



Primary Industries Education  
Foundation Australia



# NATIONAL AG WEEK 2023

## DIGITAL LEARNING KIT

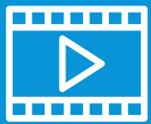
**GROW** YOU GOOD **THING** #AGDAYAU

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)

# Bill Mitchell

**BEEF PRODUCER**

**OPTIWEIGH FOUNDER, NORTHERN NSW**



## RESOURCE SUMMARY

Learn about Bill's beef cattle production system that produces beef for Coles supermarkets. Bill is also the founder of Optiweigh, an innovative technology that improves the efficiency of collecting in-paddock data about livestock growth to inform management strategies.

Hear how cattle are enticed onto Optiweigh, have their electronic ID recorded, and have their front feet weighed. This information is sent to the cloud, and an algorithm is applied to calculate total body weight. Live weight information is updated daily and sent to any device type, including phone, laptop, or tablet. Users receive a daily email each morning summarising the information gathered by the Optiweigh in the last 24 hours. This information can be used as a decision-making tool to improve cattle management practices in the paddock and to meet market specifications by understanding the rate of weight gain.

Bill is a strong advocate for agriculture, explaining how real it is producing food for people. Automation and technology changes will help agriculture become more efficient. *"It's a great place to work in."*



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



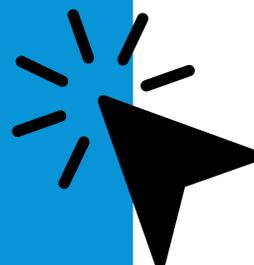
**PRIMARY VIDEO**

**SECONDARY VIDEO**



**PRIMARY WORKSHEET**

**SECONDARY WORKSHEET**



# John McGuren

**PROJECT MANAGER - DIGITAL AGRICULTURE  
MEAT & LIVESTOCK AUSTRALIA**



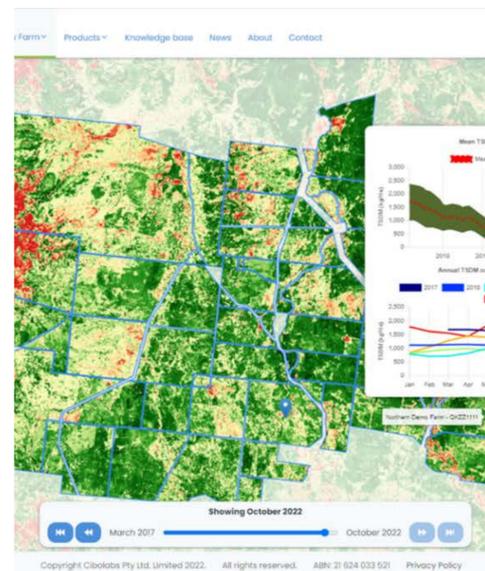
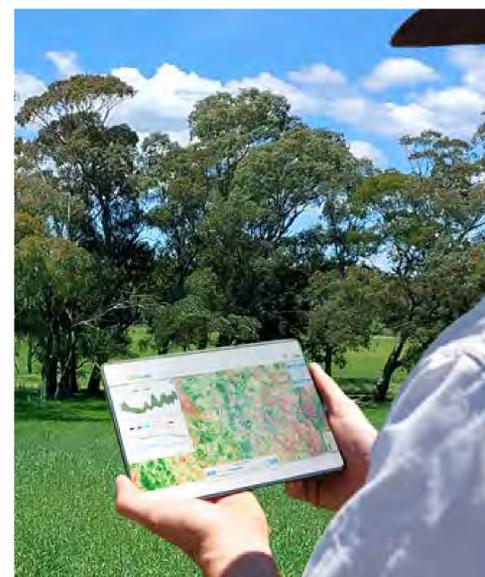
## RESOURCE SUMMARY

Learn how Meat & Livestock Australia's Digital Agriculture Program provides new technology and tools to help farmers produce livestock sustainably, efficiently, and economically.

Hear how the Australian Feedbase Monitor uses satellite technology to provide producers with an estimate of the available grass and pastures on farm to feed their livestock. This information is important to red meat producers as it indicates how many animals they can sustainably graze on their farm at any time.

In the past, producers used labour-intensive, subjective methods to assess the amount of pasture on their farms. The Australian Feedbase Monitor captures reliable, accurate data to estimate the amount of available pasture across various seasons, keeping a record of these so farmers can observe trends over time. This tool can help producers better understand their production systems, carbon emissions, and the vegetation on their farms.

A current challenge in the adoption of this technology is reliable access to the internet in rural and remote areas of Australia. Advancements are continuously improving to address these challenges and agriculture is in an exciting phase.



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



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



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

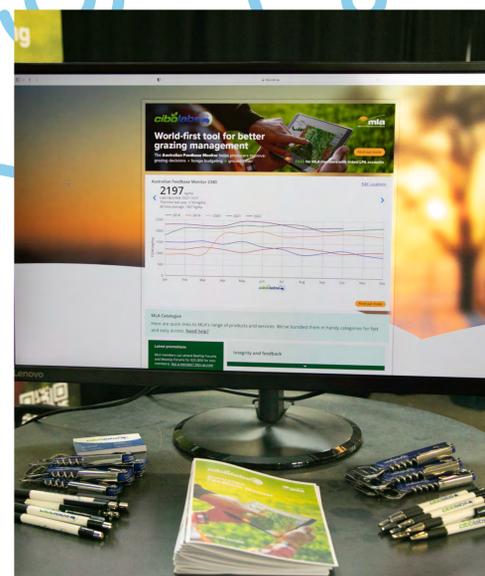
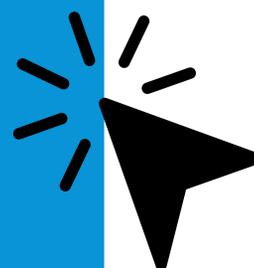


Image credits: Meat & Livestock Australia

# Luke Chaplain

**FOUNDER OF SKYKELPIE  
CLONCURRY, NORTH WEST QLD**



## RESOURCE SUMMARY

Learn about the use of SkyKelpie in drone mustering and aerial stockmanship. Luke explains how trials with Meat & Livestock Australia and the Department of Agriculture and Fisheries have proven successful and that he is now developing training tools for producers to fly and manage drones. Luke uses drone technology to locate and herd animals at low stress to a watering point and then to a yarding facility to be processed, all from the air.

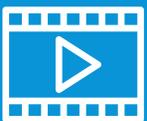
Hear about the practicality of using drones over traditional methods of mustering, such as the use of helicopters, motorbikes or horses. These methods are generally more labour-intensive and expensive and can present increased safety risks.

Future innovative ideas in this space will see producers incorporating drones to manage herds, monitor fences, identify weeds, and monitor assets like water, improving efficiency and increasing productivity.

Luke explains the importance of young people being involved with the future of Australian agriculture, encouraging travel and working in outback Australia.



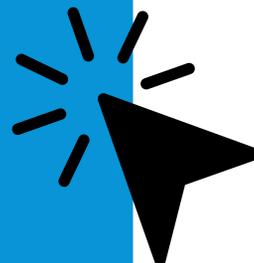
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[PRIMARY VIDEO](#)  
[SECONDARY VIDEO](#)



[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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