

Indigenous Food Research Park

Native grains update - June 2020

DigiFarm Project update

What a change! With excellent rains and a flood across the proposed site in February, it went from dust bowl to lush in a few weeks. The regrowth was sprayed out then burnt in March.



New equipment

Thanks to Doug and Colin Seis, we now have a custom-built grass seed harvester for bulk seed acquisition. We also have a blower vac for harvesting small patches, and a modified planter which can cope with smooth seed (which can be achieved by coating the seed; such seed is available from commercial suppliers including Native Seed Co and Fields Environmental Solutions).



National Reconciliation Week – In This Together

To celebrate National Reconciliation Week, we have the privilege of partnering with some incredible architects to produce a living and interactive installation of native grasses. More info here:

<https://www.sydney.edu.au/science/news-and-events/2020/05/29/native-australian-grasses.html>

The seedlings are growing in the glasshouse under high temps to get them ready in time! Glasshouse manager Antony is keeping the water up to them, along with several other demonstration plots which will be on display at the Narrabri Campus field day.

Preparing for grain quality testing

Students Celine and Anna working with food chemists Dr Ali Khodami and Dr Claudia Keitel have been preparing to test the grain and food properties of over a dozen grains. COVID-19 delayed the lab work, but is now on track to be completed by the end of the year.



A subset of the seed samples before and after grinding to flour. Wheat standards are on the top right. Pic credit: Celine Badaoui

Testing a large number of species collected from multiple sources for multiple nutritional and dough characteristics will allow communities and industry to decide which grain species to focus on. This will empower Aboriginal communities with the data to market their local species.

Anna will perform product testing in collaboration with Aboriginal people from multiple communities in mid 2020.

Wee Waa community connects with Rotary International



15th March 2020, Wee Waa LALC hosted a group of Rotarians from Gunnedah, Narrabri and Germany. Glenda shared some of her story from growing up at Tulladunna and Angela shared on the biology of native grasslands grains. Then the women showed everyone how to make (wheat-based) johnny cakes. Delicious! These cultural exchanges build great bridges – who wouldn't enjoy fresh bread cooked over a fire?





Harvesting purslane

Honours student Tracy gave this report: "Over the course of two weeks in late February, with Callum's help, I went hunting for purslane seed. Two metre squared plots of wild purslane were harvested from populations across Narrabri and Moree, and the collected plants were left to dry and drop seed for four to eight days in industrial wire containers lined with flyscreen, through which the seed would fall onto and be collected from plastic sheets. With as much as 80 grams per plot (and up to 10 grams per plant), with seed the size of sand, that meant a

lot of sieving to get the trash out! 0.5mm sieves seem to work best. It's been eye-opening seeing just how diverse purslane is just within this region, and it'll be exciting to find out just how different the chemical characteristics of their seed is. Huge thanks to Callum for all his hard work and help through the entire process, and to Angela for her advice and supervision!"

Tracy's lab work has since quantified the protein, ash, fatty acid, phenolic and antioxidant contents of the seed. It seems to fit in its own category – not as oily as an oil seed, not as high in protein as a legume but also not as high in carbohydrate as wheat. It's a unique blend of all grain types! And the antioxidant activity was quite high too. Several other students are working on purslane in semester 2; stay tuned.



How can we thresh native grains?

One of the key problems with the marketing of native grains as food is separating the grain from trash to food-grade level. We are honoured to be in the early stages of a project with Black Duck Foods and Aboriginal communities in a participatory modelling approach.

The project will trial grain and trash separation using multiple methods, including fire and machines, and do so on multiple species. This will hopefully lead to a prototype piece of equipment that can be used to make the threshing step cheap enough that the price of grain is accessible to all.

The photo to the left is Callum threshing Mitchell grass between corrugated metal plates. He found this method better than the rubber on metal threshers designed for wheat.

Quick fire updates:

- Andrew Fielke's company 'Creative Native Foods' has commercial grade *Microlaena stipoides* 'weeping grass' for sale. See creativenativefoods.com.au;
- A follow up video to the Johnny cake day from last September can be viewed here: <https://www.youtube.com/watch?v=d0qlccXlx8>. It shows Aboriginal students from across Australia with Wee Waa women Theresa and Robyn sharing knowledge, and enjoying pancakes with a kangaroo grass flour blend.
- Our Website is up: <https://www.sydney.edu.au/science/our-research/research-areas/life-and-environmental-sciences/plant-sciences-research.html>
- Team leader Josephine Gwynn has produced an excellent application for a prestigious Rockefeller Food Prize. We made it to the semi finals! Outcome will be announced on 3 August. All the applications can be viewed online; ours is here: <https://challenges.openideo.com/challenge/food-system-vision-prize/refinement/indigenous-australians-the-crises-in-food-security>

Invitation to connect

With COVID-19 restrictions easing, we are hopeful that the Narrabri Campus field day can go ahead. Held in September every year, this field day typically attracts 200-300 people to see the latest in agriculture innovation. This year is the 60th Anniversary, and will be bigger than ever.

<https://www.abc.net.au/news/rural/2020-06-04/century-old-wheat-variety-replanted/12314418>

Native grains will be featured in the future cropping area, and I hope to be able to bake a few loaves for people to try...

Please put the date in the diary; 23rd September.

If that date does not suit you but you would like to connect with the team, please let us know. We are here to bring the best research and education outcomes possible for people and for the planet.

Until next time!

The IFRP team