

NATIONAL AG WEEK 2023

DIGITAL LEARNING KIT

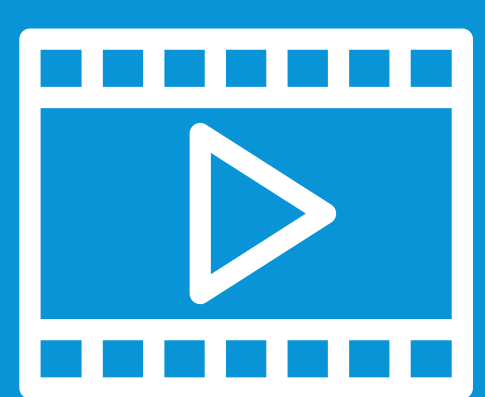
GROW YOU GOOD **THING** #AGDAYAU

Celebrate **STEM** and **Innovation** in
Food & Fibre Production

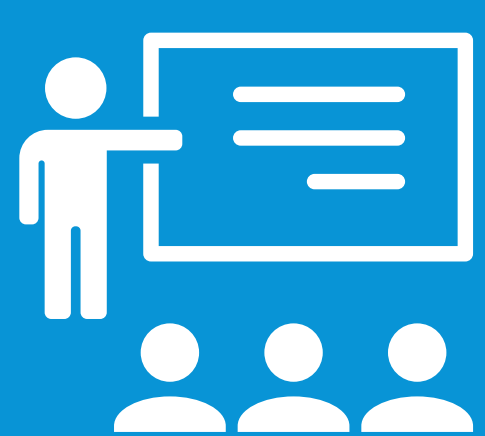
V9 Australian Curriculum Aligned



FEATURING:



**PRIMARY AND SECONDARY PRE-RECORDED FARMER
TIME VIDEOS**



**ACCESS TO TEACHING RESOURCES FOCUSED ON
TECHNOLOGY AND INNOVATION IN FOOD & FIBRE
PRODUCTION**



INTRODUCTION

THIS DIGITAL RESOURCE KIT IS DESIGNED FOR PRIMARY AND SECONDARY EDUCATORS.

Within the resource, teachers can access a series of short Australian Curriculum-aligned videos and accompanying student worksheets celebrating STEM and innovation in food and fibre production.

Five curriculum-aligned questions have been answered by inspiring stakeholders working in different industries within the Australian agricultural sector.

Access the videos to hear about the technologies and innovations helping them sustainably produce Australia's food and fibre. As students view the video resources, they can record their answers to PIEFA's Fast Five questions on the provided worksheets.

Facilitation of each of the activities within this resource will take approximately 30 minutes. Primary Industries Education Foundation Australia thanks our member organisations for collaborating on these resources.

For more food and fibre learning resources, visit www.primezone.edu.au





PIEFA'S FAST 5

Five curriculum-aligned questions have been asked to stakeholders working in the Australian agricultural sector. Learn about the technologies and innovations that are helping people sustainably produce Australia's food and fibre.

Access links and resources throughout this document to deliver a National Ag Week lesson.

PRIMARY QUESTIONS

1. What is the technology/innovation that you have introduced? *(How does it work? What is it used for?)*
2. How were tasks performed before this technology/innovation was available?
3. How does the technology/innovation meet the needs of people, improve sustainability or make a task easier when it is used?
4. What are some of the challenges of using this technology/innovation, and how could these be improved in the future?
5. What will the future of primary industries (food and fibre) be like?

SECONDARY QUESTIONS

1. Describe the technology/innovation and its use in the food and fibre industry.
2. Compare how an operation was performed in the past (before the technology/ innovation) with the present and explain why using this technology/innovation is preferable.
3. Describe how the technology/innovation targets at least one aspect of sustainable production (economic, social or environmental) and identify its potential implications and impacts.
4. Identify the training or experience required to operate/use this technology/innovation *(Identify the career pathway)*.
5. Why should students explore a career in primary industries?



AUSTRALIAN CURRICULUM CONTENT

PRIMARY

Foundation

- Explore how familiar products, services and environments are designed by people (ACgTDEFK01)
- Explore the ways people make and use observations and questions to learn about the natural world (ACgSFH01)

Year 1- 2

- Identify how familiar products, services and environments are designed and produced by people to meet personal or local community needs and sustainability (ACgTDE2K01)
- Explore how plants and animals are grown for food, clothing and shelter (ACgTDE2K03)
- Describe how people use science in their daily lives, including using patterns to make scientific predictions (ACgS1H01)
- Describe how people use science in their daily lives, including using patterns to make scientific predictions (ACgS2H01)

Year 3- 4

- Examine design and technologies occupations and factors, including sustainability, that impact on the design of products, services and environments to meet community needs (ACgTDE4K01)
- Describe the ways of producing food and fibre (ACgTDE4K03)
- Consider how people use scientific explanations to meet a need or solve a problem (ACgS3H02)
- Consider how people use scientific explanations to meet a need or solve a problem (ACgS4H02)

Year 5- 6

- Explain how people in design and technologies occupations consider competing factors including sustainability in the design of products, services and environments (ACgTDE6K01)
- Explain how and why food and fibre are produced in managed environments (ACgTDE6K03)
- Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions (ACgS5H02)
- Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions (ACgS6H02)



AUSTRALIAN CURRICULUM CONTENT

SECONDARY

Year 7-8

- Analyse how food and fibre are produced in managed environments and how these can become sustainable (ACgTDE8K04)
- Analyse the impact of innovation and the development of technologies on designed solutions for global preferred futures (ACgTDE8K02)
- Analyse how people in design and technologies occupations consider ethical and sustainability factors to design and produce products, services and environments (ACgTDE8K01)
- Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (ACgS7H03)
- Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (ACgS8H03)

Year 9-10

- Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (ACgTDE10K01)
- Analyse the impact of innovation, enterprise and emerging technologies on designed solutions for global preferred futures (ACgTDE10K02)
- Analyse and make judgements on the ethical, secure and sustainable production and marketing of food and fibre enterprises (ACgTDE10K04)
- Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (ACgS9H02)
- Examine how the values and needs of society influence the focus of scientific research (ACgS9H04)
- Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (ACgS10H02)
- Examine how the values and needs of society influence the focus of scientific research (ACgS10H04)

Dr Cheryl McCarthy

SENIOR RESEARCH FELLOW (MECHATRONIC ENGINEERING)

**CENTRE FOR AGRICULTURAL ENGINEERING,
UNIVERSITY OF SOUTHERN QUEENSLAND**



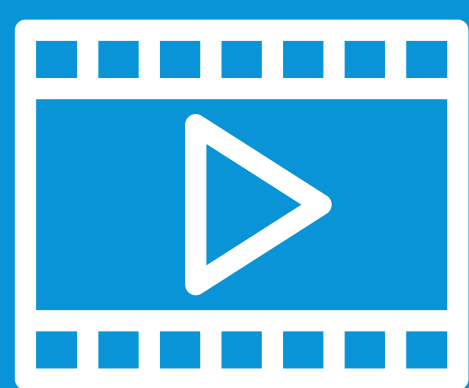
RESOURCE SUMMARY

Learn about Dr McCarthy's impactful contributions to the Australian egg industry. Hear about her role in developing technologies integrating cameras and machine vision to enhance sustainability and create on-farm solutions to agricultural problems.

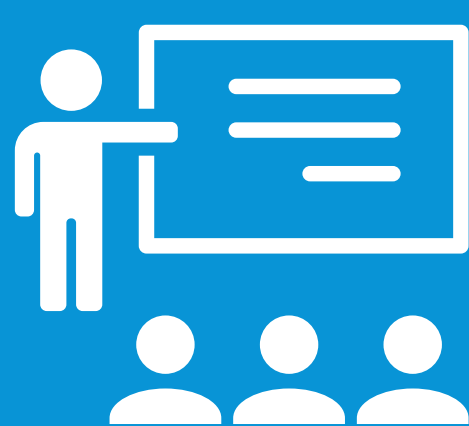
These technologies monitor the well-being of chicken flocks and identify potential issues at an early stage. Automated cameras installed on free range egg farms monitor flock health and behaviour to identify potential health concerns, enabling early intervention. This approach minimises the need for manual inspections and reduces stress on the chickens while improving overall farm efficiency.



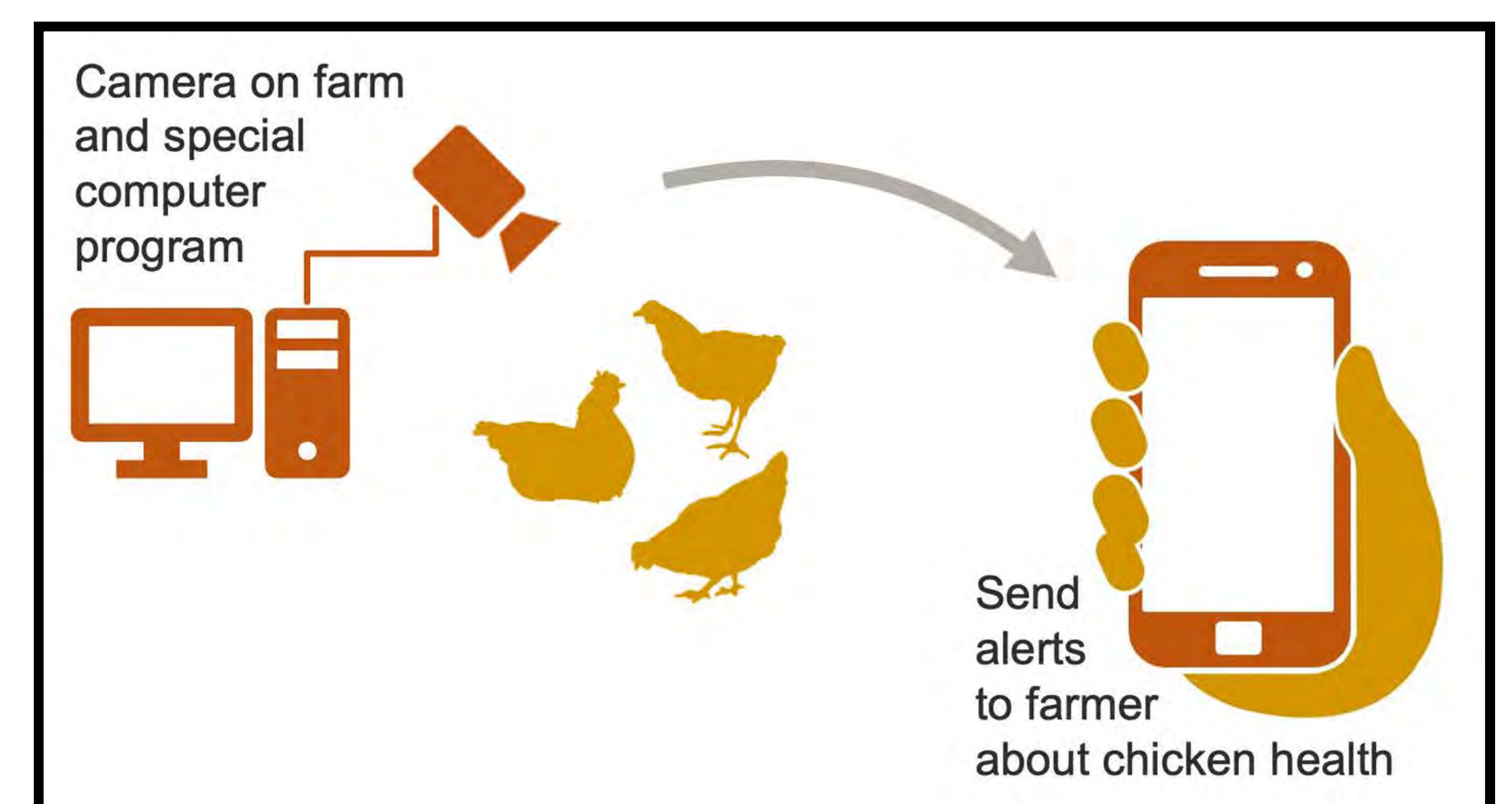
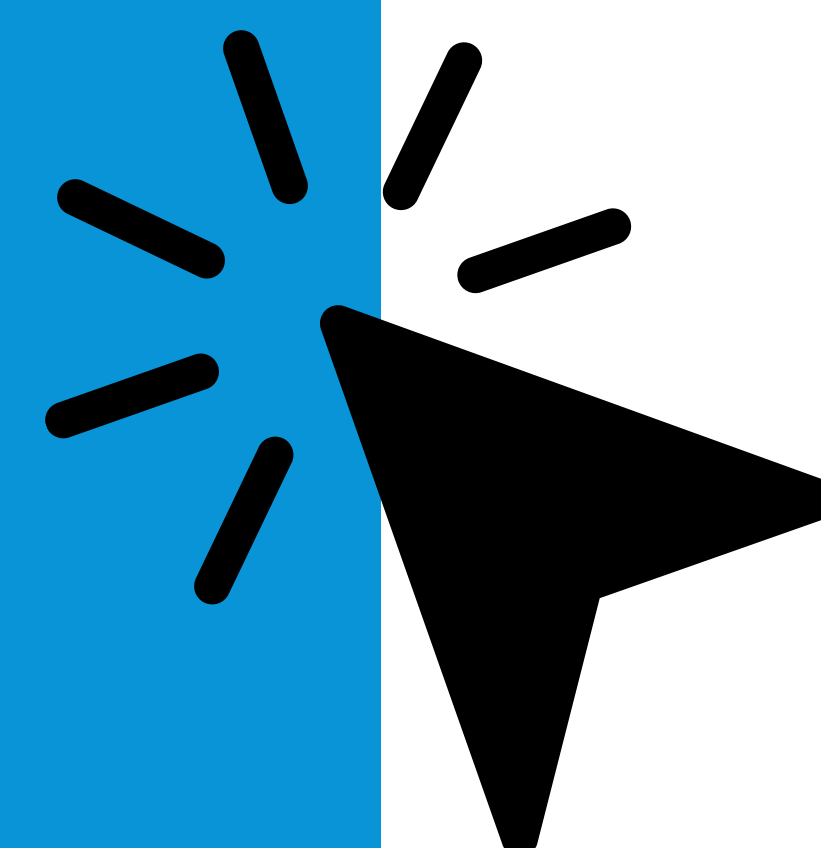
ACCESS THE RESOURCES BY CLICKING ON THE LINKS BELOW.



[PRIMARY VIDEO](#)
[SECONDARY VIDEO](#)



[PRIMARY WORKSHEET](#)
[SECONDARY WORKSHEET](#)



Janine Price

ENVIRONMENT AND REGULATION
SCOLEXIA ANIMAL & AVIAN HEALTH
CONSULTANCY, CANBERRA ACT

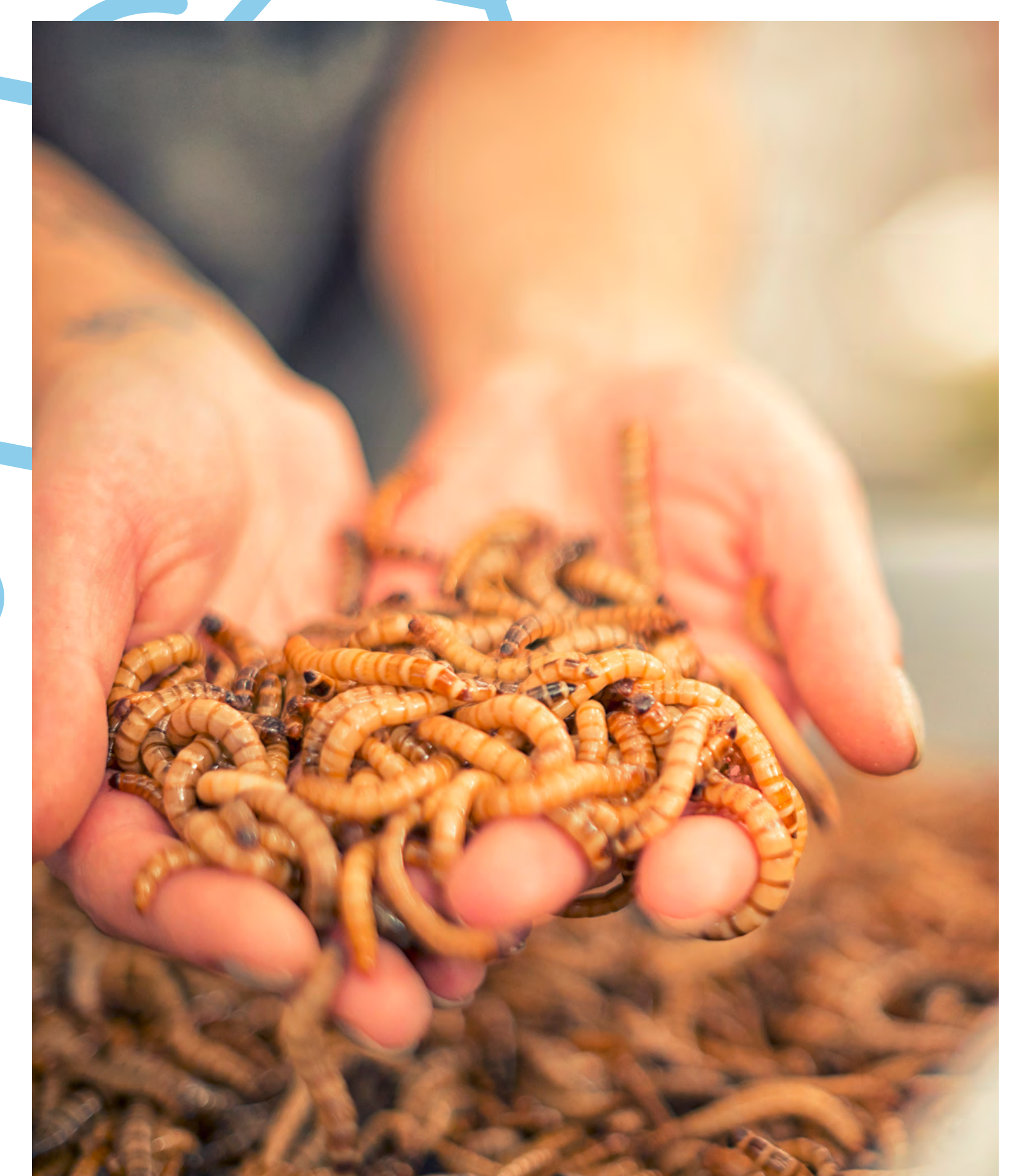


RESOURCE SUMMARY

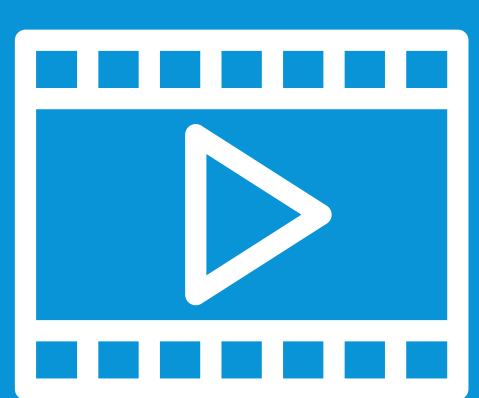
Learn about Janine Price's research into Black Soldier Fly farming to convert manure generated on egg farms into fertiliser or soil conditioner.

Hear how these insects convert waste into a valuable by-product, providing a low-cost and sustainable waste management solution for the agricultural industry and an alternate source of profit.

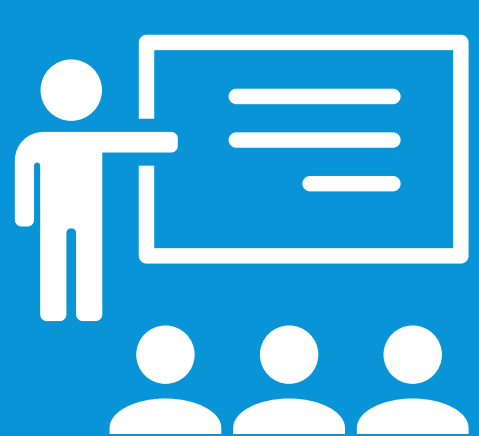
This closed-loop system has the potential to counteract the high cost of treatment and disposal of wastes (both solid and liquid) produced by on-farm intensive production in the poultry industry. It is a sustainable way of managing large volumes of manure, decreasing waste by up to 80%, reducing greenhouse gas emissions, and generating less nutrient leaching potential.



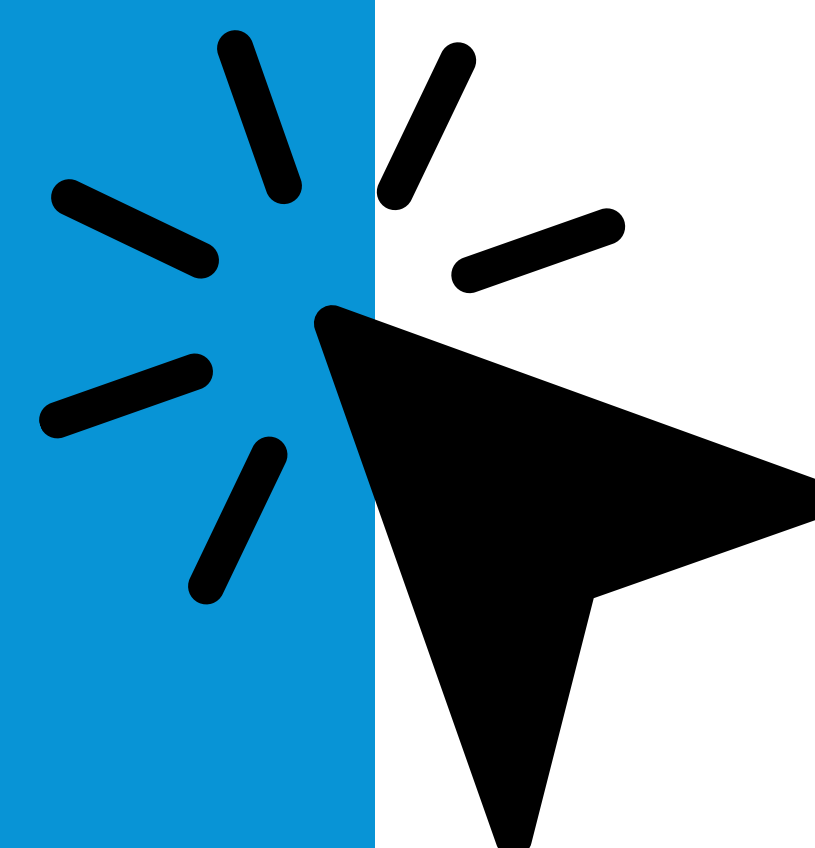
ACCESS THE RESOURCES BY CLICKING ON THE LINKS BELOW.



[PRIMARY VIDEO](#)
[SECONDARY VIDEO](#)



[PRIMARY WORKSHEET](#)
[SECONDARY WORKSHEET](#)



ATTRIBUTION, CREDIT & SHARING



This resource was produced by Primary Industries Education Foundation Australia (PIEFA) in collaboration with our member organisations. Primary Industries Education Foundation Australia's resources support and facilitate effective teaching and learning about Australia's food and food industries. We are grateful for the support of our industry and member organisations for assisting in our research efforts and providing industry-specific information and imagery to benefit the development and accuracy of this educational resource.



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