

New seed 'flaming' technique to help with minesite rehab

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Researchers at The University of Western Australia have invented a new technique for 'flaming' wild seeds that could allow them to be used more easily in replanting large tracts of land such as reclaimed mine sites.

They've developed a unique flash flaming [technique](#) that carefully burns off the fluffy appendages that appear on many wild seeds, which in the past had made them difficult to handle and 'coat' for large-scale remote restoration.

Dr Todd Erickson, of UWA's School of Plant Biology, said the scientists used seeds of spinifex, the dominant plants of desert grasslands that cover up to 70 per cent of inland Australia.

"Successful large-scale restoration of mine sites relies on the effective use of seeds from wild or native species. However, it's been found that plant regeneration from these seeds is poor, with more than 90 percent of them failing," Dr Erickson said.

Agricultural Engineer and Assistant Professor at UWA's School of Mechanical and Chemical Engineering Andrew Guzzomi said native grass seeds are typically highly irregular in shape, with surface hairs and awns that make them very difficult to work with.

"Through modifying a rotary seed coater with an engineered flaming apparatus, we developed a novel flash flaming technique which carefully removes the appendages without subjecting the seed to damaging heat

energy," Dr Guzzomi said.

"The technique has many benefits including increasing the bulk density of the seeds which saves on storage, processing and handling costs. Treated seeds are easier to embed within a polymer coating producing larger, rounder, smoother and more uniformly sized [seeds](#) able to be used in mechanised sowing devices."

The multi-disciplinary team that made the discovery comprised Assistant Professor Guzzomi and final year project student Alan Ling from the UWA School of Mechanical and Chemical Engineering, researchers Dr Todd Erickson, Dr David Merritt and Professor Kingsley Dixon from King's Park and Botanic Garden and UWA School of Plant Biology.

The [new technique](#) is protected by Australian Provisional Patent Application 2015902194, with the results published in the journal of *Restoration Ecology*.

"The project highlights once again the link between agriculture and engineering that is so important for Australia's future in terms of food security, rehabilitation and sustainability," Assistant Professor Guzzomi said.

Provided by University of Western Australia

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