



CHESTNUT CHAT – Q & A
CHAT # 28: WOOD ID AND DIFFERENTIAL WOOD PROPERTIES
DATE: FRIDAY, SEPTEMBER 17, 2021

QUESTION	ASKER NAME	ANSWER(S)
On a scale of 1 to 10, with the Transgenic chestnut tree being 9.9 and the pre blight American chestnut tree being less than 1 where do the Chinese Castanea mollissima the European Castanea sativa and the B3F3 Late Generation Chestnuts Hybrids Fall?	BC	Hi BC - fall in terms of what? What scale?
Blight resistance	BC	Hi BC - We're still reviewing those numbers and performance, so I can't quite give you a definitive ranking. Stay tuned, though, because we certainly have the tests in place and should be able to give that ranking in the next 2 years or so.
Any comment on USDA getting all those computer generated anti Transgenic tree comments	Anonymous Attendee	Hi Anonymous - The USDA doesn't respond to computer-generated or "copy/paste" comments individually. Even if there are 10,000 comments, if they all say the same thing and are obvious copy/pastes, the USDA treats those all as a single comment and makes a single response. Does that help?
What is the market value for a mature Chestnut tree?	Gregg Korbon	Hi Gregg -- Boy that is a really tough one to answer! The most I've ever seen in terms of lumber is \$15/board foot. So it would depend on how big the tree is and how much lumber you could get out of it. But you could calculate that based on the diameter and merchantable height.
Was there mention of a large chestnut tree in Charlottesville?	Harry Tenney	Hi Harry - I think someone mentioned the tallest building made of wood in Charlottesville. But there are relatively large trees nearby the Charlottesville. There are some impressive specimens in the Shenandoah National Park and maybe an hour or so north of C-ville.
Hi question for Sara Fern Fitzsimmons. Do you know of any sources for recycled chestnut lumber?	John Chadwick	There are a lot of wood dealers out there that sell reclaimed chestnut. I'd suggest you do an internet search for "reclaimed chestnut lumber" and see what you can turn up in your area. If you have trouble please feel free to reach out to one of our regional staff or your local chapter.
Greg Miller mentioned the cost of removing trees from his orchards (by way of orchard management). That got me to thinking about alternatives (lemons into lemonade - right?)	Steve Johnstonbaugh	I see your follow-up with your idea - thanks!



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That classic photo of the enormous chestnut trees and the small people at its base, raises a question: did they take that picture precisely because the trees were so extraordinarily large, or were those typical of canopy trees in chestnut-dominated forests? Does anyone know of any evidence on that point?	Doug Boucher	I can't comment on the motivation for that photo, but reports of old-growth chestnut report them as quite large. In his book, Reading the Forested Landscape, Tom Wessels describes walking through mazes of blight-killed chestnut logs that were 7-8 feet in diameter in the Smokey Mountains of TN.
Sorry about my formatting goof - here's my alternative: Chestnut charcoal or pellets for the "boutique" grilling/barbecue crowd. I happened to have access to some rouged chestnut. I found the flavor and aroma to be delightful. doesn't matter if it's 'timber type' or a twisted Asian variety. That's my alternative to the 'burn pile' norm flipping a cost to revenue.	Steve Johnstonbaugh	What a great idea! Thanks so much for sharing.
Thanks	BC	
What causes the figure in tiger maple or curly maple?	Al Goetzl	Al, the figuring in all woods is a function of variability in the stem. The more variability in the stem, from branching, burling, twisting, and external impacts, the more figuring appears in the wood.
What is the microfibril angle?	Brian S	live answered
What causes heartwood to form?	Charles tarver	live answered
is sapwood different from cambium layer	Katherine Keenan	live answered
I'm curious if any of the lumber from the hybrid trees is available commercially. I wouldn't think it's very large, but I build box turkey calls, which doesn't require a very large piece in any direction and I'd love to be able to build with hybrid American chestnut (I do have some native American chestnut that I also use for box turkey calls).	Bill Ragosta	Hi Bill -- No, none of the trees have gotten quite large enough to make lumber from. BUT -- - We did get some juvenile boards from some trees out of one of our orchards, so that might happen soon. Still, there's not a whole lot of trees out there. That said, if you'd like to make some turkey calls, I'd say we could get you some culled bolts from our orchards to work with if you had a way to plane them up into boards.



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Does the tree make any effort to keeping heartwood alive? Or is that really "dead"?	Klemm	live answered
With reference to juvenile wood, is it related to the reproductive maturity of the tree? All plants have a juvenile stage in their life cycle, starting with expanding their first true leaves after germination and extending through the time when they start developing buds with flowers. This is more often recognized with trees than with herbs. Is the mature wood starting to form when the tree starts flowering and producing fruit?	Mihaly Czako, University of South Carolina	Mihaly, traditionally, juvenile wood is defined in the literature as a function of wood properties independent of tree biology. The wood quality parameters are a function of tree growth in that sector of the stem at the time of wood production. All trees have juvenile wood production over most of their lifespan...the last ten years of wood growth at the top of a one-hundred-year-old tree (where there are only ten growth rings) are juvenile wood.
Does the heartwood of chestnut get filled like white oak or stay open like red oak?	frank	Frank, the pores of chestnut (both heartwood and sapwood) do get filled to a certain degree with tyloses, though I think not quite as much as white oak. Definitely they are filled more than red oak, which stay pretty open.
If so, is it possible that in the biology of a hybrid, or a genetic variant reproductive maturity is delayed and if it is not ready flower it keeps producing juvenile wood. Conversely, rooted cuttings of mature trees will have fruit (e.g. acorns) so many years sooner than a seed grown individual and the question is if they would develop less juvenile wood?	Mihaly Czako, University of South Carolina	So I guess the answer is no. I think the production of juvenile wood, which is usually measured (subjectively) by wood fiber consistency and density change, is a function of environmental factors: growth rate, stem form, and external influences such as insects and pathogens.
how do you know if the tree had the blight before it was cut down for lumber	Russel Boyer	Hi Russel - We know the hybrids we cut down definitely had blight. We cut them down because they had blight. The Chinese and American trees, especially the older specimens, we wouldn't know that, though.
you're not boring AT ALL... THIS IS FASCINATING.	Robbie Shaw	Thanks, Robbie! Glad you're enjoying this!
How useful is density in determining species of wood?	mike aucott	Not very, Mike. The range of densities of hardwoods is wider than the range in softwoods and encompasses them. Density ranges in the same species are typically wider than



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		differences between species. Only when you were comparing two or more very distinctly different woods (ebony and balsa, for instance) would density be statistically different.
if chestnut has tyloses like oak has, and if any special observations on tyloses in chestnut wood?	Tetyana N Zhebentyayeva	live answered
Why do you think the Chinese wood looks different in color?	Derek Struble	Derek, there seem to be two key factors: the wood is brighter (greener) when it is freshly cut, and the form of the Chinese chestnut tree is quite different (shorter, more spreading) than the old forest-grown American chestnuts, which are taller and more cylindrical.
(1) Is anyone working in spalted chestnut wood and are there any differences in the cultivar? (2) Can you still spalt chestnut wood which has been dead 100 years? (3) If any work has been done, has the active fungus been identified?	Michael Ronayne	Sorry, Michael. Don't know the answer to your questions. Again, Gary Carver may be the man to ask.
What are the density units?	Clark	live answered
Did you try to color wood by growth year? It seems that the specimen to specimen color could be another way to compare. Maybe another way to ask about looking at the same thing is comparing rings of trees of the same age.	John Caruso	Well, John, we sort of tested that in the study. Wood of younger trees (juvenile wood) does tend to be lighter in color than mature wood, because the earlywood to latewood ratio is higher, therefore exhibiting more light-colored earlywood in each growth ring. We did not find significant color in mature wood, because the earlywood to latewood ratio becomes more consistent from year-to-year (about 50% earlywood, 50% darker colored latewood.)
Color Index: What is the scale being used? Is it relative to a base white balance? If it is an average of RGB values then it is more an indication of luminance, or gray value.	Steve Walker	live answered
Did you notice color differences between samples that were older than those that were younger? "Older" meaning they were cut longer ago. Does exposure to light	Sanford Sherrick Smith	Yes, Sandy, sanded surfaces tend to be lighter than aged specimens. When all specimens are freshly sanded, mature wood from all chestnuts appears to be the same color. And since unsanded old mature specimens also appear the same color between species, we can infer that the wood "ages" approximately the same.



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give chestnut lumber a different (darker?) color (like happens with Black Cherry)?		
How do you determine the color spectrum of the wood?	Anonymous Attendee	live answered
Do the different species/hybrid finish differently even though raw is similar?	frank	I have not tried finishing the wood. Gary Carver would be a great one to ask.
How many samples of each type of wood did you take? For instance, are all Juvenile Chinese the same numbers or is there variation?	Eric Massant	Hi Eric - I think Chuck is now showing the sample sizes. It's relatively small, but I know he's trying to get more samples as well.
Are we going to cover how to distinguish chestnut from oak or did I just miss it?	Terry Smith	Hi Terry - I'm afraid you missed that part. The main distinguishing feature of oak and chestnut are the very prominent rays that you can see in oak. Chestnut has rays, but they aren't as wide or noticeable to the naked eye as in oak.
trying to determine rhw usefulness of knowing all this?	Anonymous Attendee	Ha! good question. The main reasoning was to determine whether or not hybridizing an American and a Chinese chestnut was affecting wood properties. In terms of restoration of American chestnut, the question of "how much American chestnut qualities" is being retained comes in to play. this would also come in to play with Darling 58, and provide a baseline to also compare Darling 58 and ensure there's no significant difference between it and wild-type American chestnut.
Why is hybrid juvenile at the extreme end of the Chinese color range?	MDTACF TACF	The hybrids are growing in plantations at a fast rate (more earlywood, therefore lighter in color.)
(15) How did you compensate for oxidizing colors from "hidden" wood to cut wood that's been exposed to light?	William Hamersky	William, I did not compensate. Rather, I assumed the sawing and sanding process I performed in sample preparation is the same as any woodworker would perform. Therefore, I was measuring color variability just as woodworkers would see it. Will we ever know the true color of "hidden" wood? 😊



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		By the way, the exposed wood is probably more subject to color change from the friction of the sawing and sanding (accumulation of carbon on the cell walls) than from oxidization, which occurs very slowly.
I am curious as to any theory as to how the Chinese chestnut developed so differently than the American Chestnut? Many oaks for example are very similar, yet the chestnut tree varies so greatly	Harry Tenney	Don't know that one, Harry. Ask your favorite Chestnut tree scientist.
What is the biological/chemical basis of the development of wood colors? is there a correlation with level of oxidation/reduction ?	CS Kua	See 15. Above. Other than that, you'd have to refer to any wood chemistry papers in the literature that may address that topic.
I see the number of samples from each type so no need to answer my earlier question.	Eric massant	OK - thanks, Eric!
What is the x access here?	Patrick	Hi Patrick - That's Density
thank you Sara now i know	Russel Boyer	:)
What is the market value of a mature chestnut tree?	Gregg Korbon	Hi Gregg -- Boy that is a really tough one to answer! The most I've ever seen in terms of lumber is \$15/board foot. So it would depend on how big the tree is and how much lumber you could get out of it. But you could calculate that based on the diameter and merchantable height.
All the hybrids are grown in orchards. The Chinese and Americans might not be.	MDTACF TACF	Thanks for clarifying!
Thanks. That's helpful evidence on the question.	Doug Boucher	Sure thing!
This is Bruce Levine, by the way. Should have changed my zoom name.	MDTACF TACF	Got it - thanks, Bruce!



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Please send me Chuck's email paulfuge@certifiedwood.com	Paul Fuge	cdr14@psu.edu
Would love to have Chuck's whole presentation. Sorry we ran out of time. Very interesting presentation, great job Chuck. Great study.	Jim Pruett	We'll get it posted on our website w/in the next week or so: https://acf.org/resources/chestnut-chat-series/
Thank you.	Mihaly Czako, University of South Carolina	Thanks for joining us!
what's burning in the fireplace?	MDTACF TACF	Oak and black locust, whenever possible.

