

SOME EFFECTS OF ROOTSTOCKS ON SELECTED CHEMICAL
COMPONENTS OF BUFFALO GRAPE BERRIES AT VARIOUS STAGES OF MATURITY

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A MASTER'S THESIS

submitted in partial fulfillment of the
requirements for the degree

MASTER OF SCIENCE

Department of Horticulture and Forestry

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1970

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1970
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**THIS BOOK
CONTAINS
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INTRODUCTION

One of the primary objectives of grape-breeding is the development of high-quality table, or wine cultivars. The concentration of sugars and acid and their relationship are major factors influencing the quality of the grape cultivar. The importance of the total fermentable sugar in grape musts is universally recognized. The final alcohol content of unfortified wines depends primarily on the initial sugar content. For table grapes it has been shown by many workers that, above a certain minimum sugar content, the balance between sugar and acidity is more important than the sugar content itself.

The sugars present in grapes are largely glucose (dextrose) and fructose (levulose), Amerine (6). Cultivars having high fructose and glucose contents would result in maximum sweetness. This must be balanced with the proper amount of acid to provide a pleasing taste. Table cultivars high in fructose content can be harvested at a lower percentage of total sugar and be equal in sweetness to fruit of higher sugar content but with greater amounts of glucose, provided the acidity is not too high.

Most of the work in determining the sugar changes in grape berries of American species and French hybrids has been done in the past twenty years. However, little is found in the literature concerning the sugar components of grape berries of a given cultivar at different developmental stages as affected by different rootstock.

The grape is propagated easily both by sexual (seeds) and asexual

methods (cuttings, layering, budding or grafting). Seeds are used only when new cultivars are sought, Hartmann (24). Grape cultivars of the American type, Vitis labrusca, are usually propagated from hardwood cuttings, Mahlstedt (38). Hartmann (24) stated that cultivars difficult to root by cuttings, such as Muscadine, can be propagated by layering. Budding or grafting on rootstocks is used to increase vine life, plant vigor, and yields. Mahlstedt (38) stated that vigorous rootstock improve the yield of fruits. He also found that by grafting several species of grapes gave sizeable increase over plants propagated from cuttings. Shepard (41) reported that in Missouri bud-grafted vines proved superior to whip-and-tongue bench grafts because of much higher and faster percentage of takes. Hartmann (24) stated that where noxious soil organisms, such as phylloxera, rootknot nematodes or cotton root rot are present and where varieties of susceptible species, such as Vitis vinifera are to be grown, it is necessary to graft or bud the desired variety on a resistant rootstock.

Objectives of this study were to determine the differences in chemical components: (1) glucose, (2) fructose, (3) total solids, (4) pH and (5) total acidity of the fruits of a single grape cultivar Buffalo, as affected by different rootstocks with fruit sampled during various stages of development.

REVIEW OF LITERATURE

Barrett (8) had classified dessert grapes in four different groups -