



Charles Sturt
University

Gulbali Institute
Agriculture Water Environment

The FGC Cookbook



FGC

Functional Grains Centre

**ARC Industrial Transformation
Training Centre for Functional Grains**



Australian Government
Australian Research Council



Our Vision

We hope that with this cookbook, we can:

- Identify international consumer preferences based on new products and their demand
- Play a key role in helping to improve future grain storage while maintaining and enhancing human health with a range of recipes and drinks
- Improve food end-product quality by identifying key chemical attributes and markers
- Identify novel bioactive compounds that can be used to generate new functional products
- Train the next generation of food scientists with industry knowledge, so they may help transform the current industry by developing high-value product-focused businesses beyond the life of this project
- And build long term collaborative food innovation systems.

The core funding for the Functional Grain Centre was kindly provided by the Australian Research Centre, Charles Sturt University and the following industry partners:

- Sunrice
- MSM Milling
- NSW DPI
- Teys/Cargill
- Woods Foods
- GrainGrowers Ltd
- Flavour Makers

The centre is grateful for the strong support of our foundation partners, as well as other organisations who collaborated with the centre on subsequent projects.

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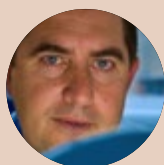
A word from our Director...

I have been so privileged to be the Director of the Functional Grains Centre. I have had the opportunity to participate in the research journeys of an amazing group of scientists. It has been rewarding to be part of the 'highs' and 'lows' associated with the projects completed by FGC staff and students. There have been lots of tears (mostly mine) but also plenty of laughter and fun times. I've enjoyed watching enthusiastic students transition into world experts in their fields and move on to roles where they will have an enormous impact on the grains industry for many years to come. I've enjoyed seeing the connections made between staff, students and partners that are sure to endure into the future. It has been wonderful working with such generous and supportive partners who were always willing to engage and provide support and direction when needed. I'm so grateful to my team of academics that guided students and postdocs throughout their projects and spent many late nights reviewing thesis and paper drafts.

Of course, none of this would have been possible without the generous support of the Australian Research Council. We are so grateful that ARC took a risk on a passionate group of scientists based in regional Australia. We hope you are as thrilled as we are with the outcome.

Now please enjoy our delicious recipes!

Regards,



Prof. Chris Blanchard

Director, ARC ITTC for Australian Research Council
Industrial Transformation Training Centre for
Functional Grains.



Basil Pesto Sorghum Fusilli

Ingredients

1 pack of Organic Sorghum Fusilli*

1 cup cherry tomatoes, cut in half (mixed variety for a range of colours)

½ cup shaved parmesan

2 cloves garlic, minced

1 lemon, juiced

½ cup basil, minced

¼ cup pine nuts

olive oil

Method

1. Fill a large stockpot with water and bring to a boil, add 1 tablespoon of salt.
2. Plunge pasta into boiling water.
3. Return to a rolling boil and cook for 12-15 minutes or until desired texture is reached.
4. Separate the pasta gently with a fork during cooking to prevent clumping.
5. Remove from heat and drain pasta.
6. Combine the rest of the ingredients together in a bowl, and add olive oil, pepper, to taste. Mix well, top with parmesan and enjoy, hot or cold

* Find this online: wholesomehub.net.au



Aduba Jok Sorghum

PhD Student –
Functional Grains
Centre, School of
Biomedical Science,
Charles Sturt University

My project aims to analyse the mechanisms by which sorghum polyphenols and protein hydrolysates contribute to the key factors surrounding cancer development. Gene expression studies will be conducted in-vitro to determine anti-apoptotic, anti-inflammatory and metastasis-promoting genes. Cell cycle analysis



and angiogenesis will also be explored using bench top assays as well as cell culture techniques. This will be followed by an in-vivo bioavailability study to help determine the amount of sorghum that can be consumed by humans to potentially produce health benefits in cancer patients.

Coconut Rice Pudding

Ingredients (serves 8)

200g (1 cup) of cooked SunRice Long Grain White Rice (for best results, cook the rice the day before and store in an airtight container in the fridge.)

300ml thickened cream

270ml coconut milk

2 tsp vanilla bean paste

140g ($\frac{2}{3}$ cup) caster sugar

2 bananas, peeled, thinly sliced

80ml ($\frac{1}{3}$ cup) passionfruit pulp

40g of roasted coconut chips; coarsely chopped

Method

1. Place cooked rice, thickened cream, coconut cream, vanilla and sugar in a saucepan over medium-high heat.
2. Bring to a simmer. Cook for 5 minutes or until the rice is heated through and the mixture thickens.
3. Divide the rice mixture among serving bowls. Top with banana, passionfruit and coconut chips.

Recipe Tip: to save time, instead of placing cooked rice into the saucepan; add 700g of SunRice Microwave Long Grain White Rice.



Allister Clarke Rice

PhD Student – Functional
Grains Centre and SunRice

Australian rice producers are graded on the milling quality of their deliveries. This quality parameter is referred to as whole grain yield (WGY) and represents the percentage of grains that break during milling. This grade however, takes approximately five months for the grower to receive. The time taken creates a delay in grower delivery payments and inhibits quality-based segregation before milling. This project aims to generate a prediction model that would allow for the grading of each grower delivery, based on its quality, at the receipt point. The model development will occur through the application of data mining techniques and machine learning algorithms onto historical production datasets. These datasets collated will provide information on the farm management, environmental conditions experienced and grower delivery data recorded for each grower appraisal score. The insights and knowledge derived from the model are expected to drive an increase in production of premium Australian rice sold into high-value markets. Thus increasing the revenue brought into the industry, providing improved margins for Australian rice producers.

Fried Flat Bread (Chapatti) with Potato Filling

Ingredients

Dough:

2 cups whole wheat flour

½ tsp salt

1 tbsp cooking oil

1 cup lukewarm water for kneading and extra flour for dusting

Potato stuffing:

5 medium sized potatoes, (approx. 300g) boiled and mashed

1 brown onion, grated and drained of moisture

2 tbsp fresh coriander leaves, chopped

1 tsp fresh mint leaves, chopped

1 tsp fresh green chillies, finely chopped

¾ tsp salt

½ tsp red chilli powder

1 tsp dried coriander powder

1 tsp cumin powder

1 tsp carom seeds

1 tsp dried and crushed pomegranate seeds

Method

Dough prep add 2 cups of whole wheat flour to a large bowl. Add salt and cooking oil and gently mix with hands. Start adding water slowly, continuing to knead by hand or mixer until soft, smooth dough is formed. Once kneaded, cover bowl with cling wrap and rest for 15-20 mins.

1. Potato stuffing: combine all ingredients in a bowl and mix thoroughly until texture becomes smooth but firm.
2. Shape dough into small lime sized balls and set aside. Two balls are required for each flat bread.
3. Heat a large crepe pan over a low flame, to get it ready for cooking.
4. Roll one ball with a rolling pin into a circle with a 10-12 cm diameter and put aside. Repeat with a second ball. Occasionally dust dough with flour to stop it sticking.
5. Spray some oil on one side of rolled dough circle, add potato filling (1-2 tablespoons) and spread it evenly from centre to the edges of the dough circle.
6. Once potato stuffing is evenly spread out, take the second rolled dough piece and put it on top like a sandwich.
7. Gently press the edges of the dough with fingers to seal.
8. Roll this single piece from the centre to the ends into large round flat bread about 23-25 cm in diameter.
9. Once evenly rolled and flat, place flatbread onto heated crepe pan.
10. Increase heat to medium, flipping with tongs after 30 seconds. Coat the top side with cooking oil, turn over and coat other side.
11. Continue flipping, so that all sides are evenly cooked. Once both sides are crispy and brown, the flatbreads are ready.
12. Repeat the same process with remaining dough ingredients.



Annie Riaz Wheat

PhD Student – Functional
Grains Centre, School
of Biomedical Science,
Charles Sturt University

My research project is about investigating the changes in quality of Australian wheat varieties released over the last 150 years. The objective of my study is to investigate the evolution of gluten protein composition throughout the history of wheat breeding in Australia and the impact this has had on dough rheology and bread quality. The results of my study revealed that protein contents have decreased as yield has improved substantially over the years. However, the improvement in protein quality has compensated the decrease in protein content, which resulted in a significant increase in dough and bread quality of Australian wheat released over the last 150 years. The study also demonstrated that careful selection of alleles through selective breeding, was the main cause of significant improvement in the quality of Australian wheat – without affecting yield.

Mexican Bowl, Using Sorghum

Ingredients (serves 2)

1 cup whole grain sorghum
4 cups water
2 cups cooked Barbecue chicken, shredded
1 tbsp Mexican spices
1 avocado, halved and sliced
2 cup black beans
Lime wedges
Sour cream
Pico De Gallo, combine in a medium bowl:
4 medium tomatoes, chopped
1 red onion, chopped
½ jalapeno or any chilli of your choosing, de-seeded and finely sliced
⅓ coriander leaves
Juice of 1 lime
1 tsp salt
Corn Salsa, combine in small bowl:
1 cup tinned corn, drained
2 spring onions, finely diced
Juice of 1 lime
1 tsp olive oil
1 tsp salt

Method

1. In a small saucepan bring water to a boil, add sorghum (makes 3 cups) cover and reduce heat to medium. Simmer for 45 minutes. Mix with fork.
2. In a large bowl combine chicken and Mexican seasoning. Add in sorghum, avocado, pico de gallo, corn salsa and black beans. Season with salt and pepper, lime wedges and sour cream.



Borkwei Ed Nignpense

Sorghum

Honours and PhD
Student – Functional
Grains Centre, School
of Biomedical Science,
Charles Sturt University

Cardiovascular disease is a major burden in Australia. In clinical settings, drugs such as aspirin are used in the treatment of such conditions. These drugs prevent the formation of unwanted clots in the blood, by inhibiting the function of blood components known as platelets. Plant based compounds known as polyphenols which have been attributed to numerous health benefits, have also been shown to potentially mimic the action of these drugs. Sorghum is a cereal grain, rich in polyphenols, which has been researched in depth for its anticancer properties but little on its cardiovascular benefits. Employing a few platelet function assays, we evaluated the impact of polyphenol rich sorghum extracts on platelet function and the production of platelet microparticles – particles shed from platelets that also participate in clot formation. Results from experiments showed that extracts, when applied to blood at optimum concentrations, can inhibit the function of platelets and the release of microparticles – thus highlighting the potential of sorghum to reduce biomarkers of cardiovascular disease.

Chris' Margherita Pizza

Ingredients (serves 2)

Dough:

500g wheat flour
1 ½ tsp salt
8g dry yeast
1 ½ tsp virgin olive oil
250ml water, at 40°C

Pizza sauce:

250ml of pure tomato paste
½ tsp salt
3 tsp virgin olive oil
1 tsp of dried oregano
Lots of mozzarella cheese

Method

1. Preheat oven to 220°C (200°C fan forced). Mix the yeast and water in a small bowl until the yeast has dissolved. Set aside for 10 minutes.
2. Mix the flour and salt in a large bowl.
3. Pour in the yeast suspension and olive oil and gradually bring the mixture together using a wooden spoon.
4. Lightly flour a clean, dry work surface and knead the dough until soft and elastic.
5. Place the dough in an oiled bowl and cover. Leave to stand until the dough has doubled in size.
6. Prepare the pizza sauce by mixing together the tomato paste, olive oil, salt and oregano.
7. Lightly flour a flat surface and roll out the dough to your desired size and thickness.
8. Apply a layer of the sauce onto the rolled out dough.
9. Add a layer of cheese.
10. You can stop with the cheese or add your favourite toppings.
11. If adding extra toppings, cover with another layer of cheese.
12. Cook pizza for approximately 20 minutes, or until golden on top.



Dr Chris Florides Wheat

PhD Graduate – Functional
Grains Centre

Chris' research investigated the immunoreactivity of Australian wheat cultivars released between 1860 and 2015. The myth that modern wheat varieties are more immunogenic than historic ones was dispelled. Historic wheat cultivars were found to be as immunogenic as modern ones. Expression of most immunogenic epitopes were found to be significantly influenced by the environment. New tools were developed to breed wheat with lower immunogenicity.



Wheat and Lentil Cookies

Ingredients

64g shortening
130g sugar
2.1g salt
2.5g baking soda
112g all-purpose flour
112g red lentil flour

Method

1. Using an electric mixer, cream the shortening, sugar, salt and baking-soda on low speed for three minutes.
2. Add 16 ml water and mix at low speed for one minute.
3. Add all-purpose flour and lentil flour and continue mixing for two minutes at low speed, scraping down the sides of the bowl as needed.
4. Gently scrape the dough from the bowl and cut into six equal portions, place on lightly greased baking paper allowing ample space between each portion.
5. Flatten each portion with you palm and roll to desired thickness with a rolling pin.
6. Cut dough with desired cookie cutter and discard excess dough.
7. Place cookies on a lined baking tray, leaving space between each cookie. Bake at 205°C for 10 minutes.
8. Allow cookies to cool, place on wire rack and cool for another 15 minutes.



Drew Portman Pulses

PhD Student – Functional
Grains Centre, School
of Biomedical Science,
Charles Sturt University
and Agriculture Victoria

Along with other pulses, lentils have been a staple throughout Asia, India and the Mediterranean, helping populations obtain sufficient levels of protein and other important nutrients. These include dietary fibre, carbohydrates, starch and minerals. Frost events are a common occurrence experienced by growers in Australia, Canada and the United Kingdom, which can affect the visual appearance of seeds and decrease their market value. On the other hand, damaged lentil seeds that would normally be discarded, retain a high level of protein, carbohydrates, and other beneficial compounds. Damaged lentil seeds milled to flour can be used as an additive in novel food products such as cookies, breads and extruded snack foods. Exploiting the proximal composition of visually compromised lentils will provide an economical substrate to the food industry whilst improving outcomes for growers when crops are affected by frost.

Esther's Coloured Rice Risotto


Ingredients

4 tbsp butter
2 tbsp olive oil
½ large brown onion, diced
3 cloves garlic, minced
2 cups black or red rice
8 whole sun-dried tomatoes in oil,
drained and minced
1 cup dry white wine
8 cups low sodium chicken broth
Salt, as needed
Freshly ground black pepper
1 cup parmesan, grated
4 tbsp basil pesto

Optional:
¼ thickened cream
Fresh basil, chiffonade

Method

1. Heat broth in a saucepan or in a microwave safe pitcher. Set aside.
2. Heat butter and olive oil in a large pot over medium heat. Add onions and garlic and cook for three to four minutes.
3. Add dry rice. Stir to coat and cook for three minutes, stirring gently.
4. Add wine. Stir and cook over medium-low heat until most of the liquid is absorbed. Add in minced sun-dried tomatoes, two tablespoons of basil pesto, mushrooms (if using) and stir.
5. Begin adding broth, one cup at a time, stirring gently while the rice absorbs the liquid each time. Repeat this until the rice is cooked – this usually takes between six and eight cups of broth. The rice should have a slight bite to it, but not be crunchy at all. This may take some time, be patient!
6. Remove from heat, then stir in parmesan, remaining basil pesto and heavy cream. Adjust salt and pepper to taste. Serve with salad, or as a side dish with steak, chicken, or fish.

A portrait of Dr Esther Callcott Rice, a woman with dark hair, smiling and wearing a light blue polo shirt with the FGC logo. The background is a blurred outdoor setting.

Dr Esther Callcott Rice

PhD Graduate (and mother hen) – Functional Grains Centre

My research project investigated the changes in quality of Australian wheat and the role of pigmented rice polyphenols and their ability to modulate obesity-related oxidative stress and inflammation. This study aimed to conduct polyphenol profiling across Australian-grown pigmented rice varieties, identify anti-adipogenic potential and explore the anti-inflammatory and antioxidant properties of pigmented rice in in-vitro, ex-vivo and in-vivo biological systems.

Key findings:

- Australian-grown coloured rice is rich in bioactive compounds called polyphenols.
- Red and purple/black varieties have the most abundant polyphenol content.
- Polyphenols from Australian-grown coloured rice has high antioxidant potential.
- Polyphenols from Australian-grown coloured rice increase antioxidant activity in cell-culture based obesity studies.
- Polyphenols from Australian-grown coloured rice reduce inflammation and free-radical damage in biological cell-culture based models of obesity.
- When consumed, one cup of red or purple/black rice increased antioxidant activity in healthy and obese populations.
- When consumed, one cup of red or purple/black rice decreased inflammation and free-radical damage biomarkers in healthy and obese populations.

Grain and Lupin Salad

Ingredients

100g lupin flake
100g wild rice
100g green lentils
60g pistachio kernels, roughly chopped
30 red seedless grapes, halved
2 bunches fresh dill
2 bunches fresh tarragon
1 bunch mint
Salt
Pepper
Dressing;
150ml extra virgin olive oil
2 tbsp dijon mustard
2 tbsp lemon juice
Salt and pepper to taste

Method

1. Fill a large stockpot with water and bring to a boil, add one tablespoon of salt to water.
2. Bring one litre of water to a boil in a medium saucepan.
3. Add wild rice, reduce heat and simmer with the lid on for 40-45 minutes, until kernels open but hold their shape. Drain and set aside to cool.
4. While rice is cooking, put green lentils in one litre of water and bring to a boil in a medium saucepan.
5. Reduce to a simmer and cook, uncovered for about 20 minutes, until lentils are soft but still have a nutty texture. Take care not to overcook. Drain and set aside to cool.
6. Fill another saucepan with 1 litre of cold water, add lupin flakes and bring to boil.
7. Reduce heat slightly so lupin flake doesn't boil over and cook for 5 minutes.
8. Drain flakes into a fine mesh sieve, rinse with cold water and drain again. When cool enough to handle, wrap in a clean cloth and squeeze out excess moisture.
9. While grains are cooling, combine dressing ingredients in a small bowl, whisk until creamy and set aside.
10. Combine all grains in a large bowl, toss to combine and season to taste.
11. Pour $\frac{3}{4}$ of the dressing onto the grains and set aside to allow the grains to absorb the flavours, at least 30 minutes or the day before. Keep the remaining dressing in an airtight container until the next stage.
12. Just before serving, add the chopped pistachios, grapes and herbs. Toss with remaining dressing and serve garnished with freshly ground black pepper.



Haben Melke Lupins

Honours Graduate –
Functional Grains Centre,
School of Biomedical
Science, Charles Sturt
University

My research project is focused on investigating the anticancer properties of lupin protein peptides, using colon cancer cell lines.

Lupin is an undervalued legume despite its high protein and dietary fibre content and potential health benefits. In-vitro and in-vivo studies have shown that protein extracts of lupin reduced the risk of dyslipidaemia, diabetes, obesity, hypertension, inflammation, metastasis of cancer cells and bowel dysfunction.

Aquafaba Meringue/Pavlova

Ingredients

2 cans of aquafaba/ ½ a cup of aquafaba

1 cup of caster sugar

1 pinch of cream of tartar

1 tsp of vanilla extract (or 3 tbsp cacao powder for a chocolate meringue)

Toppings of your choice

Method

1. Preheat oven to 120°C (110°C fan forced).
2. Add the aquafaba to a large bowl with a pinch of cream of tartar. Refrigerate for 10–15 minutes to allow the aquafaba to cool.
3. Once cooled, beat the mixture as you would with egg whites to make a normal meringue. Slowly add caster sugar to the mix. The aim is to thicken the aquafaba so that it is stiff enough to form peaks.
4. Add your choice of flavouring, by sprinkling it over the thickened aqua-faba and gently folding through.
5. Cover a large baking tray with baking paper and pipe the meringue mix, in either small nests or one large.
6. Bake for 45 minutes. Once done, switch the oven off but leave the meringue in there for another hour.
7. Serve as is or top with your favourite pavlova toppings.



Heidi Bochenek Chickpea

Honours Graduate –
Functional Grains Centre,
School of Biomedical
Science, Charles Sturt
University

My honours project focused on investigating the anti-colorectal cancer effects of two different chickpea extracts. A crude polyphenol rich extract and an aqueous aquafaba extract were produced and chemically analysed to understand their composition. These extracts were then used on two different colorectal cancer cell lines to investigate what modulating effects these extracts had to cancer progression mechanisms; mechanisms such as apoptosis, proliferation and metastasis. Findings suggest that both chickpea extracts were able to modulate the mechanisms investigated, but the chickpea aquafaba elicited a more significant effect. These in-vitro findings likely correlate with epidemiological evidence that suggest the consumption of chickpeas decrease colorectal cancer incidence.

Chorizo and Capsicum Rice Skillet

Ingredients

1 ¼ cup white, brown, or retort rice
2 tsp olive oil
340g chorizo sausage, chopped
½ red capsicum, sliced
½ yellow capsicum, sliced
1 small white onion, quartered and diced
4 cloves garlic, minced
½ tsp kosher sea salt
½ tsp ground black pepper
5 tbsp tomato paste
1 ¼ cup low-sodium chicken stock, divided
1 tsp paprika
⅛ tsp cayenne pepper
1 ½ tbsp parsley, chopped

Method

1. In a small saucepan, cook rice according to your preferred method. Rice cooked the day before works best for this recipe.
2. Heat a large cast-iron skillet or non-stick frying pan over medium-high heat. Once hot, add the oil. Once the oil shimmers, add the sausage and cook until browned, for about five minutes. Remove from the pan and set aside.
3. Add the capsicum and onion, sauté for 4-5 minutes. Add the garlic, salt, and pepper and cook until fragrant, for about one minute. Remove from the pan and set aside.
4. Add the tomato paste and about ¾ cup of chicken broth to the pan, whisk to combine. Allow the mixture to simmer for one minute, then add paprika and cayenne pepper.
5. Stir in the cooked rice, sausage, remaining chicken stock, capsicum and onions until combined. Garnish with chopped parsley, serve immediately.



Jack Murphy Rice

Honours Graduate –
Functional Grains Centre,
School of Biomedical
Science, Charles Sturt
University

I completed a Bachelor of Science (Honours) with the Functional Grains Centre in 2019. My research focused on reducing the glucose released by rice during digestion via methods including, addition of bioactive sugarcane extract or lupin flour, consuming brown rice rather than white, and retort processing to produce microwaveable rice. I found that the addition of both bioactive sugarcane extract and lupin flour to rice reduced the digestibility (glucose release) of rice in-vitro. Meanwhile, I ran a human dietary intervention trial wherein volunteers ate white, brown and retort rice and the resultant change in their blood glucose concentrations was measured. Results suggest that there was no difference in glucose release between the three rice types.

Sardine Rice

Ingredients

SunRice microwaveable cooked rice
(variety optional)

Brunswick canned sardines in olive oil,
drained

15ml avocado oil

25g aged havarti cheese

Salt pepper to taste
(alternative seasonings optional)

Method

1. Cut a small opening at the corner of the rice packet. Add hot water until $\frac{1}{4}$ of the packet is full. Microwave for two minutes then drain water.
2. Open and drain canned sardines.
3. Add rice, sardines, avocado oil and grated or sliced cheese into a medium-sized bowl and mix thoroughly.
4. Add desired seasonings to taste and microwave for a further 1-2 minutes.



James Lee Rice

PhD Student – Functional Grains Centre, School of Biomedical Science, Charles Sturt University

Starchy foods are a major staple in human nutrition with rice, wheat and corn being the most important crops in the world. Rice is a staple food for more than half of the global population and is consumed extensively. It is also becoming the fastest growing staple food in developing economies such as Africa and Latin America.

However, starch digestibility influences dietary non-communicable diseases such as diabetes, obesity and colon cancer.

The digestibility of starchy foods is typically monitored through in-vivo and in-vitro assays mostly focused around the release of glucose from the starchy food. Broadly, in-vivo assays can be

costly and generate highly variable data due to wide variability in metabolism between individuals. In-vitro assays circumvent this with relatively few tightly controlled components and have generated comparable results to in-vivo GI. These assays are usually monitored with methods which may have one or a combination of the following: lacks discernibility of the products being released, only specific to glucose, easily influenced by the starch matrix or may require extensive sample preparation which can lead to quantification malfunction.

This project aims to develop, evaluate and apply free solution capillary electrophoresis (CE) as a starch digestibility monitoring method, to determine the release of glucose and alternative digestibility markers such as glucose pre-cursor sugars maltotriose and maltose during enzymatic in-vitro starch digestion, to further our understanding of carbohydrate digestibility. The resulting method will be a novel starch digestibility screening method to measure the in-vitro digestion of starchy foods with a combination of minimal sample preparation and high characterisation of released sugars, whilst being a robust, repeatable and reproducible determination of the released sugars on-line. This could be useful in the determination of in-vitro glycaemic index and glycaemic potential between different varieties of starchy foods. It can also provide new insights into the kinetics of in-vitro starch digestion to complement the clinical in-vivo starch digestibility assays.

Squash, Goats Cheese and Rosemary Pancakes

Ingredients (serves 2)

200g self-raising flour
1 tsp baking powder
1 rosemary sprig, finely chopped
1 egg
300ml milk
25g butter, melted and cooled, plus a knob extra
2 tbsp olive oil
250g butternut squash, peeled, deseeded and cut into small cubes
100g vegetarian goat's cheese, crumbled into small pieces
A handful of pumpkin seeds
Rocket salad
Onion chutney

Method

1. Mix flour, baking powder, rosemary and a pinch of salt in a large bowl, make a well in the centre. Beat the egg with the milk. Whisk in the milk mixture and melted butter to make a thick, smooth batter. Refrigerate.
2. Heat large pan on medium heat and add a knob of butter and one tsp olive oil. Add the butternut squash and cook for 10 minutes until tender, turning the heat up for the final few mins. Remove batter from the fridge, add the goat's cheese and squash, then carefully fold to combine.
3. Heat oil in a non-stick frying pan, then in batches, add a ladleful of batter per pancake. Cook for three minutes until bubbles cover the surface, then flip and cook the other side until golden. Serve with dressed rocket salad, a sprinkling of pumpkin seeds and onion chutney on the side.



Dr Kyah Hester Wheat

PhD Graduate – Functional Grains Centre

There are a number of people that report following a non-prescribed gluten-free diet in order to mediate health symptoms they believe are directly associated with its consumption. These choices are often met with scepticism and can lead to major dietary change without the guidance of medical professionals. My research was aimed at developing an in-depth characterisation of this population, in order to identify the factors that drive these choices and behaviours. The results indicate that non-prescribed gluten avoiders are a distinct and homogenous group,

sharing similar perceptions and food choice preferences that modify their relationship with food as a whole. The perceived symptoms experienced by this population may be masking a more general sensitivity dysfunction, driven by heightened sensual experiences with all types of food. An examination of individual differences confirms that these symptoms are connected with the capacity to attend to, and cope with internal stimulation – including the sensations associated with eating. This research was amongst the first to consider the role that psychology plays in the manifestation of these symptoms, expanding our understanding of the issues that drive this select group of dieters.

Amaranth Pumpkin Soup Pancakes

Ingredients

Half a Kent pumpkin (or the variety you prefer), peeled and chopped into rough chunks

3 tbsp amaranth seeds

1 brown onion, chopped

2 cloves garlic, minced

2 tbsp butter or ghee

Broth, stock or water, necessary amount.

Salt

Pepper

Nutmeg

Turmeric

Method

1. Start early with steeping the amaranth seeds. At least a five-hour soaking time will help to reduce the levels of antinutrients and enhance the bioavailability of minerals in the grains.
2. Heat butter or ghee in a saucepan and cook onions and garlic until onion is translucent.
3. Place pumpkin in the saucepan and add stock or water. Simmer on medium heat until pumpkin is tender.
4. Leave to cool slightly then blend using either a stick blender or transfer to stand blender to get the desired texture.
5. Meanwhile, wash the soaked amaranth seeds using a canvas filter.
6. Resume simmering the soup with the addition of amaranth for 10-15 minutes.
7. Adjust salt and pepper to taste, add spices of your preference a few minutes before taking off the heat.
8. Serve and enjoy.



PhD Student Marina Velasco Manini Quinoa

Visiting student -
Functional Grains Centre

My thesis project is about increasing the antioxidant properties of Andean grains by using lactic acid bacteria metabolism on flavonoids, which I develop in a Reference Centre for Lactobacilli in Argentina. Lactic acid fermentation is an ancestral technique used for food preservation, that provides organoleptic, nutritional and health advantages. I have been working on some strains isolated from quinoa and amaranth, evaluating their capacity to transform flavonoids into more bioactive forms. The final purpose is to design a fermented pseudocereal beverage and test its functional properties in an animal model.

Rice with Meat, Pine Nuts and Almonds

Ingredients

500g white rice, basmati or doongara
750ml water
60-90g butter
250g lamb, beef or veal, minced
60g pine nuts
60g almonds, peeled and halved
Oil or butter
Salt
Black pepper
½ teaspoon ground cinnamon or ¼ teaspoon allspice (optional)
30-60g seedless raisins

Method

1. Heat the butter in a rice cooker on the warm setting. Throw in the rice and fry it gently until the grains are translucent and well coated with fat. Add the water and salt (to taste) and turn the rice cooker on to cook.
2. Fry the meat and the mixed nuts, separately in oil or butter. The nuts only require 2-3 minutes of frying. Cook the meat longer, adding a few tablespoons of water and crushing it with a fork until it has changed colour and becomes soft, light and crumbly. Mix the meat and raisins with the nuts, season to taste with salt and pepper, and other spices if you like.
3. Pat or mould the hot rice into a pyramid or ring shape in a heated serving dish, and crown with the meat and nut mixture.



Michelle Toutounji

Rice

PhD Student – Functional Grains Centre

Rice is nutritionally important for a large part of the world's population, especially across Asia where it's commonly eaten at every meal. Rice is mostly composed of starch, which generally causes a marked increase in blood glucose levels after consumption. However, increasing global rates of obesity and related chronic disease has led to consumer demand for slowly digestible, highly satiating rice that can provide slow and steady postprandial glucose in the blood stream. My research encompassed a paddock-to-plate

approach to investigate various factors influencing the digestion of rice grains in an in-vitro model. Some key factors that were observed to influence the starch digestibility rate were the variety of rice, the rate of nitrogen applied to the rice plant, storage temperature of the paddy grain, the degree of milling, and specific commercial processing techniques. The results seem to indicate that the digestibility of starch in rice is complex, influenced by an interplay between the intrinsic characteristics of the variety (e.g. starch properties, starch-protein interactions and starch-lipid interactions) and extrinsic factors (e.g. farm practices and food processing). This research offers new insights on rice digestibility which may assist rice breeders and food manufacturers in the development of diabetic-friendly rice products.

Rice Bran Crusted Cheesecake

Ingredients

Crust:

1 ½ cups biscuit crumbs, plain digestives, Arnott's shredded wheatmeal or Granita biscuits

¼ cup rice bran

⅓ cup butter, melted

¼ cup white sugar

½ teaspoon kosher salt

Cheesecake mix:

227g cream cheese, at room temperature

1 cup white sugar

½ cup sour cream, at room temperature

2 tsp vanilla extract

3 eggs, at room temperature

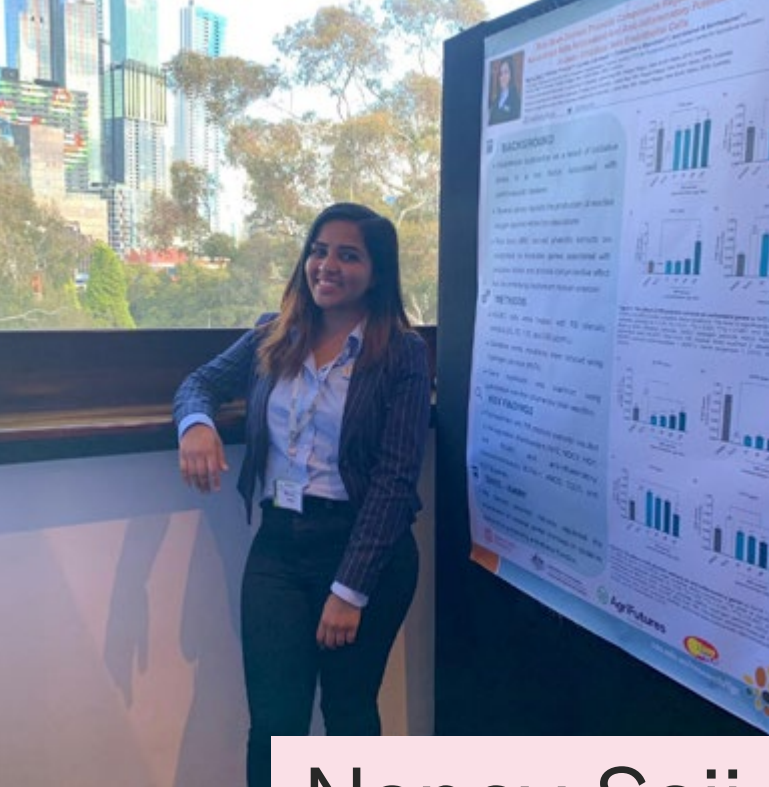
Method

Crust:

1. Preheat oven to 180 degrees Celsius.
2. In a large bowl combine the biscuit crumbs, butter, rice bran, sugar and salt. Press the mixture into the bottom and up the sides of a 9-inch springform pan to form the crust.
3. Bake the crust for 8-10 minutes, or until lightly golden. Set aside.

Cheesecake mix:

1. Using your stand mixer or electric hand beater mix cream cheese and sugar on medium speed, until smooth, scraping the sides of the bowl as necessary.
2. Switch to the low setting and add sour cream and vanilla; mix well, scraping sides of the bowl as necessary. Add eggs one at a time, mixing on low speed after each addition until combined. Don't over mix. Pour the filling over crust and spread evenly.
3. Double wrap the bottom of the springform pan with foil, sealing it tightly to prevent water from getting into the pan.
4. Place the springform pan into a deep tray and pour boiling water into the pan ¾-inches deep, make sure the water level is not higher than the foil.
5. Bake for 60-70 minutes or until the centre is almost set. The centre will still jiggle while the edges will be set.
6. Carefully run a knife around the rim of pan to loosen the cheesecake. Allow to cool at room temperature for at least an hour, then cover and transfer into the refrigerator for at least six hours or overnight.
7. Release the sides of the springform pan before slicing.



Nancy Saji Rice Bran

PhD Student – Functional Grains Centre

My research project investigates the role of rice bran derived polyphenols and their ability to inhibit mechanisms associated with oxidative stress that lead to degenerative diseases, such as cardiovascular disease and Type II Diabetes.

The objectives of this study were to identify the impact of:

- Heat-stabilisation treatments on the phenolic content and antioxidant activity of rice bran derived polyphenols.
- Rice bran derived polyphenols on in-vitro digestibility of high GI rice varieties.
- Rice bran derived polyphenols in modulating endothelial function and inflammatory responses.

- Rice bran derived polyphenols in modulating expression of genes associated with – cell function.
- Rice bran derived polyphenols on inflammatory responses in macrophages under an oxidative stress environment.
- Rice bran derived polyphenols on platelet activation associated thrombogenesis.

Rice bran is usually discarded or used as animal feed due to its short shelf-life and development of rancidity during storage. Results obtained so far have shown that heat-stabilisation treatments can improve overall antioxidant activity of essential phenolic compounds present in rice bran. It has also shown that rice bran derived polyphenols have antioxidant and anti-inflammatory potential in several biological systems. Introduction of rice bran into the diet has the potential to alleviate risk factors associated with metabolic disorders in addition to adding value to the Australian grains industry.

Fried Rice

Ingredients

1 tbsp soy sauce
1 tbsp fish sauce
1 tbsp sesame oil
1 cup rice or your choice of grain
2-3 eggs
Your choice of vegetables and/or meat.

Hot tip: make sure you follow the water recommendations as this will vary between varieties

Method

1. Add boiled water to rice, cover and let simmer. Once most of the water is absorbed and you see the holes in the rice and a small amount of water still bubbling, remove from the heat and keep covered. The rice will absorb the excess water, and you won't burn the bottom of the saucepan.
2. To save time, you can cook your veggies and meat separately while the rice is cooking.
3. Add cooked rice to a frying pan with a little oil and add eggs and stir.
4. Add veggies and meat.
5. Add sesame oil, fish and soy sauce. One tablespoon of each may not be enough depending on the amount of extra veggies and meat. You can add more but keep the three in equal proportions.
6. Stir until combined and serve.



Dr Rachael Wood Rice

PhD Student -
Functional Grains
Centre, School of
Biomedical Science,
Charles Sturt University

Rice grain quality research is primarily focused on the identification of genes which control particular traits. Environmental factors and grower management practices also play a significant role in influencing grain quality, yet research regarding the effect of crop management practices on grain quality is fragmented and generally lacks an Australian focus. This study aimed to investigate how specific varieties interact with agronomic practices to help reduce the variability in grain quality found within the Australian rice industry and give better recommendations to rice farmers. Grain quality was found to improve when rice is grown using water saving methods, increasing farmer profit per megalitre of water used. These research outcomes have the potential to substantially increase the profitability and sustainability of rice production in southern New South Wales.

Crunchy Healthy Falafels

Ingredients

400g desi chickpeas with shells
½ bunch coriander
½ bunch parsley
1 cup onions, coarsely chopped
3–4 cloves of garlic
Olive oil
Salt
1 tbsp cumin
1 tbsp paprika
1 tbsp black pepper
2 tbsp baking soda
4 tbsp breadcrumbs

Method

1. Coarsely chop onions, coriander and parsley. Blitz fresh herbs with the garlic in a food processor for a few seconds.
2. Add chickpeas to food processor, followed by olive oil, salt, cumin, paprika, black pepper and baking soda.
3. Blitz until smooth but crumbly.
4. Add breadcrumbs to the smooth paste and combine.
5. Roll spoonful's of the mixture into golf-ball size balls.
6. Coat a frying pan in olive oil and heat over medium heat.
7. Fry the falafel balls on all sides until golden and crispy.
8. Add to a wrap and enjoy with tahini sauce and your favourite salad.



Raiyan Mahbub Chickpea

Honours Student –
Functional Grains Centre

Australia is one of the biggest producers and the biggest exporter of chickpeas in the world. The 'Desi' variety of chickpeas is mainly produced in Australia and the hull of these chickpeas are normally discarded and seen as a by-product. This project aims to identify the beneficial health properties of chickpea hulls in order to promote whole chickpea consumption and increase the value of chickpeas as a whole for farmers. The project will look at some antioxidant and anti-inflammatory properties of the polyphenol-rich chickpea hulls and hopefully shed some light on their nutritional value.

Banana Oatmeal Canola Oil Cookies

Ingredients

Canola oil cooking spray

3 medium bananas, ripe

2 ½ cups rolled oats

¼ cup canola oil (to replace butter)

½ cup white sugar

Method

1. Preheat oven to 180°C.
2. Line two large cookie/biscuit trays with baking paper and spray with canola oil cooking spray.
3. In a large bowl, gently stir remaining ingredients until well combined.
4. Roll spoonful's of mixture into balls, place on tray and flatten gently with a fork.
5. Bake for 10–12 minutes, remove from oven and cool on a wire rack before serving.



Dr Randy Adjonu Canola and Rice

Post-Doctoral Research
Fellow – Functional
Grains Centre, School
of Biomedical Science,
Charles Sturt University

The technique applied by different oil processors impacts on the quality and application of the refined oil. This study investigated the variability in the frying performance of canola oils sourced from different processors. The differences in the frying life of the oils were driven by different processing practices employed by the different processors during oil extraction, refining and subsequent handling. This has great implications for oil processors in that there exists the potential to increase the frying life of oil products by adopting intelligent processing approaches. This is because the approach used can improve or adversely impact the quality and frying life of the oil.

Pear, Banana and Flaxseed Meal Muffins

Ingredients

1 cup flaxseed meal
1 cup self-raising flour
½ cup rolled oats
¼ cup brown sugar
1 tsp cinnamon
1 tsp vanilla essence
1 egg
50g unsalted butter
250ml full cream milk
3 pears, cored and diced into 1cm cubes
2 bananas, peeled and mashed

Method

1. Preheat oven to 180°C (160°C fan forced).
2. Line a cupcake or muffin tray with patty pans and set aside.
3. In a medium mixing bowl combine dry ingredients.
4. Combine wet ingredients in another bowl.
5. Gradually add the wet ingredients to the dry ingredients and mix until it reaches a smooth consistency.
6. Add fruit and fold to combine.
7. Fill each patty pan two-thirds of the way full with the mixture.
8. Bake for 10-15 minutes.
9. Cool on wire rack and dust with sifted icing sugar.

A woman with long dark hair, wearing a white lab coat over a blue shirt, is smiling and holding a glass flask containing orange granules. The background is a blurred laboratory setting.

Dr Rebecca Heim

PhD Graduate – Functional Grains Centre

Crushing of canola seed yields valuable commodities including high-value meal, supplemented into dairy cattle feed and traded worldwide as a protein source. This research involved the investigation of factors impacting the degradability of canola meal protein as a protein source for ruminant use. Initial studies identified three in-vitro protease procedures as effective alternatives to a ruminal fluid reference procedure to estimate rumen undegradable protein (RUP) in oilseed meals, and also a modification of an existing in-vitro procedure to improve correlation with a ruminal fluid reference procedure. A

subsequent benchmark survey of the ruminal protein digestibility of Australian produced oilseed (canola, cottonseed, flaxseed, and soybean) meals, revealed ruminal protein digestibility differed between oilseed types and oil-extraction techniques. Further analysis found crude protein content in expelled canola meal consistently varied between cultivars. Outcomes imply digestible fibre-associated protein is contributing to differences in protein degradability between cultivars. The degree of heat-induced RUP formation in expeller meals was found to differ between cultivars, and in the conversion of rapidly degradable to intermediately degradable protein. Research outcomes highlight opportunity to improve the quality of Australian oilseed meals by refining oil-extraction technique conditions. Monitoring of ruminal protein digestibility of oilseed meals may benefit future feed formulation for improved dairy cattle utilisation.

Chicken Curry with Rice

Ingredients (serves 8)

200g Doongara rice, low GI

1 tbsp frying oil

4 onions, finely sliced

185g yellow curry paste

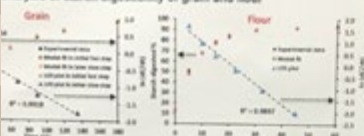
Chicken fillets, cut into four pieces each

200ml coconut milk

Method

1. Mix 200g of Doongara rice with 300ml of water and cook in a rice cooker.
2. Heat oil in a large, deep casserole saucepan over medium-high heat. Add onion and curry paste and cook for two minutes. Add chicken and cook, stirring for six minutes or until browned.
3. Add coconut milk and one cup of water and bring to a boil. Reduce heat to low and cover. Let simmer for 25 minutes. Divide among serving bowls with the cooked rice.

Analysis of starch digestibility of grain and flour



Real starch digestion, model-fit curves and LOS plots for grain and flour

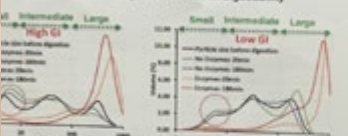
digestion has single phase

digestion has two phases:

fast phase, 20 min, k=4, ~50-70% starch digested

slow phase, 20-180 min, k=6, rest of starch digested

Effect of particle size disintegration on starch digestibility



Particle size distribution for rice grains subjected to in vitro digestibility

Grains ruptured into small and intermediate size during stirring

Fast phase, 0-20 min, small/intermediate particles digested

Slow phase, 20-180 min, large particles digested

Low GI: less small/intermediate particles

Statistical analysis of GI and AUC-20

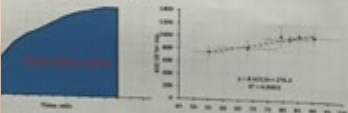


Fig. 4. Area under curve and its correlation with GI

GI positively correlates with AUC-20

Conclusions

GI Prediction through AUC-20

Acknowledgements

AgriFutures
Charles Sturt University
NSW
Department of Primary Industries
csu.edu.au/research/fgc

Dr Wei Zou

Postdoctoral Scientist –
Functional Grains Centre

Dr Wei Zou undertook his post-doctorate research with the Functional Grains Centre (FGC) at Charles Sturt University in Wagga from February to December 2018. His project revealed the key role played by cooked rice integrity in determining starch digestibility. The research achievements helped establish an in-vitro rice starch digestibility assay for rapidly predicting the GI of rice cultivars and breeding lines, to meet the needs of breeding programs which require high throughput assays, which can screen hundreds, if not thousands, of rice lines within tight timeframes.

Oat Bran Pancakes

Ingredients

Woolworths brand Butter Milk Pancake mix

¼ cup oat bran

¾ cups water

Butter for frying

Fresh or frozen berries

Capilano honey

Method

1. Add the oat bran to the pancake mix in a large bowl.
2. Add water and mix well by hand or with electric mixer, add more (sparingly) if needed until mix is slightly runny.
3. Place half teaspoon of butter into a heated non-stick pan and pour enough mix in to reach your desired pancake size.
4. Cook for one minute or until you see bubbles on the surface of the pancake, flip and cook the other side.
5. Repeat process until mix is used up.
6. Serve hot with berries and a drizzle of honey or any other topping of your choice.



Dr Shiwangni Rao

Cereals

PhD Student - Functional Grains Centre, School of Biomedical Science, Charles Sturt University

My project investigated the antioxidant and anti-cancer potential of phenolic compounds present in Australian grown cereals. It also examined the role the environment plays in the regulation of these compounds. Cereals studied in the project included oats, barley, rice and sorghum. The outcome of the project showed that pigmented varieties of cereals had high antioxidant activity and this correlated to substantial decrease in cancerous colon cell viability. Environment was also observed to play a critical role in regulation of bioactive compounds present in these cereals. Thus, supporting the potential of Australian cereals to be marketed as a food option that provides added health benefits.

Vegetarian Red Sorghum Burger

Ingredients (makes 6-8 patties)

350-360g red sorghum

2 cloves of garlic, sliced

6 mushrooms, cut into small pieces

60g oats, blended

1 tbsp whole wheat flour

Splash of olive oil

1 brown onion, diced

1 potato, steamed or boiled

Handful of mixed nuts

Splash of mixed vegetable oil

Soy sauce

Nutmeg

Salt and pepper

25g butter

White sauce:

25g plain flour

600ml milk

Salt and white pepper

Method

1. Rinse sorghum well and pour into saucepan with water and ¼ tsp of salt. Stir well, cover and bring to boil.
2. Cook for a further 30 minutes on low, and keep covered.

3. Remove from heat and leave covered for 15 minutes to steam.
4. Coat frying pan with olive oil and add chopped onion and garlic, sauté until translucent.
5. Add mushrooms, soy sauce, ½ tsp salt, and a pinch of both pepper and nutmeg.
6. In a large bowl, mix together your cooked sorghum, mushroom mix, blended mixed nuts and oats, cooked potato and whole wheat flour.
7. Bring ingredients together like a dough, and roll into balls.
8. Flatten balls into burger patty's with hand or spatula.
9. Cook burgers in an oiled pan until cooked through and browned on each side.
10. For the sauce, melt butter in small saucepan, stir in flour gradually, cook for 1-2 minutes.
11. Remove pan from heat and gradually stir in one-third of the milk, return to heat and stir until milk is absorbed.
12. Repeat the process stirring constantly. Ensure sauce becomes thick before adding more milk.
13. When all the milk is added, simmer gently for 8-10 minutes and season with salt and white pepper.
14. Serve your burgers with white sauce on top.

Patties can be served in bread buns or on their own with any additional veggies or toppings.



Simon Xu Sorghum

Visiting PhD Student –
Functional Grains Centre

Red sorghum is a major drought-tolerant crop not only used in the wine, beer and spirit industries but as a main ingredient in many vegetarian dishes. My project is focused on sorghum starch properties and protein fraction about different fermentation of stage in several cultivars: to find the efficiency of sorghum fermentation and use residue after fermentation. Vegetarian dishes require a little more effort to get the flavour you would achieve with meat. We can use red sorghum in a way that mimics the taste of meat. I am currently working under the supervision of Dr Siong Tan at the FGC and will return to my home university, Shenyang Agricultural University (Rice Research Institute) in September 2020.

The 'FGC' Cocktail

Ingredients

30ml of 20 year old Fenjiu

100ml Ginger beer

70ml Cocchi Americano

½ cup ice cubes

Method

1. Add ice cubes to a cocktail shaker, keep a few cubes aside for serving.
2. Add Fenjiu, ginger beer and Cocchi Americano to the shaker.
3. Shake well and pour into your glass over three ice cubes.



Dr Siong Tan

Post-Doctoral Research
Fellow – Functional Grains
Centre

The aim of this project is to evaluate Australian sorghum varieties for Baijiu production. Baijiu is the major spirit produced in China. A few commercial sorghum varieties will be compared for Baijiu production. Specifically, experimental methods for characterising the grain fermentability and Baijiu composition and quality will be setup and validated. Fermentation performance of Australian sorghum varieties will then be investigated. This will be followed by pilot scale fermentations with Chinese partners under typical commercial conditions in China. This study will establish the basis to develop an understanding of the opportunities for Australian sorghum growers to access high value markets.

Easy Cheesy Omelette with Chickpeas and Beans

Ingredients

2-3 eggs
1 tbsp grated tasty cheese
1 tbsp butter
½ cup baked beans
½ cup canned chickpeas, cooked and drained
Fresh basil
Salt and pepper to taste

Method

1. Whisk three eggs in a bowl with a fork and add grated cheese.
2. Heat butter in a small frying pan on high heat.
3. Add egg mixture into the hot pan once butter is melted, wait five seconds, then use spatula to gently move the cooked egg away from the centre of the pan and allow uncooked egg to move on to the hot part of the pan.
4. Flip omelette when egg is mostly cooked and golden brown on the other side.
5. While the omelette is cooking, drain and rinse chickpeas.
6. Plate chickpeas and baked beans and microwave for 60 seconds on high.
7. Serve the omelette with the hot chickpeas and beans with fresh basil leaves and freshly ground pepper to taste.



Stephen Cork

Australian Grown Pulses

PhD Student – Functional Grains Centre, School of Biomedical Science, Charles Sturt University

How can we make pulses something we want to eat every day?

Australia is a major exporter of pulses such as chickpeas and faba beans, yet less than one in five Australians actually eat them. Pulses are a superfood, with more protein than nutri-grain® and an excellent source of probiotic fibre. This means eating pulses can help keep your tummy fuller and improve your cardiovascular and gut health. By processing pulses into ready to eat forms such as flakes, we could improve their accessibility and value.

This FGC research project partnered with pulse processor Woods Foods and breakfast cereal manufacturer Uncle Toby's to evaluate the steaming, rolling and drying conditions required to successfully flake Australian desi chickpeas, kabuli chickpeas and faba beans.

Key findings:

- Pulses can be softened for rolling with three minutes of live steam.
- The impact of rolling and drying is greater with shorter steaming times.
- Pulse flakes have a texture between a cornflake and rolled oats.

Faba Bean Hummus

Ingredients

100g split dried fava beans*
2 tbsp tahini
2 tbsp olive oil
2 tbsp lemon juice
1 small clove garlic
½ tsp mild dried chilli
½ tsp lemon zest
1 tbsp parsley and/or mint, chopped

Method

1. Boil the split dried fava beans in plenty of water for 30 minutes. After 30 minutes of cooking the beans will be soft and creamy but will largely remain intact with some bite – this will give a coarse hummus. For a smoother consistency cook for 40 minutes in just enough water, topping up if necessary, and allow the beans to cook down to a creamy paste.
2. Meanwhile mix up two tablespoons each of tahini, olive oil and lemon juice, stirring well for a creamy consistency. Add half a teaspoon each of mild dried chilli and lemon zest, a tablespoon of chopped parsley and/or mint, plus a little lemon zest. Crush and finely chop the garlic, then add to the tahini dressing.
3. When the beans are cooked, drain, place in a bowl and stir in the tahini dressing.
4. Drizzle with a little more olive oil and garnish with chopped parsley and smoked paprika.

*Recipe sourced from GLNC website and courtesy of the Global Pulse Confederation.



Dr Daniel Skylas

Pulses

Post-Doctoral Research Fellow – Functional Grains Centre and Australian Export Grains Innovation Centre (AEGIC) an FGC Industry Partner

Pulses are high in protein and provide a good source of carbohydrate, dietary fibre, vitamins, minerals and phytochemicals. There is increasing global demand for production of pulse protein ingredients for a diverse range of food applications. My research project investigated the nutritional and

anti-nutritional properties of selected pulses, including mungbeans and faba beans. Wet and dry fractionation methods were employed to produce concentrated pulse protein fractions (> 60%) and protein isolates (> 80%). The impact of processing (such as dehulling, roasting and germination) on subsequent protein fractionation, protein composition and functionality was also investigated. A highlight of this project was the publication of a collaborative study between the FGC, AEGIC, and researchers from University of Adelaide, University of Wollongong and Queensland University of Technology. This study involved a comprehensive analysis of nutritional and anti-nutritional seed-quality traits of the major commercial faba bean varieties grown in South Australia.

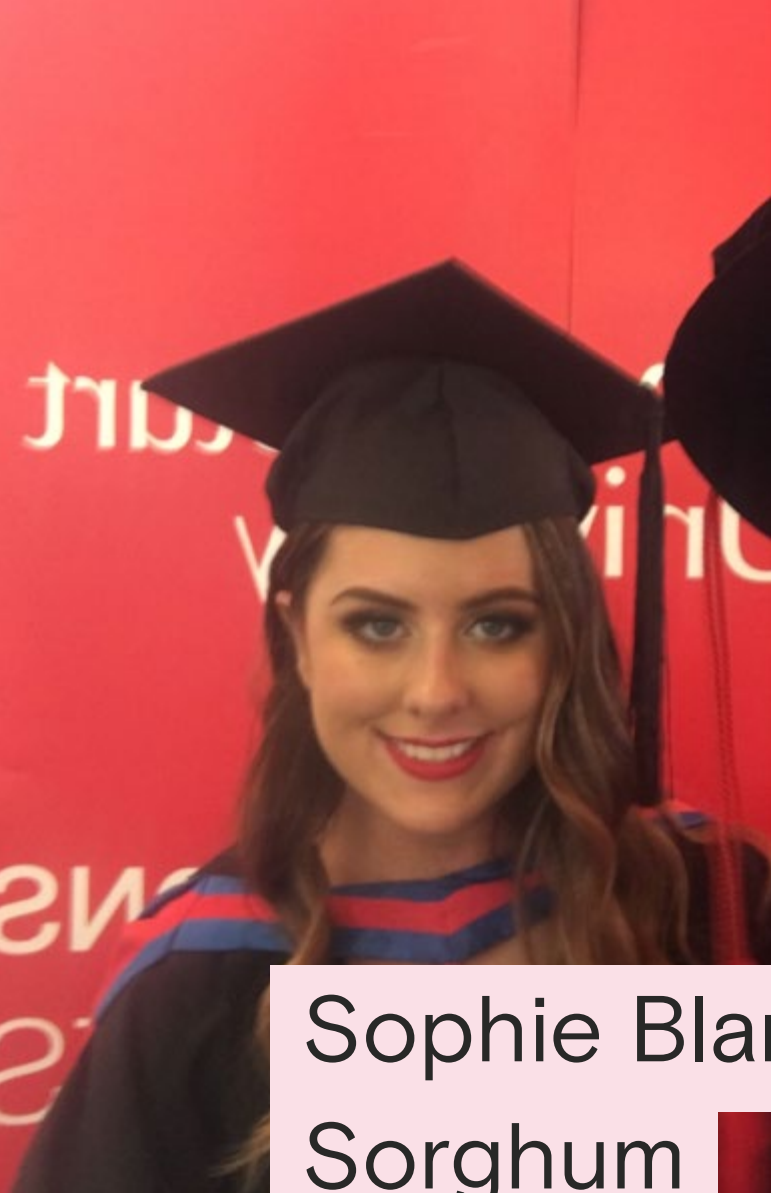
Blanchard's Traditional Mince with Rice and side of Mash

Ingredients

500g beef mince
½ brown onion, diced
1 packet of chicken noodle soup
2 cups of water
1 ½ cups of white rice
5 large potatoes
1 tbsp of margarine
100ml full cream milk

Method

1. Brown the onion in a fry pan, then add mince and cook until brown.
2. Add water, rice and chicken noodle soup packet to the fry pan.
3. Monitor the fry pan and add more water if the contents looks too dry. It is cooked when it has the consistency of a risotto.
4. Peel and chop potatoes, cover with water in a saucepan and boil until soft.
5. Mash potatoes with margarine and milk.
6. Serve with tomato sauce.



Sophie Blanchard

Sorghum

Intern – Functional Grains
Centre and Graham Centre

I was funded by a Graham Centre summer scholarship to partake in a market intelligence internship project for the FGC in 2017. Whilst completing my internship at the FGC, I used my background of Psychology and Business to understand what kind of foods were popular and how these types of foods could be beneficially modified using the grain sorghum. My colleague and I conducted focus groups that were targeted at different generations of people, and here we are able to identify what each generation were looking for in their foods, whether it be convenience, health benefits or tradition. From the information gained from these focus groups, we developed archetypes and collaborated with food scientists to create food ideas that incorporated sorghum, that would benefit the overall population.

The 'Paloma' Cocktail

Ingredients

¼ cup lime juice, freshly squeezed
1 shot of tequila blanco (silver tequila)
Grapefruit soda
Optional:
Salt
Grapefruit slices
Lime slices

Method

1. For a sweet/salty twist, start by adding a rim of salt to the glass. Just rub a wedge of grapefruit around the rim of the glass and dip in salt.
2. In the glass, combine the fresh lime juice and tequila. Stir to incorporate well.
3. Fill the glass with the desired amount of ice.
4. Top off with grapefruit soda and garnish with the grapefruit or lime slices as desired. Serve immediately.

Alba Lucia Penaranda



Visiting Student – Functional Grains Centre

Alba visited the FGC from July to September 2019 and was supervised by Dr. Randy Adjonu. She is currently finishing her PhD at the Food Research and Development Unit, National Technological Institute of Mexico. Her research is summarised here.

Methodology

Antioxidant activities of egg yolk protein hydrolysates (with a protein content of 10 and 20%) and the fractions obtained after the UF process, employing membranes with different MWCO (50, 10 and 5 kDa) were measured with the ABTS radical-scavenging activity test. The ABTS radical cation discoloration is based on the reduction of ABTS radicals (ABTS^{•+}) by antioxidants. Briefly, 7 mM ABTS and 2.45 mM potassium persulphate were dissolved in phosphate-buffered saline (PBS), pH 7.4. The solution was left to react in the dark at room temperature for 12–16 hours to generate the ABTS^{•+}. For the analysis, the ABTS^{•+} was diluted with PBS until an absorbance of 0.7 (± 0.02) at 734 nm was reached. The samples (previously freeze-dried) were reconstituted in PBS to

a final protein concentration of 0.04%. The antioxidant capacity was measured by mixing 1.5ml of ABTS^{•+} solution with 200 μ L of samples and the decline in absorbance was observed after six minutes at 734 nm. PBS was used as a blank.

Results

For the measure of the antioxidant properties, the samples were lyophilized and then reconstituted. The inhibition of the ABTS^{•+} of 10 and 20% protein hydrolysates was determined before fractionation at different protein concentration during the reconstitution (Fig 1). It was found that the scavenging activity on ABTS^{•+} radical increased with increasing protein concentration (from 0.0012 to 0.04%). Hydrolysates obtained from the 10 and 20% protein content, reached maximum inhibitions of 77.31 and 64.21% respectively, with a protein concentration of 0.04%. The difference in the inhibition of the cation must be related to the different peptides released during the hydrolysis, caused by the use of a different protein content.

It can be concluded that membrane MWCO does not affect the antioxidant activity of the permeate obtained. However, the retentate has almost the same antioxidant activity than the permeate. This can be explained with the protein recovery obtained at the end of the concentration process, e.g. for the 50 kDa membrane, a protein recovery of 40 and 42.4% was obtained for a protein dispersion of 10 and 20% respectively, i.e. almost half of the antioxidant and functional peptides remain in the retentate.



Our Industry Partners



Department of
Primary Industries



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Erin Kingett

Visiting students:

Simon Xu
Sania Kabir
Marina Velasco Manini
Alba Lucia Penaranda
Erick Polanco
Bushra Javid
Hang Liu





Functional Grains Centre outputs

Book chapters

2016

Wanasundara JPD, Tan S, Alashi A, Pudel F and Blanchard C. (2016) Proteins from Canola/Rape-seed: Current status. In Nadathur S, Scanlin L and Wanasundara JPD. (Eds.) Sustainable Protein Sources. (1st ed., 285–304). Academic press.

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2019

1. Ali F, Waters DLE, Ovenden B, Bundock P, Raymond CA, Rose TJ. 2019. Australian rice varieties vary in grain yield response to heat stress during reproductive and grain filling stages. *Journal of Agronomy and Crop Science*, 205 (2), 179–187.
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4. Majzoobi M, Kaveh Z, Blanchard CL, Farahnaky A. 2015. Physical properties of pregelatinized and granular cold water swelling maize starches in presence of acetic acid. *Food Hydrocolloids*, 51, 375–382.
5. Majzoobi M, Kaveh Z, Farahnaky A, Blanchard CL. 2015. Physicochemical properties of pregelatinized wheat and corn starches in the presence of different concentrations of L-ascorbic acid. *Starch*, 67, 3–4, 303–310.
6. Majzoobi M, Pesaran Y, Farahnaky A. 2015. Physical properties of biodegradable films from heat-moisture-treated rice flour and rice starch. *Starch*, 67, 1053–1060.
7. Majzoobi M, Pesaran Y, Mesbahi G, Farahnaky A. 2015. Evaluation of the effects of hydro-thermal treatment on rice flour and its related starch. *International Journal of Food Properties*, 19, 2135–2145.
8. Majzoobi M, Raissjalali A, Jamalini, J, Farahnaky A. 2015. Effect of white wheat flour substitution with whole oat flour on physical properties of part-baked frozen bread. *Journal of Texture Studies*, 46, 411–416.
9. Majzoobi M, Vosoughi Z, Jamalini, J, Farahnaky A. 2015. Improvement of the quality of gluten-free sponge cake using different levels and particle sizes of carrot pomace powder.

10. Mukhopadhyay SP, Wood JA, Saliba AJ, Blanchard CL, Carr TB, Prenzler PD. 2015. Physical attributes as indicators of puffing quality and performance of Australian desi chickpeas. *LWT – Food Science and Technology*, 64, 959–965.
11. Reynolds K, Taylor M, Zhou XR, Vanhercke T, Wood C, Blanchard C, Singh S, Petrie JR. 2015. Metabolic engineering of medium-chain fatty acid biosynthesis in *Nicotiana benthamiana* plant leaf lipids. *Frontiers in Plant Science* 6, 164 doi: 10.3389/fpls.2015.00164.
12. Yang R, Zhou Z, Sun G, Gao Y, Xu J, Strappe P, Blanchard C, Cheng Y and Ding X. 2015. Synthesis of homogeneous protein-stabilized rutin nanodispersions by reversible assembly of soybean (*Glycine max*) seed ferritin. *RSC Advances*, 5 (40), 31533–31540.
13. Zhou Z, Wang Z, Blanchard C, Strappe P. 2015. The ageing mechanism of stored rice a concept model from past to present. *Journal of Stored Products Research*, 64, 80–87.
14. Zhou ZK, Ren X, Wang F, Li J, Si X, Cao R, Yang R, Strappe P, Blanchard CL. 2015. High pressure processing manipulated buckwheat antioxidant activity, anti-adipogenic properties and starch digestibility. *Journal of Cereal Science* 66, 31–36.

Conference presentations

Oral presentations 2019

1. Callcott, E.T., Santhakumar, A.B, Snell, P. and Blanchard C.L. (2019, August). The acute antioxidant and anti-inflammatory effects of coloured rice-derived polyphenols on healthy and obese populations. Conference presentation at the Australian Grain Science Association, Melbourne, VIC, Australia.
2. Cork S, “Processing effects on pulse flake quality,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.
3. Florides C, “Investigation of immunogenicity in a wheat line and its null derivatives for different gliadin loci,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.
4. Portman A, “Capturing the potential value of low-grade lentil seeds as a flour additive in extruded products,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.
5. Rao S, “Response to phenolic compounds present in barley and oat to variation in location,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.
6. Saji N, “Rice bran derived phenolic extracts modulate genes associated with endothelial function,” HDR Symposium, Charles Sturt University, Wagga Wagga, NSW 2650, 11 July 2019
7. Tan S, “Effects of protease and nutrient supplementation on fermentation rate of Australian sorghum varieties,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.
8. Toutounji M, “Rice digestibility as influenced by fertiliser application and post-harvest storage temperature,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.

9. Wood R, “Vegetative water stress improves milling quality and alters the pasting parameters of rice,” presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27–29 August 2019.

Oral presentations 2018

1. Florides et al. AIFST conference, Curtin University Perth WA. 21 to 22 February, 2018.
2. Florides et al. AGSA conference, CSU, Wagga, NSW. 12 September 2018.
3. Florides et al. AACCI conference, Hilton Hotel, London, UK 22 October.
4. Florides et al. 25th anniversary of SABC, Murdoch University, Perth, WA.
5. Callcott, E.T., Santhakumar, A.B, Luo, J. and Blanchard C.L. (2019, Feb). The antioxidant and anti-inflammatory effect of coloured rice in obese populations. *EvokeAg Conference*, Royal Exhibition Hall, Melbourne, VIC, Australia.
6. Callcott ET, Santhakumar AB, Oli P and Blanchard CL. Rice-derived polyphenols reduce inflammation and oxidative stress biomarkers in human umbilical vein endothelial cells. *Australian Grain Science Association*, Wagga Wagga, NSW, September 2018
7. Callcott, E.T., Santhakumar, A.B, Luo, J. and Blanchard C.L. The anti-inflammatory and antioxidant potential of coloured rice-derived polyphenols. *Rice Growers Association*, Charles Sturt University, Wagga Wagga, NSW, Australia. May 2018
8. JJ Lee, D Waters, C Blanchard, J Oliver, P Castignolles, M Gaborieau. Monitoring In vitro digestion of starchy foods. *Australasian Grain Science Association Conference*, Wagga Wagga, September 2018
9. Q. Riaz, C. Florides, A. Farahnaky, F. Békés, M. Majzoobi, R. Eastwood, D. Fleming, C. L. Blanchard (2018). Investigating the changes in quality of historical and modern Australian wheat varieties. *American Association of Cereal Chemists International* 2018. October 21 – 23, 2018 London, United Kingdom.
10. Q. Riaz, C. Florides, Ferenc Békés, A. Farahnaky, D. Fleming, M. Majzoobi, R. Eastwood, C. L. Blanchard (2018). High and low molecular weight glutenin subunit alleles of historic and modern Australian wheat varieties and their effect on dough rheology. *Australian Grain Science Association conference* 2018. September 10–13, 2018 Charles Sturt University Wagga Wagga, Australia.
11. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P (2018) Impact of delayed permanent water of rice grain quality in south-eastern Australia. *American Association of Cereal Chemists International (AACCI) Annual meeting*, London, UK, October
12. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P (2018) Vegetative water stress alters grain-filling behaviour improving grain quality in rice. *Australasian Grain Science Association (AGSA) Annual Conference*, Wagga Wagga, Australia, September
13. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P (2018) Impact of delayed permanent water of rice grain quality in south-eastern Australia. *Irrigation Australia International Conference*, Sydney, Australia, June

14. S. Rao, Santhakumar. A, Chinkow K and C. Blanchard. 2018. Characterization of phenolic compounds and antioxidant activity in sorghum grains. 68th Australasian Grain Science Association Conference , Wagga Wagga, Australia.
 15. S Rao, Santhakumar A, Chinkow K and C. Blanchard. 2018. Potential health benefits of rice phenolic compounds. 68th Australasian Grain Science Association Conference, Wagga Wagga, Australia.
 16. S Rao, Santhakumar A, Chinkow K and C Blanchard. 2018. Phenolic composition and antioxidant activity of oats. Cereals and Grains 2018. AACCI, London , UK.
 17. Zhou et al. Resistant starch functionality AACCI, London, UK.
 18. Zhou et al. GABA enhanced rice bran AGSA, Wagga Wagga, NSW, Australia.
 19. N. Saji, A.B. Santhakumar, L.J. Schwarz, C.L. Blanchard. Effect of heat stabilization treatments on the phenolic composition and antioxidant activity of rice bran. Australian Grain Science Association, Wagga Wagga, NSW, Australia, 2018.
 20. N. Saji, A.B. Santhakumar, L.J. Schwarz, A. Durand, C.L. Blanchard. Impact of stabilization methods on the phenolic composition and antioxidant activity of rice bran. American Association of Cereal Chemists International, Paddington, London, UK, 2018.
 21. N. Saji, A.B. Santhakumar, L.J. Schwarz, A. Durand, C.L. Blanchard. Exploring the health beneficial properties of rice bran. Rice growers' Association of Australia, Yanco Agricultural Institute Yanco, NSW, Australia, 2018.
 22. S. Rao, A.B. Santhakumar, K. A. Chinkwo, C.L. Blanchard. Mapping antioxidant activity of oat polyphenols using UHPLC-online ABTS and LC Q-TOF. American Association of Cereal Chemists International, Cereals and Grains, American Association of Cereal Chemists International, Paddington, London, UK, 2018.
 23. R. Adjonu, J. Ayton, P. D. Prenzler, C. L. Blanchard Does crude oil extraction technique affect canola oil functionality? 68th Australasian Grain Science Conference September 10th-13th 2018, Charles Sturt University, Wagga Wagga, NSW.
 24. S. Tan, A. Khoddami, D. Tan, T. Bishops, T. Roberts, A. Farahnaky, C. Blanchard and J. Mawson Fermentation performance of current Australian sorghum varieties. AusSORGM17-18/ July/2018 Mon Komo Hotel, Redcliffe
 25. S. Tan, A. Khoddami, D. Tan, T. Bishops, T. Roberts, A. Farahnaky, C. Blanchard and J. Mawson. Fermentation performance of current Australian sorghum varieties AGSA conference. 10-13/Sep/2018. Wagga Wagga
 26. S. Tan, A. Khoddami, D. Tan, T. Bishops, T. Roberts, A. Farahnaky, C. Blanchard and J. Mawson. Australian sorghum: Differences in ethanol fermentation between varieties AACCI conference 21-23/Oct/2018, London, UK
 27. Zou W, Luo J, Butardo Jr VM , Farahnaky A and Blanchard CL. A high throughput in vitro digestibility assay for rapidly predicting glycaemic index of rice varieties. Australasian Grain Science Association (AGSA), Wagga Wagga, Sep. 2018
- 2017 Oral presentations
1. Blanchard C.J. Rice developments at the Functional Grains Centre. International Temperate Rice Conference, NSW, Griffith, Australia.
 2. Balindong JL, Ward RM, Rose TJ, Liu L, Raymond CA, Snell PJ, Ovenden BW, Waters DLE. The role of protein in rice quality. Australian Rice Quality Symposium, Wagga Wagga, Australia.
 3. Butardo VM, de Guzman K, Alhambra CM, Faranahky A, Pallas L, Blanchard C, Sreenivasulu N. Development and validation of amylolysis method to assess digestibility of rice grains. 2017 AIFST Food Science Summer School, Western Sydney University (Hawkesbury Campus), Richmond NSW, Australia.
 4. Butardo V, Farahnaky A, Jixun Luo J, Blanchard CL. Development of rapid in vitro GI testing for cooked milled grains. Australian Rice Quality Symposium Wagga Wagga, Australia.
 5. Callcott ET, Santhakumar AB, Luo J, Blanchard CL. 2017. Polyphenol profiling and antioxidant potential of rice-derived polyphenols on obesity-related inflammation and oxidative stress. Australian Rice Quality Symposium, Wagga Wagga, NSW, Australia.
 6. Hester K, Saliba, AJ and McIntyre E. 2017. A preliminary exploration of non-coeliac gluten avoidance in Australia. Grains Research and Development Centre: Grains Research Update. Wagga Wagga, Australia.
 7. Lee JJ, Liu L, Ward RW, Butardo Jr V, Waters DLE, Blanchard CL, Gaborieau M, Castignolles P. GI measurement. Australian Rice Quality Symposium Wagga Wagga, Australia.
 8. Rao S, Blanchard C, Chinkwo K, Vanniasinkam T, Luo J. Effect of environment on health properties of rice. Australian Rice Quality Symposium Wagga Wagga, Australia.
 9. Rao S, Blanchard C, Chinkwo K, Vanniasinkam T, Luo J. Effect of cultivation location on cereal crops: Phenolic content and chemopreventive potential, CSU HDR Symposium, Wagga Wagga Australia.
 10. Riaz QTA, Farahnaky A, Majzoobi M, Blanchard C. Low gliadin wheat: An emerging concept for gluten sensitive consumers. Australian Institute of Food Science and Technology conference. Sydney, Australia.
 11. Wood R, Mawson J, Dunn B, Blanchard CL. Impact of farmer practice on grain quality. Australian Rice Quality Symposium Wagga Wagga, Australia.
 12. Cork S, Blanchard CL, Faranahky A, Mawson J. Processing technologies for the production of ready-to-eat pulse products. 67th Australasian Grain Science Association Conference, Christchurch, New Zealand.
 13. Cork S, Blanchard CL, Faranahky A, Mawson J. The production and characterisation of value added pulse flakes. GRDC Research update. Wagga Wagga, Australia.
 14. Rao S, Blanchard C, Chinkwo K, Vanniasinkam T, Luo J. Antioxidant and chemopreventive potential of rice (*Oryza sativa* L.). 67th Australian Grain Science Association conference. Christchurch, New Zealand.
 15. Rao S, Blanchard C, Chinkwo K, Vanniasinkam T, Luo J. The effect of environment on grain composition and Functionality, Australian Institute of Food Science and Technology Summer School.
16. Rao S, Blanchard C, Chinkwo K, Vanniasinkam T, Luo J. Australian Rice (*Oryza sativa* L.) phenols and their potential as chemopreventives. Australian Rice Quality symposium. Wagga Wagga, Australia.
 17. Thompson K, Hosking H, Pederick W, Singh I, Santhakumar AB. The effect of anthocyanin supplementation in modulating platelet function in sedentary population: a randomised, double-blind, placebo-controlled, cross-over trial. 67th Australasian Grain Science Association Conference, Christchurch, New Zealand.
 18. Toutounji MR, Farahnaky A, Butardo V, Jixun Luo J, Blanchard CL. The effect of heat moisture treatment on Australian rice grains. The Australian Institute of Food Science and Technology (AIFST) Summer School, Richmond, Australia.
 19. Toutounji MR, Farahnaky A, Butardo V, Jixun Luo J, Blanchard CL. Impact of processing on GI of rice. Australian Rice Quality Symposium, Wagga Wagga, Australia.
 20. Toutounji MR, Farahnaky A, Butardo V, Jixun Luo J, Blanchard CL. Impact of processing on the digestibility of rice. 67th Australasian Grain Science Association Conference, Christchurch, New Zealand.
- 2016 Oral presentations
1. Tan S, Farahnaky A, Day L, McCann T, Blanchard C. Enzymes for canola protein extraction. 6th AIFST Summer School, CSU, Wagga Wagga, Australia.
 2. Karve N, Blanchard CL, McCann T, Torley P, Liu LH, Day L. 2016. Germination of yellow pea - changes in protein profile. 6th AIFST Summer School, Wagga Wagga, Australia.
 3. Portman D. Fermentation profiling of *Saccharomyces cerevisiae* in traditional and synthetic wort's. 6th AIFST Summer School, CSU, Wagga Wagga, Australia.
 4. Skylas D. Nutritional and processing properties of Australian mungbean. Pulse Symposium 2016: Future of Pulse Production and Consumption. Wagga Wagga, Australia.
 5. Portman D, Blanchard CL, Mawson J, Panozzo J. Phenolic content and antioxidant capacity of extracts from lentils. Pulse Symposium 2016: Future of Pulse Production and Consumption. Wagga Wagga, Australia.
 6. Barnett R, Blanchard CL, Williams R, Farahnaky A and Day L. Digestibility and bioavailability of canola meal proteins for dairy cattle nutrition. 2016 AIFST Food Science Summer School. Wagga Wagga, Australia.
 7. Heim R, Blanchard CL, Williams R Farahnaky A, Day L. Processing technique and cultivar affect protein bioavailability for ruminant nutrition in Brassica napus seed meal. Proceedings of the 2016 Brassica Conference, Melbourne, Australia.
 8. Butardo VM. Proxy measures for rice grain digestibility: State-of-the-art and future prospects. School of Science and Health Seminar, Western Sydney University (Parramatta Campus), Parramatta NSW, Australia.
 9. Tan S, Farahnaky A, Day L, McCann T, Blanchard C. Glucosinolate and its breakdown products in Australian canola and non-canola grade meal proteins. IUFOST World Congress of Food Science and Technology, Dublin, Ireland.

10. Quail K. Key factors of innovation. Presented at – 6th AIFST Summer School, Wagga Wagga, Australia.
 11. Saliba A. The importance of sensory analysis. AIFST Summer School, Wagga Wagga, Australia.
 12. Karve N and Hussain S. Yellow harvest naturals germinated pea pasta. Invited presentation at the 2016 AIFST Student Product Development Competition (finalist), Brisbane, Australia.
- ### 2015 Oral presentations
1. Saliba A. The role of sensory and consumer data in defining grain quality of the future. 65th Australian Grain Science Conference, Sydney, Australia.
 2. Mukhopadhyay SP, Blanchard CL, Saliba AJ, Carr BT, Wood JA and Prenzler PD. Understanding consumer voice for improving Australian chickpea quality. 65th Australian Grain Science Conference, Sydney, Australia.
 3. Tan S, Mailer R, Blanchard C and Agboola S. Residual anti-nutritional components in the Australian canola and non-canola grade meal proteins. 65th Australasian Cereal Chemistry Conference, Coogee, Sydney, NSW.
 4. Majzoobi M and Farahnaky A. Cereal by-products: improvement of nutritional value and technology characteristics. 65th Australian Grain Science Conference, Sydney, Australia.
 5. Hussain S, Ata-ur-Rehman, Luckett DJ, Obied Hassan O, Strappe P, Blanchard CL. 2015. Chemical characterisation and in vitro anti-oxidant activity of canola meal extracts. 65th Australian Grain Science Conference, Sydney, Australia.
 6. Farahnaky A, Majzoobi M, Sharifi S, Alipour M. 2015. Expanded products by popping and extrusion: effect of corn physical properties and processing condition. 65th Australian Grain Science Conference, Sydney, Australia.
 7. Tan S, Mailer R, Blanchard C, Agboola S. Gelling properties of Australian canola meal proteins. AIFST Food Science Summer School, RMIT, Melbourne, Australia.
 8. Tan S, Blanchard C. Glucosinolate and its breakdown products in Australian canola and non-canola grade meal proteins. IUFOST World Congress of Food Science and Technology, Dublin, Ireland.
 9. Tan S, Blanchard C. Glucosinolate and its breakdown products in Australian Canola and non-canola grade meal proteins. Brassica 2016: 20th Crucifer Genetics Conference, and the 19th Australian Research Assembly on Brassicas, Melbourne, Australia.
 10. Blanchard C. Leveraging opportunities for funding through collaboration. 65th Australian Grain Science Conference, Sydney, Australia.
- ### Poster presentations
- #### 2019 poster presentations
1. Adjou R, Ayton J, Prenzler D.P, Blanchard C.L. "Influence of processing on frying stability of canola oil," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 2. Bochenek H, "Comparison of the anti-cancer effects of chickpea water and chickpea phenolic extracts on colorectal cancer cell lines," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 3. Bochenek H, "The anti-cancer effects of various chickpea extracts," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 4. Callcott, E.T., Blanchard C.L., Oli, P. and Santhakumar, A.B. (2019, July). Health benefits of red and purple rice. Poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 5. Clarke A, "Advanced techniques of testing and prediction to improve management of quality in Australian rice," Poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 6. Clarke A, "Rapid analysis of grain quality," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC, 27029 August 2019.
 7. Cork S, "Production and characterisation of value added pulse flakes," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 8. Ed Nignpense B, 'Evaluating the impact of polyphenols on platelet aggregation and microparticle production,' poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 9. Ed Nignpense B, "Evaluating the antiplatelet effect of polyphenol-rich black sorghum extracts," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 10. Florides C, "Investigation of immunogenicity in a wheat line and its null derivatives for difference gliadin loci," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 11. Ed Nignpense B, "Evaluating the antiplatelet effect of polyphenol-rich black sorghum extracts," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 12. Francis N, "Impact of black Sorghum derived phenolic rich extracts on antioxidant and anti-inflammatory gene expression in vascular endothelial cells," Rapid fire poster presentation presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 13. Kang G, "The effect of dietary polyphenols on gene expression associated with type 2 diabetes mellitus (t2dm)," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 14. Kang G, "Impact of coloured-rice derived phenolic extracts in modulating gene expression associated with B-cell dysfunction in type 2 diabetes mellitus," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 15. Kerr P, "Australian lupins – potential nutraceutical," Rapid fire poster presentation presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 16. Lee J, "Monitoring the products of in vitro digestion of rice starch using capillary electrophoresis," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 17. McKenzie K, "Beyond Wheetbix – understanding human consumption of Sorghum in India," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 18. Melke H, "Anti-cancer properties of Lupin peptide hydrolysate," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 19. Melke H, "Anti-cancer properties of Lupin peptide hydrolysate," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 20. Murphy J, "The effect of rice processing methods on the digestibility of rice starch – a review," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 21. Murphy J, "The impact of phytol and lupin flour on the in vitro digestion of waxy rice," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 22. Mahbub M.R, "Impact of hemp seed protein hydrolysate on platelet activation," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 23. Rao S, "Sorghum grain phenolic compound characterisation and functionality," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 24. Riaz Q, "Investigating the baking quality of historical and modern Australian wheat varieties," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 25. Riaz Q, "Protein content and baking quality of Australian wheat – a comparison of old and modern varieties," Rapid fire poster presentation presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
 26. Roberts T, "What is the cellular basis for grain size differences in Sorghum?" poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 27. Saji N, "Impact of stabilization methods on the phenolic composition and antioxidant activity of rice bran," Rice Industry Field Day: Connecting Rice Growers with the Future, organised by Rice Extension, Rice Research Australia, Old Coree, 1850 Conargo Rd, Jerilderie, NSW 2710, Australia, 7 March 2019
 28. Saji N, "Rice bran extracts change gene expression," Australian Summer Grains Conference, Gold Coast, QLD, Australia, 8 – 10 July 2019
 29. Saji N, "Rice bran derived phenolic compounds regulate genes associated with antioxidant and anti-inflammatory potential in human umbilical vein endothelial cells," 69th Australasian Grain Science Conference: Grains: A Global Food Resource, Rydges on Swanston, Carlton, Melbourne, VIC, 3053, 27 – 29 August 2019
 30. Tan S, "Effects of protease and nutrient supplementation on fermentation rate of Australian Sorghum varieties," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 31. Toutounji M, "The impact of rice ageing on starch digestibility," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.

32. Wood R, "Vegetative water stress alters grain-filling behaviour improving grain quality in rice," poster presented at the Australian Summer Grains Conference, Gold Coast QLD 8-10 July 2019.
 33. Wood R, "Effect of plant density on grain quality parameters of short and medium grain rice varieties," poster presented at the 69th Australasian Grain Science Association Conference, Carlton VIC 27029 August 2019.
- 2018 Poster presentations
1. Callcott, E.T., Blanchard C.L., Oli, P. and Santhakumar, A.B. Anti-inflammatory and antioxidant potential of rice-derived polyphenols in endothelial dysfunction and obesity. American Association of Cereal Chemists International, London, United Kingdom, October 2018.
 2. JJ Lee, J Oliver, Vito Butardo Jr, D Waters, C Blanchard, M Gaborieau, P Castignolles, Monitoring in vitro digestion of rice starch using capillary electrophoresis. Cereals and Grains, Sydney, October 2018
 3. JJ Lee, J Oliver, D Waters, M Gaborieau, P Castignolles, Improving the separation of glucans in capillary electrophoresis for monitoring in vitro digestion of starch online. Sydney Surfaces And Soft Stuff meeting (SASSY), Sydney, June 2018
 4. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P (2018) Effect of nitrogen fertiliser rate and timing on rice grain quality parameters and protein composition. American Association of Cereal Chemists International (AACCI) Annual meeting, London, UK, October, 2018.
 5. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P (2018) Effect of nitrogen fertiliser rate and timing on grain quality traits and protein composition of rice grown in south-eastern Australia. Australasian Grain Science Association (AGSA) Annual Conference, Wagga Wagga, Australia, September, 2018.
 6. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P (2018) Impact of delayed permanent water of rice grain quality in south-eastern Australia. International Rice Research Institute (IRRI) Plant Sciences Symposium, Los Baños, the Philippines, August (Poster presentation)
 7. Adjonu R, Ayton J, Prenzler PD, Blanchard CL. Thermal stability of Australian canola oil varieties. AusCanola2018, 20th Australian Research Assembly on Brassicas, September 4th-6th 2018, Rendezvous Hotel, Perth, WA.
 8. Zou W, Luo J, Farahnaky A, Waters D and Blanchard C. An in vitro digestibility assay for rapidly predicting glycaemic index of rice varieties. AACC International, London, Oct. 2018
- 2017 Poster presentations
1. Callcott ET, Santhakumar AB, Luo J, Blanchard CL. Polyphenol profiling and antioxidant potential of rice-derived polyphenols on obesity-related inflammation and oxidative stress. 67th Australian Grain Science Association conference. Christchurch, New Zealand.
 2. Lee J, Ward R, Tang J, Blanchard CL, Castignolles P, Gaborieau M. Monitoring in vitro digestion of rice using capillary electrophoresis online. Sydney Surfaces and Soft Stuff Meeting, Sydney Australia.
 3. 2. Lee JJ, Tang J, Liu L, Ward R, Blanchard CL, Castignolles P, Gaborieau M. Monitoring in vitro digestion of rice using capillary electrophoresis online. 50th Anniversary AIFST Convention, Sydney, Australia.
 4. Lee JJ, Liu L, Ward R, Butardo Jr V, Waters DLE, Blanchard CL, Gaborieau M, Castignolles P. Monitoring in vitro digestion of rice using capillary electrophoresis online. Food Structures Digestion and Health International Conference, Sydney, Australia.
 5. Lee JJ, Liu L, Ward RW, Butardo Jr V, Waters DLE, Blanchard CL, Gaborieau M, Castignolles P. Monitoring in vitro digestion of rice using capillary electrophoresis online. 67th Australasian Grain Science Association, Christchurch, New Zealand.
 6. Riaz Q, Farahnaky A, Majzoobi M, Fleming D, Eastwood R, Blanchard CL. Investigating the advances in quality of Australian wheat varieties over the last century. 67th Australian Grain Science Association conference. Christchurch, New Zealand.
 7. Toutounji MR, Farahnaky A, Butardo V, Jixun Luo J, Blanchard CL. Digestibility of processed rice. The 4th International Food Structures, Digestion and Health Conference, Sydney, Australia.
 8. Thompson K, Hosking H, Pederick W, Singh I, Santhakumar AB. Anthocyanin supplementation in alleviating thrombogenesis in overweight and obese population: A randomized, double-blind, placebo controlled study. HAA Conference, Sydney, Australia.
- 2016 Poster presentations
1. Karambakhsh G, Golmakani M, Mesbahi G, Farahnaky A, Majzoobi M. Development of a functional cake fruit formulation using date fruit by-products, 66th Australian Grain Science Conference, Tamworth, NSW, Australia.
 2. Majzoobi M, Vosoughi Z, Mesbahi G, Jamaljan J, Farahnaky A. Effect of carrot pomace powder and hydrocolloids on the quality of gluten-free cake. 66th Australia Grain Science Conference Tamworth, NSW, Australia.
 3. Majzoobi M, Kaveh Z, Hedayati S, Shahidi F, Farahnaky A. Physically modified cereal starches: functional behaviour in different food model systems, 66th Australian Grain Science Conference, Tamworth, NSW, Australia.
 4. Toutounji M, Farahnaky A, Pallas L, Blanchard C. 2016. Effect of heat-moisture treatment on rice quality, 66th Australian Grain Science Conference, Tamworth, NSW, Australia.
 5. Toutounji M, Farahnak A, Pallas L, Blanchard C. Technological aspects of NaCl in starch based snack processing, 49th AIFST Conference, Brisbane, Australia.
 6. Barnett R, Blanchard CL, Williams R, Farahnaky and Day L. 2016. Digestibility and bioavailability of canola meal proteins for dairy cattle nutrition. 2016 AIFST Food Science Summer School. Wagga Wagga, Australia.
 7. Barnett R, Blanchard CL, Williams R, Farahnaky A, Day L. Digestibility and bioavailability of canola meal proteins for dairy cattle nutrition. CSU HDR Symposium, Wagga Wagga, Australia.
 8. Heim R, Blanchard CL, Williams R, Farahnaky, Day L. Processing technique and cultivar affect protein bioavailability for ruminant nutrition in Brassica napus seed meal. 2016 Brassica Conference, Melbourne, Australia.
 9. Javadi B, Rehman A, Blanchard C, Naqvi SMS. Protease inhibitory activity of *Nigella sativa*. Proceedings of the HDR Symposium at Charles Sturt University, Wagga Wagga, Australia.
 10. Javadi B, Ahmad MS, Rehman A, Blanchard C, Naqvi SMS. Protease Inhibitory activity of *Nigella sativa*. Proceedings of the 14th National and 5th International conference of Botany at University of Karachi Pakistan.
 11. Tan S, Farahnaky A, Day L, McCann T, Blanchard C. Enzymes for canola protein extraction: A preliminary study. IUFOST World Congress of Food Science and Technology, Dublin, Ireland.
 12. Barnett R, Blanchard CL, Williams R, Farahnaky A, Day L. 2015. Digestibility and bioavailability of canola meal proteins for dairy cattle nutrition. Proceedings of the 2016 AIFST Food Science Summer School. Wagga Wagga, Australia.
- 2015 Poster presentations
1. Barnett R, Blanchard CL, Williams R, Farahnaky A, Day L. Response of rumen- undegradable protein in meal from high-oil producing canola seed to moist-heat treatment Proceedings of the 65th Australasian Grain Science Conference, Coogee, Australia.
 2. Brooks T, Vanniasinkham T, Blanchard C, Obeid H. Antimicrobial activity of Australian coloured and brown rice extracts. 65th Australian Grain Science Conference, Sydney, Australia.
 3. Si X, Zhou ZK, Cao RG, Wang YY, Wang XF, Blanchard C, Strappe P. The effects of polyphenols from buckwheat hull on the faecal microbiota in diabetic rats. 65th Australian Grain Science Conference, Sydney, Australia.
 4. Ryan ME, Obied HK, Pallas LA, Sangster JM, Blanchard CL. Genetic variation in the antioxidant content of rice and the impact of home cooking methods on antioxidant retention. 65th Australian Grain Science Conference, Sydney, Australia.
 5. Callcott ET, Strappe P, Wallace R, Pallas LA, Durand A, Blanchard CL. Investigating the health properties of bioactive compounds from Australian-grown coloured rice and rice bran. 65th Australian Grain Science Conference, Sydney, Australia.
 6. Callcott ET, Strappe P, Wallace R, Pallas LA, Durand A, Blanchard CL. Optimised in-vitro obesity assay for high-throughput screening of bioactive compounds derived from Australian grown rice. 65th Australian Grain Science Conference, Sydney, Australia.
 7. Wang XD, Skylas D, Quail K, Mawson J, Pak S, Blanchard C, Durand A. 2015. The antioxidant effect and functional properties of Australian rice bran. 65th Australian Grain Science Conference, Sydney, Australia.
 8. Majzoobi M, Ghiassi F, Farahnaky A. Supplementation of fresh chilled dairy dessert with wheat germ. 65th Australian Grain Science Conference, Sydney, Australia.
 9. Hester KJ, Saliba A. Non-coeliac gluten avoidance: trust and the perception of risk. 65th Australian Grain Science Conference, Sydney, Australia.
 10. Toutounji M, Farahnaky A, Eastwood R, Pallas L, Blanchard C. Protein characterization and food product functionality of low allergen wheat. 65th Australian Grain Science Conference, Sydney, Australia.

11. Majzoobi M, Beparva P, Kaveh Z, Farahnaky A. Physicochemical changes of native and modified starches in the presence of organic acids. 65th Australian Grain Science Conference, Sydney, Australia.
 12. Majzoobi M, Pesaran Y, Farahnaky A. Evaluation of the effects of hydrothermal treatment on rice flour and its related starch. 65th Australian Grain Science Conference, Sydney, Australia.
 13. Barnett R, Williams R, Blanchard CL, Day L. Digestibility and bioavailability of canola meal proteins for dairy cattle nutrition. Proceedings of the 65th Australian Cereal Chemistry Conference, Coogee, Australia.
 14. Karve N, Blanchard CL, McCann T, Torley P, Liu LH, Day L. Chemical composition, molecular weight distribution and solubility of pea protein isolate. Proceedings of the 65th Australian Cereal Chemistry Conference, Coogee, Australia.
 15. Karve K, Blanchard CL, Day L. Pulse proteins: structural modifications to enhance functionality. Proceedings of the 65th Australian Cereal Chemistry Conference, Coogee, Australia.
 16. Reynolds K, Blanchard C, Strappe P, Petrie J, Wood C, Singh S. Metabolic engineering of medium chain fatty acids in plant leaf lipids. Plant Lipids, Galveston Island, Texas.
 17. Tan S, Blanchard C. Enzymes for canola protein extraction: A preliminary study. IUFOST World Congress of Food Science and Technology, Dublin, Ireland
- International travel awards
1. Blanchard CL. (2018). Anti-inflammatory and antioxidant potential of rice-derived polyphenols in endothelial dysfunction and obesity. Graham Centre Travel Grant, \$1500.
 2. Callcott ET. 2018, American Association of Cereal Chemists International. Student Travel Award \$500.
 3. Callcott ET. 2018, Samson Agboola International Travel Prize \$1000
 4. Lee JJ. Graham Centre Conference Support Scheme 2018, \$1500
 5. Lee JJ. Royal Australian Chemical Institute 2018, \$1500
 6. Q. Riaz. Graham Centre's conference support scheme award to attend AACC International Annual Meeting 2018.
 7. Wood R. Crawford Fund International Agricultural Student Training Award.
 8. Cork S. Graham Centre travel grant to attend AACC International Annual Meeting 2018 Graham Centre Conference Support Scheme to attend AACC International Annual Meeting 2018 2018, \$1500
 9. Cork S. 2018 AACCI Student Travel Award in the amount of \$500 to attend Cereals Grains 18, the AACC International Annual Meeting in London, October 21-23, 2018.
 10. Rao, S. Graham Centre \$1000 travel award for attending "Cereals and Grains 2018" AACCI international conference
 11. Saji N. Graham Centre – Conference Support Round 2 – \$1500 travel award, 22 May 2018
 12. 2017 International travel awards
 13. Rao S. Crawford fund International Rice Research Institute, Travel Award, Philippines, 14 August -1 September.
- 2015 International travel awards
1. Strappe P. High End Foreign Expert Award. Tianjin Municipal Government for research visits to Department of Food Science, Tianjin University of Science and Technology, June –July and November–December.
 2. Strappe P. Presentation on cell culture methods to discover bioactivity in functional foods, to the Chongqing Institute of Biotechnology, China.
 3. Strappe P. Presentation on research capability of the FGC to the FDA lupin flour company, Wucheng, Shandong Province, China.
- Industry presentations and meetings
- 2019 Industry presentations and meetings
1. Adjonu R. 2019. Heat stability of Australian canola oil. Industry discussion meeting, MSM Milling, Manildra, NSW 2865, 14 March 2019.
 2. Callcott, E.T., Santhakumar, A.B, Snell, P. and Blanchard C.L. (2019, August). The therapeutic properties of coloured rice. Conference presentation at the AgriFutures research and development rice update, Leeton, NSW, Australia
 3. Saji N, "Rice bran project update for SunRice," Meeting with SunRice, Charles Sturt University, Wagga Wagga, NSW 2650, 20 May 2019
 4. Saji N, "Exploring the health benefits of rice bran," AgriFutures Research, Development Extension Update (Rice), Yanco, NSW, Australia, 21 – 22 August 2019
 5. Saji N, "SunRice project update: health benefits of rice bran," Meeting with SunRice, 19 Martin Pl, Sydney NSW 2000, 28 October 2019
- 2018 Industry presentations and meetings
1. Women in Rice Field Day, Old Coree Station, Jerilderie Callcott ET. February 2018
 2. SunRice Presentations, Charles Sturt University Callcott ET. May 2018
 3. Rice Field Day, Old Coree Station, Jerilderie Callcott ET. March 2019
 4. Collaborative GI research group meeting, Leeton (Australia). JJ Lee, D Waters, C Blanchard. June 2018
 5. SunRice quality alignment meeting. Wood RM, Dunn BW, Waters DLE, Mawson AJ, Blanchard CL, Oli P Quality responses to nutrition and sowing method. Leeton, Australia, August 2018
 6. Rice Extension's Research and Development Update, Yanco, Australia, Wood RM, Waters DLE, Mawson AJ, Blanchard CL. (2018) August 2018
 7. Rice Research Australia Pty Ltd. (RRAPL) Rice quality update. Harvest debrief, Jerilderie, Australia, Wood RM, Waters DLE, Mawson AJ, Blanchard CL, July 2018.
 8. Rice Extension's Women in Rice networking event, RRAPL, Jerilderie, Australia, Wood RM. February 2019.
 9. SunRice, Charles Sturt University, Wagga Wagga, NSW Saji N, Callcott E, Rao S, Waters DLE, Wood R, Blanchard CL. December 2018
 10. SunRice, Charles Sturt University, Wagga Wagga, NSW Australia, Saji N, Callcott E, Rao S, Waters DLE, Wood R, Blanchard CL. April 2018.
 11. 1SunRice, 19 Martin Pl, Sydney NSW, Saji N, Callcott E, Rao S, Waters DLE, Wood R, Blanchard CL. 27 March 2018.
12. MSM Milling, Dederang Street, Manildra NSW, R. Adjonu and C. L. Blanchard March 2019.
13. 14. Grains Research Development Corporation, 4/4 National Circuit, Barton ACT: R. Adjonu S Tan D. Waters. November 2018.
14. 15. Tianjin University of Science and Technology. Tianjin, China. Chris Blanchard, Siong Tan. July 2018
15. Jin Jiu Group, Baijiu manufacturer, Tianjin, China. Chris Blanchard, Siong Tan, Zhongkai Zhou July 2018
16. Tong Fu Yong, Baijiu manufacturer, Hangzhou, China. Siong Tan July 2018
17. Chinese Academy of Agricultural Sciences, Beijing, China. Siong Tan July 2018
18. GRDC meeting, AusSORM Mon Komo Hotel, Redcliffe. Chris Blanchard, Ali Khoddami, and Siong Tan July 2018
19. AgriFutures, Wagga Wagga, Blanchard CL and Waters DLE. February 2019.
20. Rice industry Field Day, Yanco, NSW. Participants: Toutounji M, Rao S, Wood R, Waters DLE, Blanchard CL.
- 2017 Industry presentations and meetings
1. GRDC Grains Research Update, Wagga Wagga, NSW. Participants: Kerr P, Farahnaky A, Hester K, Cork S and Blanchard C.
 2. ARC Forum Canberra. Participant: Blanchard C.
 3. Grain Quality: managing MRLs, storage and harvest for market needs, Wagga Wagga, NSW. Participants: Santhakumar A, Butardo VM and Blanchard CL.
 4. Next generation healthy rice: project progress and future prospects. Rural Industries Research and Development Corporation, Wagga Wagga, NSW. Participants: Butardo VM and Blanchard CL.
 5. Rice Industry Field Day, Jerilderie, NSW. Participants: Toutounji M, Rao S, Majzoobi M, Kerr P, Blanchard CL.
 6. Rice RD Workshop, Yanco, NSW. Participants: Blanchard C, Waters DLE.
 7. Australian Oilseed Forum, Sydney, NSW. Participants: Chris Blanchard C, Tan S, Randy Adjonu R.
 8. Ruth Muller, RD Campbell Arnott's Director, Huntingwood, NSW. Participants: Toutounji M.
 9. Conquer Mills, Cootamundra NSW. Participants: Blanchard C, Farahnaky A, Mawson J
 10. 1NSW DPI GATE@ Opening, Orange, NSW. Participants: Mawson J.
 11. Australian Sorghum Research Group Meeting (AusSoRGM), Toowoomba, QLD. Participants: Blanchard C, Saliba A.
 12. 12. GRDC Regional Cropping Solutions Network. Marrar, NSW. Blanchard C, Waters D.
 13. AFI Harvesting the Benefits of Digital Agriculture Conference, Melbourne, VIC. Participants: Mawson J.
 14. 1AGIC 2017 Technical Program, Melbourne, VIC. Participants: Chris Blanchard C.
 15. Austrade Agribusiness India, Participants: Blanchard C.

16. 16th Australian Agronomy Conference, Ballarat, VIC. Participants: Blanchard C.
17. Australian Oilseed Forum, Sydney, NSW. Participants: Blanchard C, Tan S Adjonu R.

2016 Industry presentations and meetings

1. Rice research meeting. Yanco Agricultural Institute, Yanco NSW, Australia. Participant: Butardo V.
2. Rice industry Field Day, Jerilderie, NSW. Participants: Toutounji M, Chinkwo K, Javid B, Rao S, Farahnaky A, Majzoobi M, Hang L, Kang W, Portman D, Kerr P, Blanchard C and Vanniasinkam T.
3. Freedom Foods Company, Wagga, NSW. Participant: Farahnaky A.
4. Popina Food Industry, Melbourne, VIC. Participant: Farahnaky A.
5. Uncle Tobys, Sydney, NSW. Participant: Farahnaky A.
6. Riverina Oil and Bioenergy, Wagga, NSW. Participant: Farahnaky A.
7. Kellogg's research collaboration meeting, Wagga, NSW. Participant: Farahnaky A.
8. SunRice retort rice processing site. Leeton, NSW. Participant: Farahnaky A.
9. AEGIC, Australian mungbean: processing, nutritional qualities and high protein fractions, Sydney, NSW. Participant: Skylas D.
10. SunRice, Sydney, NSW. Participant: Skylas D.
11. Uncle Tobys Sydney, NSW and Woods Foods, Goondooindie, QLD. Participant: Cork S.
12. GRDC Grain Quality Workshop, Wagga Wagga, NSW. Participants: Reynolds K, Taylor R, Butardo V, Chinkwo K, Wood R and Riaz A.
13. FIAL Mission Impossible, Wagga, NSW. Participant: Farahnaky A.
14. Australian National Field Day, Orange, NSW. Participant: Karve N.
15. GRDC Grains Research Update, Wagga Wagga, NSW. Participant Reynolds K.
16. Rice growers workshop, Yanco, NSW. Participant: Rao S.
17. Grain Quality: Managing MRLs, Storage and harvest for market needs, Wagga Wagga, NSW. Participant: Santhakumar A.
18. Collaborative GI research group, Leeton, NSW. Participants: Blanchard C, Lee J.
19. AGIC Conference. Participant: Cork S.
20. Farm Link-Open day, Temora Agricultural Innovation Centre, Temora, NSW. Participant: Shad A.
21. Aerobic rice strategy meeting, Yanco, NSW. Participant Wood R.
22. Rice Research and Development Workshop, Yanco, NSW. Participants: Wood R and Shad A.
23. Rice Extension pre-season meeting, Griffith NSW. Participant: Wood, R.
24. Rice Growers Association Annual Conference, Deniliquin, NSW. Participant: Wood, R.
25. Australian National Field Days, Borenore, NSW. Participant: Tan S.
26. Riverina Oil and Bioenergy. Wagga Wagga, NSW. Participant: Riaz Q.

27. Flavour makers Pty Ltd Braeside VIC. Participants: Karve N, Blanchard CL, McCann T, Torley P, Liu LH, Day L.
28. MSM Milling, Orange, Australia. Participants: Barnett R, Blanchard CL, Williams R, Farahnaky A, Day L.

Workshops, training and community engagement

2019 Workshops, training and community engagement

1. Saji N, Summer scholarship student (Raiyan Mahbub Mohammad) with his project on "Potential benefit of hemp extracts in biomarkers associated with thrombosis," Charles Sturt University, Wagga Wagga, NSW 2650, 15 December 2018 – 28 February 2019
2. Saji N, Honours student (Borkwei Ed Nign-pense) with his project on "Potential benefit of coloured rice extracts in biomarkers associated with thrombosis," Charles Sturt University, Wagga Wagga, NSW 2650, March 2019 – May 2019
3. Saji N, ATI Riverina: Thinking Differently, "Innovation Entrepreneurial Bootcamp," organised by AgriTech Incubator, Charles Sturt University, Wagga Wagga, NSW 2650, 14 – 16 March 2019
4. Saji N, RAID Agricultural Leadership and Management Workshop, organised by Crawford Fund, Charles Sturt University, Wagga Wagga, NSW 2650, 14 – 16 May 2019

2018 Workshops, training and community engagement

1. Florides et al. AIFST workshop, Curtin University, Perth, WA. February 2019.
2. MyScience program, Mater Dei primary school, 63 Gregadoo Road, Wagga Wagga NSW 2650, 14, 28 March and 4 April 2018 Callcott ET, Riaz Q, Cork S, Saji N. 2018
3. Graham Centre Agriculture Enrichment Day, Year 10 High school students, Charles Sturt University, Wagga Wagga, NSW 2650, 1 and 22 June 2018 Callcott ET, Saji N Riaz Q. 2018
4. Wagga Wagga Senior Citizens Centre – 3-minute thesis presentation and engagement Callcott ET. 2018

International Women's Day Callcott ET.

1. Leadership Program and Skills Training February 2019, Rice Growers Association (RGA), Deniliquin, Australia. Wood R.
2. Presentation Skills Training course September 2018, Professional Development Training, Wagga Wagga, Australia. Wood R.
3. Rice Research to Production training course August 2018, International Rice Research Institute, Los Baños, The Philippines. Wood R, Recipient of the Crawford Fund Training Award to attend the course.
4. AgVision 2018 presenter on food technology career to 100 Year 11 and 12 students, Wagga Wagga. Cork S.
5. 3MT presentation in CSU Finals, Rao S, Callcott E, Cork S and Toutounji M. May 2018
6. Women in rice network event, conducted by Rice Extension and funded by AgriFutures, Wakool, NSW Australia, November 2018
7. World Thrombosis Day: School of Biomedical Sciences Morning Tea. A public event funded by the School of Biomedical Sciences, FGC students were volunteers in the promotion and running of this event, Saji N, Santhakumar A, Callcott E, Rao S. October 2018

2017 Workshops, training and community engagement

1. Australian Institute of Food Science Technology (AIFST) Summer School, Wagga Wagga NSW. Participants: Barnett R, Florides C, Karve N, Lee J, Rao S, Riaz A, Toutounji M, Wood R, Skylas D, Taylor R, Butardo V, Blanchard C.
2. Rice Research to Production, International Rice Research Institute, Philippines. Participant: Rao S (Oral presentation).
3. Faculty of Science Higher Degree Research and Honours Symposium, CSU, Wagga Wagga NSW. Participants: Barnett R, Callcott E, Cork S, Hester K, Karve N, Lee J, Portman D, Rao S, Riaz A, Saji N, Thompson K, Toutounji M, Wood R, Adjonu R, Skylas D, Taylor R, Zhou Z, Butardo V, Blanchard C, Farahnaky A, Kerr P, Mawson J, Saliba A, Santhakumar A, Waters D.
4. FGC Team Building workshop conducted by Team Building Australia, Borambola NSW. Participants: Barnett R, Callcott E, Cork S, Hester K, Karve N, Lee J, Portman D, Rao S, Riaz A, Saji N, Thompson K, Toutounji M, Wood R, Adjonu R, Skylas D, Taylor R, Zhou Z, Butardo V, Blanchard C, Farahnaky A, Kerr P, Mawson J, Saliba A, Santhakumar A, Waters D.
5. FGC Retreat, Borambola and Canberra, ACT. Participants: Barnett R, Callcott E, Cork S, Hester K, Karve N, Lee J, Portman D, Rao S, Riaz A, Saji N, Thompson K, Toutounji M, Wood R, Adjonu R, Skylas D, Taylor R, Zhou Z, Butardo V, Blanchard C, Farahnaky A, Kerr P, Mawson J, Saliba A, Santhakumar A, Waters D. Crane J, Delaney A.
6. International Temperate Rice Conference (ITRC), Griffith NSW. Participants: Callcott E, Lee J, Rao S, Toutounji M, Butardo V, Blanchard C, Farahnaky A, Kerr P, Mawson J.
7. MyScience Primary School Mentoring Program, Mater Dei Primary School, Wagga Wagga, NSW. Participants: Callcott E, Riaz A, Cork S, Rao S and Toutounji M,
8. Agriculture-Science Enrichment Day, CSU, Wagga Wagga. Participants: Callcott E,
9. 3MT (Can rice kill cancer), July, CSU. Participant: Shiwangni Rao
10. Researchers in Business Round Table, Charles Sturt University (CSU), Wagga Wagga NSW Australia, 8 February 2017 Participant: Toutounji M.
11. World Thrombosis Day. World Thrombosis Day: SBMS Morning Tea. A public event funded by the School of Biomedical Sciences, FGC students were volunteers in the promotion and running of this event, 13 October 2017. Participants: Blanchard C, Santhakumar A, Toutounji M, Callcott E, Rao S, Saji N, Thompson K.

2016 Workshops, training and community engagement

1. Agents of Change Industrial Transformation Training Centre Research Commercialisation Training Course (February, University of Queensland Business School).
2. Writing winning scientific proposals workshop, Canberra, ACT. Participants: Karve N, Barnett R and Javid B.
3. Purposeful Conversations and Effective Feedback workshops, Canberra, ACT. Participant: Reynolds K.
4. Federation University beer appreciation night; A fundraiser for children with cancer. Ballarat, VIC. Participant: Portman D.

5. Federation University Biomedical Science Careers Night. Presentation on my journey to a PhD with CSU. Ballarat, VIC. Participant: Portman D.
 6. ACIAR workshop for pulse project in Pakistan. Canberra, ACT. Participant: Farahnaky A.
 7. Australian Pulse Conference Tamworth, NSW. Participants: McIntyre E, Rao S, Portman D (presented), Cork S, Toutounji M, Wood R and Butardo V.
 8. AIFST Food Science Summer School CSU, Wagga Wagga, NSW. Participants: Skylas D, Hester K (poster presentation), Reynolds K, (presented), Karve N, (presented), Barnett R, Barnett R (poster presentation), Portman D (presented), Florides C, Tan S, Javaid B and Hang L.
 9. Young Scientists Forum, Melbourne, VIC. Participant: Reynolds K (presented).
 10. HDR Postgraduate Symposium CSU, Wagga Wagga, NSW. Participants: Skylas D, Hester K (oral presentation), Reynolds K, Karve N (presented), Barnett R, Florides C, Javaid B and Riaz A.
 11. RD topics, Student conference, Western Sydney University, Parramatta, NSW. Participant: Rao S.
 12. Functional Grains Centre Retreat, Canberra, ACT. Participants: Skylas D, McIntyre E, Taylor R, Riaz A, Florides C, Tan S, Reynolds K, Hester K, Barnett R, Karve N, Rao S, Portman A, Khodami A, Toutounji M, Hung L and Javaid B.
 13. Synthetic Biology Cutting Edge Symposium, Canberra, ACT. Participants: Reynolds K.
 14. CSIRO Postdoc and PhD Forum CSIRO, Brisbane, QLD. Participant: Reynolds K (presented).
 15. Team building workshop conducted by Team-building Australia organised by Functional Grains Centre, Charles Sturt University, Wagga Wagga, NSW. Participants: Karve N, Barnett R and Javaid B.
 16. Rice Growers Association Annual General meeting, Deniliquin, NSW. Participant: Rao S.
 17. Crawford Fund Conference "Waste not want not", Canberra, ACT. Participant: Rao S.
 18. 17. The Seven Secrets of Highly Successful PhD Students course presented by Hugh Kearns. Participants: Karve N, Barnett R and Cork S (presented).
 19. Rice RD workshop, RIRDC, Yanco. Participants: Santhakumar A, Shad A, Javaid B.
 20. The Royal Australian Chemistry Institute Incorporated, RACI RD, Sydney, NSW. Participant: Lee J (presented).
 21. Collaborative GI research group meeting, Leeton, NSW. Participant: Lee J (presented).
 22. 21. Proxy measures for rice grain digestibility: State-of-the-art and future prospects. School of Science and Health Seminar, Western Sydney University, Parramatta NSW. Participant: Butardo V (invited seminar).
 23. 22. ACIAR, DFAT, Crawford Fund Seminar arranged on Bio-fortification: A Nutritional Solution for the World, Canberra, ACT. Participant: Shad A.
 24. Mentors in My Science Project at local schools. Participant: Shad A (presented).
 25. Future of Pulse Production and Consumption. Wagga, NSW. Participant: Farahnaky A (presented), Skylas D (presented), Karve N (presented), Taylor R, Butardo V, Chinkwo K, Karve N, Mukhopadhyay S, Mawson J, Kerr P, Satnahkumar A, Siong T, Toutounji M, Wood R.
 26. FIAL Mission Impossible (proposal workshop) Wagga, NSW. Participant: Farahnaky A.
 27. 49th AIFST Conference, Brisbane, QLD. Participant: Farahnaky A.
 28. Advances in Biotechnology for Food and biomedical Application, Sydney NSW. Participant: Farahnaky A (presented), Skylas D.
 29. Australian Institute of Food Science and Technology Workshop, CSU Wagga Wagga, NSW. Participant: Hester K.
 30. GRDC Grain Quality Workshop, Wagga Wagga, NSW. Participants: Reynolds K (presented), Taylor R, Butardo V, Chinkwo K, Wood R, Riaz A.
 31. GRDC Grains Research Update, Wagga Wagga, NSW. Participant: Reynolds K (presented).
 32. Young Scientists Forum, Melbourne, VIC. Participant: Reynolds K.
 33. Synthetic Biology Cutting Edge Symposium, Canberra, ACT. Participant: Reynolds K.
 34. CSIRO Postdoc and PhD Forum CSIRO, Brisbane, QLD. Participant: Reynolds K.
 35. Scientist Mentor in the MyScience at Mater Dei Primary, Wagga Wagga, NSW. Participants: Cork S, Callcott E.
 36. School of Science and Health Seminar, Western Sydney University, Parramatta NSW. Participant: Butardo VM (invited seminar).
- 2015 Workshops, training and community engagement
1. CSU Postgraduate student workshop, Wagga Wagga. Participants: Callcott E, Wang S, Florides C, Karve N, Barnett R, Hester K, Flakelar C, Hussain S.
 2. Grain Industry workshop, Sydney, NSW. Participants: Tan S, Skylas D, Zhou Z, Majzoobi M, Callcott E, Toutounji M, Wang S, Florides C, Karve N, Barnett R, Hester K, Flakelar C, Hussain S, Brooks T.
 3. Leadership Fundamentals (www.learn4results.com.au/product/leadership-fundamentals/ Leadership Course) Wagga Wagga, NSW. Participants: Blanchard CL, Strappe P, Zhou ZK, Friend M, Saliba A, Farhanaky A.
 4. CSU Postgraduate student workshop, Wagga Wagga, NSW. Participants: Callcott E, Wang S, Florides C, Karve N, Barnett R, Hester K, Flakelar C, Hussain S.
 5. Grain Industry workshop, Sydney, NSW. Participants: Tan S, Skylas D, Zhou Z, Majzoobi M, Callcott E, Toutounji M, Wang S, Florides C, Karve N, Barnett R, Hester K, Flakelar C, Hussain S, Brooks T.
 6. AIFST Summer School, Wagga Wagga, NSW. Participants: Rao S, Callcott E, Barnett R, Liu H, Wang X, Brooks T, Toutounji M, Zhou Z, Reynolds K, Hester K, Taylor R., Portman D, Tan S, Karve N, Skylas D, Florides C.
 7. Agents of Change Industry Transformation Training Centre Research. Commercialisation Workshop Program, University of Queensland, Brisbane, QLD. Participants: Tan S, Skylas D.
8. Rice industry Field Day, Jerilderie, NSW. Participants: Toutounji M, Chinkwo K, Javid B, Rao S, Farhanaky A, Majzoobi M, Hang L, Kang W, Portman D, Kerr P, Blanchard C, Vanni-asinkam T.
- Media and media releases
- 2019 Media and media releases
1. Benefits for grain growers and consumers. The Rural, Wagga Wagga NSW 21 March 2019.
 2. Entrepreneurs to pitch ideas at conclusion of fifth Agritech Incubator program. Wagga Wagga NSW, CSU News 25 Sep 2019.
 3. Is it Time for A Grain Revolution? Food Australia
 4. Lentil bread proves a high-protein and gut-healthy alternative to wheat bread. Horsham VIC 30 March 2019.
 5. Science debunks wheat myths. The Rural, Wagga Wagga NSW June 26 2019.
 6. Wheat lentil bread to boost demand for Australian pulses. Horsham VIC, Agriculture Victoria May 2019.
- 2018 Media and media releases
1. Perfecting digestibility of canola meal. The Rural, Wagga Wagga NSW, General News 13 Dec 2018.
 2. Important research plays a role in stock feed. Riverina Rural 12 Dec 2018 10:01 AM.
 3. Baking quality is critical for the grain industry Farm Weekly, Perth, Supplements, 01 Nov 2018; Queensland Country Life 20 Oct 2018 1:35 PM; Farm Online, The Land 20 Oct 2018 12:55 PM; North Queensland Register 20 Oct 2018 12:33 PM; Stock Journal Australia 20 Oct 2018 12:22 PM; The Land Australia 20 Oct 2018 12:20 PM; Stock Land 20 Oct 2018 12:10 PM
 4. Unlocking the potential of the lentil. Weekly Times Now 18 Oct 2018 12:00 AM; The Land, Sydney, General News, 18 Oct 2018; Farm Weekly, Perth, Supplements, 18 Oct 2018; Weekly Times, Melbourne, General News, 17 Oct 2018; Buloke Times, Donald VIC, General News 16 Oct 2018; Australian Food News 05 Nov 2018 8:35 AM
 5. Testing the power of lentil flour. Stock Journal Australia 13 Oct 2018 6:34 AM; North Queensland Register 13 Oct 2018 6:33 AM; Queensland Country Life 13 Oct 2018 6:31 AM; The Land Australia 13 Oct 2018 6:30 AM; Farm Online, The Land 13 Oct 2018 6:23 AM; Stock Land 13 Oct 2018 6:19 AM; 2NM, Muswellbrook, National Rural News, Newsreader 12 Oct 2018 6:37 AM; miragenews.com 10 Oct 2018 2:18 PM; WEB MSN Australia 05 Oct 2018 10:09 AM; ABC Online 04 Oct 2018 3:39 PM
 6. Grain researchers have met in Wagga at the 68th Australasian Grain Science Conference.
 7. WIN Canberra, Canberra, WIN's All Australian News, Newsreader 12 Sep 2018 12:22 AM
 8. WIN Albury (Albury), WIN Ballarat (Ballarat), WIN Bendigo (Bendigo), WIN Cairns (Cairns), WIN Coffs Harbour (Coffs Harbour), WIN Dubbo (Dubbo), WIN Gippsland (Sale), WIN Griffith (Griffith), WIN Hobart (Hobart), WIN Lismore (Lismore), WIN Mackay (Mackay), WIN Mildura (Mildura), WIN Newcastle (Newcastle), WIN Orange (Orange), WIN Rockhampton (Rockhampton), WIN Shepparton (Shepparton), WIN Sunshine Coast (Sunshine Coast), WIN Tamworth (Tamworth), WIN Taree (Port

- Macquarie), WIN Toowoomba (Toowoomba), WIN Townsville (Townsville), WIN Wagga (Wagga Wagga), WIN Wide Bay (Bundaberg), WIN Wollongong (Wollongong); WIN Wagga, Wagga Wagga, WIN News, = 11 Sep 2018 6:12 PM; WIN Canberra, Canberra, WIN News, Amy Duggan 11 Sep 2018 6:04 PM; Stock Land 11 Sep 2018 2:11 PM; The Land Australia 11 Sep 2018 1:51 PM; Queensland Country Life 11 Sep 2018 1:46 PM; Stock Journal Australia 11 Sep 2018 1:44 PM.
9. Showcasing science to boost grain industries. miragenews.com 07 Sep 2018 1:21 PM; graincentral.com 06 Sep 2018 3:42 PM; The Rural, Wagga Wagga NSW, General News 06 Sep 2018
 10. Delving into rice for all overseas. Irrigator, Leeton NSW, General News 17 Aug 2018; The Rural, Wagga Wagga NSW, General News 16 Aug 2018; Riverina Rural 14 Aug 2018 2:39 PM; Leeton Irrigator 14 Aug 2018 12:30 PM; Southern Cross Wagga Wagga, Wagga Wagga, Nine News Wagga Wagga, 09 Aug 2018 6:17 PM; Prime7 Wagga Wagga, Wagga Wagga, Prime Local News, 09 Aug 2018 6:14 PM
 11. CSU research: Can coloured rice help people with obesity? Australian Grain, National, General News 01 Aug 2018; GWN7, Perth, Golden West News, 19 Jun 2018 5:46 PM; Prime7 Tamworth, Tamworth, Prime Local News, 01 Jun 2018 6:15 PM
 12. CSU 3MT winner asks if White Rice is Naughty or Nice? getstem.com.au 03 Jul 2018 1:23 PM; Daily Advertiser, Wagga Wagga NSW, General News, 02 Jul 2018; Wagga Wagga Daily Advertiser 29 Jun 2018 3:00 PM; Irrigator, Leeton NSW, General News, 10 Jul 2018; Leeton Irrigator 08 Jul 2018 4:00 PM; The Rural, Wagga Wagga NSW, General News 05 Jul 2018
 13. Interview with Esther Callcott, Functional Grains Centre and Charles Sturt University PhD Can coloured rice help people with obesity? ABC Goulburn Murray, Wodonga, Mornings, 30 May 2018 10:36 AM; Riverina Rural 30 May 2018 9:28 AM; WIN Ballarat, Ballarat, WIN News, 28 May 2018 6:16 PM; WIN Shepparton, Shepparton, WIN News, 28 May 2018 6:14 PM; WIN Gippsland, Sale, WIN News, 28 May 2018 6:13 PM; Prime7 Albury, Albury, Prime Local News, 28 May 2018 6:12 PM; WIN Albury, Albury, WIN News, 28 May 2018 6:08 PM; WIN Canberra, Canberra, All Australian News, 28 May 2018 7:47 AM; WIN Albury (Albury), WIN Ballarat (Ballarat), WIN Bendigo (Bendigo), WIN Cairns (Cairns), WIN Coffs Harbour (Coffs Harbour), WIN Dubbo (Dubbo), WIN Gippsland (Sale), WIN Griffith (Griffith), WIN Hobart (Hobart), WIN Lismore (Lismore), WIN Mackay (Mackay), WIN Mildura (Mildura), WIN Newcastle (Newcastle), WIN Orange (Orange), WIN Rockhampton (Rockhampton), WIN Shepparton (Shepparton), WIN Sunshine Coast (Sunshine Coast), WIN Tamworth (Tamworth), WIN Taree (Port Macquarie), WIN Toowoomba (Toowoomba), WIN Townsville (Townsville), WIN Wagga (Wagga Wagga), WIN Wide Bay (Bundaberg), WIN Wollongong (Wollongong); WIN Canberra, Canberra, WIN's All Australian News, 26 May 2018 12:02 AM; WIN Albury (Albury), WIN Ballarat (Ballarat), WIN Bendigo (Bendigo), WIN Cairns (Cairns), WIN Coffs Harbour; (Coffs Harbour), WIN Dubbo (Dubbo), WIN Gippsland (Sale), WIN Griffith (Griffith), WIN Hobart (Hobart), WIN Lismore (Lismore), WIN Mackay (Mackay), WIN Mildura (Mildura), WIN Newcastle (Newcastle), WIN Orange (Orange), WIN Rockhampton (Rockhampton), WIN Shepparton (Shepparton), WIN Sunshine Coast (Sunshine Coast), WIN Tamworth (Tamworth), WIN Taree (Port Macquarie), WIN Toowoomba (Toowoomba), WIN Townsville (Townsville), WIN Wagga (Wagga Wagga), WIN Wide Bay (Bundaberg), WIN Wollongong (Wollongong); WIN Orange, Orange, WIN News, 25 May 2018 6:14 PM; Prime7 Wagga Wagga, Wagga Wagga, Prime Local News, 25 May 2018 6:07 PM; WIN Wagga, Wagga Wagga, WIN News, 25 May 2018 6:06 PM
 14. Rachael's rice investigations ongoing Irrigator, Leeton NSW, General News, 15 May 2018; Leeton Irrigator 13 May 2018 4:03 PM; Riverina Rural 11 May 2018 11:45 AM; The Land Australia 11 May 2018 11:16 AM; The Land Australia 15 Apr 2018 5:09 PM
 15. Study shows why gluten-free is preferred by some consumers The Land Australia 15 Apr 2018 5:09 PM; getstem.com.au 20 Mar 2018 3:18 PM
 16. Charles Sturt University researchers are in the move to turning chickpeas into a breakfast cereal. 2MCE, Orange, 15:30 Local News, 22 Feb 2018 3:31 PM; 2MCE, Orange, 09:30 Local News, 22 Feb 2018 9:32 AM; 2MCE, Orange, 08:30 Local News, 22 Feb 2018 8:32 AM; WIN Canberra, Canberra, All Australian News 22 Feb 2018 8:10 AM; WIN Canberra, Canberra, WIN's All Australian News, 22 Feb 2018 12:13 AM; The Rural, Wagga Wagga NSW, General News, 22 Feb 2018; WIN Canberra, Canberra, WIN News, 21 Feb 2018 6:13 PM; WEB MSN Australia 21 Feb 2018 5:54 PM; ABC Online 21 Feb 2018 1:06 PM; ABC Broken Hill, Broken Hill, Rural Report, 21 Feb 2018 6:24 AM; Southern Cross Wagga Wagga, Wagga Wagga, Nine News Wagga Wagga 20 Feb 2018 6:16 PM; Prime7 Wagga Wagga, Wagga Wagga, Prime Local News, 20 Feb 2018 6:12 PM; getstem.com.au 20 Feb 2018 5:16 PM; Riverina Rural 20 Feb 2018 1:58 PM; ABC Illawarra, Wollongong, NSW Country Hour, 20 Feb 2018 12:40 PM; ABC Ballarat, Ballarat, Vic Country Hour, 20 Feb 2018 12:22 PM; 2NM, Muswellbrook, National Rural News, 20 Feb 2018 12:09 PM; 4BC, Brisbane, 11:00 News, 20 Feb 2018 11:05 AM; Food Magazine Australia 20 Feb 2018 10:21 AM; Curtin FM, Perth, 10:00 News, 20 Feb 2018 10:03 AM; HO FM, Hobart, 07:00 News, 20 Feb 2018 7:02 AM; 2NM, Muswellbrook, National Rural News, 20 Feb 2018 6:38 AM; ABC Goulburn Murray, Wodonga, Rural Report, 20 Feb 2018 6:20 AM; ABC Central West NSW, Orange, Rural Report, 20 Feb 2018 6:20 AM; 3AW, Melbourne, 06:00 News, 20 Feb 2018 6:03 AM; 4BC, Brisbane, 06:00 News, 20 Feb 2018 6:02 AM; graincentral.com 19 Feb 2018 4:54 PM
 17. Riverina pulse growers are sharing tips with the Pakistan industry. Riverina Rural 14 Feb 2018 11:41 AM 11.
 18. Students of Mater Dei Primary School were treated to a science extravaganza. Southern Cross Wagga Wagga, Wagga Wagga, Nine News Wagga Wagga, 28 Mar 2018 6:11 PM; WIN Wagga, Wagga Wagga, WIN News, 28 Mar 2018 6:11 PM. Also broadcast from the following 1 station WIN Griffith (Griffith)
 19. Pasta market hope for yellow field peas GRDC Ground Cover, National, General News, 01 Feb 2018
- 2017 Media and media releases
1. ABC Rural News. May 16th 2017. Coloured rice is under the microscope as medical students investigate health benefits. Callcott E, Blanchard CL.
 2. 1WIN Television News Riverina, May 19th 2017. Coloured rice research. Callcott E, Blanchard CL.
3. AAA FM Radio, May 19th 2017. Coloured rice research. Callcott E, Blanchard CL.
 4. The Daily Advertiser, 12 September 2017. Wagga's PhD students sow the seeds of science. Article written on MyScience Program. Toutounji M.
 5. WIN News Riverina, 12 September 2017. MyScience Program on Expo Day. Toutounji M, Rao S.
 6. Nine news: Crawford Fund scholarship to visit IRRI. Rao S.
 7. The Rural and CSU News, March 13th 2017. Collaboration to benefit farming systems. Callcott E, Blanchard CL
- 2016 Media and media releases
1. Weekly Times Now 18th July. Pulse pasta, a new food in the making. <http://www.weeklytimesnow.com.au/agribusiness/cropping/pulse-pasta-a-new-food-in-the-making/news-story/3d11a0cb617746d76ac2c70ec-86dc8b7>. Karve N, Blanchard C.
 2. CSU news, 27th June 2016. Pasta on the pulse, <http://news.csu.edu.au/latest-news/science/pasta-on-the-pulse> Karve, N.
 3. Get Sydney, 26th June, <http://getsydney.com.au/2016/06/26/pasta-on-the-pulse/> Karve, N.
 4. WIN news Riverina, 4th July 2016. Pasta made from pulses. <https://www.facebook.com/search/top/?q=win%2Onews%20riverina>. Karve N, Blanchard C.
 5. Prime TV, 4th July. Germinated pea pasta. Karve N, Blanchard C.
 6. ABC Radio, Importance of germinated pulses, Karve N.
 7. Victorian ABC Country Hour Wednesday 21st December. Pulse chips snack food of the future. (Cork, S.)
 8. Student workshop. https://news.csu.edu.au/local-news/wagga-wagga/science-meets-art-and-history/_nocache?SQ_DESIGN_NAME=print_Vanniaskam,T
 9. GRDC Groundcover, July–August 2016: Crop biomass may be primed for oil. Reynolds K.
- 2015 Media and media releases
1. CSU, 12 February. Research centre for healthy, high-value grains
 2. CSU, 20 January. Search for healthy answers in canola meal
 3. CSU, 28 July. Sharing research knowledge with China
 4. <https://au.prime7.yahoo.com/a1/news/a/-/local/29309636/ground-breaking-local-research-into-mnd-video/>
 5. Charles Sturt University News. February. Research centre for healthy, high-value grains. <http://news.csu.edu.au/latest-news/agricultural-science/eh-graham-centre/research-centre-for-healthy-high-value-grains>
 6. GRDC May, Canola meal inconsistency probed. <https://grdc.com.au/Media-Centre/Ground-Cover/Ground-Cover-Issue-116-May-June-2015/New-centre-aims-to-boost-grains-quality> http://groundcover.realviewdigital.com/?xml=GCS_V3iid=117724#folio=1
 7. ABC news, February. New Riverina research centre to make grains more functional. <http://www.abc.net.au/news/2015-02-17/functional-grains-centre-opens-1702/6125796>

8. Daily Advertiser, Grains front and centre of new CSU project. <http://www.dailyadvertiser.com.au/story/2886956/grains-front-and-centre-of-new-csu-project/>
9. Cootamundra Herald, February. CSU Functional Grains Centre studying future of canola.
10. <http://www.cootamundraherald.com.au/story/2908756/wagga-centre-of-grains-future/>
11. The Rural and Weekly News. Wagga to host new grain research facility.
12. <http://www.therural.com.au/story/2888165/diverse-research-unveiled-at-new-215-million-grain-research-centre/>

Awards and prizes

2019 Awards and prizes

1. Saji N, 3rd runner up of the business pitch, awarded an invitation to "Hatched" the book launch with keynote speaker Samantha Wills, ATI Riverina: Thinking Differently, "Innovation Entrepreneurial Bootcamp", organised by AgriTech Incubator, Charles Sturt University, Wagga Wagga, NSW 2650, 16 March 2019
2. 2Saji N, Rice Research to Production workshop, scholarship provided by Crawford Fund to undertake 3 weeks of intensive training at the International Rice Research Institute (IRRI) in the Philippines, 29 July – 16 August 2019

2018 Awards and prizes

1. Callcott, E.T. Best student presentation at the Australian Grain Science Association, Wagga Wagga, NSW, Australia September 2018, for "Rice-derived polyphenols reduce inflammation and oxidative stress biomarkers in human umbilical vein endothelial cells".
2. Callcott E.T. 3-Minute Thesis, CSU Finalist Runner up \$750. 2018.
3. Wood R. Best student poster at the Australasian Grain Science Association Annual Conference, Wagga Wagga, Australia, September 2018, for "Effect of nitrogen fertiliser rate and timing on grain quality traits and protein composition of rice grown in south-eastern Australia".
4. Toutounji MR. 3-Minute Thesis, CSU Finalist Winner \$750. 2018.

2017 Awards and prizes

1. Rao S. 3MT round 1 and CSU Finals both Runner up and People's Choice, Charles Sturt University, Wagga Wagga
2. Rao S. Student Leadership Award, EH Graham Centre, Charles Sturt University, Wagga Wagga



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