



## PROJECT SUMMARY

# 'PEA FRACTIONATION AND NON-NUT PRODUCTS' Project

### KEY POINTS

Pulses are part of a healthy diet, but their consumption is often restricted by beany and bitter flavours.

Heat treatment, when performed in well controlled conditions, can both de-flavour and re-flavour pulses. Different heat treatments were tested for this purpose and food prototypes such as spread, salty crackers, biscuits and extruded snacks were produced from heat treated pulses.

### THE CHALLENGE

Seasonal changes and extreme weather conditions cause significant field pea yield loss, seed coat discoloration and sometimes complete crop failure. Discolouration and natural variations within harvested products can potentially result in downgrade from a human consumption grade to a feed grade and sometimes end up as food waste.

Although they are good sources of nutrients such as protein and fibre, many pulses present challenges as ingredients due to the presence of undesirable off-flavours that are commonly described as beany, bitter, and/or grassy. Due to their noticeable bitter taste, pea products have not been well embraced by consumers. The challenge is to create a value-added product from this nutritionally safe and sound grain.

### THE OPPORTUNITY

Deflavouring and re-flavouring of peas enables their use as healthy ingredients in various food applications. Creation of nutty flavours further enables their use in various products instead of nuts, an alternative for consumers suffering from nut allergies.

### OUR RESEARCH

Our aims in the project were to:

- Trial different commercially relevant heat treatment methods (microwave, coffee roaster combining convection heating and hot air) to determine which of them are effective and efficient for de-flavouring and producing flour fractions with pleasant nutty flavour profiles.
- Assess sensory profiles of dry fractionated coarse and fine fractions.
- Develop prototype food products (a nut-free spread, an extruded item, sweet/savoury items such as cookies/crackers).
- Perform nutritional assessment of flour fractions and prototype food products.

### OUTCOMES

This project showed that:

- Dry heat treatments can be applied to both de-flavour and re-flavour pulses.
- Dry heat treatments do not affect the main nutrients in peas.
- Dry fractionation of heat-treated pea flours is feasible but the milling and classification operating parameters need to be re-optimised.
- Down-graded peas that have been heat-treated can be used as ingredients in producing various foods such as spreads, savoury snacks and biscuits.
- A model for how to achieve a potential range of new products to launch and deliver a strong market position was developed.

### IMPACT

This project has the potential to provide a new value-added stream for South Australian grain farmers and the opportunity to work with South Australian food manufacturers who are seeking new functional food ingredients for new product development, whilst collectively reducing food waste and bringing a more sustainable practice to Australian agriculture and the food industry, something which consumers globally are demanding.



## NEXT STEPS

- Food recipes utilising pea flour need further development and testing. Further trials are needed to determine the optimal storage conditions, shelf life etc. and to see if emulsifiers or preservatives are required.
- Initial brand design needs to be developed for first round of trade presentations to gauge interest and assist sales and marketing strategy.

## PROJECT TEAM

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## PARTICIPANTS



## PROJECT WEBPAGE

[Pea Fractionation and Non-nut Products | Fight Food Waste CRC](#)

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