Chestnut Growers of America
Promoting Chestnuts and Connecting Chestnut Growers

Vol. 25 No. 1 · Winter 2023

The Chestnut Grower

A Quarterly Newsletter published by Chestnut Growers of America, Inc. · *chestnutgrowers.org*

Germplasm Improvement in Chestnut: Detection of Interspecific Hybrids

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In This Issue

The Unavoidable Truth of G x E

The interaction of genetics with environment results in the phenotype, the performance characteristics you value as chestnut growers. The environment is everything outside of the organism itself, from the condition of the seed tree that produced the nut, to the soil in which it grows, the minerals and micronutrients available to it, the weather it experiences and the pests and pathogens that will attack it throughout its life. An experienced grower will provide good soil, minerals, and micronutrients. However, even when the weather is favorable, and pest and pathogen attacks are minimal or controlled, some cultivars are consistently better than others. This is the genetics in the G x E, the genetics by environment interaction.

Domestication and Redomestication

Plant domestication is the process of manipulating existing genetic variation to produce individuals with genotypes that result in the most desirable phenotypes in the environments chosen by humans. Until recently, the actual process humans used to domesticate grains, vegetables, and wild trees was lost to history. However, in North America, we do have extensive experience with redomestication, when a species domesticated in one region is suddenly transported thousands of miles away and planted by a group of hopeful growers over multiple grower generations.

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The Chestnut Grower

Winter 2023

About Chestnut Growers of America, Inc.

The purpose of Chestnut Growers of America is to promote chestnuts, to disseminate information to growers of chestnuts, to improve communications between growers within the industry, to support research and breeding work, and generally to further the interests and knowledge of chestnut growers. CGA advocates the delivery of only high-quality chestnuts to the marketplace.

CGA began as the Western Chestnut Growers in 1996 in Oregon where about 30 or so chestnut growers understood the need to join forces to promote chestnuts in the U.S. Eventually they realized that they needed to be a national organization and solicited memberships from every grower in the country, which took the membership to over 100. The name of the organization was changed to Chestnut Growers of America, Inc., and it was granted 501(c)(5) status. Annual meetings take place around the country in an effort to make it possible for a maximum number of people to attend. A newsletter, *The Chestnut Grower*, is published quarterly and distributed by mail and/or email. CGA maintains an extensive resource site available only to members containing information helpful in growing and marketing. Visit chestnutgrowers.org for more information.

Annual Membership Dues

Single membership, $45; Household membership, $55; Associate membership, $60. Members receive *The Chestnut Grower* quarterly. Emailed newsletters are included. Mailed newsletters are an additional $5 per year. A $10 late fee is applied to membership renewals submitted after April 1.

Advertising Rates

Full page	$20.00
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Quarter page	$10.00
Business card (4 issues)	$15.00
Classifieds	**FREE**

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Editorial Opinion

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Message from CGA President Roger Blackwell, Chestnut Grower

Hello Chestnut Growers of America,

In this message, I want to let you know the plans for the next annual meeting. We will be meeting jointly with the Northern Nut Growers Association (NNGA) the growers of the American Walnut Council for 2023. The Conference is scheduled for Sunday, July 23 through Wednesday July 26, 2023, on the University of Missouri campus in Columbia, Missouri and the Horticulture and Agroforestry Research Center in New Franklin, Missouri. Please read this newsletter for additional information about the annual conference. We will have more information in the next issue for everyone's planning schedules.

In this newsletter, Jeanne Romero-Severson will be summarizing the results of her research thus far on detection of interspecific hybrids in chestnut for the purpose of germplasm improvement.

I am asking each Board Member to participate in providing an article for the CGA Newsletter on a rotating basis. It should take two years in rotation to have one Board Member each submit an article concerning chestnuts and the industry.

CGA wants to thank the individuals who have submitted articles for this newsletter, and I encourage others in our organization to provide articles for future newsletters. We are all learning each year something new about growing chestnut trees in orchards throughout the country.

I hope you all had a plentiful harvest in the fall of 2022 and a wonderful holiday season.

Best regards,

Roger R. Blackwell

Roger

Overview of the Upcoming 2023 Annual Conference

The planning committee for the 2023 joint Northern Nut Growers/ Chestnut Growers of America/Walnut Council Conference has been busy. The Conference is scheduled for Sunday, July 23 through Wednesday, July 26, 2023 on the University of Missouri campus in Columbia and the Horticulture and Agroforestry Research Center in New Franklin, Missouri. At that point in the academic calendar, the University is between sessions, so we will have access to meeting rooms and University housing within a short walking distance of parking and cafeterias. Many major hotel and restaurant chains are located within easy driving distance. Anticipate there will be a CAPs program.

Sunday is set aside during the day for board meetings of all organizations. They will be followed in the evening by a welcoming reception. We anticipate lining one of the hallways with tables for exhibits and poster boards. Presenters should be able to set up their posters Sunday afternoon or evening.

Monday will be an all-day field tour at the Horticulture and Agroforestry Research Center (HARC). Plan to see new and established research plantings of Chinese chestnut, hazelnut, black walnut, northern pecan, pawpaw, and elderberry. Because there is ample parking at HARC, those of us who drive will be asked to drive and carpool. In the evening, a live auction is being planned to support the research grant programs for the NNGA and Walnut Council. Along with the live auction, the Walnut Council Foundation will be conducting a silent auction from Sunday evening through Tuesday evening. We hope members of all three organizations will participate in both the live and silent auctions.

Tuesday will be filled with invited presentations on Chinese chestnut, hazelnut, black walnut, northern pecan, and other topics determined by the planning committee. Instead of concurrent sessions, we anticipate having poster sessions with a time designated for presenters to be by their posters. In the evening, we will have a joint social and banquet. After the banquet each organization will have time to entertain the group with fun activities including the Big Nut crowning, honor and service awards, the Walnut Achievement Award, Pass the Hat, and elections.

Wednesday morning will be filled with additional invited presentations and continuation of the poster session. Closing the conference at noon allows for scheduling of post-conference tours in the afternoon.

Because of the costs associated with recording, editing, and posting of presentations, it is unlikely there will be a virtual option. That means mark your calendars now and plan to physically attend.

Mark Your Calendars!

For the 2023 Annual Meeting, a joint meeting with the Northern Nut Growers Association (NNGA) and the Walnut Council.

July 23-26, 2023

Columbia, Missouri

More information above and detailed schedule coming soon.

Happy New Year!

Your 2023 membership dues are now due. You have two options:

Renew Online

Download a fillable form from the CGA website at www.chestnutgrowers.org/CGA_Membership_Application_fillable.pdf. If you receive the e-version of the newsletter, the form is also attached to that email. Complete the form and email it to Jack Kirk, CGA secretary/treasurer, at jackschestnuts@gmail.com. You can then pay your dues through the CGA website by visiting www.chestnutgrowers.org/paydues.html. Please make sure you submit both your renewal application and payment at the same time. *~OR~*

Renew by Mail

Fill out, detach, and return the membership renewal form included with this issue on page 9. Send the form with a check made payable to Chestnut Growers of America, Inc. to Jack Kirk, 2300 Bryan Park Ave., Richmond, VA 23228.

Renew Today *- A $10 late fee is applied to renewals submitted after April 1. If you are a new member who joined after August 1 of last year, your dues are already paid for this year, so no action is needed at this time.*

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The germplasm currently available to chestnut growers in North America is in the throes of redomestication. Generations of hopeful growers have put their hands into this project, resulting in a germplasm collection of uncertain heritage, uncertain breeding value, and some individual trees with notably superior phenotypes.

Breeding Value, Inbreeding Depression, and a Way Forward

Even if chestnut growers were deliriously happy with the current set of cultivars available to them, the E part of the G x E changes over time, while the G part does not for a given tree. Spontaneous mutations can and do happen, but almost never at the convenience of the grower. Exotic pests, pathogens, and invasive weeds will invade, old pests and pathogens suddenly become a problem, promising young trees produce mediocre mature trees, 30-year droughts occur, and spring flooding becomes more frequent. A change in E is as certain as death and taxes; it may not be as predictable as taxes, but it is just as inevitable as death. The G must change to meet these challenges, or the grower must plant something else (all still subject to G x E), or cash it in.

Groups	Number of samples	Cluster labels
Group 1	210	Mollissima 1
Group 2	121	Mollissima 2
Group 3	17	Henryi/Sequin
Group 4	50	Crenata
Group 5	75	Sativa
Group 6	100	Dentata
Group 7	112	Chinquapin
Group 8	14	Highly admixed

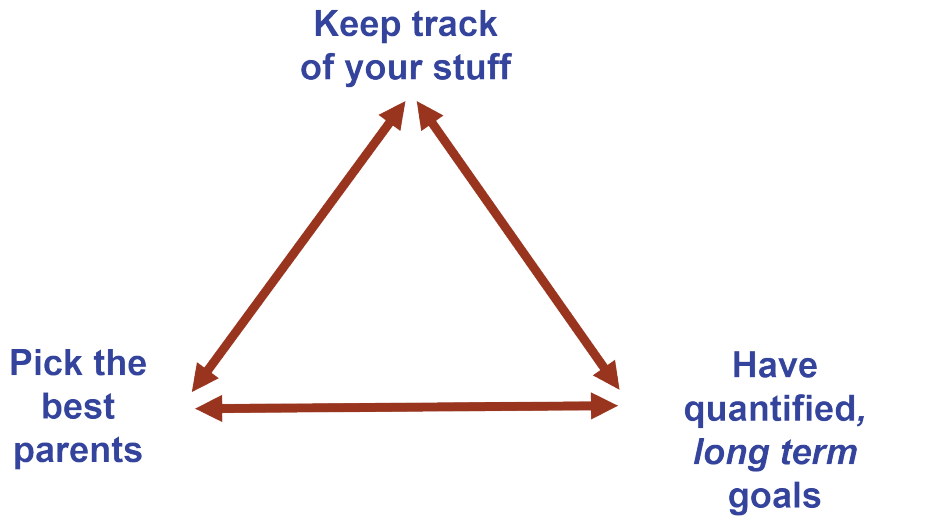


Figure 1. *The plant breeding triangle. Each corner of the triangle strengthens the other two.*

Over the last 10-12 thousand years, plant breeding, the process that changes the G part of G x E, produced most of the world's domesticated crops. During this time, humans noticed that a collection of good parents with complementary strong points provided genetic insurance against changing conditions. Breeding value is a term used now to describe the "goodness" of a given parent and the ability of that parent to pass its goodness to its descendants. Humans also noticed that small breeding populations produce closely related parents, and the progeny of closely related parents are more likely to have inferior phenotypes. This is now called inbreeding depression.

Unfortunately, the phenotype of an individual is not directly related to the breeding value of an individual and does not reveal the degree of relatedness to any other individual. Carefully kept pedigree records may assist with relatedness, but carefully kept records were rare until recently, and even then, mistakes happen. Thus, the best-looking parents, the trees that have good phenotypes, may not produce the best progeny. This is especially true when the parents in question are interspecific hybrids. As for inbreeding, some inbreeding depression is inevitable in isolated, small populations. Humans know about inbreeding depression in animals and have traditionally taken steps to avoid it. Inbreeding depression in outcrossing trees undergoing the domestication process would be rare, as genetic exchange with wild trees could still occur. In the redomestication process, small populations can occur, and genetic exchange with wild populations may be limited or absent.

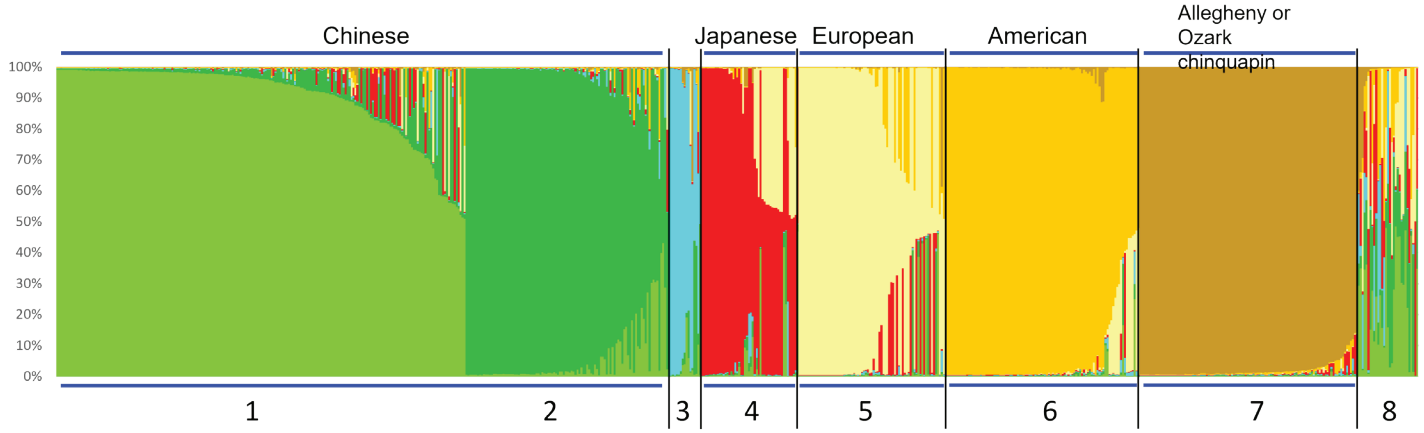


Figure 2. *Genetic clusters detected in 699 individuals representing eight* Castanea *species. The blue horizontal bar represents the species designation given by the contributor. Each of the long thin vertical bars represents an individual. The group designations represent the genetic clusters detected using only the genotypes and ignoring the label given by the contributor. In the ideal world, the contributor labels and the genetic clusters would be equivalent. A multicolored bar indicates admixture with other groups.*

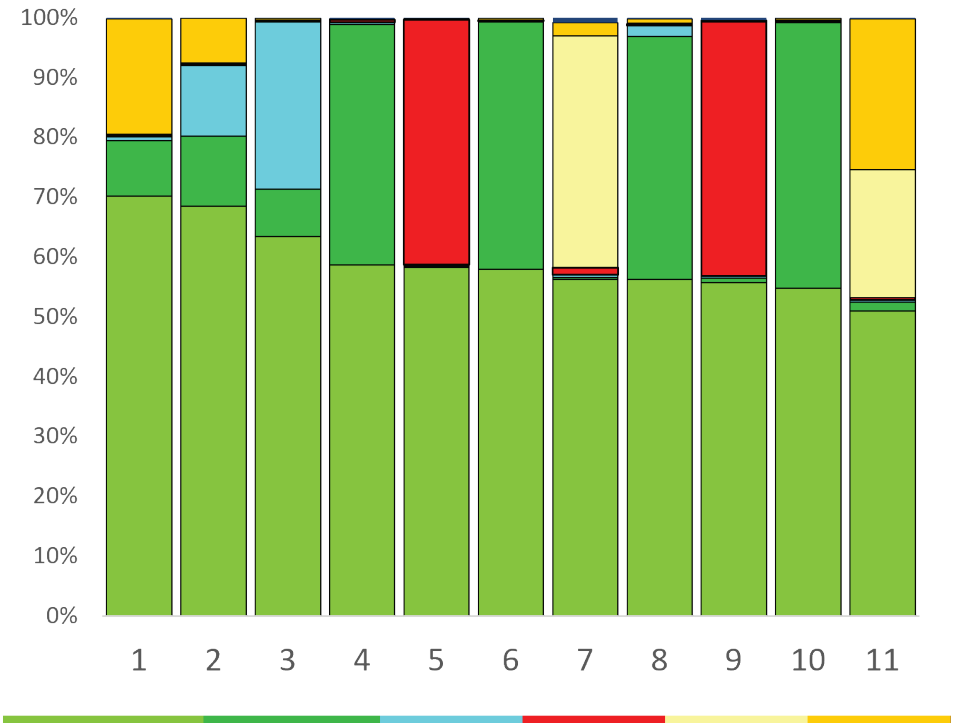
Some of the chestnut cultivars in your orchards are complex interspecific hybrids, most have unknown pollen parents, and the true degree of relatedness is unknown for all of them. Armed with this rich array of promising but incompletely characterized material, the participatory chestnut breeding program at the University of Missouri has the goal of chestnut cultivar improvement in your lifetime and the lifetimes of your descendants. This will be achieved by adherence to the three fundamental principles of plant breeding enhanced by digital information management and DNA marker technology.

The Three Fundamental Principles of Plant Breeding

The purpose of plant breeding is to achieve gain from selection, the genetic improvement of the desired phenotype. Once you have a phenotype in mind and have a way to reliably measure your phenotype, then all you need do is 1) pick the best parents, 2) keep track of your stuff, and 3) have quantified, long term goals (Figure 1). Although generations of anonymous people succeeded in domesticating grains without drones, DNA markers, and databases, the use of drones, DNA markers, and databases enables the efficient application of the three principles, especially in the case of redomestication. In the case of our participatory chestnut breeding program, you have provided your best potential parents. Dr. Ron Revord and his group at the University of Missouri have established the Chestnut Improvement Network and implemented the germplasm management program E-Brida 6.2. This program provides the expertise and infrastructure for the long-term commitment requirement and the essential "keep track of your stuff" requirement. The Romero-Severson program at the University of Notre Dame provides the DNA marker technology required to keep track of your stuff and most importantly, to see back in time, to reveal interspecific ancestry and relatedness, an essential part of picking the best parents.

DNA Markers

We use EST-SSR DNA markers. ESTs are expressed sequence tags (sequenced portions of functioning genes), and SSRs are simple sequence repeats, in this case



#	Collaborator ID	Notes
1	mollissima	B53, Greg Miller
2	mollissima	Schmucki timber-type, Greg Miller
3	mollissima	Elverta, CA. Michael Nave
4	None given	Carolina
5	mollissima x (?)	B47, large nuts, gall wasp res, Greg Miller
6	None given	Carr
7	Crenata/sativa hybrid x mollissima	Elverta, CA. Michael Nave
8	mollissima	Michael Nave, Elverta, CA
9	seguinii	forgot source, perhaps Szego, Greg Miller
10	None given	Carr
11	sativa x mollissima	Myoka seedling, vigorous, B15, Greg Miller

Figure 3. *Species admixture examples within the cluster Mollissima 1.*

regions in expressed genes that tend to vary across species. Our set of 43 EST-SSRs was designed to detect these genetic differences across all species of chestnuts based on the DNA sequence in the genes all chestnut species have. Our set of 43 enables verification of interspecific ancestry, detection of recent pedigree (parents and siblings), protection of intellectual property, and a unique genetic fingerprint for every tree genotyped.

The *Castanea* Species DNA Database: Justification and Results

DNA marker technology is useful only in the context of a large set of samples. In order to detect interspecific ancestry, it was necessary to genotype trees representing all species of chestnut (*Castanea*). The contributors submitted 699 samples with eight different species designations: Chinese, Henryi, Sequin, Japanese, European, American, Allegheny chinquapin, and Ozark chinquapin. In a perfect world, the contributor labels and the genetic clusters detected would match up perfectly. Did this happen? No, it did not (Figure 2). The genetic analysis detected eight clusters, but the clusters were not exactly equivalent to the labels. Most of the samples labelled Chinese chestnut by the contributors split into two genetic clusters or two groups. We call these, with a decided lack of imagination, Group 1 and Group 2, or Mollissima 1 (210 samples) and Mollissima 2 (121 samples). The Henryi and Sequin chestnuts formed only one group, Group

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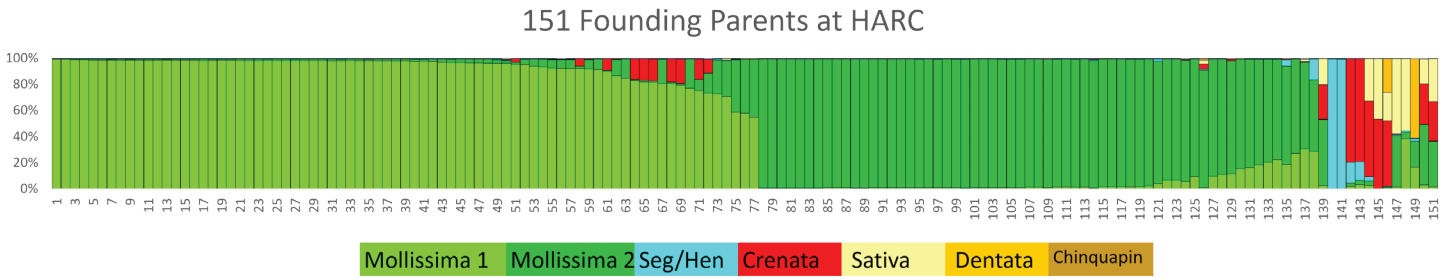

Figure 4. *Genetic clusters detected for the founding parents of the chestnuts in the Chestnut Improvement Network. (151 of 160 genotyped; most group with Mollissima 1 and/or Mollissima 2, some are admixed, some are highly admixed.)*

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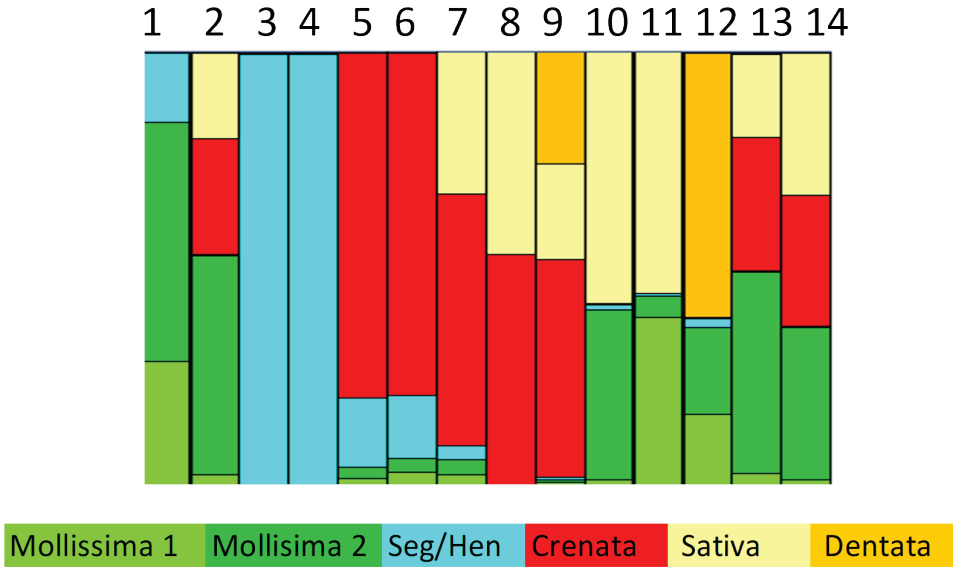
3. The Japanese, European, and American samples each formed distinct groups (Groups 4, 5, and 6), the Allegheny and Ozark chinquapins formed only one group, Group 7 (not expected), and the eighth group (14 samples) was so highly admixed that species designation was not possible.

In addition to a lack of exact equivalence between contributor labels and genetic clusters, all the groups contained admixed individuals, i.e., individuals with some admixture from other groups. Membership in a particular group required that at least 50% of the ancestry had to belong to one of clusters detected. Individuals not meeting this criterion were assigned to Group 8.

Given the history of chestnut improvement in the United States, results like this were expected. What we did not expect was two distinct "ethnic" groups within Chinese chestnut. A closer look at some of the individuals within the group Mollissima 1 reveals hidden admixture; ancestry not detected by visual inspection (Figure 3, previous page). Tree #5 was labelled "mollissima x (?)". Dr. Greg Miller suspected interspecific ancestry. Our analysis confirms that and identifies the other species as *C. crenata*, Japanese chestnut. Tree #7 was labelled "Crenata/ sativa hybrid x mollissima" by Mike Nave. Our analysis reveals that the tree has European (*C. sativa*) and Mollissima 1 ancestry but not ancestry from Japanese chestnut (*C. crenata*).



0.287	0.55	0.159	0.002	0.001	0.001	**1**	Plot 316#150	HARC -52
0.024	**0.505**	0.003	**0.266**	**0.199**	0.001	**2**	Ford's Sweet	HARC -4
0.001	0.002	0.991	0.001	0.002	0.002	**3**	Result reserved	HARC -92
0.001	0.002	0.99	0.002	0.002	0.002	**4**	Result reserved	HARC -22
0.018	0.025	0.16	0.794	0.001	0.001	**5**	Ok kwang	HARC -153
0.032	0.032	0.143	0.789	0.001	0.001	**6**	Ok kwang	HARC -140
0.024	0.037	0.031	**0.58**	**0.326**	0.001	**7**	Bouche de Betizac	HARC -104
0.001	0.001	0.001	**0.529**	**0.466**	0.001	**8**	Marigoule	HARC -103
0.007	0.006	0.007	0.502	0.218	0.258	**9**	Normand Dwarf	HARC -20
0.013	0.393	0.009	0.004	0.578	0.001	**10**	Simpson	HARC -5
0.386	0.049	0.006	0.002	0.554	0.001	**11**	Szego	HARC -69
0.166	0.198	0.021	0.002	0.001	0.61	**12**	Douglass 1A	HARC -55
0.029	0.464	0.003	0.308	0.191	0.003	**13**	Precoce Migoule	HARC -61
0.014	**0.35**	0.002	**0.304**	**0.327**	0.001	**14**	Dallas City River	HARC -9

Figure 5. *Highly admixed founder trees.*

The Founding Parents at the Horticulture and Agroforestry Research Farm (HARC)

As most the cultivars in the orchards of chestnut growers in the Chestnut Improvement Network descend from the chestnuts planted at the Horticulture and Agroforestry Research Farm in New Franklin, Missouri, I will provide some details on just that set of trees. We successfully genotyped 151 of 160 trees samples we received (Figure 4). Almost all of these trees are in Mollissima 1 and Mollissima 2 genetic groups. 'Bouche de Betizac' and 'Precoce Migoule', trees 7 and 8 (Figure 5), are widely recognized as a Euro-Japanese hybrids. It is reassuring that that our analysis confirms the ancestry the two established cultivars with good pedigree records.

'Ford's Sweet' and 'Dallas City River' are trihybrids. It would be a high-risk proposition to use either one as a parent because the lack of correspondence between breeding value and the parent phenotype. The goodness of a given complex hybrid may be the result of the

unique genetic combinations provided by its complex ancestry. These combinations are broken up in the process of egg and pollen formation and thus are highly unlikely to be passed intact to the progeny. This does not mean that no good progeny could come of cross between Ford's Sweet and any other cultivar. However, given that our money as well our life spans are limited, perhaps pursing options more likely to produce good trees would be a better bet.

The Limitations of DNA Marker Technology

It may not have escaped your notice that that individuals 3 and 4 in Figure 5 are labelled "result reserved". Both of these trees are independent samples of 'Luvall's Monster'. Our interpretation of what our data means does not agree with the interpretation of another set of results obtained using different DNA sequencing technology. Both sets of results are technically correct, but the context in which they are interpreted is different. DNA marker technology is only meaningful within a context. Please keep this in mind as this project continues. The Luvall's Monster conundrum is an excellent example of the "blind men and the elephant" phenomenon. We find a tusk; another group finds a tail. We both need more data!

Coming Soon to a Meeting Near You

We have not completed the genotyping of the growers' samples. The technology we use is sensitive to small changes, and during the course of this work, inadvertent small changes have occasionally happened. However, we are on track to complete the genotyping this spring. At that time, I will do an in-depth parentage analysis to determine the degree of relatedness among all of the HARC ancestors and among all of your individual trees. If your trees really are the result of crosses between the HARC trees, we have a good chance of identifying the pollen parent as well as verifying the seed parent of all your trees. I hope to see you all at the summer meeting in Missouri!

Figure 6. Fallen chestnut leaves possibly showing species differences.

Cover Photo (page 1). Chesnut planting at HARC. Photo by Mark Coggeshall.

Chestnut Growers of America End-of year Financial Report, 2020-2022

		2022	2021	2020
Income	Annual Mtg Registrations	2,262.67	--	--
	Annual Mtg Silent Auction	439.45	--	--
	Membership Dues	6,589.69	5940.44	5,245.00
	Online Grower Directory	220.00	300.00	350.00
	Interest Income	1,017.64	34.24	155.72
	Newsletter Advertising	430.00	275.00	135.00
Total Income		**10,959.45**	**6,549.68**	**5,885.72**
Expenses	Annual Meeting	(630.27)	--	--
	Insurance	(1,122.00)	(1,122.00)	(1,027.25)
	Newsletter	(540.33)	(856.23)	(740.50)
	Communications Director	(1,887.50)	(2468.75)	(2,025.00)
	Organizational Expenses	(50.00)	(50.00)	(50.00)
	Website	(291.92)	(227.95)	(243.94)
Total Expenses		**(4,522.02)**	**(4,724.93)**	**(4,086.69)**
Net Income		***6,437.43***	***1,824.75***	***1,799.03***
Cash, beginning of year		***25,877.14***	***24,052.39***	***22,253.36***
Cash, end of year		***32,314.57***	***25,877.14***	***24,052.39***

Membership Report, 2020-2022

Members	**2022**	**2021**	**2020**
Household	64	63	57
Individual	75	52	48
Associate	0	1	1
Honorary	0	0	0
Complimentary	1	1	1
Total	**140**	**117**	**107**

Membership and financial summaries prepared by Jack Kirk, CGA Treasurer / Secretary

Hot Wax Technique for Chestnut Hypocotyl Grafting

By Markus Schaufele, Michigan Chestnut Grower | castaneallc@gmail.com

Publications on chestnut hypocotyl grafting methods emerged about 40 years ago. The most recent publication has been by Don Kines, from Mountain State Chestnuts, WV who posted a nice hypocotyl grafting instruction video on YouTube. After some success with Don's grafting methods, Dick Winkel from Winkel Chestnut Farms in Michigan and I further developed techniques for hypocotyl grafting. So far, hypocotyl grafting methods are for chestnut hobbyists.

In chestnuts, seed leaves are hidden and folded up inside the nut. The seed leaves contain most of the stored carbohydrates that drive seedling growth. The two petioles – the petioles of the seed leaves reveal that a chestnut is a dicot like a bean. The hypocotyl, meaning below the petioles, includes the seedling's radicle and roots. The epicotyl, meaning above the petioles, includes the emerging sprout or shoot and leaves. In hypocotyl grafting (some may also call this method epicotyl grafting), the emerged epicotyl is cut off below the first leaves. A vertical cleft is made into the epicotyl and hypocotyl and a scion twiglet is carefully inserted in the cleft.

Seedling nuts are cold stratified in moist peat in a refrigerator. At the end of December, sprouted nuts are potted into tree pots. We use 4" x 4" x 14" tall tree pots (Stuewe) that are a gallon in volume. Our airy substrate mix is mostly pine bark fines, some peat, vermiculite, sand and perlite. No fertilizer is added. We put extra aeration holes in the sides of each pot.

Before the sprout emerges, dormant scion wood from the desired cultivars should be cut. Scion sticks are disinfected, bagged, and refrigerated until used. Scions for grafting will be taken from last season's growth avoiding the top buds which are probably flowering buds.

It may take a month for the radicle to grow to the bottom of the pot. About the same time, the epicotyl emerges from between the petioles of the seed leaves. Grafting can start when the sprout is a couple inches long. The grafting area is freed up of potting medium and epicotyl cleaned by spritzing with water. The epicotyl is cut off about a quarter inch above the two petioles and a vertical cut is made 1/2 inch deep into the epicotyl and hypocotyl. This cut has to be done carefully to keep both petioles connected.

Insert a 1- to 2-inch-long fluted scion twig with one bud into this cleft. The scion wood diameter should be about the width of the cleft. Scion with a diameter larger than the cleft can used but the cambium is aligned along only one side with the root stock. Once cuts are made, insert quickly to avoid oxidation of exposed surfaces.

Use tomato grafting clips to hold the scion wood in the cleft and brush paint the whole scion and graft union with hot melted bee wax. The bud scion and graft union can handle the hot bee wax application. A plastic tomato grafting clip and tightly hardening bee wax eliminates application of grafting tape and rubber bands and a bag enclosure described in other hypocotyl grafting methods.

Let the graft union stitch together undisturbed under shade or some indirect lighting. Exposing a fresh graft to intense light is not advised. Covering the graft union and scion with some of the pine bark substrate works fine.

Figure 1. *Successful hypocotyl graft with emerging bud on scion twig on chestnut seedling rootstock using tomato clip and hot bee wax.*

A callus bridge forms between scion and root stock from day 1 to day 7 followed by repair of the vascular system over the next 2 to 4 weeks. There are two types of conduits that need repair - conduits that send water and minerals up into the scion and conduits that send sugars created by photosynthesis down to the roots. Only when the seedling has repaired these conduits will the grafted bud emerge and thrive after emergence.

Bud swelling and bud emergence gradually crack the wax coating (Figure 1). Pinch off any shoots that emerge from the buds at the petiole base of the cotyledons. After bud emergence, lighting can be increased. Our successful grafts are grown indoors under LED grow lights.

When chestnuts are sprouted indoors or in a green house in winter, early shoot emergence allows for early hypocotyl grafting. After the graft takes, developing grafted seedlings can be out planted in the field in May or June in the northern latitudes of USDA Zones 5 and 6 or grown in containers for fall planting.

Minimizing transition shock leads to a strong graft union and increased shoot vigor. Success rate can be >50% for pure *Castanea sativa* or *C. sativa/crenata* hybrid grafts and 50% or below for *C. molissima* hybrid graft. Most successful are grafts where root stock and scion wood are from close relatives. A successful graft union propagates a scion's genes asexually. A scion twig comes from an older desirable cultivar and has already advanced in its life cycle. It is this life cycle advancement that makes a grafted tree bear earlier than a seedling tree.

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Membership Application/Renewal Form

Chestnut Growers of America, Inc.

Please complete application and **EITHER** mail to:

Chestnut Growers of America, Inc., Attn: Jack Kirk, 2300 Bryan Park Avenue, Richmond, VA 23228

OR email (scanned copy or fillable PDF, available for download at www.chestnutgrowers.org/resources.html) to: jackschestnuts@gmail.com.

Instruction for completing PDF application: Download fillable PDF and save it to your computer. Open the PDF with Adobe Acrobat or Reader (not a web browser). Fill out the form by clicking in the purple text bars. Go to File > Save As, and then save the PDF with your name (for example, "CGA 2020 Membership Application - Smith). Before emailing your application, close Adobe Reader, and then re-open your application and make sure the information you filled in still appears in the document. Then attach your application to your email to Jack.

For dues payment, **EITHER** mail check to Jack Kirk at Richmond address; **OR** submit your dues online via PayPal at www.chestnutgrowers.org/paydues.html. ***Please ensure that you have submitted both your application and dues.***

A Farm/Business/Organization Name:

B

First Name	Last Name	First Name	Last Name
(Individual/First Household Member)		*(Second Household Member)*	

_____**New Member Application** *(please complete sections C-K below)*

_____**Renewal** *(please complete sections I-K below)*

_____No updates to lines C-H below. Please use info from last year.

_____My information has changed. I have provided updates below.

C Address

D

City	State/Province	Zip/Postal Code	Country

E

Phone	Fax
( )	( )

F

Email	Website

G

Acreage in Chestnuts	# of Trees	Year First Planted	Previous Year's Production (lbs)

H Cultivars Grown

I Please send newsletters in the following format (*$5.00/year for print to cover cost of printing and postage):*

_____Email Only _____Print Only _____Both Email and Print

J Listing on the CGA website grower directory (chestnutgrowers.org/growers; *see reverse for more info*):

_____Free Listing _____Paid Listing _____Please do not list my information on the website.

Continued on reverse ➔

_____**New Member** or **Renewal** ***before*** **April 1**

K	Membership Dues	
	_____Household Membership	$55.00
	_____Individual Membership	$45.00
	_____Associate Membership	$60.00
	_____Print Format Newsletters (see **I** above)	$5.00
	_____Paid Listing on CGA Website (see **J** above)	$25.00
	Total dues for this year:	_____

Renew Today!

A $10 late fee is applied after April 1; after that date dues increase to $65 for a household membership and $55 for an individual membership.

_____**Renewal** ***after*** **April 1**

K	Membership Dues	
	_____Household Membership	$65.00
	_____Individual Membership	$55.00
	_____Associate Membership	$70.00
	_____Print Format Newsletters (see **I** above)	$5.00
	_____Paid Listing on CGA Website (see **J** above)	$25.00
	Total dues for this year:	_____

Today's Date:

_____

Listings on chestnutgrowers.org Grower Directory

Paid listings include a photo of you taken in your orchard/farm, your orchard name, address, phone number, email, website link, and a description of your orchard. This is a great way to make your information stand out to potential customers! Free listings include the orchard name, address, and phone number.

If purchasing a paid listing, send a high-quality photo and your written description (150-200 words) to the webmaster at chestnutgrowersofamerica@gmail.com.

Paid Listing Example

Allen Creek Farm

PO Box 841, Ridgefield, WA 98642
(Website) (Email) Phone: 360-887-3669

Planted in 1999, Allen C
customers throughout
flour and a delicious pa
are inspected annually
certificate that allows tl
WSDA is done of the co

The Youngs practice su
population and a foliar
nutrient needs of the tr
and is not a potential s

Nuts are refrigerated within 24 hours of harvest at 33° I

Curious about just how things are done? Visit our websi
trees to you. (2016)

Free Listing Examples

Chestnut Ridge of Pike County
18483 US Hwy 54
Rockport, IL 62370
217-437-4281

Thistle Creek Orchard
35 Shady Ln.
Avon, IL 61415
309-678-7216

Green Glades Chestnuts
10396 E. 1000th St.
Macomb, IL 61455
309-255-6189

Twinsholler Chestnut Orchards
1514 190th Ave.
Cameron, IL 61423
309-221-2955

Atlas Nuts
18521 US Hwy 54, Rockport, IL 62370
516-641-4513

Give your marketing a boost with a paid CGA Grower Directory listing

The online Grower Directory (www.chestnutgrowers.org/growers.html) provides a way for potential customers to look up chestnut growers in their area. An option to post a paid listing helps your orchard stand out with a photo and more detailed information. From the listing, customers can link directly to your website or contact you via email. Your renewal form includes the option for you to select a paid listing (still $25.00/year) or a free listing. CGA regularly directs outside inquiries about local chestnuts to the online directory, so this is a marketing opportunity you can't afford to miss!

Chestnut-Tahini Dip

1/2 lb fresh chestnuts
5 1/2 oz. parsnips, chopped
1 garlic clove, finely chopped
Juice of 1 lemon
4 tbsp olive oil
2 tsp ground cumin
2 tsp paprika
2 tbsp tahini
Salt

1. Boil or roast chestnuts and peel.
2. Simmer the peeled chestnuts and chopped parsnips in lightly salted water (in a medium saucepan, garlic, lemon, olive oil and spices into a food processor. for about 20 minutes. Drain, reserving 2 to 3 tablespoons of cooking liquid.
3. Tip the chestnuts, parsnips, garlic, lemon juice, olive oil and spices into a food processor. Blend until creamy. If the mixture is particularly thick, add 1 to 2 tablespoons of the cooking liquid to loosen.
4. Add the tahini. Blend again and then check the seasoning.

   Serve at room temperature. Very nice on crackers, absolutely delicious with hot sausages!

Chestnut Growers of America
2300 Bryan Park Ave.
Richmond, VA 23228

The Chestnut Grower

Winter 2023

Chinese Chestnuts Proudly Grown by Family Farmers in America's Heartland!

Prairie Grove Chestnut Growers is an association of over 60 chestnut growers from Iowa, Illinois, and Missouri!

Harvest

Our Chinese Chestnuts are harvested and brought in fresh by our growers

Cleaned + Sorted

Next, our chestnuts are cleaned, sorted by size, bagged, and refrigerated to maintain peak freshness and flavor.

(563) 260-6333

Delivered for Your Enjoyment

Lastly, our chestnuts are delivered to you and over 1,800 other happy customers across 46 states and counting. No matter how you enjoy them, our chestnuts are guaranteed to satisfy!