Comments submitted from the Canadian Biotechnology Action Network (CBAN)
Re: *Petition for Determination of Nonregulated Status for Blight-Resistant Darling 58 American Chestnut - Docket No. APHIS-2020-0030.*
To the Animal and Plant Health Inspection Service, United States Department of Agriculture

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The Canadian Biotechnology Action Network (CBAN) brings together 16 non-profit groups to research, monitor and raise awareness about issues relating to genetic engineering in food and farming. CBAN members include farmer associations, environmental and social justice organizations, and regional coalitions of grassroots groups. www.cban.ca CBAN is a project on the shared platform of MakeWay Charitable Society. www.makeway.org

The Canadian Biotechnology Action Network asks the US Department of Agriculture to deny the request to deregulate the genetically engineered (GE or genetically modified) American chestnut "Darling 58" in order to protect forest ecosystems in North America and, in particular, to prevent any contamination from this genetically modified organism (GMO) into Canada. Such GE contamination, originating from the US, could adversely impact the environment in Canada and could jeopardize American chestnut recovery strategies in Canada.

In Canada, the American chestnut is listed as an endangered species requiring protection, including from potential GE contamination and any illegal plantings of this GE tree:

o The American chestnut is classified as an endangered species in Canada and is protected under the federal Species at Risk Act (SARA)[1] and the Government of Ontario's Endangered Species Act.[2]
o The range of the American chestnut includes southern Ontario, and is projected to expand further into Canada with climate change, to extend across Ontario, Quebec and into the Maritimes.[3]
o There are more reproductively mature American chestnut trees reported in Canada than in the US.[4]
o The Darling 58 genetically engineered American chestnut is not legal to use and grow in Canada.

In Canada, there is promising restoration work led by non-profit conservation groups and teams of many dedicated volunteers. This work has been underway for decades in a Canadian context, focussed on conventional breeding programmes and supported by projects to identify wild individuals and break isolation in order to encourage propagation.[5] This work is guided by the American chestnut recovery strategies of the Government of Canada[6] and the Province of Ontario.[7] Prospects remain for recovery of the American chestnut in Canada using existing strategies that do not involve introducing a genetically engineered tree. Contamination from the Darling 58 tree could put these strategies at risk.

Over time, US plantings of the genetically engineered American chestnut could pose a risk of contamination into Canada. Monitoring GE tree plantings and progeny will be difficult or impossible over time, especially in the absence of government requirements for record-keeping. The petitioners' intention to disperse the Darling 58 by giving trees to the public and other non-governmental parties increases the inability to track plantings and the associated risk of contamination into Canada.

Monitoring and managing the spread of this GE tree in the US is important in order to track the risk of contamination and prevent any contamination into Canada. Such monitoring is also vital to observing and tracking any potential adverse ecosystem impacts and the ability to recall the GE tree if impacts are observed. Because the American chestnut is such a long-lived organism and its spread may be slow, any adverse impacts may only be observed over decades or centuries, by which time recalling the GE tree may not be possible.

Any risk assessment of releasing this GE tree should assess the ability to track and manage the spread of this GE tree over time and the related consequences for containing this GE tree the US range of the American chestnut. Containment of the Darling 58 to the US range of the American chestnut needs to be enforceable.

A comprehensive assessment of the environmental impacts of planting genetically engineered trees in the wild is not possible given the complexity of trees, their long life, and the complexity and size of habitat.[8] The limitations of our tools and knowledge for assessing the environmental risks of US-wide or continent-wide open-release of this GE tree need to be explicitly acknowledged in any risk assessment and considered in decision-making.

Furthermore, even with existing limited tools, the petitioners did not provide robust study of the Darling 58. There has been no study through its full lifecycle or, further, with multiple generations. Instead, the petitioners rely on studies of three-year-old Darling 58 trees along with data from studies using earlier Darling research. This data is not sufficient for a limited risk assessment and it is not sufficient to assess the stability of the GE blight-tolerant trait over time.

[1] Government of Canada, Species at risk registry: American chestnut (Castanea dentata). https://species-registry.canada.ca/index-en.html#/species/205-164

[2] Government of Ontario, Species at risk: American chestnut. https://www.ontario.ca/page/american-chestnut-species-risk

[3] Barnes, J.C., Delborne, J.A. (2019). Rethinking restoration targets for American chestnut using species distribution modeling. *Biodivers Conserv* **28,** 3199–3220.

[4] Drunen, Stephen & Schutten, Kerry & Bowen, Christine & Boland, Greg & Husband, Brian. (2017). Population dynamics and the influence of blight on American chestnut at its northern range limit: Lessons for conservation. Forest Ecology and Management. 400.

[5] Canadian Chestnut Council, A Decade of Progress, Accessed October 13, 2020 from https://www.canadianchestnutcouncil.ca/index.cfm?page=decadeOfProgress

[6] Government of Canada. (2019). Recovery Strategy for the American Chestnut (Castanea dentata) in Canada 2019, Species at Risk Act, Recovery strategy series, Adopted under section 44 of SARA.

[7] Boland, G.J., J. Ambrose, B. Husband, K.A. Elliott and M.S. Melzer. (2012). Recovery Strategy for the American Chestnut (Castanea dentata) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 43 pp.

[8] Ricarda A. Steinbrecher and Antje Lorch. Genetically Engineered Trees & Risk Assessment, Federation of German Scientists. 2008.