

# The Bur

The Newsletter of the Virginia Chapter of  
The American Chestnut Foundation



**Spring 2021**

**Vol. 15, No. 1**

## A GUIDE TO GROWING CHESTNUT SEEDS AND SEEDLINGS

By Kendra Collins and Tom Saielli

### Storing Chestnut Seeds

Chestnuts require cold stratification (34-40°F is optimal) for at least 60-90 days in order to germinate. You can use your refrigerator.

Chestnuts also need to be kept slightly damp. This can be accomplished by storing seeds in peat, sphagnum moss, coarse perlite, or coarse vermiculite. It should be at a moisture content where no water drips out when you squeeze it. The radicle (young root) will likely emerge during cold storage. Once this happens, avoid moving or disturbing the nuts since the radicle is fragile.

### Starting Chestnuts in Pots

You may want to sow your chestnuts in pots. A number of different containers work well for growing chestnuts. Tall (at least 12" deep) pots are ideal. An inexpensive option is to use a two-quart milk carton with holes punched in the bottom for drainage. Fill with a soilless potting mix. A variety of commercial mixes may be used, but choosing a well-aerated



The radicle, or young root, has emerged from the pointed end of this chestnut. Chestnuts typically sprout after 60-90 days of stratification.

mix is important.

Chestnuts should be planted approximately 1" deep (but no deeper). Be careful with the delicate radicle. The radicle is the root and should be planted down or sideways. The shoot emerges from the same hole as the root, so orient the seed on its side, so the root will grow down and the shoot up.

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## The President's Message

By Warren Laws, Virginia Chapter President

These past six months have been very busy for your Virginia Chapter. This newsletter will explain why.

In May we completed the move from our headquarters in Marshall, Virginia, to the Rockfish Valley Community Center in Afton, Virginia (Nelson County). We had been renting our Marshall building since 2006. Thanks to George Thompson who gave us below market rates. Our new headquarters is in a classroom in a former school. Like our headquarters in Marshall, we will use this room for an office, storage and outreach.

Due to the COVID pandemic we started to use Zoom on the internet to conduct meetings and for outreach. This has enabled us to easily reach out to people with a Power Point presentation on chestnuts. Darrell Blankenship is managing this program. The schedule for these presentations is in this newsletter.

Dr. Fred Hebard's planting report describes a very labor-intensive effort by over 44 volunteers who spent over 620 hours in our seed orchards. Over 5,800 chestnuts were planted. More help will be needed this summer with orchard maintenance.

Volunteers are also needed to write articles, do administrative work and to serve on committees. Let me know if you can help in any way. Most volunteers will tell you they get more back than they give.

About four or five times a week I get emails from people interested in buying chestnuts to plant. The American Chestnut



Foundation offers seed memberships. See: <https://support.acf.org/membership>. This is one way to get advanced hybrid chestnuts to pot or plant. The Virginia Chapter is also considering a program where seedlings will be given to our volunteers as a token of our appreciation. I encourage you to subscribe to a seed membership or qualify for some seedlings by volunteering. In the future we will need many people to have the skills required to grow chestnut trees.

Our annual chapter meeting will be a hybrid meeting via Zoom and physical presence. It will be on October 23, 2021. See you there!



Our new headquarters



## Zoom Powerpoint Presentations

Ever wonder what happened to the American Chestnut or what is being done to restore it? This is your chance to find out! The presenter will provide a 1-hour program and take questions.

### Recurring Monthly Zoom Presentation Schedule

July 21, 2021

August 18, 2021

September 15, 2021

October 20, 2021

November 17, 2021

December 15, 2021

Each 1-hour presentation begins at 7:30 p.m.

Please register for any scheduled program by emailing Virginia Chapter of the American Chestnut Foundation at [vachestnut@verizon.net](mailto:vachestnut@verizon.net). For more information, please contact Warren Laws (540) 364-



Jack Lamonica plants a potted chestnut at a site with good, well-drained soil.

1922 or Darrell Blankenship (276) 608-8120.



Tom Wild rolls up the winter cover on the new greenhouse



## New Virginia Chapter Greenhouse

By Tom Wild

As many of you may know the VATACF is putting in a greenhouse near Waynesboro. Over the last few years some of our projects, in particular those involving small stem assays, have required some sheltered growing space to assist in getting seedlings large enough and then protecting them during the monitoring phase. Over the last few years, we've had some generous partners. The Department of Forestry in new Kent VA, Western Albemarle High School, and Tufton Farm at Monticello have all allowed us to use space in their greenhouses. However, issues like proximity, control, and access have mandated our own space.



The greenhouse before breakdown & move to new location



William Hamersky setting support tubes for the greenhouse at the new location at The DOF nursery

Last year a used greenhouse came on the market and a donation was made. The Department of Forestry nursery in Crimora offered space. In April, a team of volunteers broke the greenhouse down and moved the parts to its new home at the nursery. We are particularly grateful for the help of William Hamersky; his contractor experience has really gotten us off to a good start. So far, the ground at the new site has been leveled and the support poles have been put in place. Plans are to work at the construction in series of short work-days (due to summer heat). Everything should be ready in the fall. Our hope is to start seedlings much earlier in 2022.

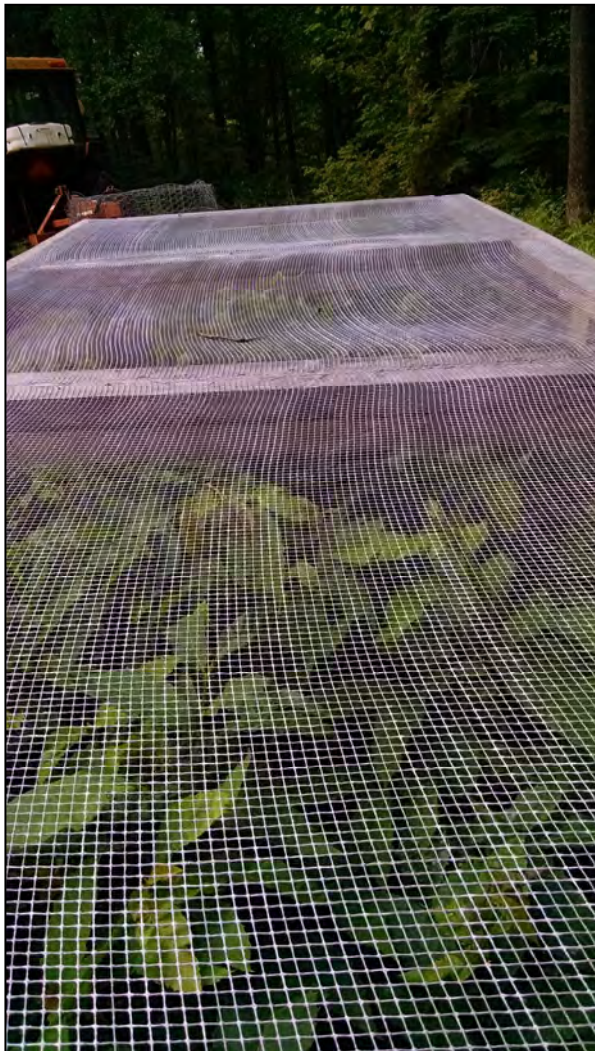
If you are interested in helping us with this project please contact Tom Wild at: [tomwild@comcast.net](mailto:tomwild@comcast.net) or call 540-364-1922.



## Seeding Cage

By Rod Walker

A few years back at the Middle Mountain Farm breeding orchard we changed strategies from planting seeds directly into the ground in the spring to planting seedlings in the fall. To do that we needed a place to sprout the seeds and let them grow over the summer. And, of course, we needed to make sure they got sunlight and water and were safe from squirrels and other animals. To solve this problem, our Farm Manager, Page Raines, developed the cage



Chestnut cage top view



Chestnut cage end view

shown in the pictures. It is mounted on a pallet for easy moving. All sides are covered with hardware cloth (metal mesh) for animal protection and access for sun and rain. The top is removable. It has a floor of eight feet by four feet and can hold up to 400 seedlings. It has worked really well for several years. Planting the seedlings in the fall has greatly improved our survival rates.





Chestnut cage side view

## 2021 Seed Orchard Planting Report

By Dr. F.V. Hebard

We planted 5,783 nuts in seed orchards in 2021, bringing the total of newly planted nuts and seedlings in our seed orchards to 15,804 (Table 1). This was more nuts than were planted in previous years. The increase was enabled by the large number of volunteers Pete West succeeded in recruiting for the effort. In addition to planting more nuts we also spent less time planting them than in past years, again due the large number of volunteers.

We succeeded in getting decent ground prep accomplished at Sky Meadows by purchasing a set of spring-trip moldboard plows for them and borrowing coulters to cut the poison ivy vines. This increased the ground we had available for planting, and we were able to add 16 new plots without huge difficulty. The staff at Sky Meadows performed all the ground prep, to their great credit, working overtime to accomplish it. The 16 new plots

were planted in three days. Previously, in 2019, nine plots had been added with great difficulty over a period of several weeks. Adding five more plots will finish new plantings at Sky Meadows.

Overall, we are about two-thirds of the way to completing the seed orchards. About 5000 nuts planted next year will complete the lines, if we can get good survival (Table 1).

Survival has improved considerably in most orchards the past few years. This occurred because we weeded with herbicides and fertilized according to recommendations formulated from soil tests. We also finally got a deer fence up at Banshee and spent a lot of time hand weeding. Survival is still spotty, however, and low.

A big component of poor survival is variability in seed storage conditions. The moisture content of the peat moss in which seeds are stored has varied tremendously, and bags of seeds have not been arranged properly to ensure that temperatures are

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fairly uniform throughout the refrigerator. We tried to correct these two deficiencies last year but were not entirely successful. We'll try harder this year,. We also may have to work on perfecting the planting technique used by volunteers.

Hopefully we will not have to do too much replanting to finish establishing these seed orchards.

Emergence is approaching 90%, the weeds are under control and fertilizer was applied in late April. Now if we get enough rain, the seed orchards will be in good shape.

As you may know, the progeny from the seed orchards at the Foundation's main breeding station in Meadowview, Virginia, have not been as blight resistant as was expected from results with earlier generations of breeding. So, what then is the use of doing this breeding?

First, we are recovering and preserving genetic diversity from American chestnut, but now in trees that will be able to reproduce substantially, unlike

American chestnut, which blight too readily.

Second, data suggest that we have managed to transfer enough resistance into our stock for substantial reproduction to occur.

Third, we also don't know how these trees will do when grown out in nature. Their type approaches that of American chestnut, so they should be able to grow well in the forest, unlike Chinese chestnut. Vigorous trees may only need moderate levels of blight resistance. Some may have sufficient vigor that blight doesn't prevent them from growing like American chestnut of old; they need to be tested in the forest to determine that. Results from the first ten years of testing have been encouraging.

Finally, many of the American chestnut used for breeding by the Virginia Chapter were exceptionally large for the species, up to 2 feet in diameter. There may be some resistance from those trees that complements the Chinese resistance and results in trees able to even thrive in our forests. We won't know if we don't continue.

Table 1. Breeding stage of B3-F2 and B4-F2 chestnut trees and plots of the Virginia Chapter of TACF as of April, 2021.

Breeding Stage	Trees	Plots	Plots per Line
Complete	9584	67	3.9
Incomplete	438	14	0.7
Not started	4860	27	1.4



Blandy Orchard

Sky Meadows Orchard



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## Planting Chestnuts Outside: What Makes a Good Planting Location?

Well drained soil is very important. Dry, sandy, gravelly, loamy soils are good. Avoid clay soils or those that retain water. A generous amount of top soil will result in better growth; however, chestnuts can generally tolerate relatively poor sites. Avoid planting over ledges or in compacted soils – the root system needs room to grow. The pH of the soil should be slightly acidic, (5.0-6.5pH). You can find the pH of your soil by submitting a sample to a soil testing lab, available through most county extension agents. Soil test results from a lab will also include an analysis of other nutrients and fertilization recommendations.

Chestnut is intermediately shade



Start your seeds in a deep pot designed for growing trees, or a re-used milk or juice container with holes

LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
Result	13	79	450	92	1.3	9.6	1.4	40.5	0.2	
Rating	M-	M-	L	M-	SUFF	SUFF	SUFF	SUFF	SUFF	

Analysis	Soil pH	Buffer Index	Est.-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.1	5.78	5.3	69.7	30.4	21.3	7.2	1.9	

Soil test results from a soil testing lab will include soil pH, as well as analysis of other important nutrients. Soil tests are highly recommended.

tolerant. For fast growth and flower production, trees need full sun. They will tolerate shade, but will grow slowly in low light environments and will not flower or reproduce.

## Hardening-off Seedlings

Leafed-out seedlings, especially those started indoors in containers, need to acclimate to the outdoor environment for a week or

two to prevent leaf scorch and dieback. This is called “hardening-off” and will help make transplanting more successful. Ease new seedlings into full exposure to sun and wind by placing them under shade, or pick a date to move them out when it will be cool and overcast for several days. Remove any remnant nut shell from the base of the seedling to avoid attracting wildlife.

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## Planting Seedlings Outside

Plant after there is no risk of frost. Dig a hole one and a half times as deep as the pot and twice as wide. Remove it from the pot and work the root ball with your hands to break it up; be careful to avoid damaging the roots. Hold the seedling in the hole so that the root collar (area where the root and stem join) is level with the ground surface. Fill the hole with soil, gently working the soil in and around the roots, so that the root system spreads out in the hole. Tamp the soil down firmly around the seedling. Adding forest soil may be beneficial. Add a scoop of slow-release, acid-loving fertilizer or compost.

## Protecting Your Seedlings from Wildlife

Chestnuts, shoots, and roots are attractive foods for wildlife. Tree protection is very important. Tree shelters, cylinders made of hardware cloth, and wire cages are options. Rodents, turkeys, deer, voles, and bears may eat chestnuts or seedlings. The height (or depth) of the shelter should correspond with the wildlife threats that are present. It is best to pick the shortest shelter appropriate for the site/predation, and sink it 2-4" to provide a barrier to tunneling rodents. Tall shelters over 2 feet are not recommended, as the trees need exposure to wind to develop structural wood. Also, the branching pattern can become abnormal. Tall shelters may also result in kinks or abnormal growth in the trunks.

## Fund Raiser Planned

This summer the Virginia Chapter will conduct a fundraiser. There are two reasons for this. First, over the last few years the chapter has been running a budget deficit due to our seed orchards expenses. Planting over 15,000 trees with associated eight foot high deer fences has been expensive. This year a major expansion of our seed orchard at the Blandy Experimental Farm added to this deficit. Second, the chapter needs to put aside funds to enable us to take advantage of advances in biotechnology. Should transgenic chestnuts be approved by the government we want to be in a position to immediately produce transgenic chestnuts in quantity.

We are seeking seed orchard sponsorships. If you know of an individual or business owner who might be interested in one of these sponsorships, please contact Warren Laws at [vachestnut@verizon.net](mailto:vachestnut@verizon.net) or 540-364-1922. A donation of \$10,000 would secure the sponsorship for 10 years with credit given on signs and/or a brochure.

Solicitations via mailings will also be sent out for smaller donations.

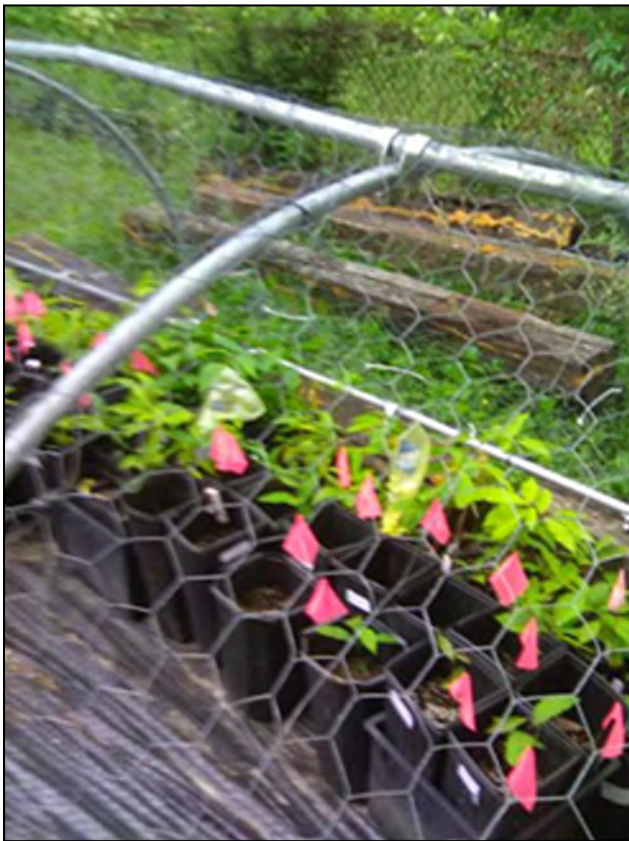


This 18" vented plastic shelter is sunk 2-4" into the soil to protect the base of the seedling.

## Northern Virginia's Hoop House

By Cindy Ingram, VATACF Treasurer

This week has been a busy one at VATACF's hoop house, home to 560 American chestnut seedlings. After a long winter it was time to take inventory. Many of the seedlings had outgrown their pots and needed transplanting into bigger ones. Every pot was weeded and fertilized and thanks to several long and steady rains all our transplants received a good watering!



Freshly repotted seedlings in the hoop house

We expect that some of these trees will be planted in ceremonial plantings, educational displays, our breeding program or used in research. However, there will still be some left over and these will be made available to our volunteers! Most of the trees are BC3F3s meaning that they are 15/16 American Chestnut and 1/16 Chinese

chestnut. Many of these trees will be able to produce chestnuts. Our goal is to give each and every one of these trees a chance to reproduce and be a part of the evolution process of the American chestnut tree here in Virginia! A distribution policy for volunteers is currently under development. We hope to distribute this fall.



A large seedling in its new larger pot home.



Tim Ingram, VATACF Volunteer, repotting a seedling which had outgrown its pot.



## Volunteer Profile: Darrell Blankenship

As a kid in the late 1950's and early 1960's, I remember walking through the woods on our Wythe County farm and my grandmother's land and there were these very large tree stumps. I asked my father and my uncle what kind of tree it might have been and they thought it might have been a chestnut. Also, I recall that people collected and sold chinkapin nuts on the roadside and door to door. We would stop and buy a few small paper bags of nuts. As the 1960's waned, so did the chinkapin sales. At that time, I really didn't consider the relationship between the two species.

Over time, I learned how wormy chestnut furniture was prized and why my grandmother's corn crib never rotted away. People would deplore the loss of the chestnut tree and comment on how long their fence had lasted, but no one knew or didn't say what had happened to the trees. I thought this was a little mysterious at the time, but I was too busy using my chemistry set to blow up the back yard trash cans to do any serious consideration. (This was the 60's—kids did dangerous stuff.)

Fast forward, I was in the latter years of my career in workforce development and was casually talking with one of my co-workers about how good it would be to retire and maybe do something much different than I had for the past four decades. Maybe something outdoors and something that I might actually use my degree in biology - finally. She mentioned that her spouse worked at the chestnut farm in Meadowview and they occasionally had job opportunities.

So unlike the 1960's, Google was my friend. I did learn what led to the demise of



the American chestnut species and the ongoing efforts of The American Chestnut Foundation's Meadowview Research Farms to try to revive it. I knew I didn't have the credentials nor the desire to work full-time but I thought maybe there was an opportunity to contribute.

I found that the Virginia Cooperative Extension offered a certification as a Virginia Master Naturalist. I took the training and became certified. As part of the certification process, you must participate in related volunteer activities. As luck would have it, the very first scheduled volunteer opportunity was at the Meadowview Research Farms to inoculate seedlings.

I became hooked! I wanted to learn more and more about the American chestnut species and the efforts to save it.

Thanks to the staff at Meadowview and the The American Chestnut Foundation, I have participated in many field ac-

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tivities—shucking burs, planting seeds, and inoculating trees. I have traipsed through briars in the hot sun to take measurements and record observations in tree orchards.

I have met many other dedicated volunteers who have been involved long before me, many more experiences, and who have much greater knowledge. We all share the same goal—that any small contribution that we may make may help lead to the restoration of the species. You can help too!



Beth Merz, Vice President for the Southwest Region, planting at Meadowview Research Farm

ELECTRONIC SERVICE REQUESTED

Marshall, VA 20116

P.O. Box 158

Virginia Chapter

FOUNDATION

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