REPORT OF THE COMMITTEE ON BREEDING TREE AND VINE FRUITS

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In 1909 the chairman of this committee presented to the Association a statement concerning the present status of apple breeding in America. It is gratifying to report that in general the interest in this line of work is being well maintained and that good progress is being made. It is hoped that similar reports concerning other tree fruits and the vine may be prepared.

The committee is proposing also to present reports indicating the more important problems in the breeding of tree and vine fruits which need to be worked out in the various parts of the country. The first contribution of this kind is presented below. It is from the veteran grape breeder, T. V. Munson.

PROBLEMS IN BREEDING TREE AND VINE FRUITS

T. V. MUNSON
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The main direction to be pursued in breeding tree and vine fruits is to ascertain the best elements to be used as parents, so as to secure in the progeny the desired results, and this requires:

- (1) The greatest degree of *adaptation* to climate for which intended.
- (2) *Adaptation* to special soils.
- (3) *Resistance* to destructive fungus and insect enemies.
- (4) Vigor and longevity.
- (5) Certainty and prolificacy of bearing.
- (6) Size and beauty of product.
- (7) High quality.
- (8) Best handling and shipping properties.
- (9) Most important of all combination of greatest number of above eight points.

For the region of North Central Texas and South Oklahoma the special requirements would be—

- (1) Capability of thriving under great and sudden changes of temperature, and of humidity and aridity of atmosphere and soil.
- (2) (a) Some varieties to very limy soils; (b) others to very sandy soils. Few are found equally adapted to both.
- (3) There is room for much work in improving varieties especially adapted to this region in every class of fruits, as the work of originating varieties especially adapted to it is in its infancy.

MENDELIAN INHERITANCE IN PRUNUS HYBRIDS

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The following data are offered as a contribution to our knowledge of Mendelian inheritance in *Prunus* hybrids. Brief notes on the correlation of certain characters are also given. Although these data do not supply a sufficient basis for the demonstration of conclusive results, they do in some instances give striking indications of the operation of Mendelian factors.

Material under investigation.—The material under observation consists of two general classes of F_2 *Prunus* hybrids produced by unguarded F_1 parents. One class is composed of sandcherry-cherry hybrids, the other of sandcherry-plum hybrids.

The sandcherry-cherry hybrids, *Prunus besseyi* $\times$ *Prunus cerasus*, consist of F_2 plants from seed of the Montbesseyi, which is a named horticultural variety produced by Theo. Williams, Benson, Nebr., by cross-pollinating the western sandcherry, *Prunus besseyi* Bailey, with pollen of the Montmorency, a horticultural variety of the common garden cherry, *Prunus cerasus* Linn. The forms of leaf of Montbesseyi and its parents are shown in figure 1.

The sandcherry-plum hybrids, *Prunus besseyi* $\times$ *Prunus americana*, consist of F_2 plants from seed of F_1 hybrids known as Wagner Nos. 2, 4, and 6. These were originated by J. F. Wagner, Bennett, Iowa, by pollinating the Dwarf Rocky Mountain cherry of Pennock, a horticultural variety of *P. besseyi*, with pollen of the Wyant plum, a cultivated variety of the native *P. americana*. The forms of leaf of these Wagner Nos. 2, 4, and 6 and their parents are shown in figure 2.

As has been remarked, the F_2 plants above mentioned all came from F_1 unguarded parents, which fact introduces an element of uncertainty into the interpretation of the results. But the populations under