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Grafting creates a union of two different plants

By Amy Dixon Special Correspondent
Mar 7, 2019



Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, shows an 11-month-old grafted heirloom apple tree in the orchard at the farm in Pinnacle.
Allison Lee Isley/Journal



Amy Dixon

The great thing about working with plants and plant people is watching things grow and observing how they change. It seems I learn so much everyday, just from talking with colleagues about characteristics of certain plants. Conversations about grafting have popped up a lot lately, sparking my interest to learn more about the process.

Grafted plants are commonplace in a typical garden, and chances are you have a plant in your landscape that started its life through a graft. Ornamentals such as weeping cherries, hybrid witch hazels, and Japanese maples are all examples of plants that are routinely grafted.

Simply defined, grafting is a horticultural method used to create a union between two different plants. These two plants include the upper part (scion) and the lower root system (rootstock). The scion is the desired plant, which will use the rootstock as a vehicle for growth.

In the process of grafting, the scion and the rootstock are pruned in a manner to easily join them together, essentially making one plant out of two. There are many different methods of grafting, but this principle remains the same.

One plant that is almost always grafted is the apple tree. Because certain apple varieties have parentage that no longer exist, it is necessary to graft the wood of those varieties to grow more. Other reasons for grafting include optimizing cross-pollination, creating a stronger plant using stronger rootstock, or changing the form of a particular plant (think standard tree forms).

The heritage apple orchard at Pinnacle's Horne Creek Living Historical Farm is perhaps one of the best local places to see grafting in action. This orchard of 400 heirloom apple trees is the result of how the grafting process has helped perpetuate apples that may have very well become extinct.

On a recent visit to the orchard, Horticulturalist Jason Bowen was busy pruning rows of apple trees, a routine chore this time of year. Bowen grafts between 600 and 700 apple trees a year at Horne Creek, the majority of which are sold at their apple tree sale. The other grafted trees are planted back into the orchard.

"The reason you have to graft is because apples are hybrids," Bowen said. "It would be impossible to breed some of these old heirloom varieties, because what makes them what they are was the breeding of who knows — 50 parents, 100 parents. Well, some of those parents are extinct. So there's no way to breed them back, so you have to do it asexually."

Bowen explained this asexual grafting process, and demonstrated how to graft an apple tree from the limbs he had just recently pruned. Thin, one-year branches are what are used as the scions, hundreds of which were scattered at our feet. Of course, Bowen didn't have any rootstock on hand (his rootstock arrives mid-March), but used a thick branch as a stand-in as he demonstrated how to form the graft union.

"Grafting is connecting rootstock to scion to form a union where it operates as one plant," Bowen said. "As far as the process of grafting, what you have to do is collect scions, and water sprouts make good scions. You want one-year wood and water sprouts are generally one-year wood. Using that one-year growth, you're going to attach that to a rootstock."

Typical scions are 6 to 8 inches long, straight, about ¼ inch thick, and contain 3 to 4 buds. Rootstock is straight, about the same length, but is thicker, with a healthy bunch of viable roots on the bottom.

There are several different types of grafts, including bark grafts, splice grafts and saddle grafts. Bowen uses the cleft graft, as he finds it easy and very successful. This process involves trimming the basal end of the scion into two opposing tapered cuts. The rootstock is split at the top, as to make a cleft to insert the scion. Some people use a cleft wedge and mallet for this, but Bowen uses his handheld pruning shears.

After the scion and rootstock are cut and prepared, the graft is made by inserting the scion into the rootstock, making sure to line up the cambium layers. A tree trunk is made of several layers, including the cambium layer. The cambium layer is responsible for new bark and wood growth, so matching these up in grafting is important.

"All you have to do to make a successful graft is to match cambiums," Bowen said. "You are joining the cambium layers. That's where the tree reproduces cells and growth takes place."

After the graft is made, you need to seal it. Traditionally, melted beeswax was used to seal grafts, but grafting wax and pruning paint sealer are more commonly used nowadays. Grafting tape is also used to secure the graft until the union forms, which is typically 7 to 9 days.

Timing is of the essence with grafting, which must be done while scions and rootstock are dormant. Winter to early spring is the ideal time to graft.

“Dormancy is key,” Bowen said. “The rootstock can have broken dormancy, but typically you want both to be dormant. The scion has to be dormant. You get your scions, wrap them in moist paper towels or peat moss, and then put them in a zip-lock bag. Keep them in your crisper drawer away from other things that might be releasing ethylene.”

Bowen gathers his scions in January or February and keeps them in the fridge. They will last in these conditions for a couple of months. Bowen receives his rootstock mid-March and begins grafting then.

There are many reasons to try your hand at grafting. Apple trees can lose their vigor, fall into a slump or be damaged — and acquiring some rootstock is all you would need to clone the tree. You can add new varieties of fruit trees to your home garden by sourcing scions from other gardeners or local orchards.

“Most of the time, people have a tree in their backyard to graft, and that’s the reason they want to graft. We sell scions, also. They’re \$3 a piece. I send them all over the world. There’s trees being grown in Africa that came out of this orchard.”

If you would like to have a hands-on lesson in grafting, Horne Creek offers an annual class, which walks you through the process. Its Grafting for the Future workshop is scheduled for Saturday, March 23, from 10 a.m. to 2:30 p.m. at Horne Creek Living Historical Farm. The cost for the class is \$40, and will include one grafted heirloom apple tree.

Also, Horne Creek’s heritage orchard will have its annual Arbor day apple tree sale on Saturday, March 16, from 10 a.m. to 5 p.m. These heirloom apple trees are grafted by Bowen from trees on site and will be \$20 each.

Horne Creek Living Historical Farm is at 308 Horne Creek Road, Pinnacle, NC 27043. To register for the grafting class, call 336-325-2298.

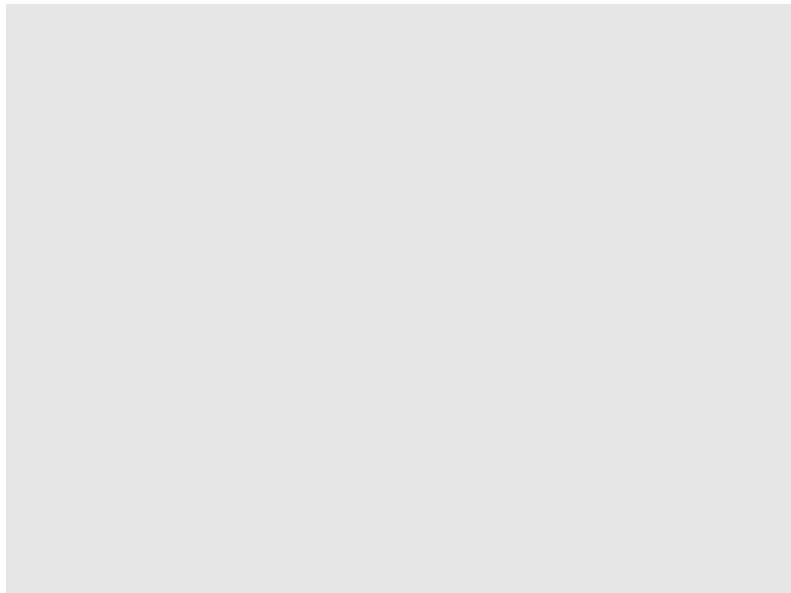
If you have a gardening question or story idea, write to Amy Dixon in care of Features, Winston-Salem Journal, 418 N. Marshall St., Winston-Salem, NC 27101 or send an email to her attention to gardening@wsjournal.com. Put gardening in the subject line. Find Amy Dixon on Facebook at www.facebook.com/WSJAmyDixon.

Grafting Apple Trees Horne Creek Farm



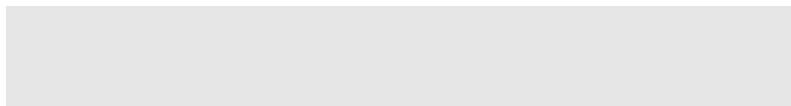
Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, shows an 11-month-old grafted heirloom apple tree Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
Allison Lee Isley/Journal

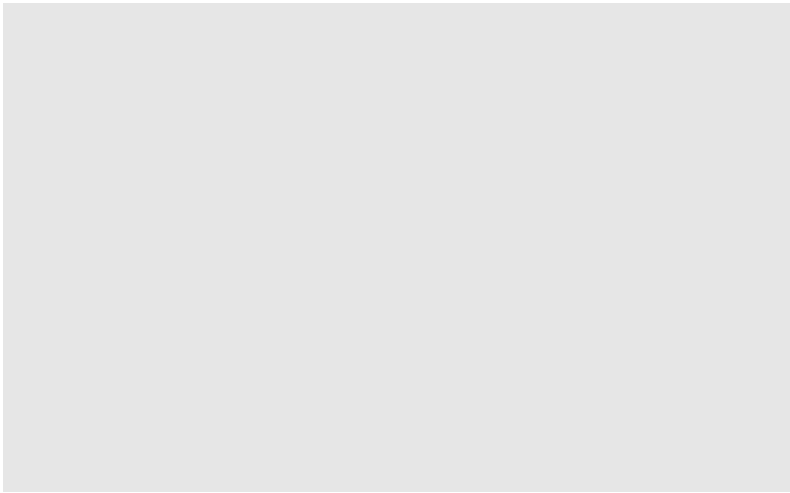
Grafting Apple Trees Horne Creek Farm



Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, uses a grafting knife to prepares a scion for a demonstration of how to graft an heirloom apple tree Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
Allison Lee Isley/Journal

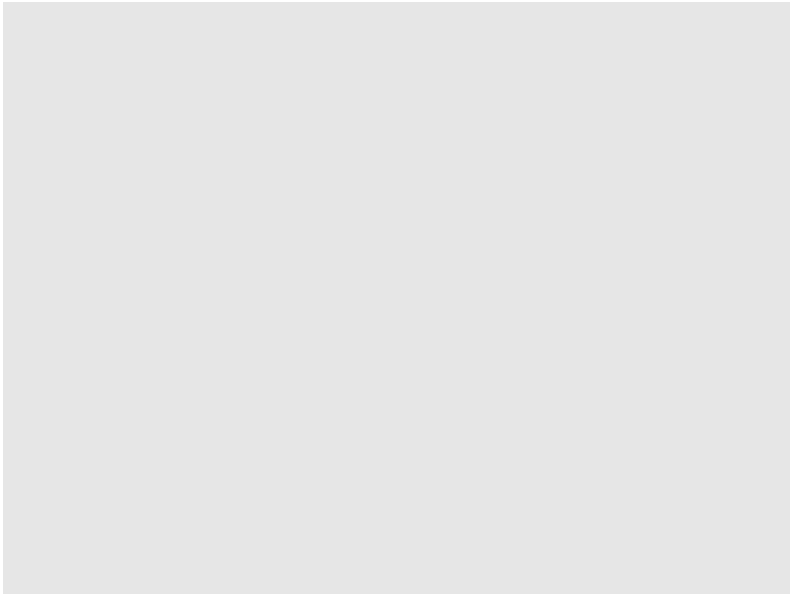
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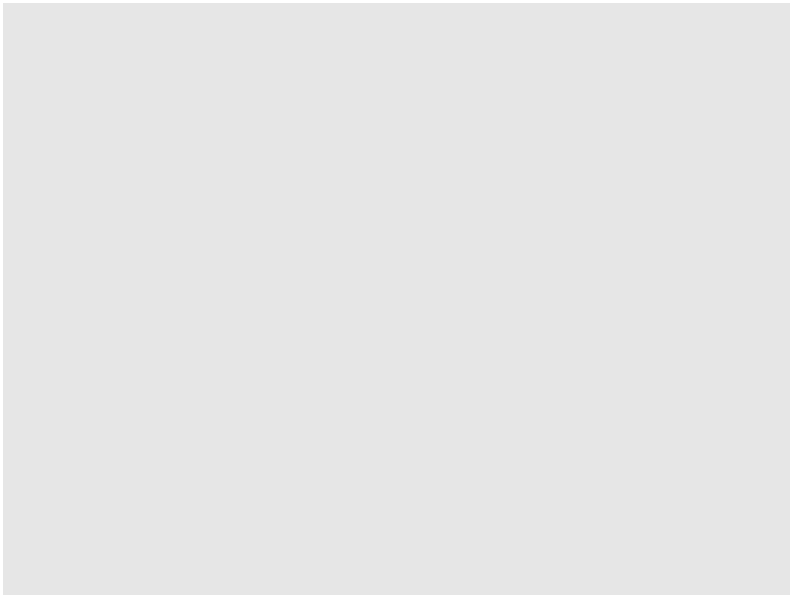
Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, uses his hand to reference to an 11-month-old grafted heirloom apple tree as he talks about the importance of maintaining a central leader Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
Allison Lee Isley/Journal

Grafting Apple Trees Horne Creek Farm



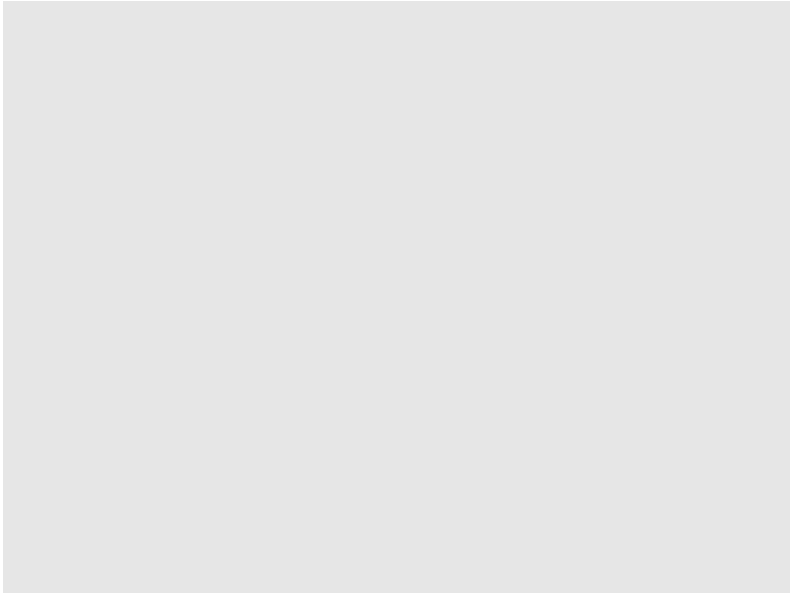
Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, looks through a group of 11-month-old grafted heirloom apple trees Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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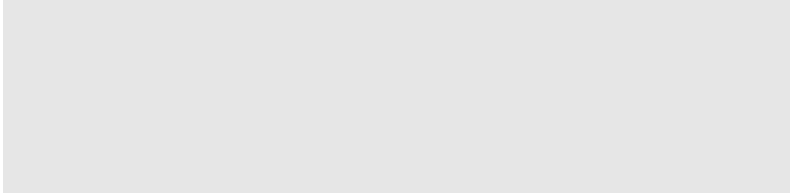
Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, retrieves his grafting tools from his office to demonstrate how to graft an heirloom apple tree Thursday, Feb. 28, 2019, in Pinnacle, N.C.
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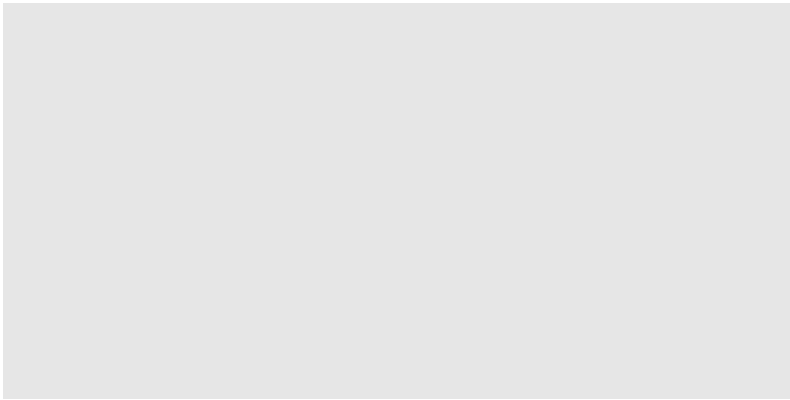
Grafting Apple Trees Horne Creek Farm



Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, walks into his office to retrieve his tools to demonstrate how to graft an heirloom apple tree Thursday, Feb. 28, 2019, in Pinnacle, N.C.
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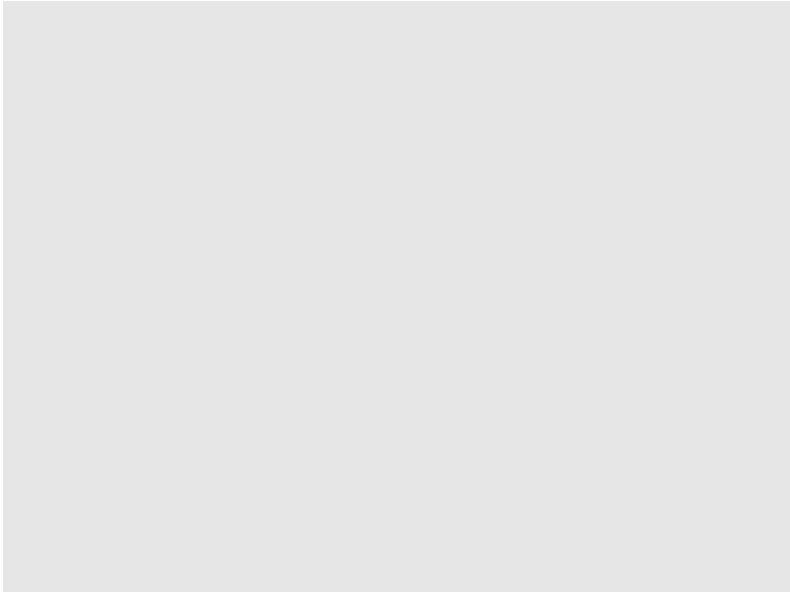
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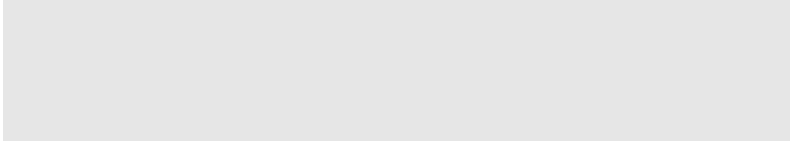
Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, demonstrates how to form a union for a graft Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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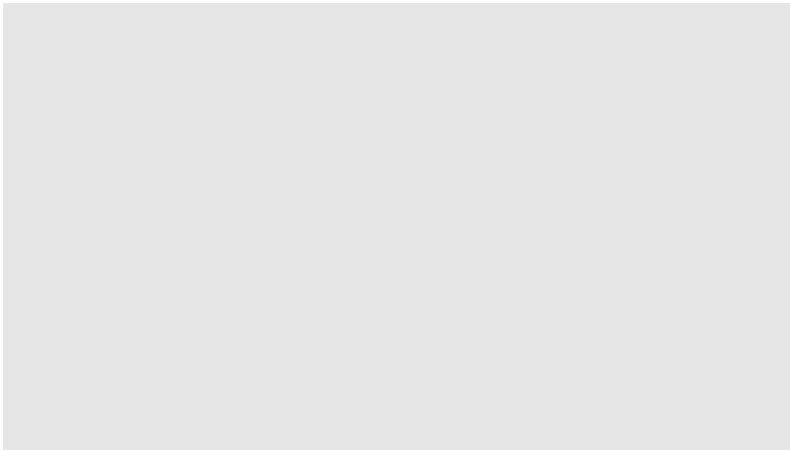
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Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, speaks about how to graft an heirloom apple tree Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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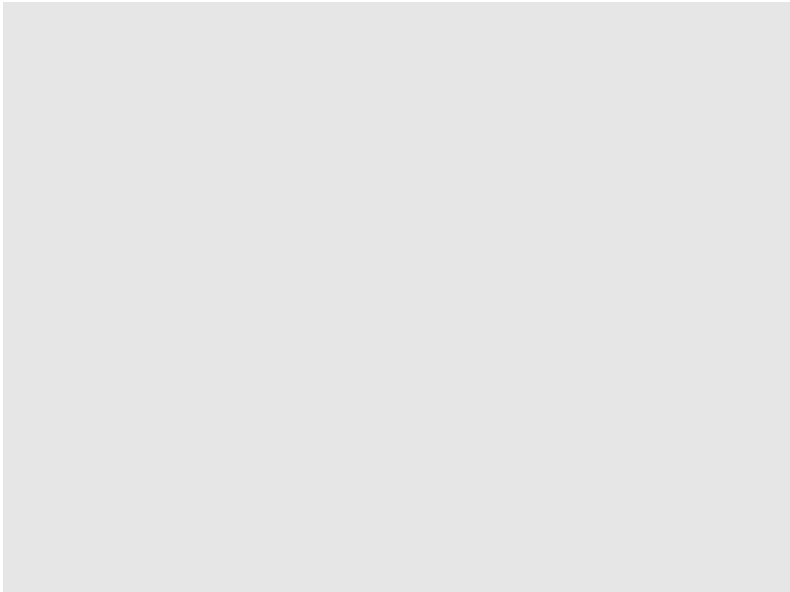
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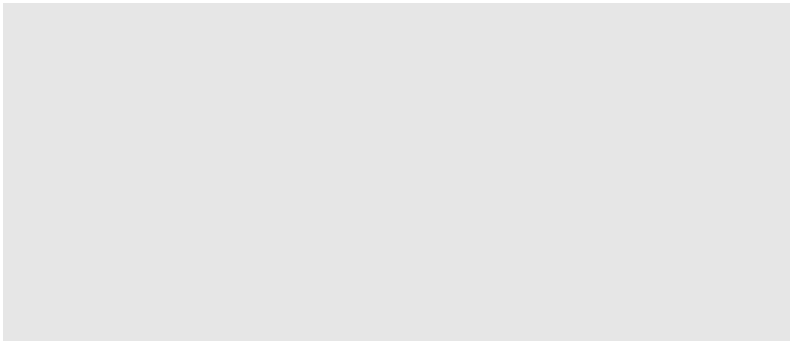
Piles of water hoses at Horne Creek Living Historical Farm on Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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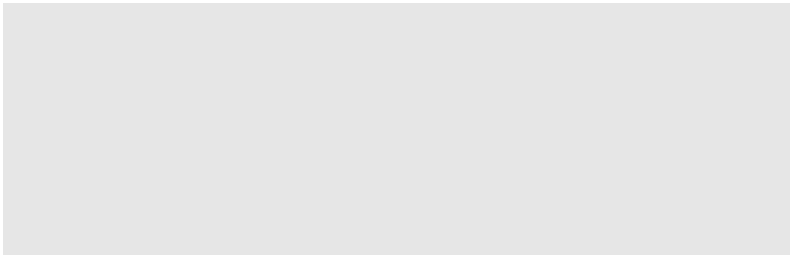
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Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, walks through part of the orchard at the farm Thursday, Feb. 28, 2019, in Pinnacle, N.C.
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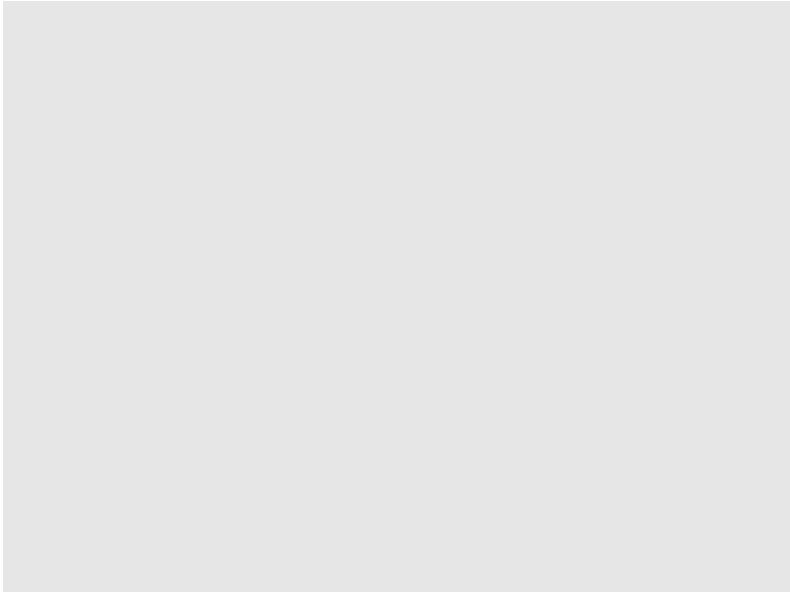
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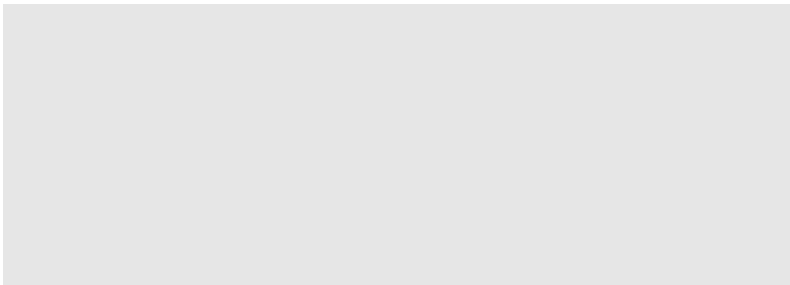
Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, shows the graft union Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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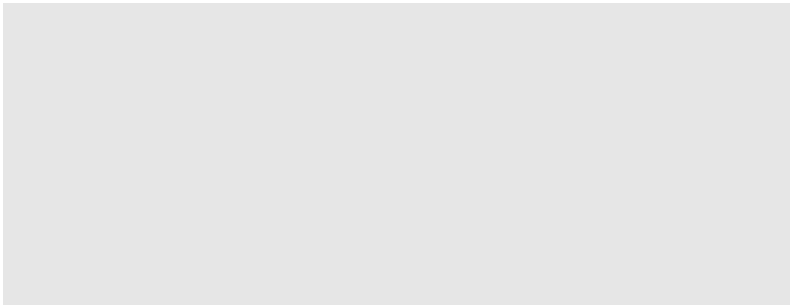
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The graft site of an 11-month-old grafted heirloom apple tree Thursday, Feb. 28, 2019, in the orchard at Horne Creek Living Historical Farm in Pinnacle, N.C.
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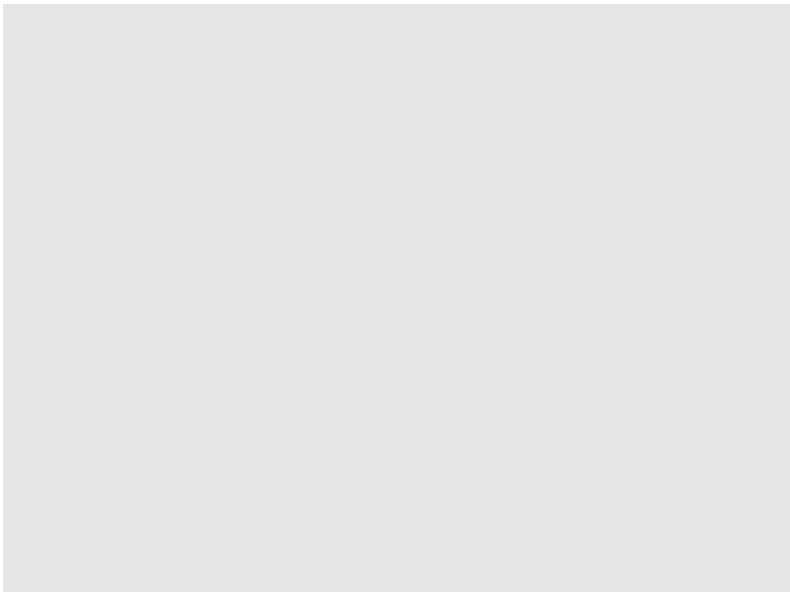
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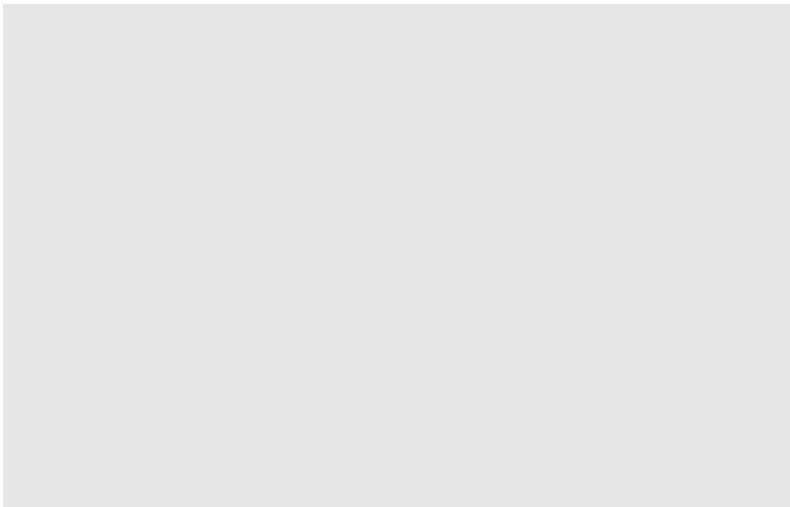
The orchard at Horne Creek Living Historical Farm on Thursday, Feb. 28, 2019, in Pinnacle, N.C.
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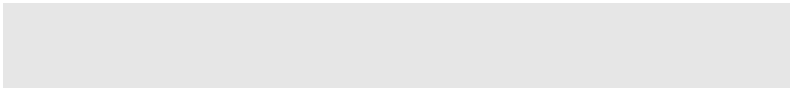
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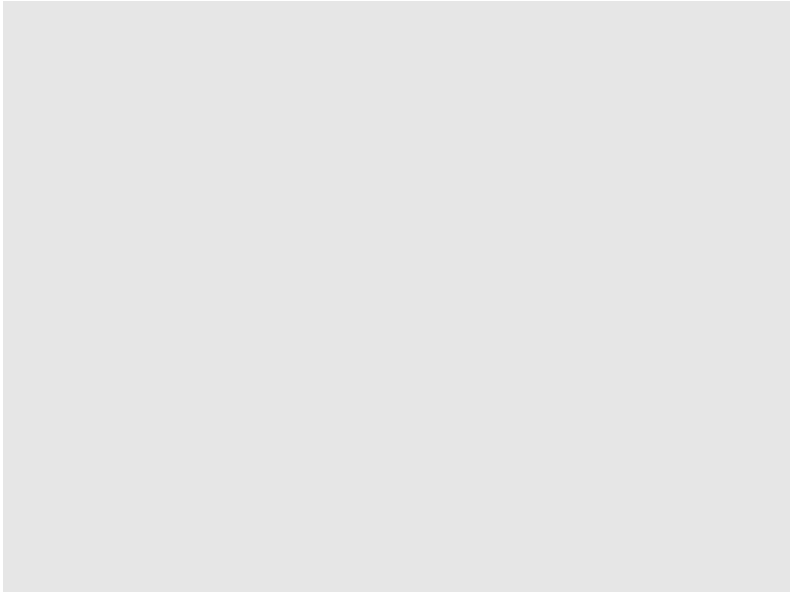
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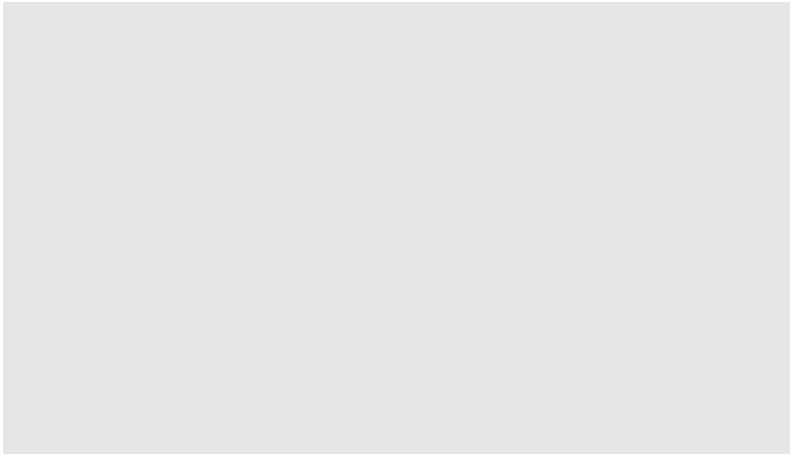
A tool is leaned against an M-7 root stock apple tree at Horne Creek Living Historical Farm on Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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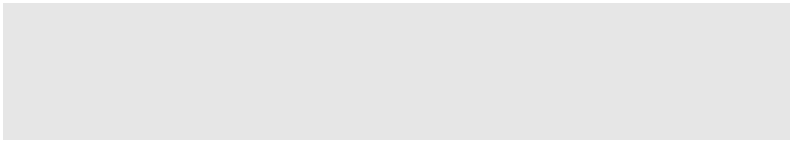
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Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, uses a grafting knife to prepares a scion for a demonstration of how to graft an heirloom apple tree Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.
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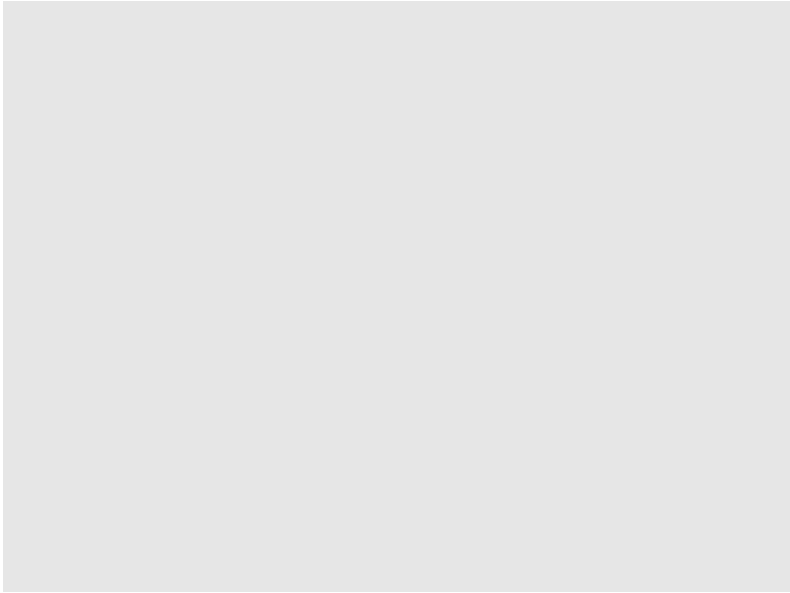
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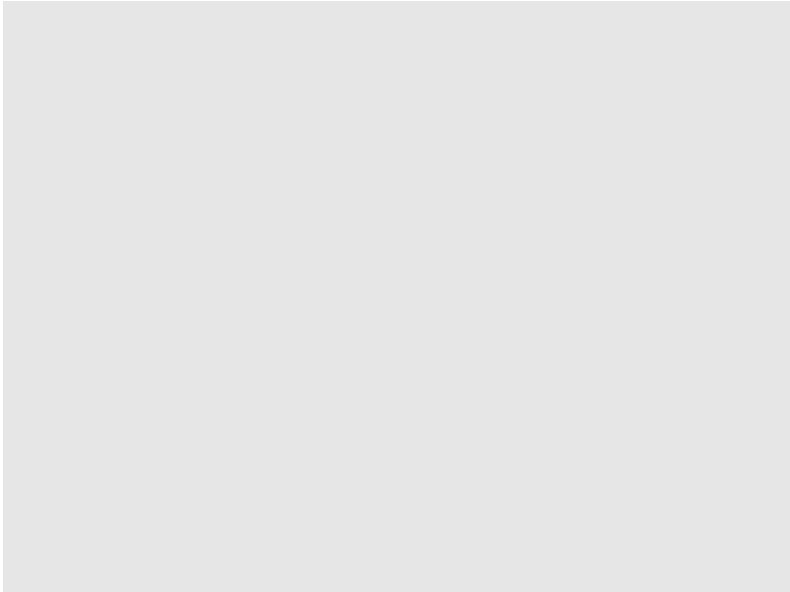
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Jason Bowen, horticulturalist at Horne Creek Living Historical Farm, points to the graft site of an 11-month-old grafted heirloom apple tree Thursday, Feb. 28, 2019, in the orchard at the farm in Pinnacle, N.C.

Allison Lee Isley/Journal

Michael Hastings