

Chestnut Grafting Technique

Morse Method — Modified Kines / Quesenberry Approach

Introduction

Don Kines and Mountain State Chestnuts have inspired several people to graft chestnuts. His epicotyl grafting method works. However, there may be value in saving the tap root, as doing so makes it much easier to keep the young grafted seedling alive during the summer heat. Additionally, tying the graft union with a rubber band is tedious, and the rubber band must be removed or it will eventually girdle the graft. Jared Quesenberry modified the Kines method to graft young seedlings while keeping them in pots (in-place grafting). However, it is tedious to join the graft union without removing the seedling from the media, and Quesenberry continues to join with a rubber band, which complicates the process further.

This method keeps the tap root intact by germinating the seedlings in a cooler so that the tap root has plenty of space to grow. Additionally, this method binds the graft union with parafilm or buddy tape — stretchable films that bind well to each other — to strongly join the union. Parafilm and buddy tape are much less tedious to use than a rubber band, and they degrade over the summer, eliminating the additional step of removing the rubber band.

Materials


- Scions from desirable trees
- Parafilm laboratory tape or Buddy Tape
- 4×4×10 inch tree pots (cheap is fine)
- Scissors
- 2-gallon freezer bags
- Masking tape
- Cleaning alcohol
- Box cutter and Exacto knife
- Pruning shears
- Paper towel
- Cutting board
- 5-gallon bucket



Step-by-Step Instructions

Step 1 — Mix the Growing Media

Mix 70% pine bark and 30% peat moss by volume. The mix should be well-drained and acidic. Note: there is no nutrient in this media. Once the grafts take, supplement with slow-release Osmocote fertilizer for acid-loving plants.

 The picture below shows a 60/30/10 mix (pine bark/peat/perlite) due to leftover perlite — the 70/30 ratio is more cost effective



Step 2 — Germinate Chestnuts

Germinate chestnuts in a cooler filled with standard potting mix. This keeps the tap root intact and ensures the roots have ample space to develop before grafting. Seedlings are ready when they are about a month old.



Step 3 — Label Your Pot

Label each pot with the scion and nut type. Some growers record the mother tree to identify which trees produce nuts unsuitable for grafting (i.e., is there a particular tree that has nuts that do not graft well). At minimum, note whether the nut is American or a hybrid. Hybrids used should be at least F1 (50% American), as Americans do not graft well onto pure Chinese nuts.



Step 4 — Prepare the Media

Fill the five-gallon bucket with your pine bark peat media and wet it thoroughly. The media should be damp but should not drip when squeezed.

Step 5 — Clean Your Cutting Tools

Clean all cutting tools (shears and knives) with alcohol and allow them to dry completely before use.

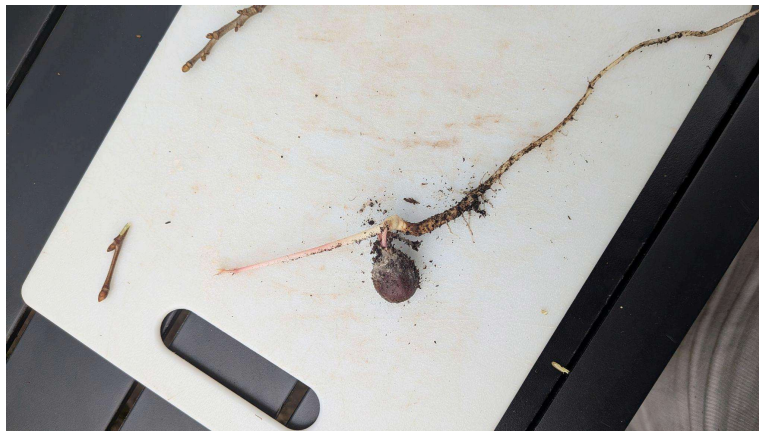
Step 6 — Cut the Scion

Cut the scion to one or two buds and shave a wedge into the base of the scion.



Step 7 — Remove Seedling from Cooler

Take the germinated seedling out of the cooler, keeping the tap root intact.



Step 8 — Cut a Piece of Parafilm

Cut a thin piece of parafilm or buddy tape in preparation for wrapping the graft union.



Step 9 — Cut the Epicotyl

Cut the epicotyl (the early stalk that would form the main stem of the tree). Leave enough space to graft the wedge into the epicotyl.



Step 10 — Cut a Cleft into the Epicotyl

Make a clean cleft cut into the epicotyl to receive the scion wedge.



Step 11 — Insert the Scion Wedge

Nest the wedge of the scion into the cleft. Try to line up the edge of the scion with the edge of the epicotyl as precisely as possible.



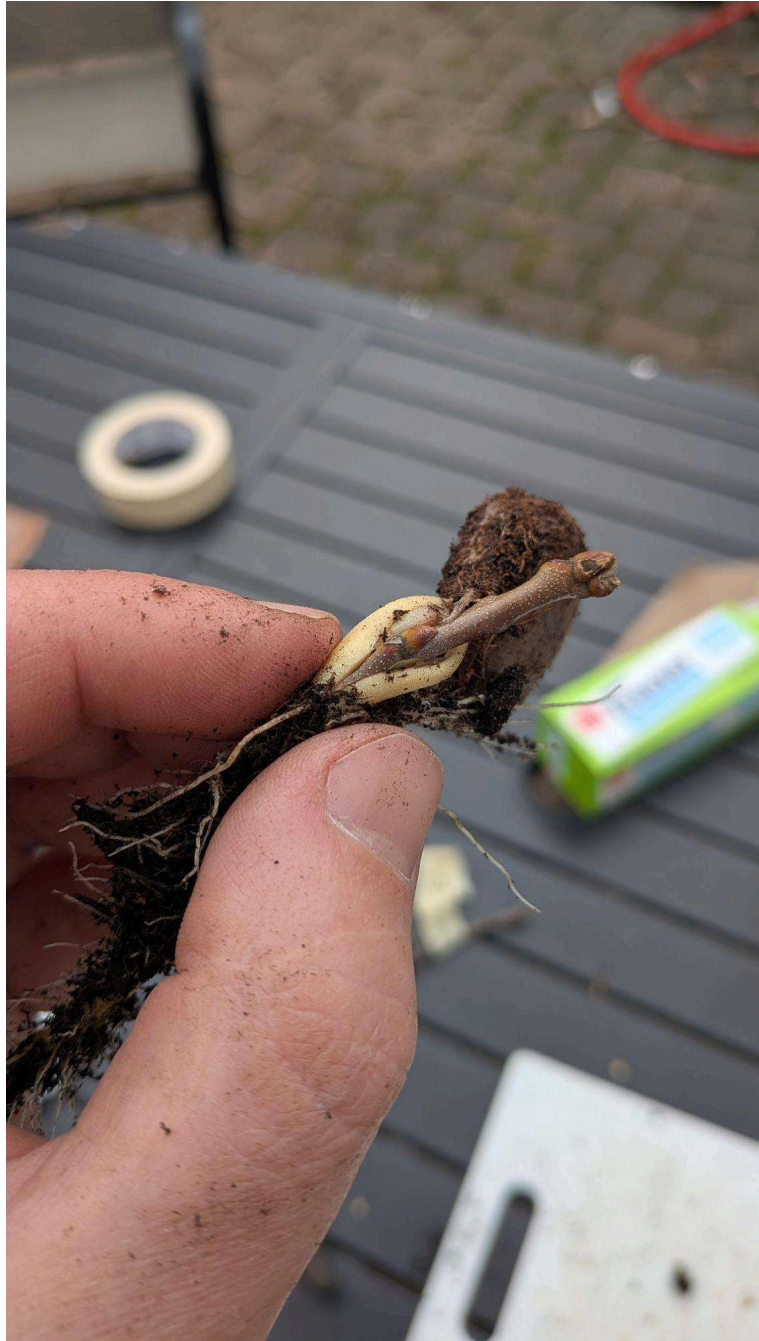
Step 12 — Wrap the Graft Union

Wrap the graft union with parafilm as tightly as possible. The goal is to align as much of the epicotyl to the cut edge of the scion as possible. Wrap TIGHT!



Alternative: Hypocotyl Grafting (if epicotyl graft fails)

Starting with the epicotyl gives you two chances to get a good graft. If you mess up the cleft on the epicotyl, cut the epicotyl off to the root collar and cut a cleft into the hypocotyl (the young developing root collar) instead.



Then wrap the hypocotyl TIGHTLY with parafilm:



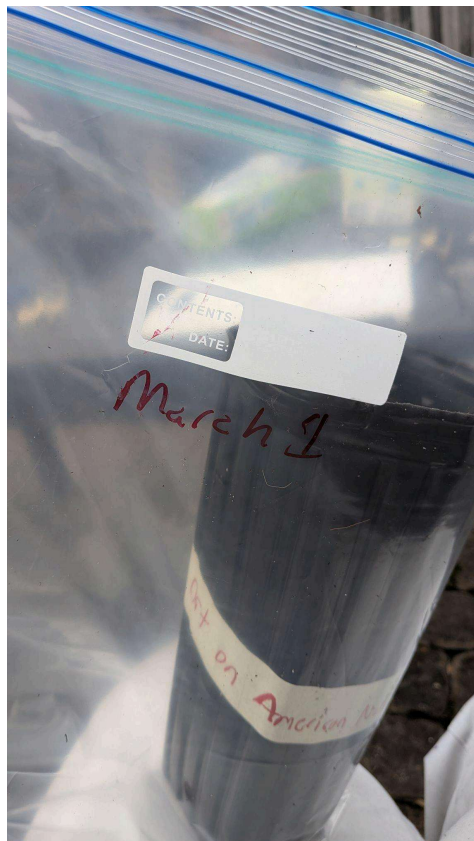
Step 13 — Plant the Graft

Plant your graft in the tree pot filled with the pine bark/peat moss mix. Bury the graft union in the media.



Step 14 — Bag the Grafted Chestnut

Place the grafted chestnut in a 2-gallon freezer bag to maintain humidity during the establishment period.



Step 15 — Double Up

Two pots can be placed per bag to save space and materials.



Step 16 — Initial Success

Between 2 weeks and 5 weeks, some will take and leaf out!



Step 17 — Harden Off

Once the graft takes, you need to harden it off to room humidity. The grafted seedling has been living in 100% humidity for a month. If you just take it out of the bag it will crash. To that end, you need to introduce the seedling to ambient humidity slowly.

To harden off, you put between 6 and 9 pots into a 20 gallon ziplock bag.

The first day, open the bag for 15 minutes and then close

The second day, open the bag for 30 minutes and then close

The third day, open the bag for 1 hour and then close

The fourth day, open the bag for 2 hours and then close

The fifth day, open the bag for 4 hours and then close



Step 18 — True Success!



Then harden off to sunlight through normal procedures for hardening off seedlings and either keep in pots through the summer and plant dormant or go ahead and plant to grow in the permanent home.

End of Document