



FOOD WASTE & FRAUD PREVENTION CRC

Round 19 Prospectus - March 2017

OPPORTUNITY

Asia is in a 'dining boom' with consumers increasingly looking for three key attributes when choosing to purchase food or wine products – quality, safety/integrity and sustainability. The quality of Australian food and wine is internationally regarded. Where we must improve is in sustainability, through reducing our large volumes of food loss and waste, and in safety and integrity, where our high standards are increasingly under threat due to our food and wine products being the target of fraud. Simultaneously, preventing both food waste and fraud will be integral to the future growth of our food and wine industries in Australia – the area of our economy regarded as the next wave of global opportunity and where we have the strongest comparative advantage¹.

In regards to food waste, the Food and Agriculture Organisation of the United Nations reported in 2011 that North America and Oceania, including Australia, lost or wasted 42% of the food produced for human consumption, making us amongst the worst food wasters on the planet.

From farm to fork current estimates indicate that potentially \$20 billion worth of food in Australia is being lost in the food supply chain or wasted in the retail and food service sectors or by consumers.

'\$20 billion worth of food meant for human consumption in Australia is being lost in the food supply chain or wasted'

Globally food loss and waste is reported to cause economic losses of \$1.2 trillion per year, whilst producing

3.3 billion tonnes of greenhouse gases from rotting landfill. This makes food wastage the third largest emitter of greenhouse gas emissions after USA and China.

Yet up to 60% of food waste is potentially avoidable or transformable and is now being utilised to develop the circular economy in other developed countries such as in Europe. Australia is yet to largely embrace the economic opportunities offered by the circular economy due to our plentiful food supply, and relatively low cost of food as a percentage of income. Notwithstanding, this is a lost economic opportunity as well as one that affects our environmental sustainability.

One of the best economic opportunities from the circular economy approach is to retain nutrients that would otherwise be lost through food loss and waste for nutraceutical and functional food ingredients and animal feeds, all of which require proven purity and provenance to extract their maximum value in the international market.

In regards to fraud, associated with our reputation for premium and clean food and wine production Australian exports are increasingly becoming the target of unscrupulous traders that are substituting, mislabelling or outright counterfeiting Australian exports into Asian, European and America markets. PricewaterhouseCoopers (PwC) reported in January 2016 that one in three companies were victims of fraud, and that an estimated 20% of in-store and 40% of on-line food products were being adulterated or counterfeited. Furthermore, China's CTV has reported that 50% of wine sold in China is likely fake, and may be as high as 90% for premium wines.

To date, Australia has escaped a major food or wine authenticity or safety scare, which could affect human health and cost millions in brand

damage and market access for all Australian exports, not just the ones directly affected. The Australian food and wine industry must call on all exporters to do more to prevent food and wine fraud, ensure product safety and protect 'Brand Australia' as a pre-emptive measure.

The Food Waste & Fraud Prevention CRC will tackle both of these significant issues facing the Australian food and wine industry head on through developing the circular food economy in Australia and protecting the integrity and sought after provenance of our food and wine products, both domestically and abroad.

'up to 60% of food waste is potentially avoidable or transformable'

Only through protecting the integrity of Australian food and wine products throughout the supply chain from farm to fork or glass can we hope to prevent food waste and fraud, demonstrate our sustainability, and deliver products of the utmost integrity.

With the current development of the National Food Waste Strategy by the Australian Government, and Australian food and wine exports booming, the time is not only right but crucial to ensure that Australia capitalises on the Asian dining boom and the potential of the circular economy whilst proving our sustainability credentials, our food and wine product safety and integrity, and our sought after provenance.

¹Deloitte. 2014. Positioning for prosperity? Catching the next wave. Building the Lucky Country Report Series.

VISION

We will prevent the loss, waste and fraud of Australian food and wine products

MISSION

Through a national collaboration we will transform the Australian food supply chain from a linear to a circular economy to minimise food and industry waste, develop the new bioeconomy, and protect product integrity and provenance, both here and abroad.

ALIGNMENT WITH GOVERNMENT PRIORITIES

The proposed Food Waste & Fraud Prevention CRC directly aligns with the Food and Agribusiness Sector Competitiveness Plan prepared by Food Innovation Australia Ltd (FIAL) and has been prepared in consultation with FIAL. Specifically, the proposed CRC aligns with their four knowledge priorities as depicted below:



The proposed FW&FP CRC also aligns with the Federal Science and Research Priorities of:

Food
Advanced Manufacturing
Health

Additionally the proposal aligns with other Federal Government Priorities of:

Accessing premium markets: Sound traceability to prove the quality and safety of our produce (Agricultural Competitiveness White Paper - Priority 5)

The intersect between food, nutrition and health: Value-added food for health and wellbeing

Resource efficiency and sustainability: Food manufacturing efficiency and waste reduction

Food safety - integrity and traceability: Safe-guarding Australian food supply and provenance (National Food and Nutrition Research and Development and Technology Transfer Strategy)

COOPERATIVE RESEARCH CENTRE PROGRAMME

The Cooperative Research Centre or CRC Programme was established in 1990. The programme is administered by AusIndustry, a division within the Federal Department of Industry, Innovation and Science. The programme is a competitive, merit based grant programme that supports industry-led and outcome-focused collaborative research partnerships between industry, researchers and the community. Since its inception the Australian Government has invested more than \$4.2 billion in over 100 CRC's.

The proposed Food Waste & Fraud Prevention CRC is unlike any CRC funded before. It will take a triple-bottom line approach to preventing and transforming food waste and developing the circular food economy, and a commercialisation focus to developing the next generation provenance confirmation tests, intelligent packaging and consumer diagnostics that are aimed squarely at protecting 'Brand Australia'.

INDICATIVE ECONOMIC TARGETS

TARGET 1

By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses (UN Sustainable Development Goal 12.3 which is being adopted by the Australian Government)

ECONOMIC RETURN:

Potentially \$4 billion per annum to Australian consumers by 2030

TARGET 2

To increase Australia's \$3.2 billion stake (3.7% share; 1% CAGR[^]) in the \$86 billion Asia-Pacific fortified and functional food market (16% CAGR) by increasing food industry exports based on using circular economy nutrients to reduce targeted chronic diseases.

ECONOMIC RETURN:

\$1 billion per annum once achieved based on achieving 5% market share

TARGET 3

To reduce the estimated \$250 million p.a.* cost of food and wine fraud to Australian producers (based on conservative 10% substitution rate of the \$2.5 billion exports of commodities and wine known to be the target of substitution in China) and to protect 'Brand Australia'.

ECONOMIC RETURN:

40% reduction in the incidents of fraud returning \$100 million in lost sales and significant jobs to the food and wine sector

*Currently being quantified where possible through an Australian-first economic consultancy funded by the proponents and FIAL

[^]Compound Annual Growth Rate

BUSINESS CASE

In March 2017 the World Resources Institute released a new report, The Business Case for Reducing Food Loss and Waste. The report evaluated 1,200 business sites across 700 companies in 17 countries, including Australia. It reported that on average companies that instigated food waste reduction initiatives saw a 14-fold or greater return on investment; that cities such as London showed a 92-fold return on investment; and that nations, in this case the United Kingdom, which is the only nation where sufficient data allowed a full cost-benefit analysis, saw a 250-fold return on investment between 2007 and 2012. During this time the UK Government invested the equivalent of A\$21 million in the 'Love Food Haste Waste' Program, which was matched by food manufacturers and retailers. The economic benefit delivered, largely for UK households, was estimated at \$10.6 billion (£6.6 billion) over 5 years.

Additional non-financial benefits reported by governments and business leaders were assisting food security, adhering to waste regulations, improving environmental sustainability, enhancing stakeholder relationships, and achieving a sense of ethical or social responsibility.

Potential economic opportunities within the circular economy for retained nutrients directly relate to the \$86 billion Asia-Pacific fortified and functional food market (16% CAGR) and the \$2+ billion local vitamin and dietary supplements market in Australia and the equivalent much larger market in Asia.

The business case for preventing food and wine fraud is less straight forward, although figures exist regarding the potential economic impact of a fraud incident within a food company. PwC report that the Grocery Manufacturers Association (USA) estimate that a single food fraud incident can cost 2-15% of a company's annual revenue, depending on the size of the company. This equates to an indicative US\$10 million cost for a US\$500 million per annum food company, up to \$200 million for a large \$10 billion per annum food company. Estimates of the potential impact on 'Brand Australia' could not be found.

FOOD WASTE & FRAUD PREVENTION

TRADITIONAL LINEAR FOOD SUPPLY CHAIN

TAKE → MAKE → CONSUME

PROPOSED CIRCULAR FOOD SUPPLY CHAIN

FORK

Develop **handheld consumer diagnostics** to put consumers in control

Establish **provenance signatures** and databases for all key exports

PREVENT FRAUD

Design new **intelligent packaging** to prevent both waste & fraud

Better apply existing **commercial traceability solutions** and **blockchain technology**

In-country fraud prevention **training** and **intelligence gathering**

PROVENANCE

Design new **functional foods & feeds**

Delivery substantiated **nutraceutical ingredients**

SUSTAINABILITY
PRODUCT INTEGRITY

CRC PROPOSED ACTIVITIES

→ DISPOSE = WASTE

PROTECTING THE INTEGRITY OF AUSTRALIAN FOOD AND WINE PRODUCTS FROM FARM TO FORK IS INTEGRAL TO PREVENTING FOOD WASTE ALONG THE SUPPLY CHAIN - BOTH HERE AND ABROAD - AND PROTECTING BRAND AUSTRALIA.

FARM

RETAIN NUTRIENTS

Promote food recovery

RESOURCE EFFICIENCY

Create **new bio-industries** from primary production food losses

Develop a national **Agri-food Industrial Symbiosis** Network

REDUCE FOOD LOSS & WASTE

Assist delivery of the **National Food Waste Strategy**

Establish Australian food processing and retail **2030 Champions**

Adoption of **smart packaging** to prevent food waste

PARTICIPANTS

The Food Waste & Fraud Prevention CRC is currently seeking participants in these key areas:

1. food and wine businesses wanting to reduce and transform food loss and industry waste through becoming part of the circular bio-economy;
2. federal, State and Local Governments wanting to emulate the success that has been achieved globally through food loss and waste initiatives;
3. packaging companies that are working in the area of smart and intelligent food and wine packaging to prevent food waste and food and wine fraud;
4. food recovery organisations;
5. nutraceutical and functional food and feed companies interested in Australian sourced ingredients,
6. industry commodity groups looking to discover what makes their product unique and protectable;
7. Australian food and wine producers, particularly exporters, that want to protect their products in the international market place;
8. technology providers that can offer unique existing solutions to Australian producers;
9. diagnostic development companies interested in developing handheld units or apps that deliver provenance and integrity certification for consumers;
10. leading edge research partners that can offer commercialisable ideas or solutions to the above participants; and
11. international collaborators that are providers of or interested in novel research and technology that deliver on the above outcomes.

BID TIMELINE

STAGE 1

March 2017

Release bid prospectus

April 2017

Bid workshop

May 2017

Round 19 opens. Finalise research program, indicative participant commitments and IP arrangements.

June 2017

Prepare ~20 page Expression of Interest

July 2017 Stage 1

Expression of Interest submitted

STAGE 2

September 2017

Stage 2 opens for shortlisted bids

October 2017

Prepare Full Business Case

November 2017

Full Business Case due

March 2018

Outcomes announced

July 2018

Successful CRC's commence

BID WORKSHOP

An initial bid workshop will be held on Wednesday April 26 (10 am start) and Thursday April 27 (4 pm finish), 2017, following the National Food Waste Strategy Roundtable.

The workshop will be held at the SARDI Plant Research Centre, 2b Hartley Grove, Urrbrae, South Australia, approximately 10 min south of the city of Adelaide.

The workshop will refine the key industry and government requirements and subsequently the scope of the FW&FP CRC, the economic targets, agree on the governance structure, scope out the research projects/programs and the IP arrangements, determine the key research providers, and discuss indicative FW&FP CRC contributions.

Please note that involvement in the workshop and the Stage 1 Expression of Interest process is obligation free and non-binding respectively.

Please RSVP to Dr Steve Lapidge by Friday April 21 at steven.lapidge@sa.gov.au for catering purposes and as venue capacity is limited.

BID CONTRIBUTIONS

Currently bid development costs are being met by the Department of Primary Industries & Regions South Australia.

Indicative bid contributions will be discussed for participants proceeding to the Stage 1 Expression of Interest at the workshop. These will be in the order of \$10,000 - \$20,000 depending on the number of participants, the size of the organisation, and the level of in-kind support committed to the bid.

Bid contributions not utilised in Stage 1 or Stage 2 will be returned to contributors on a pro-rata basis along with an audited expenditure report, or utilised in the establishment of the Food Waste & Fraud Prevention CRC, as agreed with individual participants.

TERM

The Food Waste & Fraud Prevention CRC will be seeking the maximum 10 year term to best align it with the delivery of the United Nations Sustainable Development Goal (12.3) of a 50% reduction in food waste by 2030 at the retail and consumer levels and reduced food losses along the production and supply chains.

The indicative quantum of funding sought from the CRC Programme will be determined at the initial bid workshop. Notwithstanding, by necessity this will be a CRC of significant proportions to deliver on its indicative economic targets outlined earlier.

EDUCATION AND TRAINING

A key part of this CRC will be its education and training program that will take on multiple forms including:

1. Industry-embedded PhD and Masters research students in areas related to consumer research, reducing food loss and waste (particularly adopting the Love Food Hate Waste program to an Australian-wide context), nutrient retention and valorisation, nutraceutical and functional food ingredient extraction and bioactivity substantiation, smart and intelligent packaging, preventing food fraud, establishing provenance signatures for key commodities, and developing consumer diagnostics with industry partners. All PhD students will be put through a Graduate Certificate in Research Commercialisation that is offered by participant universities.
2. In-country food and wine safety and integrity eTraining solutions regarding preventing food waste and identifying food and wine fraud. The training will serve the dual purpose of intelligence gathering.
3. Additionally the FW&FP will aim to develop a Food Science Degree subject or a potential Masters by course work and research project at partner universities specifically targeted at food loss and waste reduction and valorisation and preventing food and wine fraud.

GOVERNANCE

The appropriate governance structure for the Food Waste & Fraud Prevention CRC will be discussed at the bid workshop. Interim positions of the Independent Chair and potential Non-Executive Directors, CEO, Research Director and Program Leaders will be called for.

Importantly, the CRC Guidelines state that:

- o all CRCs must established and be governed by as an incorporated company, limited by guarantee (the CRC Entity);
- o CRC Boards must include a Chairperson who is independent of the Participants with the necessary skills and experience required to lead an organisation with diverse Participant needs and outcomes; and
- o the composition of the CRC Board should include senior figures with general industry experience (not necessarily from the specific industry of the CRC) and reflect skills, experience and expertise relevant to managing the CRC. The majority of Board members should be independent.

*'We must eliminate food loss and waste,
because doing just that will supply twice
the markets from the same farm footprint'*

Keynote address to the National Farmers Federation 2016 Congress
by Anthony Pratt, Executive Chairman, Visy

HOW TO BECOME INVOLVED

1. Contact Steve Lapidge (steven.lapidge@sa.gov.au or 0401 990 367) to register your organisations interest if you haven't done so already.
2. Attend the FL&FP CRC workshop in Adelaide on April 26-27 to help determine the scope of the national/international collaboration.
3. Request a teleconference or presentation in May for your organisation to directly discuss the opportunity.
4. Become actively involved in the bid preparations through the working group.
5. Sign up for the non-binding Stage 1 Expression of Interest to lend your support for advancing the bid to Stage 2.

PROPONENT


The Department of Primary Industries and Regions South Australia (PIRSA) is the primary proponent, which includes the South Australian Research and Development Institute (SARDI) division of PIRSA. PIRSA-SARDI have been a strong supporter of the Cooperative Research Centre Program since its inception, having been a participant in many agriculture and environmental CRC's.

The bid is being led by Dr Steve Lapidge, Director of the PIRSA Food Innovation Taskforce. Steve was formerly a Program Leader then Chief Operating Officer with the Invasive Animals CRC for near 10 years before joining PIRSA in 2012. Since joining PIRSA Steve has developed and led numerous food loss and waste, functional food and food integrity initiatives, including the 2014 Round 17 Safe and Saved Food CRC bid (funding round cut) and the 2016 Round 18 Food & Wine Integrity CRC bid (unsuccessful). In recent years Steve has represented Australia at G20 and OECD Food Loss & Waste meetings, and is uniquely qualified to be leading the bid.

The development of the bid is receiving input from Adelaide University, Australian Wine Research Institute, CSIRO, Food Innovation Australia Ltd, Food Science Solutions, Food South Australia, Monash University, RMIT University, World Resources Institute/Champions 12.3 Secretariat and YPB Systems.

**For more information contact Dr Steve Lapidge
at steven.lapidge@sa.gov.au or 0401 990 367.**





'Companies are losing money and customers are losing faith. Food fraud is estimated to cost the global food industry US\$30 to \$40 billion every year. But that's just the economic cost.'

PwC (2016) Fight food fraud