

OSU scientist, others urge review of forest biotech limits

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Say genetic modification efforts can help forests

CORVALLIS, Ore. - A coalition of forest scientists, including Steve Strauss of Oregon State University, is calling for an immediate review of international policies that the group says put unreasonable and harmful



limitations on biotech research .This petition follows on the release of a major report on The Potential for Biotechnology to Address Forest Health from the National Academy of Sciences that has identified biotechnologies as key tools for helping to manage forest health and associated pest epidemics. The petition hosted by the Alliance for Science is asking sustainable forest management

systems among them the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification, two key certifying bodies to take a look at their views opposing genetically modified trees "and bring them in line with current scientific evidence." "Forests are extraordinarily important sources of renewable products and they also provide major ecosystem services, but they're under increasing stress," Strauss said. "That's because of a variety of reasons like increasing demand for products, as well as climate change and the proliferation of forest pests." Biotech research may hold solutions, the Alliance for Science says, but that research is hamstrung because trees that have been modified using recombinant DNA – formed by directing specific changes in native DNA, or by combining genetic material from different organisms – aren't allowed on forests certified by the two aforementioned bodies. "The ban prevents organizations certified under FSC and PEFC, plus any endorsed by PEFC, from studying rDNA trees on certified lands for any reason, even to save a native tree species against an invasive pest," the Alliance's petition notes. "They are also precluded from using rDNA organisms for biocontrol, despite advancements in gene editing that can increase precision and reduce off-target effects." The forestlands certified under those standards amount to approximately 470 million hectares – that's more area than all of Australia. The ban includes gene editing methods such as CRISPR, the most precise system for improving the beneficial traits of an organism. "Even rDNA tree research outside of certified forest areas is restricted to the point of stopping an organization from developing a useful tree," the petition asserts. "FSC bans organizations that are directly or indirectly involved in the introduction of genetically modified organisms in forestry operations. The result of these bans and research restrictions is to

stop the very thing sustainable forest management systems demand they need before making an informed decision: information." The rDNA ban, the Alliance points out, runs counter to the fact that a range of other biotechnologies including selection, hybridization, grafting and vegetative propagation have long been accepted as safe and useful tools for promoting forest productivity and adaptation to stress. "Based on many years of research, it is clear that newer forms of biotechnology, specifically genetic engineering and gene editing, are capable of making significant further contributions to forest management," the petition states. "Traits that have been successfully demonstrated in field trials of rDNA trees are diverse, and include those related to productivity, wood quality, pest and stress resistance, protection of endangered species, new bioproducts, and reproduction. However, despite the broad outline of effectiveness of rDNA trees, site-specific studies are needed to assess the suitability of specific applications for local conditions and products." Strauss says the certifying bodies' belief that no research with rDNA trees can be conducted safely has been disproven by many years of science conducted around the world. "Government-approved trials have a safety record beyond anything expected for other kinds of forestry genetics research," he said. "New technology always demands continued improvement and oversight, so rather than forbid rDNA research in certified forests, these management systems should be encouraging the development and careful evaluation of rDNA options." Strauss stresses that the Alliance petition does not endorse all uses of rDNA in forestry or advocate for unrestricted use. "These technologies are new tools that require scientific research to evaluate and refine them on a case-by-case basis," the petition states. "Given the rapidly growing threats to forests, the need for expanded production of sustainable and renewable forest products and ecological services, and the growing power and precision of biotechnologies, we believe that rDNA research should not be precluded from certified forests." The Alliance for Science, based at Cornell University, "seeks to promote access to scientific innovation as a means of enhancing food security, improving environmental sustainability, and raising the life quality of globally." Researchers interested in signing the petition do can SO at https://www.gopetition.com/petitions/petition-in-support-of-modern-forest-biotechnology.html "Sustainable forest certification systems are in a good position to take a leadership role with responsibly used biotech trees," said Adam Costanza, a senior research scientist with the National Council for Air and Stream Improvement. "We can't afford to turn our backs on tools that might stop forest pests, increase productivity, and combat changing climates."

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