

Three Mutations of *Vitis Vinifera*

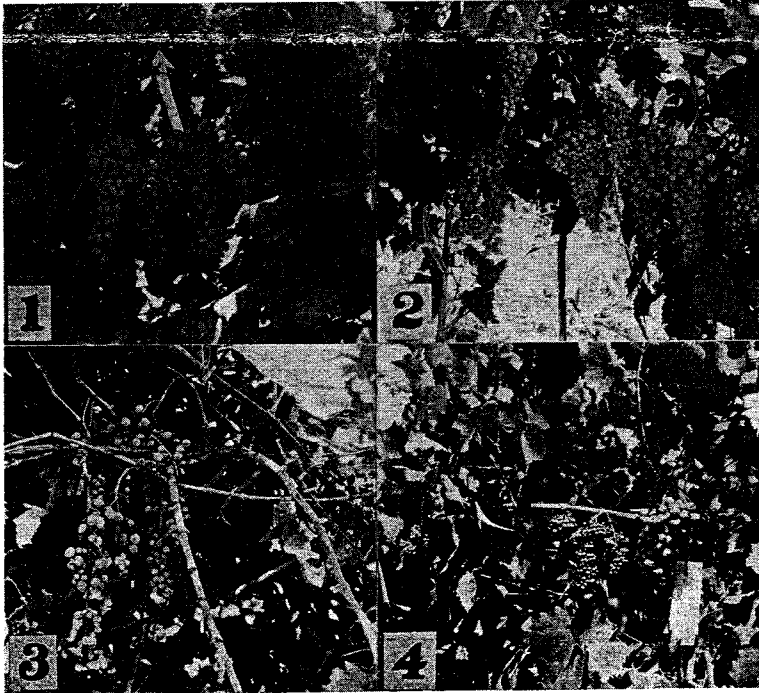
By ELMER SNYDER and F. N. HARMON, *United States Department of Agriculture, Fresno, Calif.*

DURING the fruiting seasons of 1934 and 1935 a limited study was made of the occurrence of grape mutations, especially in vineyards of the Sultanina and Panariti varieties. A *large-berry* Sultanina, a *small-berry* Sultanina, and a *seeded-berry* Panariti were found of quite frequent occurrence.

The *large-berry* Sultanina was found to occur as whole vines in widely separated locations. However, 12 vines were located which produced both the normal fruit and the *large-berry* fruit on the same vine as shown in Figs. 1 and 2. This variation of the Sultanina has been known for some time. A similar variation was propagated at the U. S. Cotton Field Station, Shafter, California, by Mr. A. D. Shamel. Small plots have also been grown in the vicinity of Fresno, Calif. The *large-berry* Sultanina varies from the normal Sultanina in both vine and fruit characters. The vine of the variant form has thicker canes, shorter inter-nodes, and foliage of a thicker and coarser appearance than the normal Sultanina. The fruit clusters are more variable ranging from very straggly to very compact, with berries nearly spherical to obovoid in shape and much larger than the normal oval berries. Probably irregular production and failure of the fruiting wood to ripen properly has limited the planting of this variation. Buds selected from whole vines of this variant form and also from variant parts of vines bearing both normal and variant fruit, have reproduced this *large-berry* mutation. This mutation may have some value in breeding work and for local use.

A *small-berry* Sultanina was also found to occur quite widely. Thirty-nine whole vines of this variation were found in one 7-acre vineyard. In a younger vineyard on this same ranch propagated from the 7-acre vineyard 2 per cent of the vines were of the *small-berry* type. This same variation was found in other Sultanina vineyards and apparently is the same as reported by Olmo (2). In vine characters the *small-berry* Sultanina resembles the normal. The fruit clusters are variable. The majority of clusters are loose, some setting only a few berries and others drying up entirely. Normal berries are occasionally mixed on the cluster with the variant form as shown in Fig. 3. The berries of the variant form are small and round compared to the oval normal berries of the Sultanina. Buds have been selected from vines producing both the normal and *small-berry* fruit, but they have not yet fruited. A 2-year check however showed that the same vines in one vineyard produced the same *small-berry* type in successive years. Since the mutation is low in production and the berries are small in size compared with the normal, vines producing this *small-berry* type should be avoided in selecting cuttings for a Sultanina vineyard.

A *seeded-berry* Panariti mutation (1) was found to occur as whole vines and mixed on vines with normal fruit in various commercial vineyards. The vine and foliage characters of normal and variant form are similar. While the Panariti normally produces small spherical



FIGS. 1 and 2. *Large-berry* and normal Sultanina on same vines.

FIG. 3. *Small-berry* Sultanina with some normal berries on the clusters.

FIG. 4. *Seeded-berry* and normal Panariti on the same vine.

seedless berries, this mutation produces perfect clusters of large oval seeded fruit. Buds selected from the variant form on vines which had both normal and seeded fruit as well as from vines producing only *seeded-berries* have produced the seeded mutation. As seeds are a detriment when the Panariti are dried to make the "Zante Currants" this mutation should be avoided in planting new Panariti vineyards.

LITERATURE CITED

1. HARMON, F. N., and SNYDER, ELMER. A seeded mutation of the Panariti Grape. *Jour. Heredity* (submitted 1935).
2. OLMO, H. P. Bud mutation in the Vinifera grape. I. "Parthenocarpic" Sultanina. *Proc. Am. Soc. Hort. Sci.* 31:119. 1934.