

Kiwifruit Propagation

James Beutel, Extension Pomologist, U.C. Davis

Kiwifruit vines can be propagated by grafting or by rooting cuttings. Both methods can be used to produce good vines and crops. Both seedlings and rooted cuttings make good field nursery and container plants. Field grown nursery stock make the largest sized (trunk diameter) plants and are transplanted to the kiwi vineyard barefoot in the winter. Container raised plants are sold as medium to tall plants and can be transplanted to the field at any time of the year.

Grafting Seedlings

Seeds for planting can be extracted from any ripe kiwifruit by peeling the fruit and running it through a blender at slow speed to separate the seeds from the pulp. By slowly washing the slurry of pulp and seeds in a bowl or pan, the water will float away the pulp and leave the seeds in the bottom of the container. The seeds can be dried for storage. When needed, the seeds are placed on a wet paper, wrapped in a plastic bag, and placed in a refrigerator for three weeks to stratify so that they will germinate uniformly. Next, the seeds are planted in sterilized soil. They will germinate in 3 weeks at 65–76°F. Then they are transplanted into 3 or 4 inch pots and grown at 60–75°F. When they are 3–5 inches high and frost is past, they can be planted 12–15 inches apart in nursery rows spaced approximately 3 feet apart. Small (3–5 inch tall) seedlings can be transplanted to containers (about 3 gallon size) at any time of the year.

Seedlings are allowed to grow one whole season in the field nursery before they are grafted to the desired variety. One-year-old seedlings can be whip grafted in January or April and May with dormant wood collected in January and held in plastic bags in refrigeration at 32–34°F. Budding (T-bud) is also satisfactory in April or May if dormant wood is used. Nurserymen prefer whip grafting in April and May. After grafting, field nursery plants grow until December when they are dug bareroot for transplanting.

When container plants are pencil-sized (1/4–3/8 inch), they are whip grafted to the desired variety. When plants are 3–6 feet high, they are large enough for sale and for transplanting to the kiwi vineyard. Container plants may be transplanted to commercial vineyards in late summer to fall or in winter to early spring.

Rooting Cuttings

Cuttings are made from ½ inch diameter wood taken in midsummer. Each cutting is 2–3 nodes long (5–8 inches). A whole leaf is left at the top node, and the leaves are removed from the bottom nodes of each cutting. The basal end of the cutting is dipped in 4,000–8,000 ppm indolebutyric acid (IBA) rooting hormone solution or 4% naphthalene acetic acid or equivalent rooting hormone powder. The cuttings are set in a coarse rooting medium (perlite or a mix of approximately ½ perlite and ½ vermiculite) and placed under intermittent mist (water spray). The water mist spray keeps the leaves moist to prevent wilting while roots are forming. Frequency and duration of water “on” cycle varies with temperature, propagation house, and length of time cuttings are in propagation house. Rooting occurs in 6–8 weeks at 70–75 °F. The rooted cuttings are transplanted into pots and returned to a humid greenhouse or mist to minimize transplant shock. (Rooting the cuttings in 4–inch deep pots avoids an otherwise necessary first bareroot transplanting.) Well-established plants in pots can be transplanted to the field nursery or to 1–3 gallon containers. When plants are ½ inch in diameter or 4 feet tall, they have reached minimum size for transplanting to the permanent kiwi vineyard. Transplanting from the field nursery can be done bareroot in the winter. Transplanting from containers can be done in the fall, winter, or spring.

Dormant cuttings can be rooted in the winter if given a 24–hour soak in 200 ppm IBA or quickly dipped in 4,000 ppm IBA solution or rooting powder. They are set in a coarse medium, given bottom heat, and the tops left at an air temperature of 30–40 °F. The cool tops prevent growth until the bases of the cuttings are rooted in the heated medium. After rooting is complete, the cuttings are transplanted to containers and placed in a humid house for further growth. Later, they can be moved to larger containers or to a field nursery.

Hayward and most other female varieties root easily as do New Zealand males Tamori and Matua. The California or Chico male variety will not root under mist. California male plants are propagated by being grafted onto seedlings.