



CHESTNUT CHAT – Q & A
CHAT # 23: CRUDDY BARK AND THE COMPLEX WORLD OF BLIGHT CANKERS
DATE: FRIDAY, APRIL 16, 2021

Q#	QUESTION	ASKER NAME	ANSWER(S)
1.	If you have cruddy bark dirt and bark can you store it in a dirt pile under leaves until ready for use or will the spores not stay alive? Do you need new spores off of a cruddy tree.	Anonymous Attendee	When you do mudpacks, you use soil around the base. That then gets sealed off with plastic wrap. Probably will be fine just the way it is without any special storage protocol.
2.	how did the chestnut blight get to the USA	Russel Boyer	Hi Russel - it hitchiked in on Japanese chestnuts when those were being imported, primarily in the 1800s. Additional forms of the fungus were then imported when Chinese chestnuts were brought over in the early 1910s and 1920s as a replacement for the American chestnut.
3.	Has anyone ever experimented with grafting on sections of bark from blight resistant trees onto sections of trees that do have the blight	Thomas Levesque	live answered
4.	Has anyone ever experimented with growing fungus resistant herbs like oregano or creeping thyme around American Chestnuts to see if it might help with blight resistance?	Thomas Levesque	live answered
5.	Have there been any experiments with various fungicides and/or various application techniques to prevent or cure chestnut blight?	Thomas Levesque	live answered
6.	I have approx. a dozen American Chestnuts planted from 2 different plantings starting in 2008. Last year several of them exhibited the cankers. Is it prudent to cut these down?	roland	live answered
7.	I live in a red clay area. Clay has a long history of uses for medicinal uses. Has anyone tried coating the fungus with a thick clay cap?	john-paulmartin	live answered
8.	Any idea of the population of the blight fungus in forests today where there are limited or missing populations of chestnut but probably some scarlet oak, post oak, sumac or other trees that might harbor the fungus but might not support much if any fungus sporulation?	Mike Aucott	live answered
9.	Are the sexual and asexual parts of the life cycle produced at different times of the year?	Brendan	live answered



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10.	how fast does fungus grow? is it possible for a chestnut to grow faster than fungus?	Bernie and Frank	While chestnut can grow pretty fast, I have never seen it grow faster than a blight canker. Certainly the larger the tree, the longer it takes the fungal canker to girdle the stem. But as the tree persists with a canker is it also stressed and putting less resources into diameter growth.
11.	the chestnut blight can grow on oak? does hypovirulence also occur on oak?	Bernie and Frank	live answered
12.	once the tree is treated, is it systemic for that tree or just for the treated canker	Brendan	Hi Brendan - I can answer that one - It is not systemic. You have to treat all individual cankers. Sometimes the hypovirus can spread to other cankers, but it doesn't always, and it's even more difficult to get the virus to move to other trees.
13.	How did the blight spread so fast in all directions.?	gritter	Chestnut blight spreads with two types of spores. One can spread extensively on the wind, and the other is larger and sticky and can hitch a ride on wildlife.
14.	Are there any efforts to engineer super donor hypovirulent strains that can spread via spores instead of mycelia? Are multiple genotypes/strains of <i>C. parasitica</i> being attempted to engineer into super donors or are they all clonal?	Erik Carlson	live answered
15.	Has anyone experimented with parasitical mushrooms like lobster mushrooms which grow only on other mushrooms to see if it might overtake the chestnut blight fungus?	Thomas Levesque	live answered
16.	Can pure virus - free of fungus - be isolated? If so, will free virus infect the blight fungus. Is infection by the free virus dependent on compatibility type? Or is viral transmission solely via cell-to-cell contact?	Kent Wilcox	live answered
17.	Mammal person here: what would happen if you approached this like a tumor + skin grafts? E.g. cut out blight-affected bark, sanitize the site somehow, cut smaller strips of healthy bark from elsewhere on the tree,	Emma Ehrlich	live answered:



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	and use them to patch the hole? Would the canker just come back because sterilization isn't possible?		You can treat infected areas with mud packing and bridge grafts and inarch grafts serve to reconnect roots with higher stems"
18.	Is there any know relationship between "Oak Wilt" and the presence of Chesnut trees? Do you advise against adding chestnuts to the urban camopy so as to protect the existing oak population?	Steve Johnstonbaugh	"Hey Steve - FYI, the first people I reached out to re: oak wilt was Mark and Bill MacDonald, also here. I will send you and Danielle all that info. As we discussed the other day, their conclusion is, no, there is no threat to oaks via oak wilt by American chestnuts.
19.	Have there been any experiments with watering the tree with various fungi, bacteria or other materials to see if it might boost resistance to chestnut blight? Anything encouraging?	Thomas Levesque	live answered
20.	Which TACF State Chapters are working with hypovirulent?	Roger Willby	Hi Roger - as far as I know, the main cooperators working with hypovirus have been academic insitutions at this point. I believe the MD Chapter has a more developed program and some chpter members have partnered directly with university partners to work with hypovirus at targeted sites.
21.	Can I get an email address for Dr. Gary Griffin?	Thomas Levesque	You should be able to contact him through the American Chestnut Cooperators Foundation: https://www.accf-online.org/
22.	Has anyone cultured mud-packed cankers to see if a particular species of fungus is competing with the blight fungus?	Jack Swatt	live answered
23.	We've heard in your talk that a dead branch is a good location for the entrance of c. parasitica into xylem/phloem. What is your opinion about early removal of the dead branch followed by an application of something like Lac Balsam to seal the wound.	Steve Johnstonbaugh	live answered
24.	Bandage the wound with epoxy after surgery?	Emma Ehrlich	live answered
25.	Mark seems to get along with Gary Griffin. Can he talk him into a chestnut chat?	Anonymous Attendee	We can certainly look into that - thanks!



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26.	Are there PCR primers known to distinguish the various fungi involved? references?	dansullivan	live answered
27.	On one of the slides you had penicillin growing, did you test the liquid surrounding the culture to test if the liquid affected the fungus and virus?	john-paulmartin	No, that is not a study we have completed at this point in time.
28.	What would be the negative side effects of trying to douse all of the Chestnut blight with the Trichoderma? If the Trichoderma could out compete it?	Ashley Davies	live answered
29.	Observation: You had white, orange and green. Is mother nature providing the solution to the infection by introducing different players in the infection of the chestnut tree and therefore if we introduce different fungi and viruses could we inevitably find a cure?	john-paulmartin	live answered
30.	I have a confirmed american chestnut, 7" dbh, about 35 feet tall, no signs of any cankers and producing non pollinated nuts every year. what is the likelihood tha a tree survives that long in a blight area without getting infected, or is there something else going on with this tree?	Brendan	<p>"Hi Brendan - Sorry to say that this happens somewhat often. 99.9% of the time, the tree is living due only to luck. We have seen trees as large at 18"" - 36"" in DBH. Trees that live for decades, even in close proximity to other blighted stems. But as soon as they get infected, they die within a year, or a short handful of years. There is a small number of wild-type American chestnut trees, less than 100 probably?, which actually have any resistance which could be usable/heritable.</p> <p>Thanks for the confirmation, it is what I expected. The local chapter is engaged and will likely be preserving the genetics of the tree this year."</p>
31.	Are there any government restrictions on us using hypovirulence?	Roger Willby	As far as I know, hypovirulent blight strains are not restricted. The Super Donor strains however do require permitting at this point. The developers are working with USDA/APHIS to determine the best approach to permitting and making it more widely available.



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32.	Your slide listed several strategies for recovering chestnuts. What about the breeders who are raising multiple generations of pure American chestnuts with improving survival each generation indicating the development of natural resistance in 100% American chestnuts?	janisboury	Hi Janis - that is implicit in the 3BUR strategy. "Breeding" is one of our B's and includes using wild-type American chestnuts which have resistance. There are very few of these, and it appears as though that resistance will not match that of Chinese chestnut or of that conferred by transgenes, but it's certainly a viable strategy to be applied within the multitude of methodologies for restoration.
33.	To Brendan: This is just a suggestion: What is the predominant air flow and wind direction coming from? Look in that direction for what trees are living there for several miles. Perhaps, the tree is in an area that does not receive spores? I grow chestnuts in a pot. I produced 4 viable burs on a 4 yr. old tree. I too have not seen any infection signs yet.	john-paulmartin	"live answered thanks! It's on the border of a parking lot, I'll check on the predominant wind."
34.	How do you know if any of these fungi are infected with viruses?	Gail H	live answered
35.	Is anybody working on bacterial / fungal interactions on the agar? Considering we get most of our antibiotics from fungi, this suggests these two different clades may regulate each other effectively.	Owner	live answered
36.	Not urgent Q, but I'm wondering whether what you are learning about fungi could be applicable to curbing Sycamore anthracnose? The Sycamore pathogen is <i>Apiognomonia veneta</i> .	Fairfax Hutter	I'm honestly not sure. Here's a fairly current resource on treatment: https://ag.umass.edu/landscape/fact-sheets/sycamore-anthracnose
37.	Anyone try injecting various material under the bark to test for fungus reduction.	Thomas Levesque	live answered
38.	Has anyone looked to see if the endophytes produce volatile compounds that limit the growth of Chestnut Blight?	Daniel Schadler	Once we have identified some potential endophytes, it would be a good study to do.
39.	In Florida we have an orange blight that effects post oaks , can chestnut blight mate with that	Anthony Chechile	live answered



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40.	Have you tried colloidal silver solution by puring it around the root base to be absorbed into the tree?	john-paulmartin	live answered
41.	How about injecting fungal competitors underneath the bark?	Emma Ehrlich	live answered
42.	Could seedlings be preinfected with a mix slurry of hypovirulent spores so the tree can grow with it as it gets older	Anthony Chechile	The study has not been done, but it is on our list of ideas to try.
43.	For the compatible hypovirulent cankers, how long do they last or do they break down over time?	Stacy Clark	live answered
44.	Have you done spore samples on oaks	Anthony Chechile	live answered
45.	Does the age of the tree effect(ie young vs old) the tree susceptibility to the blight?	Carl & Wendy Good	Not really - chestnut trees are susceptible at any age. Because the blight needs a vector to get under the bark, younger trees tend to avoid infection for the first few years. Often bark cracks, branch unions, or wounds are places for blight to enter. So the older the tree gets, the better the chance it will get infected. But it can attack at any time.
46.	What oxygen reduction therapies have been tried to affect the chestnut blight fungus under the bark.	Thomas Levesque	live answered
47.	Should you do a soil preparation on a new planting to help reduce risk of fungus infiltration. I will plant three groups next month in Austin, Potter County PA. I want to give the new saplings a higher chance of longterm survival	Jenna Meyer	"Jenna, We have a group in Potter Co that would be interested in what you are doing. Can we communicate with you on a local basis? Thanks. Chad Jestes for North Central Forest Landowners Assoc. jesteschad@yahoo.com I am not aware of anything you can do in terms of site prep to protect trees from blight. The fungus spreads above ground via spores. That said, the trees will do the best on a good chestnut site. So whatever you can do in terms of picking an appropriate site and following planting recommendations will give the trees a good start.



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			I think there are some things you could do to delay blight infection like planting in areas with no native sprouts, but eventually the blight will get to them.
48.	Greg Miller has	Anthony Chechile	live answered
49.	Laurel - do any of your fungal isolates outcompete growth of <i>C. parasitica</i> ?	Kent Wilcox	We have not reached a point yet of doing competition assays in the lab. It is definitely on our list of experiments to work on once we finish compiling our list.
50.	I can send you post oaks with orange spores from Florida	Anthony Chechile	live answered
51.	this is for Laurel. i like the direction you are going. my comment is that we have spent a lot of time walking our woods. the visible flora and fauna is significantly different in areas that were once cleared for field compared to areas never cleared. i assume there is substantial difference in microbiome as well. orchards are almost biological deserts compared to a forest. how would you expect results to change in a real world forest with substantial diversity.	Bernie and Frank	I do think that site to site will have variation. One of the orchards we harvested from is right up against a forest, it is likely to have different fungi compared to trees surrounded by open fields.
52.	Is ther an upper temperature that will kill chestnut blight?	Tom	live answered
53.	Has anyone used bees wax to seal wounds after trimming? The reason I ask is that rabbits have eatten the bark on my new apple tree. I made a solution of honey and water 3:1, and brushed it on the wounds. Then I covered the bark with a bees a wax bandage to keep the bark from drying out the remaining cambium layers.	john-paulmartin	live answered
54.	I may have West Virginia state champion	Anthony Chechile	Excellent! If you haven't yet, Tom Saielli would be happy to recieve a Tree Locator Form and sample for ID. Form and sampling instructions can be found here: https://acf.org/resources/identification/



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55.	Someone should clarify that “chestnut blight” is the name of the disease but Cryphonectria parasitica is the name of the pathogen, only one component of the disease!!! The terms are not interchangeable. Today’s Plant Pathology 101 lesson	williammacdonald	live answered
56.	I know of a seeminly "immune" pure American that has a rotting woodpile at it's base. All around are chestnut tree "shrubs" and "bushes" loaded with blight. But the immune tree is a slingle trunker, unaffected by blight. My observation is that the rotting wood pile at the base of tree has had a beneficial affect completely displacing the blight fungus leaving an intact lovely tree without infection. Is this seen by others?	Mark Meehl	live answered
57.	How about using a using a spray program of competing fungi spore mix prior to infection by blight fungus to establish a large population of competing fungi as a prophlaxis to ward of infection before it happens?	Jim English	live answered
58.	Spencer ,West Virginia has a tree close to 90' - 100' that we need to check ! It has hypo infection that blew out the leader but healed . Top has one dead branch. Tall straight	Anthony Chechile	"Sounds lovely! Please see previous response re: sampling and reporting to get this tree on our radar. Thanks! https://acf.org/resources/identification/ "
59.	Is there anyone from TACF who could help us in ME save a few infected chestnut trees with hypovirulence?	Roger Willby	Roger - we can certainly look into it. I believe Tom at UNE and Mark worked together on some of this already. Let's touch base off-line re: which trees you are thinking of and what the next steps would need to be. Thanks!
60.	HV has limited ability to spread within a tree and no ability to spread between trees. So, where does it come from and how does it survive in nature?	Carl Absher	live answered
61.	"Is anybody working on bacterial / fungal interactions on the agar? Considering we get most of our antibiotics from fungi, this suggests these two different clades may regulate each other effectively.	Tim Eck	Live answered



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62.	what is the driving force between development of new compatibility types? do some compatibility types exhibit positive survivability of the fungus compared to others? what is the risk for introducing new compatibility types to Europe?	Brendan	"live answered There are strong plant quarantine measures for introductions of Castanea species Ursula, Switzerland"
63.	Is there any progress on a universal hypovirulence strain?	janisboury	"I think they said there is a universal donor strain that is developed, but it is regulated. Correct. There is a ""Super Donor"" strain that has been developed, but it has knocked out genes to get around vegetative compatibility issues and is currently regulated. The developers are working with USDA/APHIS to determine how to make that more widely available."
64.	I've used clay	Anthony Chechile	live answered
65.	We use systemic antibiotics for internal disease in humans. Any chance we could do that with Chestnuts? Something that will get into the cambium and kills the fungus or stop it there?	Ashley Davies	
66.	why does the blight have so much genetic variation here compared to europe? why is the blight not evolving in europe to evade virus?	Bernie and Frank	"live answered I believe it's because we have so many species here . I may be wrong
67.	If most infections start from the basal , why not preinfect all seedlings with don hypo slurry	Anthony Chechile	
68.	Would it be best to keep the blight alone so hypo spores can become available sooner	Anthony Chechile	
69.	Most chickens these days get vaccinated in ovo. Could a chestnut get re-microbiome'd while it's still a nut?	Emma Ehrlich	They have done it with pine trees in at least one study. So it is worth trying with chestnuts.
70.	Thank you all.	janisboury	Thank YOU!
71.	Thankyou	Anthony Chechile	Thanks for joining us!



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72.	My Chestnuts in the Upper Peninsula of Michigan are growing in close proximity to Hemlocks. Hemlocks provide an umbrella over the forest. Is it assumed that the umbrella affect is what provides protection or might it be something else in the Hemlock that provides protection?	Pat Peterson	Live answered
73.	Thanks!	john-paulmartin	Sure thing!
74.	Thank you !	Dan Williams	Thanks for joining us!

