



CHESTNUT CHAT – Q & A
CHAT IV: MEADOWVIEW RESEARCH FARMS
DATE: MAY 5, 2020

QUESTION	ASKER NAME	ANSWER(S)
What's the website address	Anonymous Attendee	<p>About Meadowview Research Farms: https://www.acf.org/about-us/meadowview-research-farm/ TACF's 3BUR Approach: https://www.acf.org/science-strategies/3bur/ CBS This Morning features story about American chestnut restoration and the work at Meadowview: https://youtu.be/-4yHysNph5U Recorded versions of all Chestnut Chats to date can be found here: https://www.acf.org/resources/chestnut-chat-series/</p>
What can the public do to help with the restoration besides giving money?	Anonymous Attendee	<p>live answered: Find and report wild trees through our tree locator program, participate in outreach events, and/or host or help out at one of our orchards. Reach out if you'd like to help - we're happy to find a way for anyone interested to participate!</p>
Is Lawson bag company out of business	Anonymous Attendee	<p>http://www.lawsonbags.com/ I don't know if they are still operating or not but can't hurt to give them a call.</p> <p>Another purveyor of pollination bags is Seedburo: https://seedburo.com/collections/pollination-bags-tools-and-apron</p>
Hi Folks, Please include in your report your plans this summer for control-pollinating some of your wild-type American chestnuts with transgenic pollen. Thanks.	Tom Klak	



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How does TACF log and manage the location of Native American Chestnut Trees throughout the NE USA? Do you have a computer data base? Do you have a graphical map system?	Jack Morris	<p>Hi Jack - We use a couple of different systems to log these trees. The first is a Tree Locator Form program which is described in detail here: https://www.acf.org/resources/identification/</p> <p>We also partner with a mobile app called "TreeSnap" which can be used from any Apple or Android mobile device: https://treesnap.org/</p> <p>The maps/coordinates are the most vital piece of information for tracking these trees, after getting as definitive as possible identification of the tree as an American chestnut.</p>
Meadowview: Will your program result in a full sized tree like the USA once had?	Stout's	live answered: We hope so! Blight-resistance is our first priority but of course American chestnut form and function goes hand in hand with a successful restoration for the species.



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<p>Can the blight resistance being bred (backcrossed) into the generations of trees at Meadowview be COMBINED with the blight tolerance of the wheat gene being inserted in the Darling 58 by crossing them, or will these efforts remain separate? I'm wondering if the blight resistance characteristic combined with the blight tolerance characteristic represents a potentially powerful advantage without losing any of the original American Chestnut characteristics. I understand this couldn't happen before Darling 58 approvals and I intend to provide public comment when the opportunity affords itself.</p>	Evan Fox	live answered
<p>Is there a way to find Native American Chestnuts from the Tree Locator program? Is there access to a map of or coordinates of their location by state, specifically Maine?</p>	John Correa	Most of the trees reported are on private property so we do not publish locations to protect submitter's privacy. TACF maintains an inventory of all reported wild trees and uses them as appropriate in our programs.
<p>Are all the trees that Eric showed in the orchard Restoration 1.0?</p>	David Hunter	live answered
<p>Wonderful photos!</p>	Yvonne Federowicz	Thanks Yvonne! :)
<p>how many strains of the blight are there? I have heard hypovirulence has not taken off here because there are so many strains of blight. when you test trees do you test against multiple strains of blight? are all trees equally resistant to all strains of the blight?</p>	frank1	



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Eric mentioned lots of genes for resistance, but I think GMO talk mentioned inserting only one gene. Clarify?	Allen Clark	live answered
What level of disease resistance are the seedlings that I receive from TACF each spring? What is the average life-span of these trees after reaching maturity?	Alex	live answered
What is the typical time line from inoculation/infection (for a Tree susceptible to the blight) to the point where the tree has succumbed to the blight?	Jack Morris	live answered
So you do have a zero, few (or lots?) of 100% resistant Am chestnuts ?	William Hamersky	live answered
Assuming that the government has approved transgenics, you have transgenic pollen and flowers are ready for pollination---what would do next?	warren	live answered
Lac balsam is a pretty good sealant. We use it sometimes in bonsai.	Chris	ok great - thanks for the tip!
Is culling solely based on blight resistance, or do you cull trees based on phenotype, e.g. branchy growth habit vs. timber type growth?	Mike Aucott	live answered



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<p>Isabel Wacker - How long can you grow your seedlings in the pots I saw in your greenhouse. I planted my seeds in these pots. They are very happy growing on my roof in Brooklyn but I will eventually plant them in Maine - once I can travel there. I can put them in bigger tree pots, if necessary but am concerned about transplanting them a lot.</p> <p>Also - the TACF fact sheet says I should eventually remove the nut - how long do you wait before you do that?</p>	Isabel Wacker	<p>It depends on the size pot. For out-planting the same season, they should be fine in D-40's (the size used in the greenhouse photo). As long as the pot is nice and deep, the tree will be happy enough, though will certainly need more water as it grows larger.</p> <p>Removal of the nut from the base really only needs to be done before out-planting because it can attract wildlife. If the seedling is in a pot for a few months the remnant nut may just fall off.</p>
<p>Not a ? but a comment, whatever changed in seed prep/storage last year, keep doing it! 36/54 nuts sprouted for me this year vs. something like 6/32 a year ago and similar results to that several years previously.</p>	John Hempel	<p>Thanks John - glad you had such good germination! We've heard that from a few long-term folks :)</p>
<p>Are you studying hypovirulence and why it spreads naturally in European chestnuts but not American?</p>	Gene	<p>Most of this research has been done at West Virginia University, one of our partners.</p>
<p>What is a transgenic tree? Thanks.</p>	Tom Mills	<p>live answered : A chestnut that has been genetically transformed - https://www.esf.edu/chestnut/</p> <p>Also see last week's chestnut chat</p>
<p>Re: gene insertion. It was my understanding that the gene conferring resistance does not come from the Chinese chestnuts. Is that true?</p>	Charles Eubanks	<p>live answered</p>

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Lac Balsam is compounded in Germany claiming to be a "better" wound sealant than asphalt based compounds. Lac Balsam claims to enhance/speed up wound callus growth. It's easy to work with. I'm experimenting with it now. It is available in US through arborist supply outfits.	Steve Johnstonbaugh	ok - great - thanks for the info!
How many genes control the overall height and stature of the American chestnut vs the Chinese chestnut?	Brad Johnson	Many many many! Too many to count, probably.
When you rogue out trees, do you lose some of the American qualities at the expense of blight resistance, and open the door to more mollissima type morphology when they are growing in the wild and not constantly cultured by scientists.	Ken	
?	Ken	
How long does take to determine if a crossed tree has improved immunity and how do you measure the improved response?	Dan burnes	<p>live answered: Small stem assays can be done as a first pass assessment when the trees are a few months old. In the seed orchards we grow the trees to 1" diameter before conducting stem inoculations.</p> <p>Genotyping of leaves can be done with very young leaf tissue, but the lab process takes some time and the prediction models are still being improved.</p>

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Sara you have a cute assistant. the statement was made that resistance in Chinese chestnut is on multiple genes. there supposedly are some pure American chestnuts have some resistance. do you know anything about the number of genes or anything about what gives them this resistant?	frank1	
I have seen information about butterflies being damaged by transgenic pollen, would this not also possibly interfere with other natural processes?	Faye Henry	Have not seen this as a concern for the transgenic chestnut. Many environmental interactions have been investigated by SUNY-ESF: https://www.esf.edu/chestnut/poster.htm
I'm new to the ACF in that this is my first webinar. I have been interested in the American Chestnut for many years and although not a member of the ACF I very much support your efforts. WHAT IS THE MODE OF INFECTION? I.e., how does the fungus enter and attack the tree?	John Babb	Chestnut blight attacks the cambial tissue, just below the bark, and forms girdling cankers. The fungus enters through wounds - either natural cracks in the bark or wounds from damage or wildlife. Spores are spread by the wind on wildlife, depending on the spore type.
And re. the transgenic effort, it might be useful to mention that there is an extraordinarily impressive ~197pg document that will be publicly available once the public comments period begins. And also that dentata itself has a gene that is something like 80% identical to the wheat gene, but which seems to be inactive.	John Hempel	Thanks John :)



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<p>I'm brand new to this, so everything I can learn is great for me!</p> <p>I have about 10 seed that have sprouted. They are very small now. I am concerned about transplanting them outside and the winters are cold in Unity, Maine. I am thinking of planting them out in my garden this summer and keeping them in burlap balls over the winter and maybe even next summer before I subject them to the "field". Do you have suggestions as to how I might approach this?</p> <p>Thanks!</p>	Barry	<p>Chestnuts should be just fine in Unity, in fact we have several plantings in the area and with Unity College. We often direct-seed in larger field plantings and have successful plantings as far north as Hartland and Etna/Newport area. You should be fine to harden off this spring and then out-plant after the risk of frost. I'm the science coordinator for New England though - feel free to drop me a line if you have questions: kendra.collins@acf.org</p>
<p>have you grown Am chestnuts nuts in a high light then planted in the field.</p>	RobertNClark	
<p>Why do you backcross, isn't that something you would do with corn? Why not just breed straight Americans a</p>	Ken	<p>Backcrossing is a crop-breeding technique and was used to incorporate blight-resistance genes from Chinese chestnut into the American chestnut.</p>
<p>Where can I find more information on the practical applied restoration plan for bringing the American chestnut back to forest? I can only find info on breeding and research.</p>	Leslie Bost	<p>This is a start: https://www.acf.org/science-strategies/restoration/</p> <p>And we plan on having a restoration webinar soon as well.</p>
<p>To my knowledge, in my SW Ohio county where I am unaware of any other chestnut growth, if I plant 100% American Chestnuts in the forest on my farm, how long would they likely live before the blight strikes?</p>	Alex	
<p>Do you spray for insects? Any special fertilization procedures?</p>	Mike Aucott	live answered



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What rough percentage of small stem assays survive to be planted out?	Steve Johnstonbaugh	It depends on the trees being tested and the threshold for resistance for a given breeding generation.
How big is the largest hybrid on the farm? How old is it?	Ken	live answered
Do you use Roundup in the orchards?	John Correa	live answered
N-P-K of your osmocote?	Steve Johnstonbaugh	
How much weed control do you do for field planted trees?	Scott Laseter	
Japanese beetle spray? Which	Anonymous Attendee	live answered
gull wasp?...	Tom Wrasse	live answered
Just curious about any treatment for the fungus if you have a "large" tree whose canker is growing?	William Hamersky	mud packing the canker would be your best option. It was discussed earlier and there was an article in a somewhat recent issue of our magazine
So bottom line, when should we start planting tree in earnest? It sounds like "the perfect tree" doesn't yet exist.	Jim Stewart	live answered
1. Has the genome of the Chinese & American Chestnut been worked out?	John Babb	
If the transgenic American chestnut becomes deregulated, how would this change the work done on the farm? Would the growing process change? The type of research done?	Thomas Bertorelli	



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2. Has gene splicing been done?	John Babb	Sort of - check out the webinar from last week's chestnut chat: https://www.acf.org/resources/chestnut-chat-series/
Kendra, Thank you so much for the response to my question! Barry	Barry	Sure thing!

