RE: Deregulation of the Blight-Resistant Darling 58 (D58) American Chestnut
Federal Register: Docket No. APHIS-2020-0030, Regulatory Analysis and Development
Date Submitted: October 19, 2020 at 11:55pm EDT

Indigenous Environmental Network
Save Our Roots; Stop GE Trees on Indigenous Lands

RE: Deregulation of the Blight-Resistant Darling 58 (D58) American Chestnut
Federal Register: Docket No. APHIS-2020-0030, Regulatory Analysis and Development
Date Submitted: October 19, 2020

Introduction

The GE American chestnut tree has been called a "test case" by representatives of the timber and biotechnology industries who are using the nostalgia of this tree to evade public opposition and open the door for approval of other genetically engineered tree species.

If approved, the GE American chestnut tree (GEAC) would be the first genetically modified organism released with the intention of spreading into the wild. The Indigenous elders and community peoples who we've consulted with have expressed concern that this and each successive step taken toward genetically altering the building blocks of life (DNA), by unnaturally combining DNA from totally unrelated organisms is not the way to right the wrongs that to date humans have caused. They are opposed to genetically engineering plants, animals, naturally occurring organisms that are not found in nature and in so doing, is dangerous at best and catastrophic in the long run.

Every step taken in this direction has the potential to further threaten the earth's delicate biodiversity that continues to be weakened by unchecked natural resource exploitation and a radically changing climate. The formal request for deregulation will allow the release of genetically engineered trees into wild environments which is a direct violation of the Rights of Nature (Attachment 1).

Although the petitioners state this work is for the restoration of the American chestnut tree and not for profit, it has been publicly stated (Powell and Maynard) that public acceptance of this tree will lead to genetic engineering to save the forests from the ravages of climate change and to combat pest and pathogens damaging other forest trees. And by the petitioners own admission this is a first step with many more alterations like this to follow for the GEAC Darling 58 tree variant.

Further, this deregulation request follows on the heels of the biotech and forest industry's efforts to win approval for the GE freeze-tolerant eucalyptus to be produced in monoculture plantations in the U.S. Southeast for biomass energy production and the loblolly pine for pulp and lumber which is clearly leading to approval for the commodification of nature for commercial applications.

Humans did not create the web of life nor do humans have the knowledge, wisdom, or moral imperative to continue down this path by attempting, in this case, to alter the biological makeup of forest ecosystems. There is a deep complexity to how every organism, plant, and animal contributes to these unique systems, of which, humans know little to nothing about in the grand scheme of the natural world.

Nothing in this world lives in isolation, and the creators of this new tree variant with foreign DNA unnaturally added to its original genetic makeup, are proposing to use our forests in an experiment with varying degrees of uncertainty as to the outcomes. We also risk unleashing countless new and potentially catastrophic interactions with virtually unknown results.

As Indigenous Peoples we are bound by our knowledge to revere, celebrate, and respect this complexity as sacred. Humans are just one part of this web but we also inherently know if we exploit the elements of biodiversity, that we depend on to survive, it is within our power to destroy it and as such we destroy ourselves.

Human knowledge is currently limited to the bits and pieces of biological interactions and there is overwhelming evidence shown in the results of what can happen in controlled agricultural systems from actions based on little more than assumptions - how pests, pathogens, and plants are able to evolve in their own defense and overcome human efforts to irradicate or alter lifeforms to serve purely human desires.

USDA-APHIS's decision will impact Indigenous peoples in regard to cultural, spiritual, and self-determination of their territories. Therefore, the request for deregulation of the genetically engineered Darling58 American chestnut tree precipitates that Free, Prior and Informed Consent (FPIC) must be caried out before a final decision is made.

Today, there remain large areas of traditional and treaty lands on which much is forested and managed as sovereign territory of many different Native American Peoples. These forests are not only a source of economic self-determination but hold great cultural significance to include sacred sites where the trees are an element of sustenance, knowledge and familial identity. Every living being within the forests are related in some form and nothing within these lands lives in isolation, therefore changing or altering the original instructions of any one or any part of these elements threatens the natural order established over millennia.

And now we are facing the threat of how an unregulated distribution of a genetically engineered tree will violate our sovereign right to protect our territories from this potential threat. If released, as planned, genetically engineered American chestnuts will spread uncontrolled and will not respect territorial borders. (Pg. 189, Petition for Deregulation)

Granting nonregulated status to Darling 58 GE trees without direct and full consultation will ignore our rights of Indigenous self-determination and the Rights of Nature (Attachment 1) to thrive within the balance of interactions that has been naturally evolving and thriving since the beginning of Creation.

The opposition we file in response to the request for deregulation of Darling58 GE American chestnut tree and its progeny in all its forms to include possible variants and positions in the

chromosome with the OxO wheat gene, marker gene, and wound insertion is fully predicated on a long list of questions, lack of data, and related evidence. This evidence includes facts based on documented outcomes that genetic engineering over the decades in relatively controlled environments has proven to be unpredictable and has caused more negative and unintended consequences than these actions have been beneficial.

In addition, we do not know how genetically engineered trees might behave in diverse and in an ever changing context of natural forests over long periods of time. There is no conclusive evidence of efficacy and the risk of negative consequences to our native forest ecosystems will continue for decades if this deregulation is granted.

Points of Opposition:

The American chestnut tree has been functionally extinct for decades and to assume that allowing this genetically altered Darling 58 variant of an American chestnut tree will result in any advantage ecologically, agriculturally, or as it once was, a significant source of timber is an illusion – a well-crafted, yet false assumption used to influence public acceptance of additional attempts to genetically engineer our wild forests.

It is falsely presumptive that a single gene construct, the oxalate oxidase enzyme (OxO) from wheat, and is highly unlikely based on studies and documented outcomes to be effective on its own in conferring durable blight resistance. The outcomes have shown that engineering resistance to one pathogen, often leaves plants more susceptible to other pathogens or stresses, or reduces plant growth significantly and over time pathogen resistance becomes less effective or not effective at all.

Pathogens adapt over time and in successive generations often become more virulent and require more aggressive response, which negates any positive outcomes and/or has more negative and damaging consequences than the original pathogen caused in the first place. With this limited or non-existent success with fungal pathogens in seasonal crops of commonly cultivated plants, it would indicate that it is a remote possibility that long-lived wild trees would benefit from the genetic engineering of a fungal pathogen in the long run.

In regard to the issue of Free Prior and Informed Consent as noted in the Introduction, we emphasize there must be full consultation with all Indigenous Peoples in the geographical range where these trees are proposed to be located. *As with general public opinion surveys (Section 11.4.4), two recent articles focused on Haudenosaunee people in New York have reported a range of responses to chestnut restoration, including both acceptance and skepticism regarding transgenic trees, skepticism about planting or breeding with non-native chestnuts, and concern about active restoration efforts in general. (Barnhill-Dilling and Delborne, 2019; Rosen, 2019 – Attachment 2).*

In addition to the preceding paragraph: "…the potential for transgenic material to move across sovereign borders of federally recognized tribal territories represent a distinct possibility. The GEAC [Darling 58 GE American chestnut] has the potential to fundamentally reshape the shared environment, and thus calls for deliberative and inclusive decision-making in shared environments." (Jasanoff, Hurlbut, and Saha2015).

The American Chestnut Foundation, (whose national headquarters is located in Asheville, NC), in October 2020, initiated a Memorandum of Understanding (MOU) with the Eastern Band of Cherokee Indians Tribal Council to establish the Darling 58 GE trees in a location where they will be cross pollinated within a grove of American chestnut survivor trees. This grove of survivor trees have continued to grow from long-blighted stumps that flower but do not mature long enough to produce nuts. However it appears the TACF, nor the petitioners have been fully transparent with the Council nor the Cherokee People, as observed in an article published in the tribes newspaper, the Cherokee One Feather, October 14, 2020 issue, here: https://www.theonefeather.com/2020/10/mann-seeks-ebcis-help-in-american-chestnut-tree-preservation/ (Attachment 3).

> *Quote from article linked above and attached: "It's a genetically-modified tree. When you start using that word it scares people. The way it's genetically-modified is they take an American chestnut tree and an Asian chestnut tree, and they cross-pollinate them in a lab. And in the midst of that they inject wheat gene into the tree, and that is like an immune system booster, like a flu shot. It can combat the blight. When you do that you have to take soil from this area … and you can get it to adapt in a lab. 50% of those chestnuts that tree drops within three to five years when it starts to mature, those chestnuts will be impervious to the blight," said Varnadore."*

This quote offers a largely false overview of this proposed project as a whole and indicates that there is a significant lack of transparency. This article and statements within this initial introduction to this proposal does not provide the Cherokee Peoples factual information in order to make an informed decision whether to support this petition (which they ask for in this article) and is a request based on personal opinion/perspective. The TACF's public request does not provide a comprehensive review or outline for the Cherokee Peoples to approve the MOU that will allow the planting of the Darling 58 GE tree and its progeny into the forest of their treaty lands. A full consultation would include details of what may or may not transpire during this largely experimental project.

There are many questions that the petitioners must respond - to include all the data, time-frames, and the questions contained in this response that are a matter of concern before an MOU is ratified by the Tribal Council and/or its representatives.

Additionally, the EBCI Tribal Council, in the fall of 2014, unanimously ratified a resolution to protect their forests from genetically engineered trees. A copy of this resolution can be found in the EBCI Tribal Office of Records and provided to the USDA-APHIS once the Covid-19 quarantine and stay at home order is lifted. Therefore, the proposed partnership between the EBCI and The American Chestnut Foundation should be considered moot. However, if the resolution is not honored by the current Tribal Council, there are other details and questions that become relevant and actionable – to include the denial of deregulation and the issue of cross border contamination.

The research on the D58 American chestnut tree has occurred against a backdrop of efforts by many other researchers to genetically engineer agricultural crop plants to be resistant to viral,

bacterial and fungal pathogens. However, successful engineering of pathogen resistance has been remarkably elusive. Additionally, the response to our questions by the petitioners have resulted in responses that are patronizing at best with oversimplified processes of what is involved in engineering pathogen resistance.

Adding another point of order in regard to FPIC during the SUNY research and development of the GE American chestnut:

> *Additionally, that field sites have already been planted without consultation reinforces unease and reflects a lack of deliberation around field trial permits for designed to spread genetically engineered organisms (see Kolopack and Lavery2017). There was no mechanism for consultation with any community for field trials, some of which are approximately three miles from the border of Onondaga Nation. When talking about the transgenic chestnut tree, one Onondaga elder asks in a knowing tone, "they're already planted over here aren't they?"(H3, personal communication, 20 October2017). Another participant says, "I take it to the fact that the modified chestnuts already growing. They're already in the ecosphere. They're already interacting with outdoors. It's not in a lab where it's all contained"(H4, personal communication, 20 October2017). At the moment, their responses seemed to render empty our questions about Haudenosaunee participation in decision-making about using the GEAC for chestnut restoration. In very material ways, the potential risk of transboundary movement is already out there. S. Kathleen Barnhill-Dillinga, Louie Riversa, and Jason A. Delbornea,b, (Attachment 2)*

The following represent a short list of additional reasons to deny this permit and leave no question that the USDA-APHIS should deny this petition for the deregulation of the Blight-Resistant Darling 58 (D58) American Chestnut:

- The genetically engineered American chestnut submitted for review is adding DNA from NON-related organisms, an oxalate oxidase enzyme (OxO) from wheat and a genetic marker gene that poses serious questions regarding threats to the forest ecosystems where it could remain for generations.
- This tree is no longer an essential source of food for wildlife or humans, nor is it a necessary source of lumber or for other historical uses and the addition of DNA from a foreign/non-related organisms may pose more problems than improvements to the forest biodiversity.
- The oldest Darling 58 GE trees alive are only about 3 years old, and therefore not old enough to produce female flowers. In this regard we do not have confirmation how the GE trees will impact ecosystems over time. American chestnut trees have been known to live hundreds of years (even as they remain stunted by blight and do not become canopy trees), and the uncontrolled spread of pollen and chestnuts means they will impact ecosystems in perpetuity.
- The oldest Darling 58 GE trees alive are only about 3 years old, and therefore not old enough to produce female flowers and therefore, tests conducted on bumblebees is not complete. Further, no tests for reactions or adverse outcomes were conducted on

other pollinators in the forest locations where these trees are to be planted and crossbred with American chestnut survivor trees.

- Since the D58 testing was conducted on young trees, three years old or less, does not reflect how older D58 trees planted in the wild will resist the damage or cause morbidity from the blight because young trees are less likely to succumb to the blight.
- There is no confirmation that this addition will limit the spread of the blight, instead they state this addition APPEARS to, or MAY limit the spread of chestnut blight (*Cryphonectria parasitica*).
- The assumption that there appears to be no toxicity to other lifeforms in the American chestnut trees natural range from the addition of the OxO enzymes and the marker gene was based on preliminary test results. The short timeframe, limited number of organisms tested, and the tests conducted in a controlled or managed forest setting does not reflect the conclusions being presented as posing no risk or determining toxicity in general.
- The applicants have not established whether the GE trees will show long-term blight tolerance or be able to survive and grow to canopy trees; however, poorly growing (or dying/dead) GE trees will still pose a plant pest risk and may remain part of ecosystems for centuries.
- As stated within the petitioners application documentation, the addition of the OxO enzymes does not kill the blight but allows the tree to live with the blight without it succumbing to the effects of the fungus. The D58 American chestnut trees are a potential plant pest risk that may concentrate the blight in the areas where these trees will act as a reservoir for blight, posing a serious risk of infection to native and commercially planted trees, i.e. a plant pest.

In Conclusion:

The request for deregulation of the GE Darling 58 American chestnut tree, with no long-term data to back up the many assumptions the petitioners present, is seriously premature, and as such, there are significant gaps that cannot be fully assessed at this point in time in order to make a fact-based final approval. Therefore, we have also shown that if this request is to go forward, there is more than enough reasons to conduct and produce an Environmental Impact Statement (EIS) based primarily due to the lack of consultation with Native American tribes within the entire historical geographic range where the Darling 58 GE American chestnut trees and the successive generations of the GE tree may be planted if the deregulation is approved.

Please note: The 3 billions trees that are reported to be lost to the blight were in large part due to widespread culling of American chestnut trees across large parts of the region. It was believed to be a method of slowing or stopping the blight from trees that may or may not have contributed to the spread of this fungus. It has been found in the decades that followed there were American chestnut trees that had some level of immunity. Therefore, there may have been more opportunity to combat the blight but lack of knowledge that precipitated the culling could be attributed to the trees present state of functional extinction. This is another in a long

line of lessons learned of which we refer to in regard to human's lack of knowledge in regard to the complexity of the natural world.

We also state for the record that we (IEN) oppose genetic engineering of all living organisms, for the purpose of opposing the deregulation of the American chestnut tree specifically, and additionally genetically engineering forest trees on Turtle Island (North America) and the whole of Mother Earth.

However we do not speak for all Indigenous Peoples and why a decision based on this request precipitates UNDRIP: Free, Prior and Informed Consent in the form of fully consulting with Native American tribal members in order for them to exercise their rights as sovereigns within the United States and Canada.

All that we submit today, October 19, 2020, is based on our adherence to the Rights of Mother Earth and our accountability to all life, to include those who cannot speak for themselves of the non-human nations. We also affirm our opposition to the commodification of nature in all its forms, and as such these points of opposition are an extension of our prayers for the health, safety and respect for Indigenous self-determination for our relatives (human and non-human) of the next Seven Generations.

In closing, IEN respectfully requests that the USDA-APHIS deny the petition from the SUNY College of Environmental Science and Forestry (ESF) for approval of deregulation of the genetically engineered Blight-Resistant Darling 58 (D58) American Chestnut tree.

Signed: *note – just added y'all in case you want to be listed as IEN representatives*

Submitted this Day: October 19, 202 as Indigenous Environmental Network

Brenda Jo McManama
Indigenous Environmental Network
Save our Roots Campaign Organizer
Member: Stop GE Trees Steering Committee
bjmcmanama@ienearth.org
828-777-4882

--

><((((> ~~·.¸¸.·´¯【ツ】`·. ¸.·´¯<)))) ><

Brenda Jo (BJ) McManama
Indigenous Environmental Network
Save Our Roots Campaign Organizer
Emails:
bjmcmanama@ienearth.org media@ienearth.org
saveourroots@ienearth.org

Websites:
https://ienearth.org
https://saveourroorts.org
https://no-redd.com
Skype: ienonlinenews
Facebook:
https://www.facebook.com/ienearth
https://www.facebook.com/nativefish
Twitter:
https://twitter.com/ienearth
https://twitter.com/bjsquirrel
Pronouns: she/her