Case studies of EMCRs successfully collaborating across sectors

Dr Mark Bradbury

Improving food safety

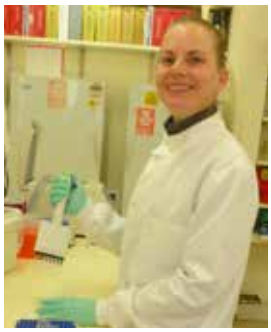
Dr Mark Bradbury is a postdoctoral research associate in the ARC Industrial Transformation Training Centre for Food Safety in the Fresh Produce Industry. The Australian fresh produce export industry is worth more than $2 billion per year. Committing to improving food safety through research outcomes is essential to ensure public health, market access and consumer trust in Australian-grown fresh produce.

The centre conducts industry-focused research and provides training to the next generation of industry-ready food safety researchers. With 21 industry partners in three countries, the centre works to understand the priorities and challenges facing the fresh produce industry. All PhD projects at the centre are designed with industry partners and include integrated industry placements aimed at producing graduates capable of moving into research roles in industry, government or academia.

Prior to joining the centre, Mark worked as a research microbiologist with CSIRO Food Safety and Stability Group and completed his PhD in 2014. Making the decision to move from an indefinite position to an academic contract position was difficult. However, the opportunity to be part of a new centre, work with a cohort of PhD candidates in food safety and move outside of his comfort zone convinced him it was the right choice.

Like many EMCRs, Mark has found that working with industry partners comes with competing demands to keep the balance between scientific interests and commercial priorities. He advises that projects should be defined as collaborative endeavours between partners and not be simply transactional in nature. Many researchers find that the most significant advances often occur on the back of a multitude of failed experiments. Scientists need to ensure their industry partners are aware that they are investing in the research—not the outcome. This is easier said than done, especially in a funding-constrained environment, however in Mark's experience fostering an honest and open relationship while delivering results generates trust. This in turn can lead to the ability to influence project directions and expand to more exploratory research.

Another challenge Mark observed in returning to an academic environment is around the definition of research outputs. He thinks that translation of research findings to industry settings is very satisfying. However, finding ways to capture this effort as a research metric remains challenging. Mark feels this will be even more of a challenge for international researchers working in Australia, as any metrics that are developed need to be consistent with global standards. One of his priorities is to consider incorporation of publishable components in every industry-driven project.



Dr Robyn Hall

Helping control the wild rabbit population

Dr Robyn Hall is a research scientist at CSIRO studying innovative and applied solutions to help manage wild rabbit populations, one of Australia' most invasive vertebrate pests. Robyn works on rabbit caliciviruses in their context as biological control agents of wild rabbits. The benefits of biological control of wild rabbits has been estimated at $70 billion over the last 60 years, and biocontrol agents are essential for minimising the impacts of rabbits on agriculture and the environment.

Robyn's work was largely funded by the Invasive Animals Cooperative Research Centre (IACRC) which has now evolved into the Centre for Invasive Species Solutions. The centre is Australia's largest integrated invasive animal research and management collaboration, with 27 participating organisations including research institutes such as CSIRO and universities, state and federal government departments, and industry stakeholders such as Meat & Livestock Australia and Australian Wool Innovation Ltd.

Robyn started out as a veterinarian in private practice before completing a PhD in veterinary virology. These skills equipped her to tackle the applied problem of invasive vertebrate pest management and to communicate effectively with industry stakeholders, predominantly beef and sheep producers. Through her time at CSIRO and with the IACRC, Robyn has developed strong collaborations with industry and members of the public interested in wild rabbit control. She has also been able to pursue cutting-edge science on rabbit caliciviruses, knowing that her research will have direct environmental, economic and social benefits for end users.

Although scientific excellence, innovation, and peer-reviewed publications are important for building a track record at CSIRO, researchers are strongly encouraged to demonstrate the national impacts of their research and to conduct research aligned with CSIRO's research priorities. There is a strong focus on delivering value to customers and on working collaboratively with other research partners.

Dr Josh Hixson

Finding solutions for wine industry waste

The Australian Wine Research Institute (AWRI) focuses on research outcomes for the wine industry, be they fundamental science problems or practical solutions-based work. The AWRI is largely funded through wine industry levies and matching government funding, administered through the industry research and development corporation, Wine Australia.

The majority of AWRI's researchers have come through traditional university pathways (PhD, post-doc, researcher or similar). Dr Josh Hixson arrived at the AWRI straight out of his PhD four years ago. Researchers at the institute are evaluated on some of the same indices as traditional academic researchers such as publications, citations and grants, but most important are the impacts of their outputs, as their research questions are driven by wine industry problems. As a point of difference to university-based researchers, they can't directly access ARC funding.

Josh has been working on externally funded grants from the Australian Government Department of Agriculture and Water Resources to find solutions for wine industry wastes. This includes collaborating with the wine and livestock industries to better utilise wine industry wastes as a cattle feed. He has worked alongside wineries and grape waste processing facilities to sample or source product and with the livestock industry to understand the barriers that need to be overcome to enable grape waste to be accessed as a feed supplement.

Dr Sally Gainsbury

Conducting real-world research to address gambling as a real-world problem

Dr Sally Gainsbury has over 10 years' experience conducting gambling research. She is focused on understanding the psychology of gambling to inform the development of responsible gambling strategies and harm minimisation policies. A big challenge faced by Sally is that unlike other addictive disorders, such as excessive alcohol use, disordered and problem gambling does not have a large research and evidence base.

Much of the research on gambling is limited due to a reliance on non-representative samples such as university students, and use of simulated non-monetary 'gambling' tasks, reducing the validity of results and conclusions that can be applied to actual gambling venues and populations.

Although gambling problems are related to substantial psychological and physiological health problems, little medical or public health funding is received. In light of all this, Sally's research involves relevant stakeholders, including industry and government partners.

During her honours and PhD research she engaged directly with the gambling industry (Gambling Technologies Australia and Aristocrat Leisure). While initial projects and collaborations such as these may be small, if conducted successfully and with respect, they can lead to ongoing partnerships. For example, the University of Sydney Gambling Treatment and Research Clinic received a donation from Clubs NSW to conduct a three-year research program. These funds were used to support early career researchers, building capacity in the field and producing research relevant to policy makers and industry as well as having academic rigour and contributing to theory.

With the appropriate safeguards, collaboration between academic researchers, industry and government can be highly productive and make important contributions to the academic field as well as providing real-world solutions to real-world problems. Sally has successfully brought together the key stakeholders from industry and government to grow the research field on which industry and government can make evidence-based decisions.

Dr Colin Hall

Associate Professor Drew Evans

Dr Colin Hall and Associate Professor Drew Evans

Developing the plastic automotive mirror

Beginning in 2008, the University of South Australia and SMR-Automotive (Samvardhana Motherson Reflectec) undertook a collaborative research project aimed at producing the world's first plastic automotive mirror. The commercial production of these products commenced in 2012 at the South Australian facility of SMR for export to the USA. Since then almost 3 million mirrors have been made and exported, underpinned by several co-invented patent filings (two fully granted) and many academic publications.

This project was led by (at the time) Senior Research Fellow Dr (now Professor) Peter Murphy, and project-managed by EMCRs Mr (now Dr) Colin Hall and Dr (now Associate Professor) Drew Evans. Throughout this commercially focused project there were many challenges faced by the researchers. As employees beginning their careers in the academic system, it was critical that Colin and Drew were able to publish scientific papers to build their academic track record, especially given both EMCRs were returning to the academic sector after years working in the private sector, and were on short-term contracts. Building their academic track records seemed to conflict with the fact the project was paid for through a cooperative research centre, where the commercial outcomes were the primary metric of success. Rather than an either/or scenario, the team was challenged to both publish papers and deliver outcomes for industry.

Rather than merely work excessive hours to meet this challenge, both EMCRs relied on other skills they had developed as scientists: strong communication, clear and concise report writing, and lateral thinking. These skills allowed Colin and Drew to find creative ways to undertake aspects of the research that were not subject to confidentiality, while discovering the science behind the product development. In a similar manner, through good project management, they were able to engage in development work above and beyond the lab that assisted SMR-Automotive to establish their advanced manufacturing facility. Their communication with both industry and their university was key to meeting the expectations of both.

Get in contact with the EMCR Forum

The EMCR Forum is the voice of Australia's early- and mid-career researchers (EMCRs), championing improvement in the national research environment through advocacy.

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