

Sunshine Coast researcher to use forest waste to fight climate change

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A University of the Sunshine Coast researcher is investigating how forest waste can help fight climate change and boost the incomes of farmers and landowners. Source: Noosa Today

USC Sunshine Coast PhD candidate Trinh Huynh has won a 2021 Student Award from the Crawford Fund to pursue the project in Vietnam but expects the results will also be applicable to Australia.

Trinh, who is based at USC's Forest Research Institute, said there were many potential uses for woody biomass waste, such as biochar (charcoal produced in the absence of oxygen), which could mitigate climate change.

Currently, biomass residue in Vietnam is mostly burned after trees are harvested while it could be repurposed for production of biochar by using modern technologies.

"Biochar is significant for storing carbon as it can remain stable in soils for a long time and there is evidence that biochar stores atmospheric carbon on centennial to millennial timescales," she said.

"In addition, biochar can influence the soil's physical and chemical characteristics, biological fertility and provide major benefits to soil health.

"Biochar application provides major benefits to soil's physical, chemical and biological fertility.

"These benefits can improve crop yields and, most importantly, prevent pest and disease outbreaks by creating healthy and resilient forest agro-ecosystems, where trees and crops or animals are grown on the same piece of land."

Her project aims to estimate the biomass harvesting residues in plantations in Vietnam's Central Highlands to predict theoretical energy potential for biochar production.

She will also look at the potential for incorporating biochar into forest systems to reduce pests and diseases.

Ultimately Trinh will provide recommendations for researchers, forestry officers, industry, small landowners, farmers and plantation owners on how to use biomass residues effectively and sustainably.

"My PhD thesis focuses on estimating biomass and carbon sequestration in spotted gum plantations in Queensland," she said.

"Over time, I have developed a conceptual understanding of biomass potential in plantations. So I'm passionate about expanding research in potential uses from biomass residues in plantations, especially biochar."

Trinh's supervisor, USC Associate Professor in Plant Genetics David Lee, said her research would help quantify the carbon stored in planted trees, helping growers mitigate climate change.

Dr Lee said there could also be direct economic benefits.

"Using the left-over biomass after trees are harvested offers the chance to significantly boost the income for small landowners, farmers and plantation owners in both Vietnam and Australia who incorporate biomass production from trees into their enterprises," he said.

The work is a sub-project of the Australian Centre for International Agricultural Research (ACIAR) project Building an effective forest biosecurity network in Southeast Asia.

Led by Associate Professor Simon Lawson and Dr Madaline Healey of USC's Forest Research Institute, the host project aims to set up a forest health and biosecurity network in south east Asia to improve management of invasive pests and diseases.

Source: <https://www.timberbiz.com.au/sunshine-coast-researcher-to-use-forest-waste-to-fight-climate-change/>