Certification for gene-edited forests

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Forest certification bodies were established to provide consumers with confidence that they are purchasing sustainably sourced wood products. Over 500 million hectares of forests, or about 13% of global forest area, are certified under the largest certification systems (*1–3*). However, certification bodies have consistently excluded all genetically engineered or gene-edited (GE) trees from certification, including from field research on certified lands that is essential for understanding local benefits and impacts (*4*). We, leading forest biotechnology scientists from around the world, with the support of more than 1000 globally diverse signatories to a recent detailed petition (*5*), call for all forest certification systems to promptly examine and modify these policies.

Forests face mounting stresses posed by invasive pests and climate change (*6*). Given the growing need for sustainable and renewable forest products and the increasing precision and safety record of biotechnologies, we believe that GE trees can make a substantial contribution to management of certified forests. To face the challenges of forest health, carbon sequestration, and maintenance of other ecological services, we must use all available tools. GE tree research should be allowed immediately on certified land, and GE trees proven by research to provide value should eventually be allowed in certified forests.

A variety of current biotechnologies—including grafting, in vitro propagation, breeding, hybridization, and cloning—have made tremendous impacts on tree health and productivity (*7*). Newer forms of biotechnology, specifically gene editing, can make substantial further contributions to forest management. Traits that have shown great promise based on field trials of GE trees are highly diverse and include those related to productivity, wood quality, pest and stress resistance, protection of endangered species, and reproductive control (*8*). Research results also suggest that there are no hazards unique to GE methods compared with conventional breeding; rather, it is the value and novelty of the specific traits imparted and how they interact with conventional breeding that are germane to safety and economic

assessments (*9*, *10*). Instead of categorically excluding GE methods, each application of GE technology should be evaluated on its individual merits based on the trait and its mechanism.

Democratic and stakeholder-driven processes generally govern certification agencies in sustainable forest management systems. However, the Programme for the Endorsement of Forest Certification (PEFC) recently extended the GE tree ban through 2022 via editorial updates (*11*), an internal procedure that did not meet the standards of a rigorous, science-based, democratic, and transparent process. We urge in-depth discussion and decisions on this issue at the PEFC annual stakeholder meeting on 3 October and at the Forest Stewardship Council general assembly on 8 October.

The National Academies of Sciences, Engineering, and Medicine recently completed an in-depth study on forest health and biotechnology, concluding that the potential benefits are numerous and rapidly increasing (*12*). Our forests are in dire need of assistance, and GE trees hold tremendous potential as a safe and powerful tool for promoting forest resilience and sustainability.

Gene-edited and genetically engineered trees, such as these poplars, should be allowed in certified forests.

PHOTO: STEVEN STRAUSS

References and Notes

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