

research project

Food upcycling: using human food waste as a nutrient source to produce a novel insect-derived protein source for production animals

project summary

This project is focused on improving sustainability from paddock to plate while reducing the CO2 contributions from food waste.

Dr Kristy DiGiacomo will work with Hermetia Biosystems (HBS) to solve two key challenges facing the environment; pollution caused by the breakdown of food waste and the pollution caused by growing traditional crops to feed livestock.

Key to the project is the recent discovery by HBS that human non-meat food waste, for example vegetable waste from supermarkets, can be bioconverted into a valuable insect, a black soldier fly, instead of going to landfill. It can then be used to create food for livestock such as Australian lamb. As well as being natural, low cost, and high quality, the insect protein is also highly sustainable. One hectare can produce approximately 300 times more volume of insect protein than traditional soybean or canola crops, which are often imported and draw significant water.

Dr DiGiacomo will assess which food wastes are the best nutrient sources, test the amount of gas produced by the larvae, measure the quality of meat fed larvae, and assess the production and economic potential of using the larvae for feed in Victorian lamb production systems. Australia currently exports more than 200,000 tonnes of lamb meat annually valued at over \$1.8 billion. With feed costs accounting for up to 70 per cent of an intensive animal production enterprise, any reduction to the cost of animal feed will have a large impact on profitability for the producer and the economy more broadly. Increasing production of export meat in a sustainable manner may also open new export markets, grow existing markets and improve profits for domestic animal producers.

This project also directly supports a key goal of the Food and Agriculture Organisation of the United Nations which says the livestock production system should not create undue pressure on ecosystems, biodiversity, land and forest resources and water quality.









Inspiring Innovation



personal history

Dr Kristy DiGiacomo has an established track record in the field of nutrition research, particularly in ruminants. More specifically, her research has focused on ruminant metabolism, physiology and nutrition and overcoming heat stress via nutritional interventions; working independently and in collaboration with world leaders in Australia and internationally.

Dr DiGiacomo is an outstanding young scientist who has demonstrated a genuine commitment to the advancement of animal science in Australia, not only in her principal field of ruminant nutrition and physiology, but in other species such as pigs.

For an emerging scientist, Dr DiGiacomo has a strong record of attracting and managing research grants and a diverse range of individuals involved in these projects. She has a strong focus on outcomes and relevance of the research to the target industry which makes her a very effective scientist and communicator.

Kristy is currently a lecturer within the Faculty of Veterinary and Agricultural Sciences at the University of Melbourne.

other sustainable agriculture fellowship recipients:

Dr Pangzhen Zhang Professor Luca Corelli Grappadelli Dr Terry Griffin

background information

Since 2004, **veski** has been attracting and bringing outstanding global talent to Australia to develop solutions to address modern challenges facing health and medicine, the environment, technology and society more broadly. The **veski** sustainable agriculture fellowships draw on this experience to fund world leading scientists and researchers to work in collaboration with farmers, industry and government.

The long-term sustainability of Australia's agricultural sector and regional communities rely on innovation and strong collaboration between industry, government, philanthropic groups and the community. Innovation and collaboration can transform our local economies, grow local industries and provide jobs for thousands of people.

The fellowships support industry partners, research organisations and industry collaborators seeking to stimulate and further develop Australia's food and agricultural industries with innovative solutions.

veski is supported by the State Government of Victoria.

further information

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