

Food and Agribusiness

A Roadmap for unlocking value-adding growth opportunities for Australia

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CSIRO FUTURES

CSIRO Futures is the strategic advisory arm of Australia's national science agency.



Case study

Flavour Creations

Flavour Creations is Australia's leading supplier of high tech foods targeted at Dysphagia management (difficulty swallowing). Dysphagia typically affects the elderly and those with neurological conditions of all ages. The condition presents significant dangers of choking and aspiration pneumonia. Additionally, malnutrition and dehydration is commonly caused by loss of appetite. Flavour Creations has established a broad range of nutritious foods and fluids through their in-house research and development (R&D) department and collaborations with external research partners.

Flavour Creations is leading developments in food and beverage thickeners, textured foods and pre thickened fluids, supplying nutritional specialty food products to hospitals, residential aged care facilities and direct to consumers living in the domestic community and internationally. Along with a range of foods and fluids engineered to meet the client's specific needs, in 2016 Flavour Creations launched their patented "Dysphagia Cup" designed specifically to reduce neck extension enabling a safer swallow with 100% of the fluid able to be consumed.

CURRENT RESEARCH QUESTIONS

- How can free-from products, that are manipulated for health reasons (clean labels), such as sugar-free options, maintain their levels of shelf-stability and quality after removing these preservatives?
- How can we use technology to reduce fat content, or reduce the body's absorption of fat, while maintaining flavour?
- How can more advanced forms of technology, such as advanced IT systems and machine logic, be used to develop more sophisticated methods for substantiating product health claims beyond proof of concept?
- What minerals and vitamins are important for our bodies that we aren't yet aware of and what health benefits of existing foods and beverages exist that we aren't yet aware of?
- How can the production time of novel therapeutic foods be reduced to allow efficient clinical trials and a faster route to market?



EXAMPLE EMERGING TECHNOLOGIES FOR USE IN CREATING PRODUCTS FOR HEALTH AND WELLBEING

- Genetic tools including Whole Genome Sequencing, microbiome sequencing, gene editing, RNAi editing, real-time monitoring of health status and predictive modelling will improve understanding of digestive health, our interactions with food and new food formulations.
- Improved synergistic formulations (e.g. synbiotics) and designed systems for delivery of healthy ingredients and bioactives to the desired sites in the body, enabled by micro- and nano-encapsulation technology, for higher bio-efficacy.
- Microencapsulation, inoculation, bilayer tablets and synbiotics that provide better delivery and optimal conditions for healthy ingredients.
- New enzyme technologies for texture modification and improved digestibility of food components, including the development of new enzymes, rational computational design and modelling enzyme activity and its impact on gut health.
- Selective breeding, fermentation and fortification for the creation of new and enhanced functional foods.





A.3 Industry consultation

The development of this Roadmap was industry-led with Australian F&A companies and multinationals providing direction and input across all chapters. While contributing parties primarily consisted of F&A businesses (of varying sizes), peak bodies, governments and individuals with significant experience across the sector were also consulted.

In addition to the significant input from CSIRO experts, over 40 individuals from external organisations were consulted, including representation from the following organisations:

Agribusiness Gippsland	Food Innovation Australia Ltd.	Sanitarium
APAL	Food SA	Simplot
Australian Food and Grocery Council	Foods from the Earth	Sundrop Farms
Australian Meat Processor Corporation	Grains Research and Development Corporation	Swisse
Bega	High Performance Consortium	ThankYou
Favco	JBS	The Yield
Flavour Creations	Modern Olives	Treasury Wine Estates
Fonterra	Mondelez International	Warrnambool Cheese and Butter
Food Agility CRC	Natural Evolution	XPotential
Food for Health		