

## The Machine Grafting of Grapes in Okayama®

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### INTRODUCTION

The grafting of the grapes is required if they are to be successfully grown in soil. Grafting is necessary because, even though a cutting may root well, the cutting can be attacked by phylloxera if the soil is infected with this pest. Plant vigor can additionally be modified by rootstock selection as can yield and quality.

The main propagation method for grape grafting in Okayama was the "English-style" saddle graft which was performed by hand. When using the saddle graft the rootstock and scion should be as equal in size (diameter) as possible. The number of grafts completed per day was limited by the complexity of the graft and the skill needed.

About 20 years ago, grape propagators in Okayama switched to an automatic-type grafting machine (that was manufactured in Germany). Techniques for grafting using this new automated machine were developed and these are used today. After changing to the automated grafting machine, the number of grafting per day and success rate rose drastically.

### AUTOMATIC-TYPE GRAFTING MACHINE

The characteristics of this machine are as follows:

- Grafting about 500 rootstock and scion combinations per hour is possible.
- Grafting can be done in one operation for both scion and rootstock.
- The scion and the rootstock unite well and the grafting success rate increases.
- Thick scions (to 18 mm in diameter) can be grafted.
- Cutting blades can be changed easily.

### PRODUCTION OF GRAPES IN OKAYAMA

Rootstocks are collected from virus-free mother stock. Major rootstock clones are Teleki5BB, SO4, Number 3309, Number 3306, and Number 101-14. The fruiting cultivars Delaware, Pione, and, Kyoho are the major scion cultivars. Fruiting wood scions are also collected from virus-free mother stock. Both rootstock and scion wood are harvested until the end of January; grafting is performed in February.