etc. can be measured by objective analytical methods; and these values are quite useful in establishing reference points for the comparison of correlations between quality and a given constituent, or for comparing constituent values between clones; but they do not measure quality as a distinct entity.

Other techniques to evaluate quality, such as the so called "flavor profile," have enjoyed some degree of popularity, especially in the evaluation of presumed or imagined quality; of manufactured food products but final evaluation is always dependent upon sensory means. Thus, from the researcher's point of view, the meas-

urement of quality lacks that essential ingredient so cherished by science—objectivity.

Perhaps many consumers might agree on the simple definition that quality in fruit means edibility. From a consumer's point of view, edibility is largely based upon two considerations—nutritional benefit, and pleasure or sensory appreciation. In regard to nutritional benefits we can only note here that grapes have a long history of use in the diet of man and are universally recognized as wholesome and nutritious food. The following remarks are directed to those esthetic attributes of the grape which give pleasure in eating and which to the writer are believed to be the principal components of the concept of quality. In this scheme of things then edible desirability—quality—sensory appreciation is largely dependent upon: (1) **flavor**—taste and smell, (2) **consistency**, and (3) **appearance**.

Flavor of grapes may be defined as the complex sensation experienced when eating a grape in which the senses of taste and smell are both intimately involved. Sweet, sour, and bitter, which are thought to be three of the primary tastes, and which are derived largely from sugars, acids and tannins respectively, are normally detectable in grapes. The smell of a grape is due to aromatic compounds, each variety having a characteristic odor derived from the kinds and relative amounts of these compounds present in that particular variety.

In general it might be said that flavor is not determined by the abso-

*Dept. of Horticulture, University of Illinois, Urbana, Illinois.

lute amount of each sugar, acid, tannin or a particular aromatic compound present, but by the amounts of these constituents in relation to one another. For example, a grape that is low in sugar and acid will have a flat or insipid taste; another may taste very sweet with a moderate sugar and low acid content; still another, with high sugar and high acid, will taste sour; and so on. We may also find that one of two varieties with nearly identical sugar/acid ratios may taste markedly sweeter than the other if a larger percentage of the total sugars is composed of levulose or sucrose rather than dextrose, since levulose is much sweeter than sucrose, and both are sweeter than dextrose.

Most cultivated grape varieties can be classified as basically vinous, since they have a taste and aroma that are recognizable as grape. The aromatic compounds in variable combinations and amounts modify the basic vinous character, giving each variety its definitive flavor. Strong characteristic flavors such as muscat, or the "foxy" flavor of some *V. labrusca* derivatives, can be easily perceived either when eaten or smelled. Others may have special flavors that are not readily apparent from their aroma, or have such delicate aromas that they are not discernable as aromas until placed in the close confines of the mouth and connecting nasal passages.

The most overpowering grape aroma (and flavor) known to the writer is the peculiar, nauseating one found in *V. labrusca*, the wild fox grape. Some of the wild muscadines, *V. rotundifolia*, are also strongly aromatic, but with a different, more refined aroma than that of *V. labrusca*. This unique aroma so characteristic of *V. labrusca* has often been referred to by many writers on the grape as "foxy," admired by a few souls, but greatly disliked by most persons. Hybrids of *V. labrusca* and *V. vinifera*,

comprising a large class of grape varieties, which we will call, for convenience, American types, possess this aroma in some degree, combined with the more refined and delicate flavors of the *V. vinifera* parent species. There are varieties of American type grapes with aromas and flavors nearly as repulsive as their *V. labrusca* ancestors, such as Champagne, Jumbo Red, Lucile, Lutie and Perkins. Fortunately, among the American types, we also find such delightful varieties as Captivator, Delaware and Seneca, which in flavor alone are surpassed by few grapes.

A number of varieties with bizarre flavors have emerged from this class of grapes, some of which have evoked equally bizarre comments from those who have tasted their fruit. The Isabella variety, often referred to by European writers as the Strawberry Grape, supposedly from a fancied flavor similarity to strawberries, drew this comment from Edward Bunyard, the great British connoisseur of fruits—"The Strawberry Grape is beloved by some, but to me the flavour suggests a cross between a Tom Cat and a Black Currant, and it is to most palates undesirable and happily rare."¹ Perhaps a word of caution would be in order here for any cat lovers contemplating a taste sample of the Isabella, lest they find this an overwhelming emotional experience.

The most highly prized grape aroma is that of muscat which is found only in *V. vinifera* or hybrids derived from the muscat *vinifera* varieties. The aroma is characteristic, but many nuances occur from the robust aroma of Muscat Alexandria to the delicate one of Muscat Ottonel. Combined with or intermingled with the muscat aroma, are other flavors and aromas that, while not purely muscat, carry enough constituent similarity that a relationship is recognizable. Here belong those varieties with a faintly

"brown sugar" flavor suggestive of muscat such as the Dattier de Beyrouth and Seibel 14664, when grown under very favorable conditions. Golden Muscat has a similar flavor, but rather heavily modified with an attenuated *labrusca* "foxiness."

Another factor affecting quality that has been little noted is homogeneity of flavor. We return again to derivatives of *V. labrusca* for examples of low flavor homogeneity. In eating a berry we first encounter immediately beneath the skin a somewhat granular or mealy layer generally lacking in desirable flavor, then successively toward the center a relatively sweet, aromatic juice, then a less aromatic more acid flesh until, when we reach the center, we encounter a quite disagreeable, acid, "earthy" flavored pulp surrounding the seeds. In the better *vinifera* table varieties there is little if any difference in flavor from one part of the berry to another. Many persons, in eating American type varieties squeeze the berry to break the skin, "pop" the central fleshy area and a little of the juice into the mouth and then "swallow the oyster whole," seeds and all, discarding the skin or sometimes swallowing it along with the rest of the berry as they prefer. The writer would concur in the feeling that this may be the better method if it ever became necessary to eat a variety such as Champagne or Jumbo Red, since the ordeal would be less prolonged. Homogeneity of flavor would not be too important in the "one swallow" technique nor indeed would sensory appreciation itself be of much consequence, since flavor evaluation would be so fleeting in time.

Consistency

Consistency is the sensation expressed when a grape berry is fragmented by the mouth parts and is registered by the sense of feel. Tannins may also be partly detected by feel

as well as by taste because of the rough, puckery or astringent feeling imparted to the inside of the mouth. The release of the flavor constituents from the cells of the flesh and skin is influenced by consistency. A stringy, tough, dry or mealy flesh is an unfavorable mechanical barrier to the extraction of these constituents and offers little except chewing exercise as a reward for eating. A soft, flabby or watery consistency is lacking in "mouthfeel" and is akin to being too thin to chew and too thick to drink.

Homogeneity of consistency from skin to center of the berry is, in the writer's opinion, a very important part of quality. The undesirable "slip skin" feature characteristic of *V. labrusca* and *V. rotundifolia* is generally found in most species of *Vitis* except *V. vinifera* but in the first two species and in *V. candicans*, the Mustang grape, the skin is so tough, leathery, astringent and in the Mustang grape so fiery pungent that eating the skin is quite unpleasant. All *vinifera* varieties do not have the adherent skin character or are free of skin astringency but the best table varieties such as Black Monukka, for example, have a tender, crisp, tightly adherent non-astringent skin that is almost non-discernable when eaten.

The presence or absence of seeds is a consistency feature that to many persons is a very important quality character. Seedless grapes are preferred by many consumers apparently for no other reason than convenience in eating. Large seeds that are difficult to free from the flesh in eating or numerous seeds give a "seedy" consistency and are objectionable in dessert grapes.

Appearance

The appearance of a grape is affected by color, skin surface and condition. Tentative acceptance or rejection of food may often be influ-

enced by appearance. In the grape, the color of the skin, its luster, uniformity of distribution plus the amount and distribution of bloom appeal to the sense of sight. The smoothness, degree of translucency, and prominence of lenticels on the skin surface are varietal characteristics which affect appearance. Blemishes or injuries to the skin surface or underlying flesh by external agents is "condition"; and such defects may be detrimental to quality as well as appearance.

Berry shape and size have a certain emotional appeal to many, and varieties with exotic or unusual forms such as "lady finger"—pointed ovate or cylindroidal, may initiate pleasing thoughts quite apart from their actual eating quality. External appearance is not always indicative of internal quality. The Muscat Alexandria could not be considered a particularly attractive grape with its dull greenish skin and sparsely adhering bloom, but its flesh quality rank it as one of the world's fine dessert grapes. It is well known to grape breeders that in American type grapes there seems to be a fairly good correlation between "foxiness" of flavor and dull, dingy skin color in the white, amber and red colored varieties, that is not so apparent in the black colored sorts.

Many other factors that have not been discussed here may affect quality. Overcropping, climatic conditions, soil drainage, soil fertility, and site exposure are of importance in affecting grape quality. It is also well known that a variety may have very good quality in one region and be only mediocre in another. Early maturing sorts tend to be somewhat overrated in quality simply because there is nothing available to compare them with. It is also difficult or impossible to directly compare early and late maturing varieties since the earlier sorts can not be kept long enough at

their prime to make such a comparison meaningful.

The writer prefers to think of dessert grapes as falling into approximately four groups—vinifera, French hybrids, American types, and muscadines. With the possible exception of many similarities between the first two groups, varieties in each group differ sufficiently from those in another group that it is difficult to rank favorite varieties disregarding groups, in exact order of preference. To the writer, the vinifera dessert varieties are the standard to which all other dessert varieties are compared, for these combine, in the greatest degree, all of the factors essential to high quality. If flavor alone were to be considered, several American types and perhaps two or three muscadine selections would rank equal, in my opinion, to and exceed most vinifera dessert varieties; but the lack of adherent, non-astringent skin, a firm, meaty, homogenous consistency, and other essential quality characters are serious defects in non-vinifera dessert grapes. The better French hybrid sorts more closely approach vinifera varieties in desirable consistency and skin quality but in general they are more bland and lack distinctive flavor appeal.

The writer's favorite vinifera varieties, in approximate order of preference, are Black Monukka, Muscat Hamburgh, Dattier de Beyrouth, Black Rose, Muscat Alexandria, Sultanina and Cardinal.

Among the French hybrids, my favorites are Seibel 5813, Seibel 14664, Aurelia, Seibel 9110 and Seyve-Villard 20-365.

My favorite American type varieties are Buffalo, Urbana, Mills, Delago, Captivator, Seneca, New York Muscat and Delaware.

(Part II will appear in the next issue)