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Basics of Grafting Apples

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Grafting

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What is grafting?

Grafting is the act of joining two plants together. The upper part of the graft (the scion) becomes the top of the plant, the lower portion (the understock) becomes the root system or part of the trunk. Although grafting usually refers to joining only two plants, it may be

onto Mazzard (*Prunus avium*) or Mahaleb (*P. mahaleb*) seedlings.

Plants of the same botanical genus and species can usually be grafted even though they are a different variety. Plants with the same genus but of a different species often can be grafted. But the result may be weak or



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Fruit Tree Propagation - Grafting and Budding

This article provides information on a few successful propagation methods that can be used on fruit trees.

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ARTICLES



Wrapping and waxing, collecting scion wood, types of grafting or budding--bench grafting, cleft graft, bark and inlay grafts, budding, shield or T-budding, and chip budding--are discussed. Also included are photographs and a list of grafting supply



It is illegal to graft plant protected varieties!

AUGUST 22, 2019 BY APPLES

Are there restrictions to grafting my own apple trees?

Some cultivars of apple are under patent. If the patent is still applicable, then you must contact the nursery (or whoever holds the patent) and pay the royalty for each tree you propagate. Failure to do so could lead to criminal penalties, a monetary judgment (and/or fine), and destruction of the trees you propagated. Apple cultivars that are part of an exclusive club or licensing agreement are also illegal to propagate, and there usually is no avenue for a “non-club member” to propagate, grow, and market these cultivars. Apple cultivars whose patents have expired can be propagated; however, be sure that the “strain” of the cultivar you wish to graft is not patent-protected. The safest way to proceed if you wish to graft your own trees is to thoroughly check with nurseries to ensure that you can legally propagate a cultivar. If the cultivar you wish to propagate is legal for



<https://www.walmart.com/ip/Cosmic-Apples-3-Lb-Bag>

Grafting is ...

any process of inserting a part of one plant into or on another in a way that they will unite and continue growth as a single unit



Fruit Tree Grafting

Scionwood

Fruiting cultivar

Gala, Cameo, Fuji, etc

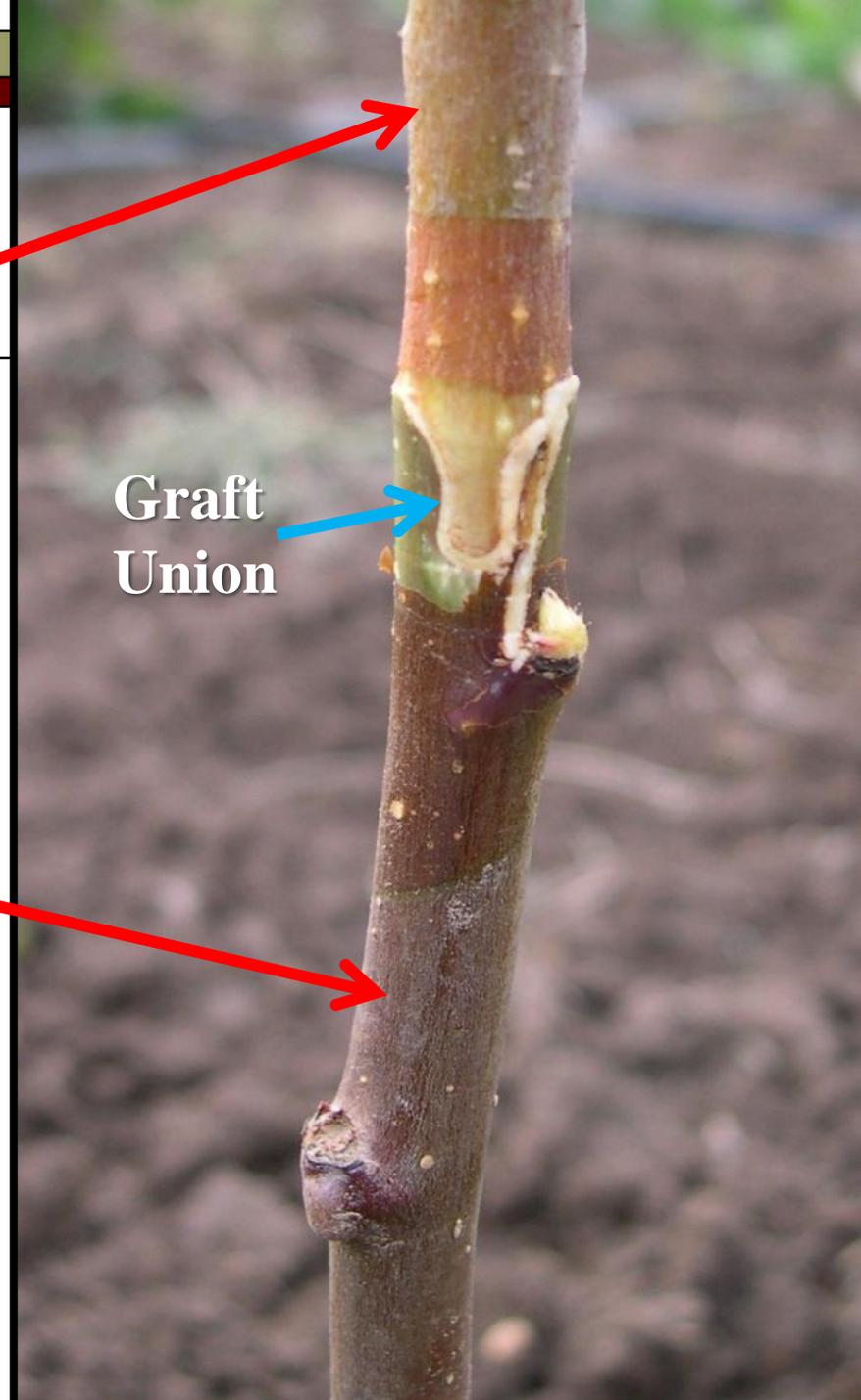
Rootstock

Size of tree

Disease resistance

Apple has the most
rootstock of any fruit

Graft
Union



Why would you want to graft a fruit tree?



We graft fruit trees because we want to ...

- ❑ Produce semi-dwarf and dwarf fruit trees
- ❑ Produce new trees
- ❑ Several varieties on one tree (3in1, 4in1,)
- ❑ Repair damage
- ❑ Top working
- ❑ Save an old tree



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Source : Henry Homeyer The Providence Journal



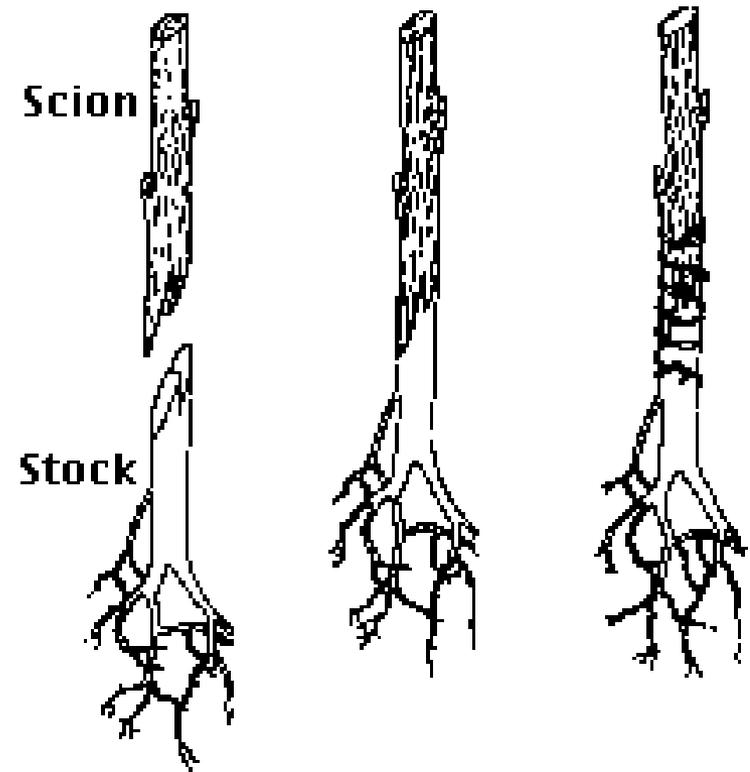
Source : Mycotopia.net



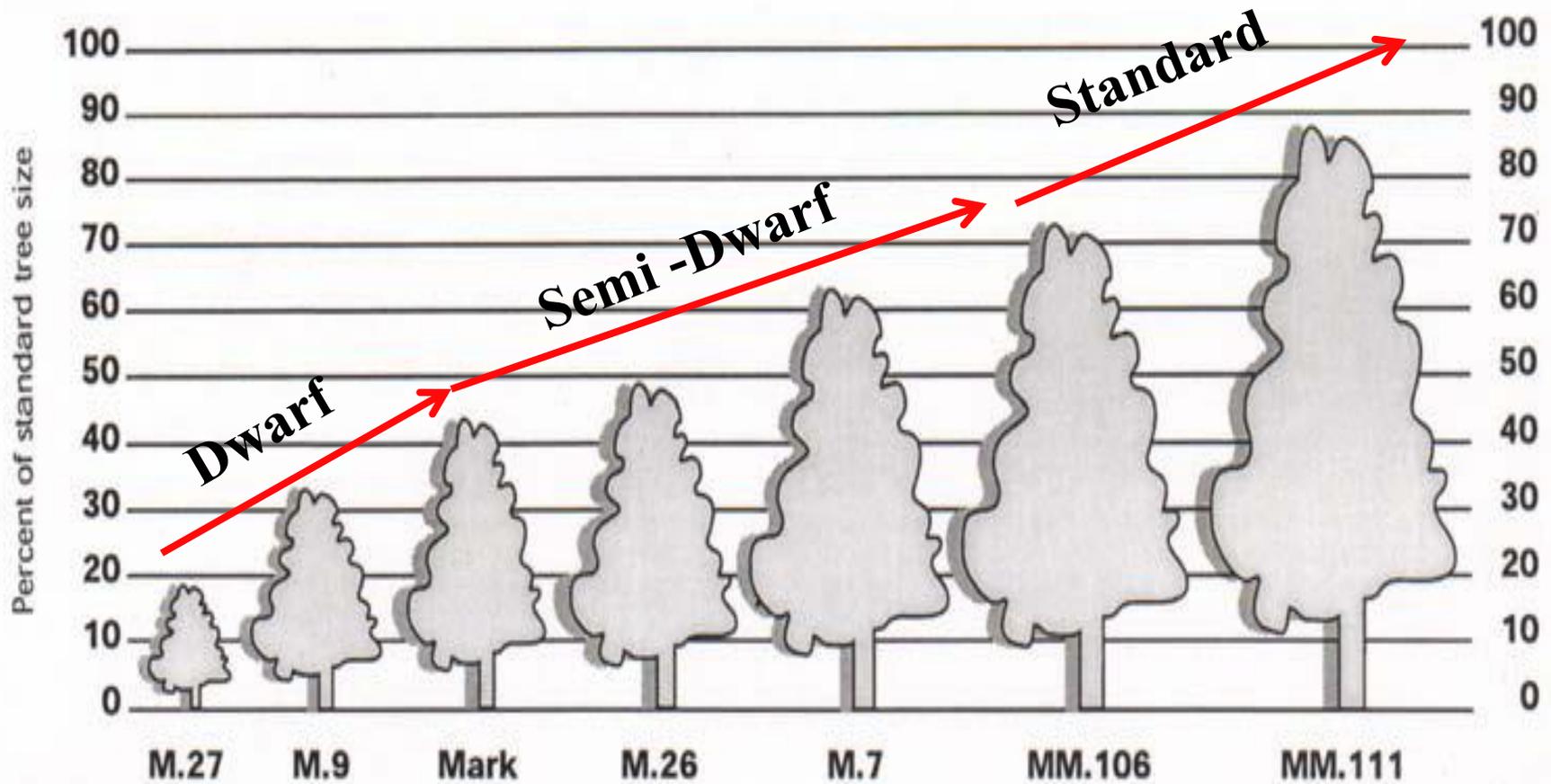
Source : [Pinterest.com](https://www.pinterest.com) – TC Yavas

Time of Year

- Grafting is done during the dormant season – late winter/early spring
 - Scionwood AND rootstock should be dormant
 - Scionwood is last years growth (1 year old wood)



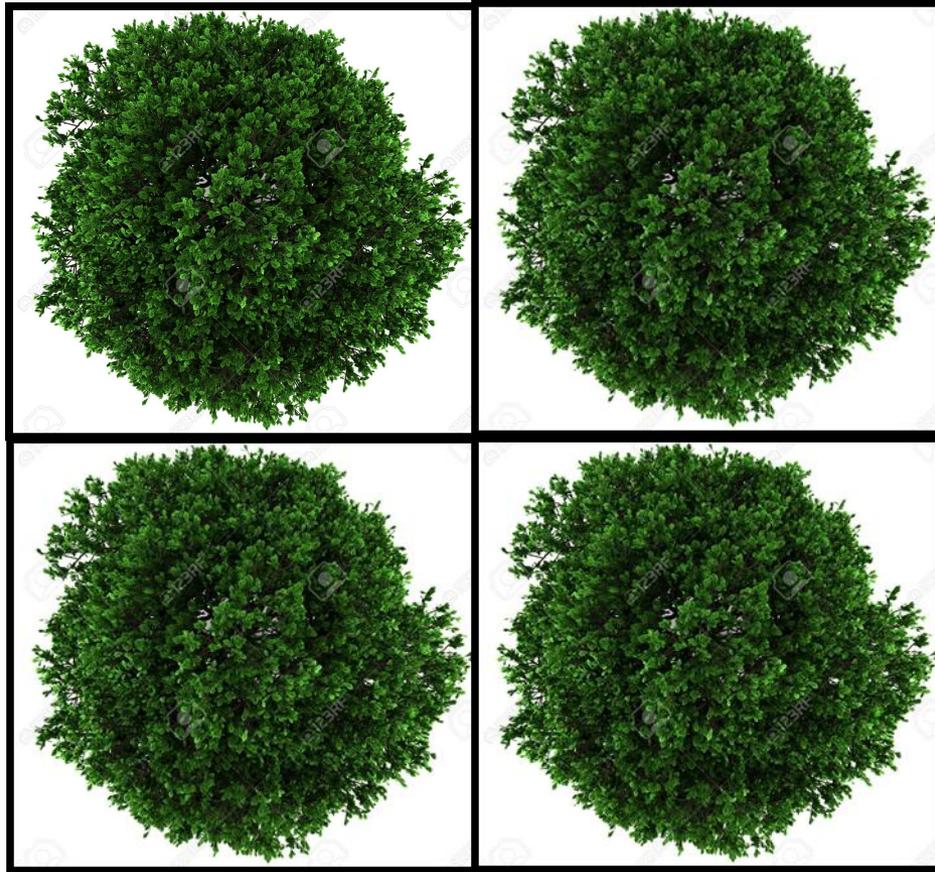
Rootstock Size



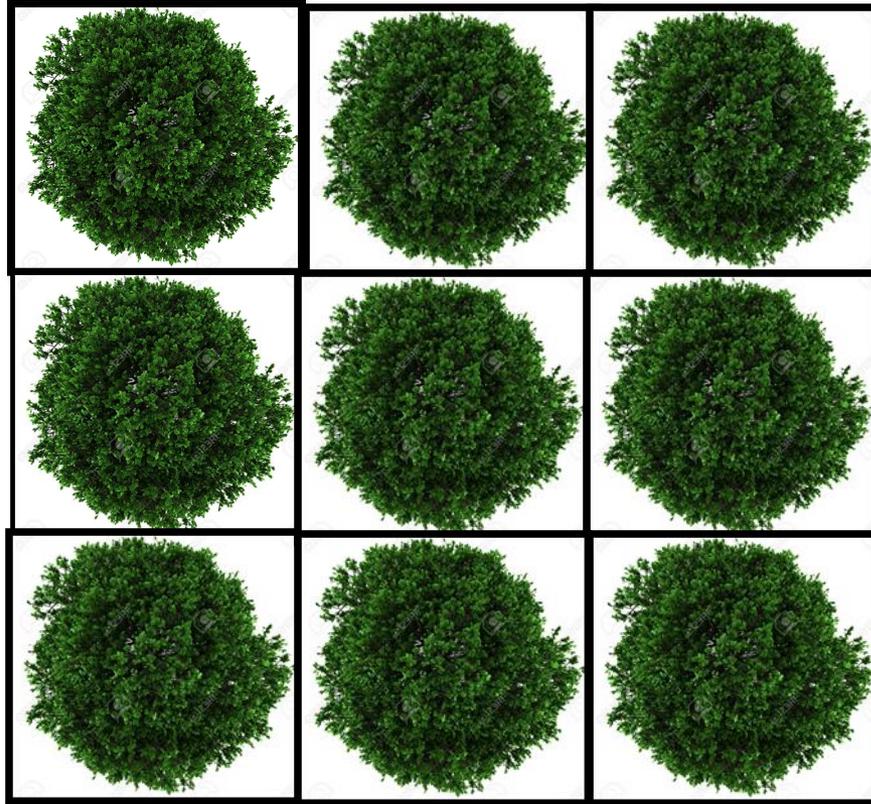
30' by 30' = 1 Standard Apple Tree



30' by 30' = 4 Semi-Dwarf Apple Trees



30' by 30' = 9 Dwarf Apple Trees





availability, commercial sources are not listed. The listing of businesses is not an endorsement or recommendation to use specific commercial sources, but is only included to help users locate difficult to find genotypes. Only rootstock nurseries are included, nurseries that specialize only in finished trees are not listed. For growers interested in a particular rootstock/scion combination, contact your preferred finished tree nursery and ask if they have access the specific combination you seek from the rootstock vendors listed.

If you produce or plan to produce a rootstock genotype for sale that is not listed on this page, please contact me so that we can include them. If you produce a less common rootstock genotype, but are not included as a source, please contact me so that we can include your business on the factsheet. Additional genotypes will be added to the list as they approach commercial availability.

Rootstocks are listed by size class from smallest (1) to largest (10). Size classes are estimated as the relative percent tree size of an own-rooted (full sized) tree, e.g. size class 1 represents a rootstock that produces a tree 10-20% the size that an own-rooted tree would produce under similar conditions. The size class of a rootstock is the primary characteristic of importance, and comparisons of scion productivity on rootstocks of widely differing size classes is not recommended.

Apple Rootstock Fact Sheets, listed by size class

<p>Size Class 1</p> <ul style="list-style-type: none"> • P.22 • M.27 • G.65 • 	<p>Size Class 3</p> <ul style="list-style-type: none"> • M.9 • Bud.9 • P.2 • G.16 	<p>Size Class 5</p> <ul style="list-style-type: none"> • Pi-80 Select • G.30 • • 	<p>Size Class 7</p> <ul style="list-style-type: none"> • MM.106 • Bud.490 • • 	<p>Size Class 9</p> <ul style="list-style-type: none"> • Bud.118 • P.18 • •
<p>Size Class 2</p> <ul style="list-style-type: none"> • Bud.146 • Bud.491 • P.16 • Mark 	<p>Size Class 4</p> <ul style="list-style-type: none"> • O.3 • G.11 • M.26 • 	<p>Size Class 6</p> <ul style="list-style-type: none"> • M.7 • • • 	<p>Size Class 8</p> <ul style="list-style-type: none"> • MM.111 • • • 	<p>Size Class 10</p> <ul style="list-style-type: none"> • Seedling • Novole • •

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EMLA 111

M.26 (Malling 26)

G.11 (Geneva 11[®])

G.41 (Geneva 41[®])

Dwarfing rootstock resulting from a cross between M.27 x Robusta 5 crabapple and introduced by the New York State Agricultural Experiment Station, Geneva NY. G.41 is highly resistant to fire blight and phytophthora and it appears to be tolerant of replant disease (ARD). Other traits of note: Early bearing; winter hardy; very little suckering, requires tree support.

G.890 (Geneva 890[®])

G.935 (Geneva 935[®])

Rootstock

- Raintree Nursery
 - small quantities (1, 2, 1)

<http://www.raintreenursery.com/>

- Treco Nursery
 - large quantities
 - (min 100 pieces)

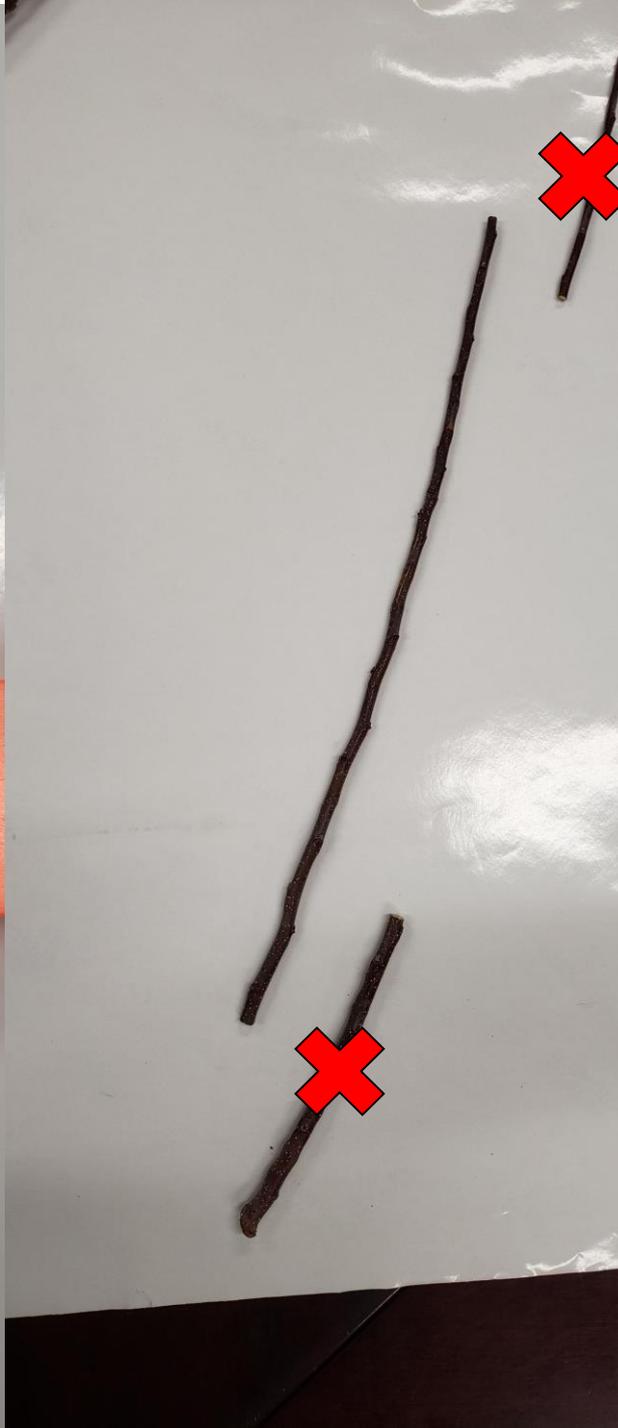
<http://www.treco.nu/>

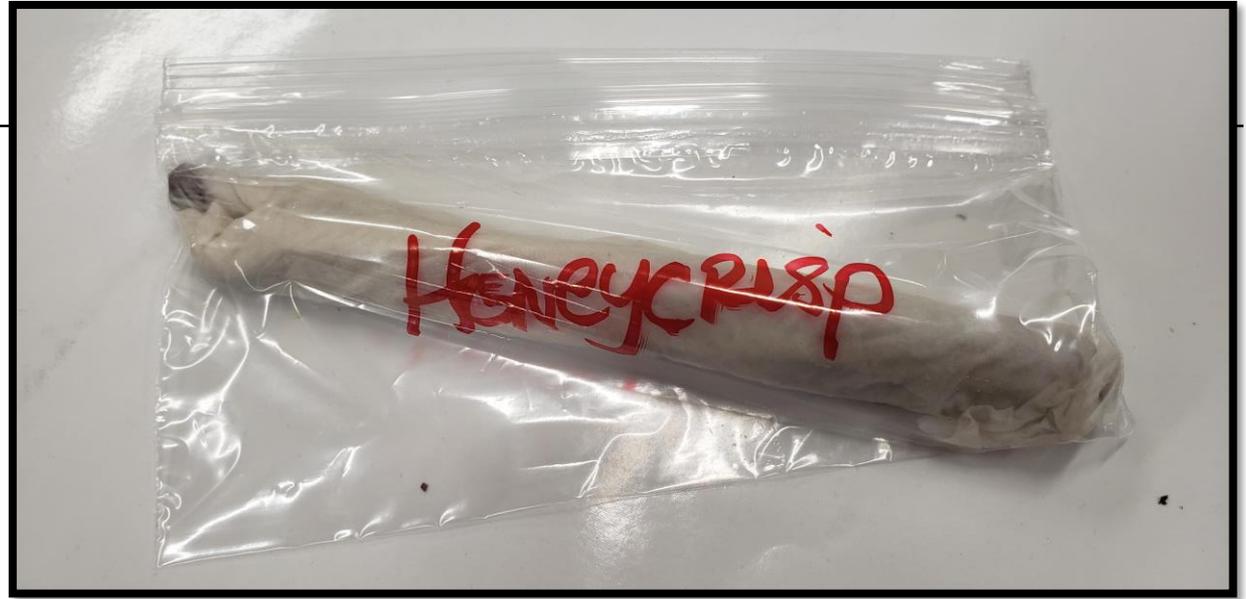


Collecting Scion Wood

- Collect scion wood when dormant
 - February – early March
- Last year's growth
 - Water sprouts work wonderful for this ($\frac{1}{4}$ " to $\frac{3}{8}$ "
- Discard the top 3-6 inches of the tip and the bottom 3-6 inches
- Clean the scion wood with mild solution of bleach (1-2%)
- Rinse and dry
- Wrap in moist paper towel
- Place in a baggie in the fridge at 34-40 F (crisper works well)
- Keep this way until you are ready to graft







- Soak in 10% solution of bleach and water for 2-3 minutes

- Rinse and place in a moist paper towel and a baggie in the salad compartment of fridge.

Apple Varieties



Apple Scionwood

2017 Availability List

Scionwood - \$4.00 for a 12" stick

Scionwood orders must be received by March 15th. \$10 late charge after March 15th assuming we still have scionwood available.

Custom Bench Grafted Apple Trees, Pear Trees, and Plum Trees - \$12 each

(na) - Not Available This Year | Click on the Name to See a Full Description



HOME



ABOUT US



SCIONWOOD



APPLE TREES



PEAR TREES



PLUM TREES

Akero	Golden Pearmain	Mother	Sops of Wine
Almata	Golden Pippin	Muster	Spartan
American Pippin	Golden Russet	N.W Greening	Spice Russet
Apricot	Golden Spice (Dyer)	Niedzwetkyana	Spigold
Aroma	Goof	Norland	Spokane Beauty
Atlas	Grimes Golden	Norson	Spur McIntosh
Autumn Berry	Grindstone (American Pippin)	North Pole	Spur Redgold
Baldwin	Hadlock Reinette	Northfield Beauty	St. Edmunds Russet

Grafting tools



<https://www.amleo.com/leonard-folding-budding-grafting>

[Amazon.com/Victorinox-Budding-Grafting-Knife](https://www.amazon.com/Victorinox-Budding-Grafting-Knife)

Grafting tool



<https://www.super.com/shop/products/king-s-county-tools>



amazon.com/Zenport-ZJ67-Omega-Cut-Grafting

Grafting tools



<https://www.ebay.com/itm/125683202131>



Steps to Grafting

Rootstock and scionwood that match diameter

Keep the rootstock roots moist until you are ready to use it.

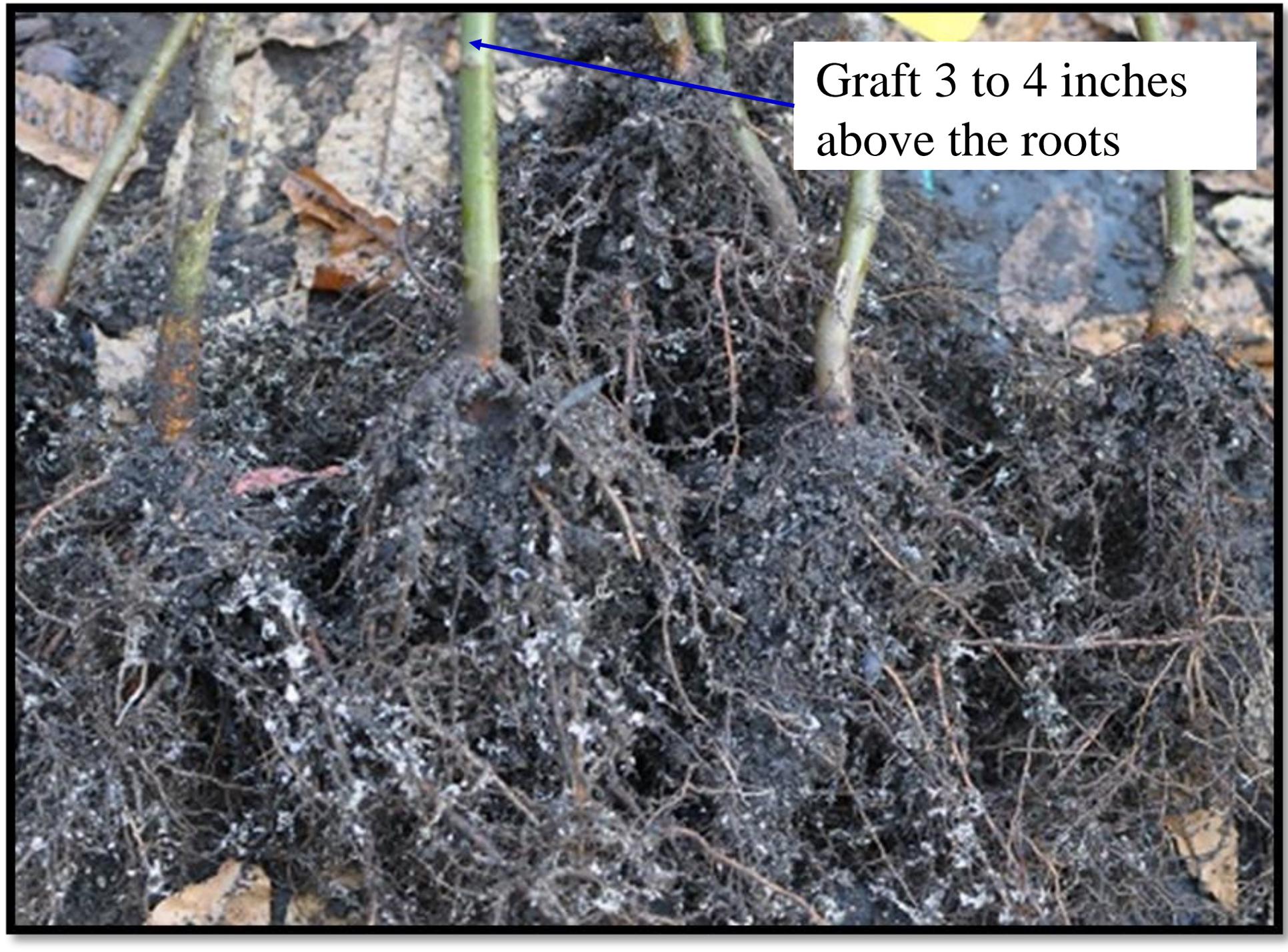


Source: www.burntridgenursery.com/M26-



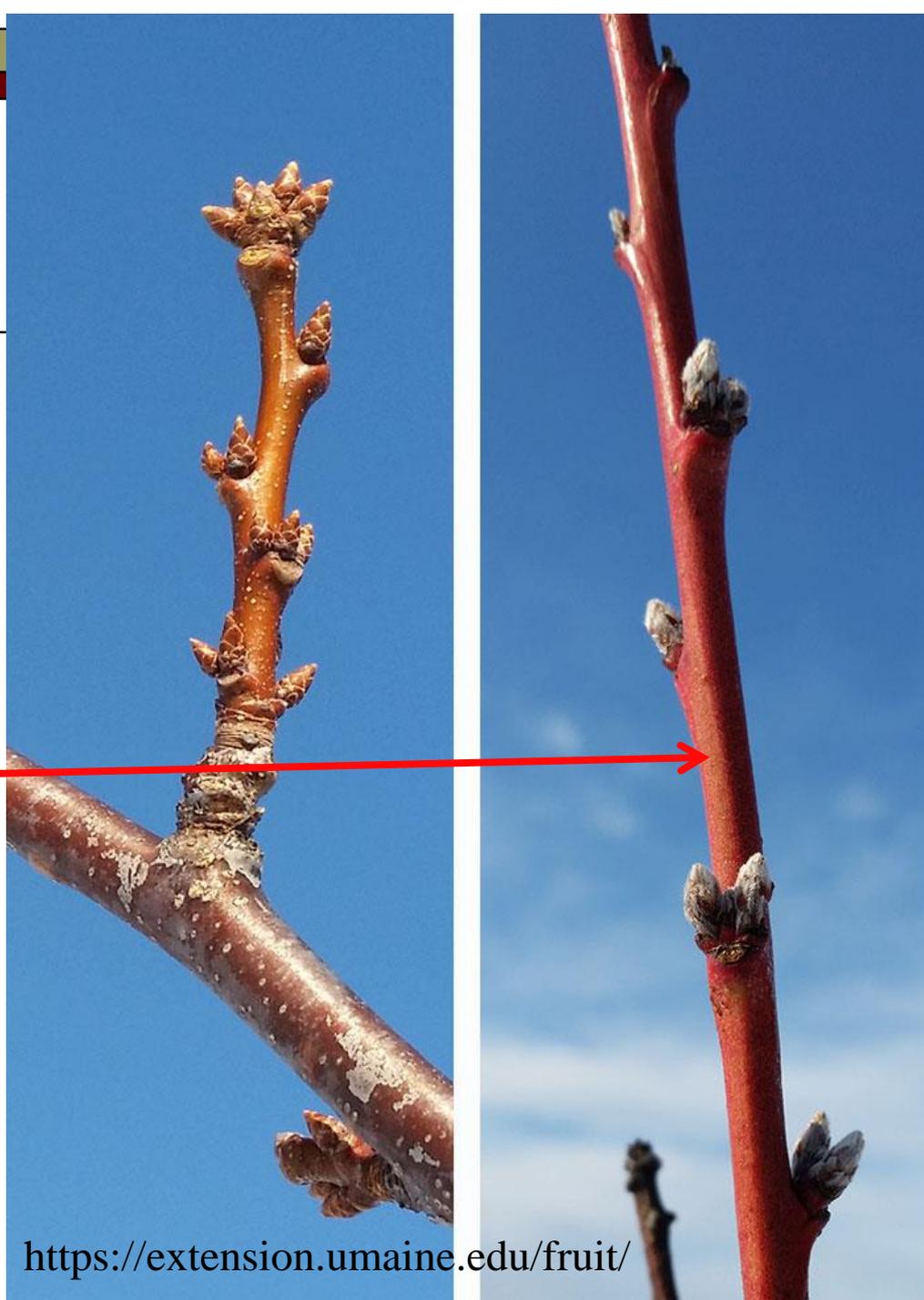
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A close-up photograph of a tree's root system. The roots are dark brown and fibrous, extending from the base of several green stems. A blue arrow points from a white text box to a graft union on one of the stems. The text box contains the instruction "Graft 3 to 4 inches above the roots". The ground is covered with dark soil and some dry leaves.

Graft 3 to 4 inches
above the roots

- ❑ Make good sharp cuts on rootstock and scionwood
- ❑ Make cuts between nodes/buds

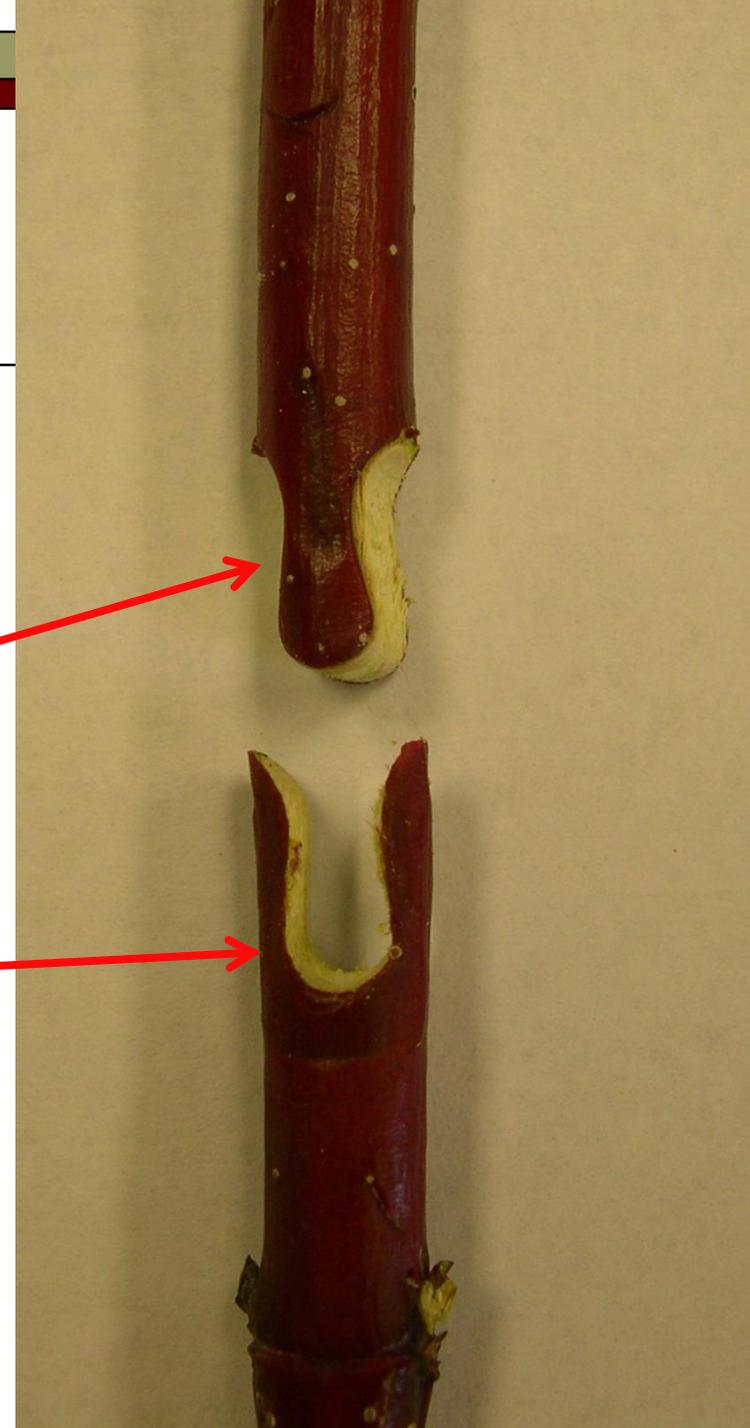


- ❑ Make opposite cuts on the rootstock and the scion wood.

Scionwood end

Rootstock end

- ❑ Test fit the two ends



Make sure there is good contact between the cambium layers on both the root and scion

Graft union



- Leave 2 to 3 buds on the scion wood and cutoff the rest.
- Dip graft union cut water.



- ❑ Secure the union tightly with parafilm or a piece of electrical tape.
- ❑ Seal scionwood end.



<https://www.amazon.com/Parafilm-Roll-250>

<https://www.amazon.com/Parafilm-Nursery->

Healing the Grafts

- ✓ Keep indoors and hold the temperature around 60° to 70°F to encourage callusing/healing. (VERY IMPORTANT)
- ✓ They do not need sunlight
- ✓ Keep the soil moist – like a moist sponge



Healing the Grafts

- ✓ Maintain these temperatures for 10 to 14 days (can be longer if needed).
- ✓ Keep inside until ALL danger of frost is past.



Planting outside after last spring freeze

- Condition them to outside conditions prior to planting outside.
- Plant into growing beds about 2' to 3' apart or in a container with good drainage.



-
- Take off all “Rootstock” buds with your fingers as they start to grow. (Rootstock buds will compete with those on the scion wood and they use up energy).



Planting outside after last spring freeze

- Electrical tape should be cut 6 to 8 weeks after scionwood buds are growing.
- DO NOT peel the tape off as it will dislodge the graft union.



Reasons for Graft Failure

- ❑ Stock and scion were not compatible
- ❑ Cambiums were not meeting properly
- ❑ Scionwood was upside down
- ❑ Done at the wrong time of the year
- ❑ Scionwood was not dormant
- ❑ Scionwood was displaced
- ❑ Graft union was girdled because tape not removed





Resources

<http://aggie-horticulture.tamu.edu/propagation/>

<http://extension.missouri.edu/p/G6971>

<http://www.raintreenursery.com/>

<http://www.treco.nu/>

<http://www.lawyernursery.com/>

<http://www.maplevalleyorchards.com/>

<http://www.towerhillbg.org/thwebscion.html>



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