

# NATIONAL AG WEEK 2023

## DIGITAL LEARNING KIT

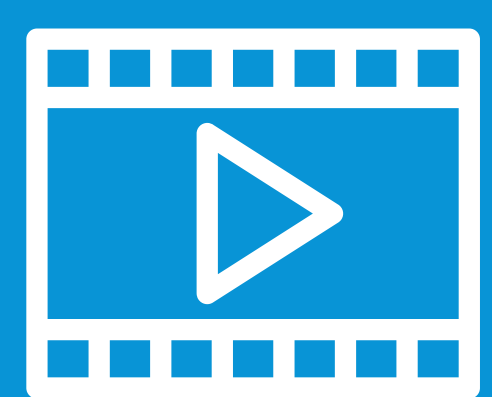
**GROW** YOU GOOD **THING** #AGDAYAU

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

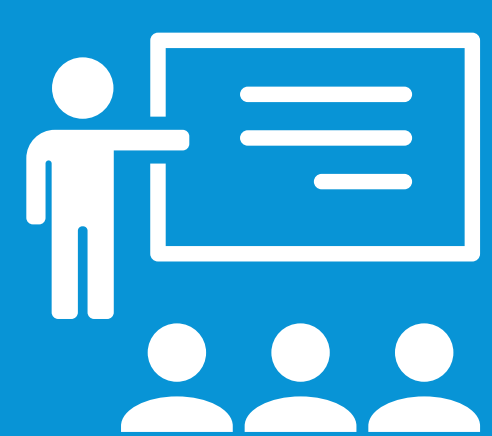
V9 Australian Curriculum Aligned



### 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](http://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)

# Amanda Mader

**TECHNICAL VITICULTURIST**

**INDEPENDENT CONSULTANT, BAROSSA VALLEY, SA**

## Wine Australia

### RESOURCE SUMMARY

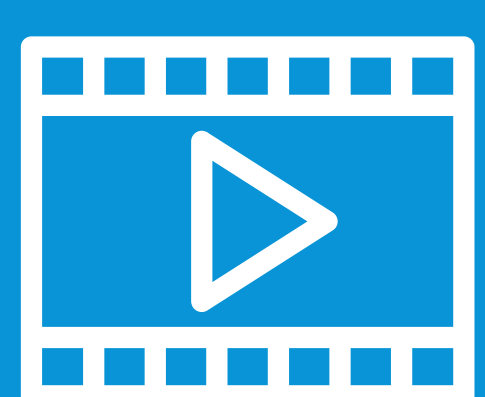
Learn about Amanda's experience and knowledge spanning over 30 years in the viticulture industry. Hear about the changes in technology in predicting crop yield, from individually counting bunches of grapes on vines, cutting and weighing them, to now using the innovative technology of Capture Actual Time. This technology allows the precise weights of the fruit to be measured whilst growing on the vine every hour in real-time. This is highly beneficial as the data delivered to the grower can be used to track yield and make informed decisions about how the fruit is developing to meet specific production and market requirements.

Significant savings from this technology are reduced labour requirements and water use efficiency. Growers can manage water use more effectively and identify the optimal time of day to harvest, leading to a decrease in operational costs and improved fruit quality.

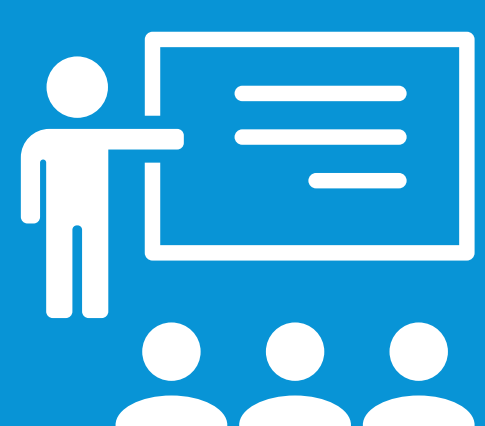
Amanda provides an understanding of how careers in viticulture encompass a variety of disciplines across the supply chain. She highlights how every growing season is different, and with integrated technology, the industry can improve environmental sustainability whilst remaining financially viable.



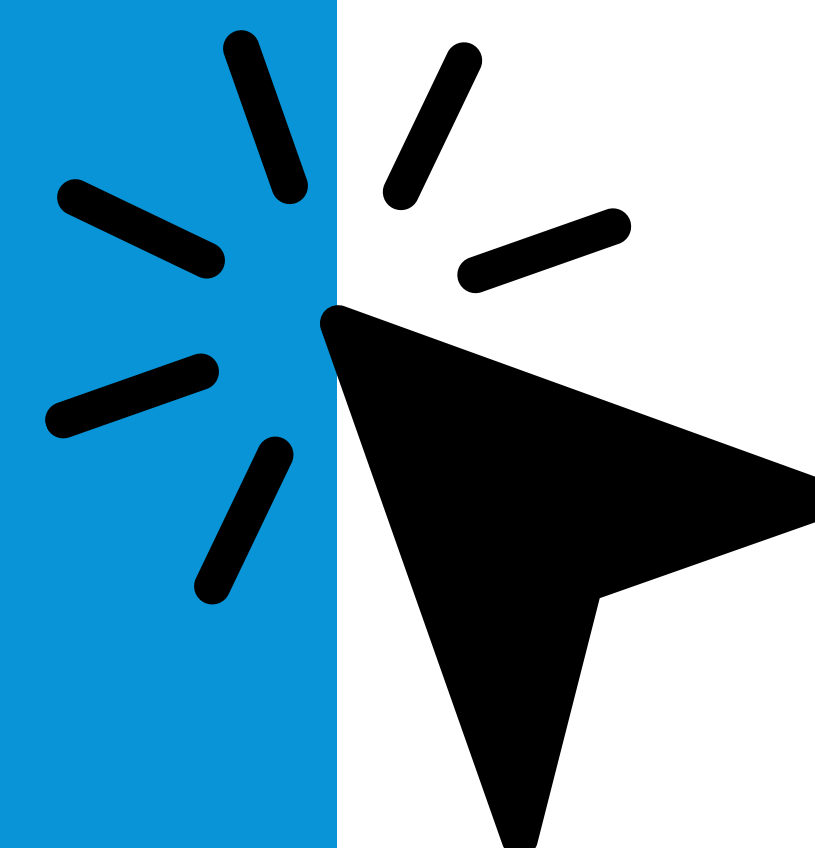
**ACCESS THE RESOURCES BY CLICKING  
ON THE LINKS BELOW.**



[SECONDARY VIDEO](#)



[SECONDARY WORKSHEET](#)



# Lachie Thomas

ENVIRONMENT & VINEYARD RESEARCH ANALYST  
TAHBILK WINERY, CENTRAL VIC

## Wine Australia

### RESOURCE SUMMARY

Learn about one of the very few carbon neutral wineries in Australia. The winery's journey to becoming carbon neutral began in 1998 when trees were planted to revegetate the property. In 2008, the winery undertook its first carbon audit to start looking at ways to lower its carbon footprint.

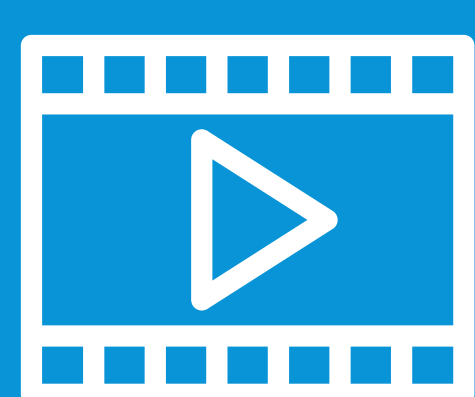
Concerns with the heat stress on employees and customers in the winery's restaurant prompted a variety of innovations to target improved energy efficiency, usage, and emissions. These strategies included using special paint ("NASA rocketship paint") to cover the restaurant roof to reflect heat, installing solar panels, upgrading chillers, and revegetation on the vineyard. These actions have allowed Tahbilk Winery to decrease its energy footprint considerably.

Sensors are used around the trunks of the grapevines in the vineyard to measure changes in trunk diameter as the vines take in water. These sensors help the staff at Tahbilk Winery to know exactly how much water each vine needs, improving water efficiency in the vineyard.

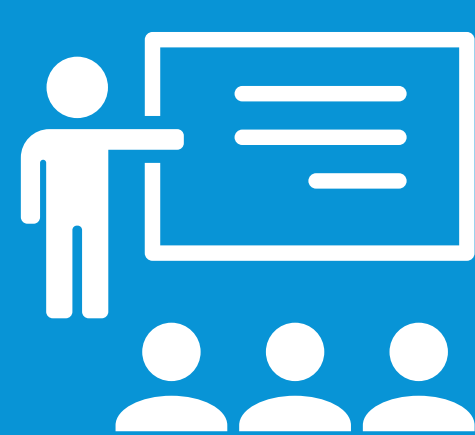
*"Last year was really exciting as it was the first year that we were able to get to a point where we captured more carbon in the soil on the property than our whole business or products were responsible for emitting". (Lachie Thomas, 2023)*



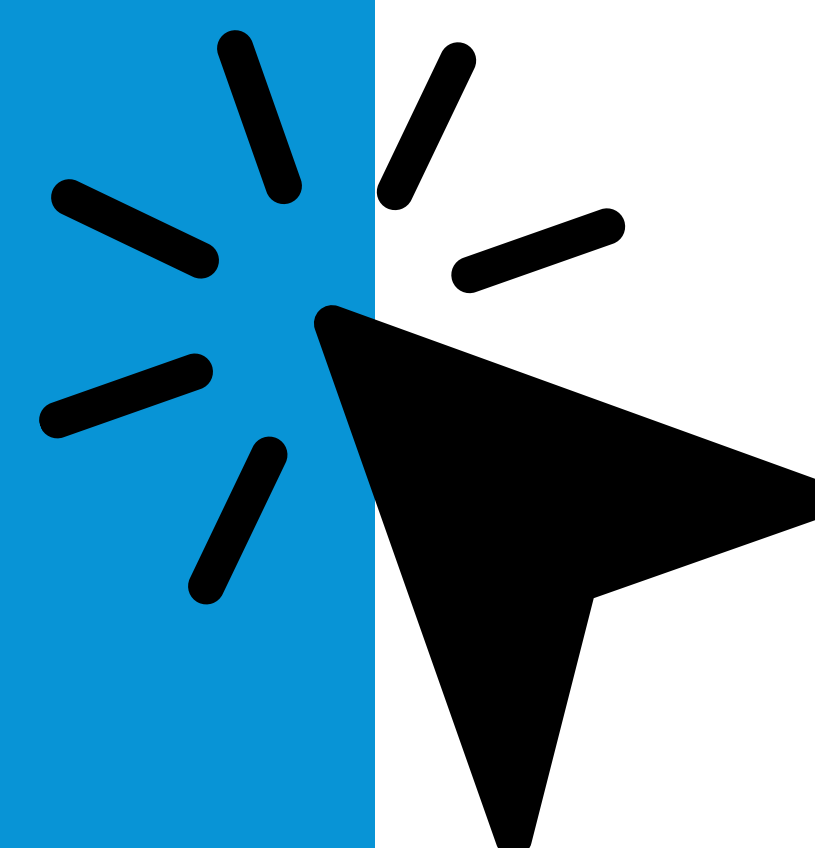
ACCESS THE RESOURCES BY CLICKING  
ON THE LINKS BELOW.



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



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



# ATTRIBUTION, CREDIT & SHARING

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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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