A Five-Point System of Fruit Variety Evaluation

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Many publications which contain information on fruit varieties are primarily paragraph descriptions of the good and bad characteristics of the fruits being discussed. Such information is useful to growers and nurserymen but frequently does not indicate the comparative value of the different varieties.

Numerical rating systems, such as those used by Blake (1), and Dix and Magness (2), provide a quick and understandable method of evaluation. Such a system, based on a five-point scale, has been used at the Ohio Experiment Station for several years, and is presented here with the suggestion that it, or a similar method, might well be adopted for reporting the relative value of different fruit varieties in the articles which will appear in this publication.

Rating of Characteristics

All characteristics such as yield, hardiness, fruit size, firmness, dessert quality and shipping quality, which can be evaluated on a comparative or quantitative basis are given a numerical value from 1 to 5, based on the scoring system outlined in table 1. After all the important plant and fruit characteristics have been evaluated, a final rating is determined for the variety. This final rating indicates the extent to which the variety is suitable for commercial planting (see table 1).

Final Rating

The determination of a final rating for a variety requires a careful weighing of the relative value of the various characteristics of the plant and fruit. It is obvious that all of the different characteristics are not of equal importance in determining the final worth of a variety.

For example, in the case of peaches in Ohio, the hardiness of flower buds to cold in the dormant season, is very important, and the numerical rating of this factor is multiplied by 4 when determining the final worth of a variety. The fruit size rating is multiplied by 2. If the peaches must withstand shipping for any appreciable distance, the rating for firmness should also be multiplied by 2 or 3 depending on the distance to market and shipping facilities. Following these adjustments all the figures for each fruit are added together to secure a final score. The final scores of the varieties being considered are then grouped into five classes (if they occupy the entire range from excellent to poor) and are assigned numerical ratings according to table 1. The application of this system to peaches is illustrated in table 2. Varieties with a rating of 4 or 5 have been omitted from

TABLE 1. SCORING SYSTEM USED IN FRUIT VARIETY EVALUATION

	General Meaning of Numerical Rating	Interpretation of Final Rating in Terms of Planting Recommendations
1	Excellent	For commercial planting
2	Good	For limited commercial planting
3	Average or Medium	Plant only to satisfy special local demands
4	Fair	Varieties of little commercial value
5	Poor	Varieties of no commercial value

TABLE 2. EVALUATION OF PEACH VARIETIES FOR OHIO. ADDITIONAL INFORMATION FROM DIFFERENT PARTS OF THE STATE MAY CHANGS THE RATING OF VARIETIES

Variety	Approximate Ripening Date	Color of Flesh	Hardiness of Buds	Fruit Size	Fruit Quality	Fruit Firmness	Stone Freeness	Remarks
1. FOR COMMERCIAL PLANTING								
Cumberland	Aug. 14	W	1	3	2	3	2	Standard in its season
Golden Jubilee	Aug. 15	Y	2	2	2	3	1	Too soft for shipping
Halehaven	Aug. 27	Y	2	2	2	2	1	A standard variety
Belle of Ga.	Sept. 6	W	1	3	2	3	1	Preferred to Champion
Elberta	Sept. 9	Y	3	2	3	1	1	Buds rather tender
2. FOR LIMITED COMMERCIAL PLANTING								
Erly-Red-Fre	Aug. 5	W	2	2	3			Attractive, promising
Redhaven	Aug. 9	Y	2	3-4	2			Good except small
Oriole	Aug. 11	Y		3-4	2			Good in its season
Raritan Rose	Aug. 13	W	2	3	2		2	Firmer than Cumberland
Radiance	Aug. 17	W	2	2	2		2	Good after Cumberland
E. Halehaven	Aug. 17	Y	2	3	2	2	1	Good after Jubilee
Vedette	Aug. 23	Y	2	2	2	3	2	Good canner
Sunhigh	Aug. 25	Y	2-3	2	2	2	2	Promising
Redrose	Aug. 28	W	2	2-3		2	1	Promising
Midway	Aug. 30	Y	2	2-3		2-3	1	Promising
Eclipse	Sept. 1	Y		3-4		3	1	Fruit small
Summercrest	Sept. 5	Y	2-3	2		2	1	Color only fair
Kalhaven	Sept. 6	Y	2-3	3	2	2		Attractive, good shipper
White Hale	Sept. 10	W	2-3	1	2-3	2		Promising
Shippers Red	Sept. 11	Y	2-3	2	3	1-2		Many strains, some poor
Afterglow	Sept. 12	Y	2-3	2	2	2-3		Good after Elberta
Fertile Hale	Sept. 12	Y	2	2		2		Good in some areas
3. VARIETIES TO SATISFY SPECIAL LOCAL DEMANDS								
Mikado	Aug. 1	Y	1-2		3-4	4	3	Good in its season
Marigold	Aug. 4	Y	1-2		3-4	4	2-3	Good in its season
Goldeneast	Aug. 23	Y		2	2	2	1-2	Good if hardier
South Haven	Aug. 25	Y		2	2	3	2	Halehaven preferred
Colora	Aug. 25	Y	2	2	3	2-3	2	Halehaven preferred
Early Elberta	Sept. 6	Y	3	2-3	3	2	1	Buds rather tender
J. H. Hale	Sept. 10	Y	3	1			1	Tree lacks vigor
Gage Elberta	Sept. 11	Y	3	2		2	1	Buds rather tender
Lizzie	Sept. 20	Y	2-3			2	1	Promising
Iron Mountain	Sept. 20	W	2	2-3		2-3	1	Not attractive
Salberta	Sept. 25	Y	3	2		2	1	Good in its season

NOTE: In the column entitled "stone freeness", 1 means freestone, 2 indicates a tendency to cling in some seasons, 3 means semi-clingstone, and 4 and 5 clingstone. Under "color of flesh" the letter Y denotes yellow, whereas W indicates white.

this table because they are of little or no commercial value in Ohio.

Five-Points Sufficient

Since many factors influence the growth characteristics of plants, it seems unnecessary and impractical to attempt a rating scale which contains more than five levels or degrees of comparison. The five-point system suggested here gives adequate range to handle the evaluation of varieties on a practical basis. If the rating of certain characteristics seems to fluctuate between two adjacent numbers, both numbers may be recorded to indicate a borderline situation. New varieties, upon which only limited observations are available, may be given a numerical value which seems fitting, followed by the letter N, indicating it is a new variety upon which more data are needed before a final rating can be given.

This method is presented as a practical way of recording the value of fruit varieties and is not intended as a substitute for botanical descriptions when plant and fruit characters are to be described in detail. This system of evaluation also provides an easy method of compiling tables in which varieties grown in adjacent states or regions may be compared. Such lists would be of value to growers in planning their planting program and for nurserymen in determining what varieties to propagate.

Literature Cited

1. BLAKE, M. A. 1943. Fruit bud development on peaches and nectarines. N. J. Agric. Expt. Sta. Bul. 706.
2. DIX, I. W. and MAGNESS, J. R. 1937. American grape varieties. U. S. Dept. of Agric. Circ. 437.

A Cash-Return Comparison of Peach Varieties

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For a number of years we have maintained records of the yields of fruit and the selling price of the peaches produced in our orchards. These records show some interesting facts about the receipts which have been secured from a number of different varieties. In all cases these trees were grown on a silty loam soil.

Table 1, for example, indicates the actual cash received from the sale of peaches during the years 1942 to 1945 inclusive, in an orchard which was planted in 1937. Some fruit were produced to 1942 but because of partial or complete crop failures, the four crops being cited in this table seem to have the most interest.

Varieties Tested

Of the varieties included in this test, Golden Jubilee and Belle of Georgia have been the most profitable. South Haven has yielded returns which were above the average but were about $100 per acre lower than either Jubilee or Belle. Rochester and Carmen were definitely below the average and were the least profitable varieties in this particular planting.

Similar records were kept in connection with an orchard which was planted about 1925 and was killed by the cold winter of 1936. In this case the approximate returns per tree per year show