Fruit Setting in the Delicious Apple

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New data are presented on fruit setting of the Delicious apple. The authors had the collaboration of workers at 32 different state experiment stations in the United States, at four stations in Canada, and at 20 stations in 14 other countries. In addition, specialists at seven different meteorological stations made contributions, while four different fruit growers in Michigan furnished facilities and aid. This has brought together observations and data on the setting of the Delicious apple from regions of heavy, medium and light setting during the period covered by the study.

In all locations in which records were secured: (1) bees, and also (2) trees of other pollinating varieties were sufficient to provide adequately for cross-pollination; also, (3) in no instance was rainfall great or prolonged enough to be considered as an important factor in limiting fruit set.

Fruit setting of the Delicious variety is shown to be lighter in Michigan and adjacent portions of the Great Lakes area than elsewhere. This point is used as a basis of comparison in the drawing of conclusions.

The evidence indicates that environmental conditions during a short period immediately following full bloom are controlling factors in influencing fruit setting of the Delicious. The first week or ten days is shown to be particularly important in this connection.

"The data point clearly to the importance of three environmental factors during this period:

(1) TEMPERATURE. The total 'effective' (i.e. above 42° F.) day-degrees in southern Michigan, where setting is characteristically light, for the 7-day period following full bloom is 130-150; for sections where setting is heavy enough to call for thinning it is 200-250."

(2) SUNLIGHT. There has been little past work dealing with the influence of light on fruit setting in the apple. Past work has shown that in

the sweet cherry, in cotton, and in other plants there is a reduction in fruit setting during periods of low light intensity. In the present work it is shown that with the Delicious apple "the total gram-calories of radiation received per square centimeter in southern Michigan during this 7-day period averages 2,550; in sections where setting is so heavy that thinning is required it averages 3,000 to 4,000." (A supplemental note added after this bulletin went to press states that in 1949 the Delicious apple set heavy crops in most Michigan orchards. The gram-calories of radiation recorded per square centimeter at East Lansing during the week when blossoms were opening was 3,232, and for the following week the figure was 3,136.)

(3) "SPRAY MATERIALS. In most sections where fruit setting of this variety is heavy no fungicides are used: most sections employing fungicides to control scab in the preblossoming, blossoming and fruit setting periods now use lime-sulfur or wettable sulfur. The one is highly toxic, the other is mildly toxic. Certain copper-containing materials and fermate are still less toxic." Tabular data show that in general the highest percentage setting was obtained where no fungicides were applied.—W. S. FLORY, JR.

Short Prunings

Better Muscadine Grapes to Come

The release in 1946 of the muscadine grape varieties Tarheel, Burgaw, Pender, Duplin, Willard, and Wallace opened up an entirely new field to breeders of muscadine grapes for these are the first perfect-flowered varieties to be introduced. This, however, was another blow to the male sex—"bull" vines are no longer needed. The new varieties not only produce pollen which causes the blooms of the imperfect flowered varieties like Scuppernong, Thomas, and Hunt to set fruit, but they also bear fruit. Their quality is very acceptable but not quite up to that of the better standard varieties.

Probably more valuable than these six varieties themselves will be the progeny from them and their unnamed brothers and sisters. The valued perfect-flowered character is now available to all muscadine grape breeders. Thousands of perfect-flowered seedling vines are growing from them and many appear to have better quality fruit than Thomas and Hunt. Thorough testing before introduction takes time, but better perfect-flowered varieties of muscadine grapes are on the way.

EDITOR'S NOTE: The Mississippi station is recommending two of the perfect-flowered muscadine varieties, Burgaw and Wallace, for general use in that state, along with Topsail, a pistillate variety from the same U.S.D.A.-North Carolina cooperative breeding project. J. P. Overcash, Louie Walton and B. C. Hurt in *Mississippi Farm Research*, October, 1950, thus summarize their variety recommendations to home fruit planters: "If it is possible to have only one vine then either Burgaw or Wallace should be used. If only two vines can be planted then one should be of the pollinator type and the other can be one of the high quality [pistillate] varieties such as Topsail, Hunt, Scuppernong, and Thomas."—J. C. McD.