

# Machine Grafting of Grapevines using the Spinks Grafting Machine

**Gerardo G. Villanueva and Steve Maniaci**

Sunridge Nursery, 441 Vineland Road, Bakersfield, California 93307

## INTRODUCTION

Sunridge Nurseries, Inc. is a wholesale grower of grapevines for the fresh market and primarily for wine grape production. Our production includes:

- Bench-grafted vines grown in the nursery in 2 in. × 2 in. × 10 in. deep tubes and sold as green plants for transplanting in spring and summer.
- Bench-grafted vines grown in the nursery, transplanted into an outdoor field nursery row, and dug in winter for sales as dormant vines for early spring transplanting.
- Rootstock rootings that are stuck directly into outdoor field nursery rows in late winter, grown for one season, and dug in winter for sales as dormant vines for early spring transplanting. These vines are field grafted 1 year after transplanting into the vineyard.
- Softwood mist-propagated varieties and rootstocks grown in 4-in. pots or 2 in. × 2 in. × 10 in. deep tubes for sales as green plants for transplanting in spring and summer.
- Hardwood propagated varieties and rootstocks grown in 4-in. pots or 2 in. × 2 in. × 10 in. deep tubes for sales as green plants for transplanting in spring and summer.

## PURPOSE

This presentation of machine bench-grafting of grapevines demonstrates how the Spinks grafting machine can produce a very tight graft union with a very large surface area of cambium mating between the rootstock and scion. The demonstration shows how each side is cut and how fast this machine can produce a consistent, high-quality graft.

## METHODS AND PROCEDURES

Wood to be used for grafting is harvested while dormant in December. Wood is selected that is straight and within a size tolerance of 5/16 to 7/16 in. When harvested, the wood is cut to 14 to 16 in. long and bundled in groups of 100. The wood is dipped in 1% Hasa-chlor solution, then packed in moist fir shavings in bins for cold storage until needed.

Prior to grafting, machine blades are checked for sharpness and adjusted so the cuts for the scionwood and rootstock wood mate perfectly. The rootstock wood is disbudded. The scionwood and rootstock wood is warmed (if necessary for the variety) and soaked in water for 24 h. All materials, supplies, equipment, surfaces, and hands are sterilized prior to grafting. All wood is inspected at each of the following steps for damage and/or abnormality:

### 1) Rootstock

- The base is recut 1/2 in. below a bud.
- The distal end is cut "straight and square" to the proper length in the internode zone.
- The distal end is cut in the machine level and straight with any flat side of the stem horizontal.

### 2) Scion

- The base is cut 1-1/2 in. below a viable bud "straight and square".
- The distal end is cut on a diagonal 1/4 in. above the bud.
- The basal end is cut in the machine level and straight with any flat side of the stem horizontal.

### 3) Assembly

- All wood is resoaked.
- Since the machine cut leaves a frayed side, both the scion and rootstock sections must have the frayed side mated when assembled.
- The scion and rootstock wood is mated based on caliper so maximum cambial contact is made.
- The "fit" is checked so the scion and rootstock graft holds itself together (no taping is done).
- The wood is resoaked again for a few minutes after assembly.
- The bench-grafts are then laid in a bed of moist, sterile peat moss for callusing. After 18 to 24 days at 85F, the grapevines are ready for planting.