

## FRIDAY EVENING SESSION

October 14, 1960

Dr. Lloyd A. Lider, Department of Viticulture and Enology, University of California, Davis, moderated the symposium. Chairman Lider opened the symposium with the following remarks.

### MECHANIZATION OF GRAFTING METHODS

LLOYD A. LIDER

*University of California, Davis*

The panel discussion of machine grafting techniques which has been placed on the program this evening exemplifies the basic reasons for desiring to establish this society and for its meeting together this evening. The vegetative propagation and grafting of perennial plants has been an important phase of commercial nursery operations for many years. Several specific horticultural industries in California are based upon the use of scion varieties grafted on special rootstocks designed for certain environmental conditions or because they are resistant to soil borne pests or diseases.

Techniques of propagation which insure the successful production of a dependable number of strong grafted plants for nursery sale are essential to the program of providing the planting stock for the expanding horticultural industries of this state.

Various types of mechanized grafting techniques have been used for several decades in the European grape industry. Many hundreds of thousands of bench-grafted vines are produced each year and an increasingly greater proportion of them are being produced using techniques designed to reduce or eliminate hand labor. Several commercial nurserymen in California have adopted some of these modernized practices and for at least the last 25 years, mechanical grafting tools have been used for producing bench-grafted grapevines.

The California grape industry is an excellent example of the growing demand for grafted planting stock. This huge industry — comprising over 450,000 acres of vines — currently has approximately 30% of its acreage planted upon resistant rootstocks. The industry is currently replacing — or adding new — about 15,000 acres of vines each year. This means, then, that 5,000 acres are put upon rootstocks — at 500 vines to the acres, we are planting each year, an additional 2½ million grafted vines. Obviously, this is a big operation in which new labor-saving techniques have a definite place.

The current crisis in the California pear industry is a second example of the importance that grafted rootstocks can play in a large agricultural industry. It appears likely that this industry will be saved by the use of certain specific stock-scion combinations. It is estimated to date that the state has lost between 150,000 and 170,000 bearing pear trees and is threatened with the loss of about 1/3 of the total acreage existing in the state. The state's total bearing acreage is approximate-

ly 37,000 acres, thus something like 12,000 acres or a total of about 1½ million trees have a shadow hanging over them. If this dire prediction comes about, it will be the obligation of the nursery industry to make available a comparable number of nursery grafted trees, upon which to rebuild this industry.

It is obvious from these examples, as well as from many others which could be cited, that the nurseries of California hold a key position in the fruit industries of this state. The nursery business will continue to play a major role in helping solve the problems that come to face California horticulture, and as well will be instrumental in insuring its future progress.

In order to insure the success of the nurseries in fulfilling their obligations to these fruit industries, they must be capable of providing a continuing supply of strong and healthy grafted replanting stock. In order to do this, the use of modern techniques of propagation and the adopting of new ideas of mechanized grafting as they are brought to light are obviously important.

The expansion of new plantings of horticultural crops is going on continually. Many old areas in California are going out, and new areas are being developed to take their place. Research has pointed the way to an understanding of the old and some new disease and pest problems and in some cases, has offered new types of graft combinations as their solution. Many of these new types will be tested and adopted by the industries. On the other hand labor costs are continually climbing. The production of hand-whipped bench grafts is slow and expensive. It requires great skill in the hands of the individual. We all know that the finding and training of new grafters is increasingly difficult.

For these reasons, and many others, the progress in the development and use of mechanized grafting tools is of great interest to nurserymen today. A panel of three speakers has been brought together here to discuss for you several types of mechanical grafting tools and how they have been adapted to specific situations in commercial operations.

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Chairman Lider introduced Dr. Curtis Alley of the Department of Viticulture and Enology, University of California, Davis.

## **MACHINE GRAFTING AND PREPLANTING TECHNIQUES FOR GRAPE BENCHGRAFTS**

CURTIS J. ALLEY

*University of California, Davis*

Before the introduction of phylloxera into France around 1868, and into California about the same time, there was little need for grafted or budded grapevines. Most grapevines were developed on their own roots, generally by rooted cuttings grown in the nursery the previous year.