PIEFA
The leader in food and fibre education.

SFIRP
STORM & FLOOD INDUSTRY RECOVERY PROGRAM
A project of the Primary Industries Education Foundation Australia

Cultivating Classrooms:

Maintaining Pollination for Plant Production Using AI Workshop

Presented by:

Ben Holmes - PIEFA SFIRP Project Manager

piefa.edu.au/sfirp

ACKNOWLEDGEMENT OF COUNTRY

PIEFA acknowledges Traditional Owners of Country throughout Australia (Brisbane Water - Darkinjung people -”Place for Drinking”) and recognises the continuing connection to lands, waters and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures; and to Elders past and present.

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WHO ARE WE?

PIEFA is a not-for-profit foundation formed through a collaboration between the Australian Government, primary industries organisations and the education sector.

Through a range of online and in-person programs, we enhance food and fibre knowledge and understanding to young Australians through the development and promotion of:

- teaching materials about food and fibre for students in K-12
- teacher professional development opportunities
- career pathway information, including scholarships

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PIEFA'S PROGRAMS

Enhancing food and fibre education and career pathways for young Australians.

www.primezone.edu.au
primezone
The place for all your food and fibre resources

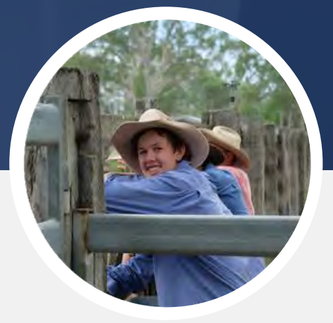
Curriculum-aligned, Australian farming, fishing & forestry classroom lessons for F - 12.

primezone.edu.au

primezone ACADEMY
Student Food & Fibre eLearning Courses.

An eLearning portal providing access to food and fibre courses for students.

primezoneacademy.edu.au



CAREER HARVEST

Primary industries careers information, including courses, scholarships & pathways.

careerharvest.com.au

Farmer Time

K-12 students connect with a farmer, fisher or forester, ask questions and take a virtual tour.

farmertime.com.au

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Online teacher forums, SFIRP PD opportunities, and newsletter sign-up.

piefa.edu.au

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Enhancing food and fibre education and career pathways for young Australians.

AG CAREER START
LEARN. GROW. FARM.

Gap year program that provides a paid job, training and development for people aged 17-25.

agcareerstart.com.au

farm safety ace
• ASSESS • CHANGE • ENGAGE

Resource package that addresses safety issues on farms.

piefa.edu.au/future-farm-safety-for-life

SFIRP
STORM & FLOOD INDUSTRY RECOVERY PROGRAM

Creating resilience through empowering school curriculums about primary industries careers.

piefa.edu.au/sfirp

STEM Food + Fibre
TEACHER PD SERIES
Presented by PIEFA and NSW DPI

Online and in-person Teacher PD opportunities throughout the year.

primezone.edu.au/stem-teacher-pd

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KNOWING GROWING

Teacher PD run in collaboration with NSW DPI and RASNSW.

knowingandgrowing.edu.au

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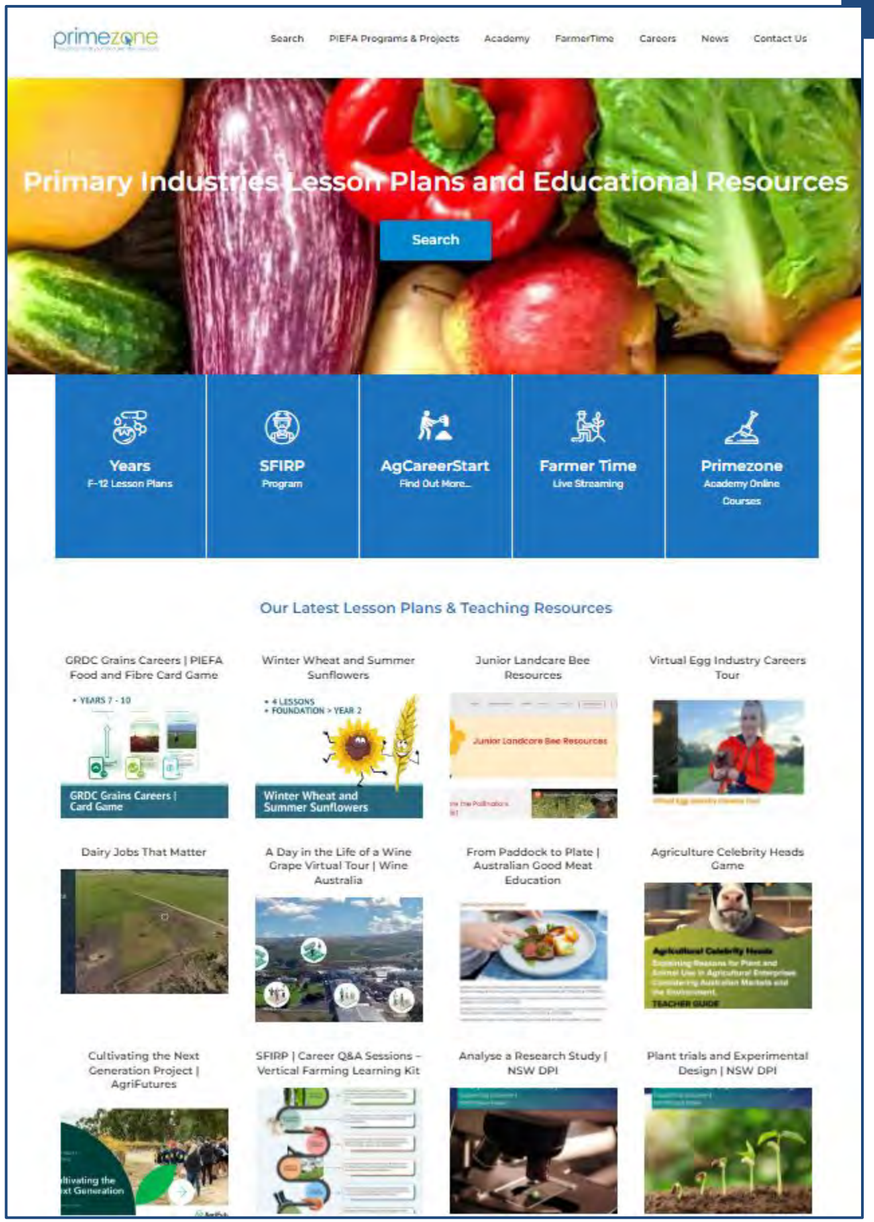
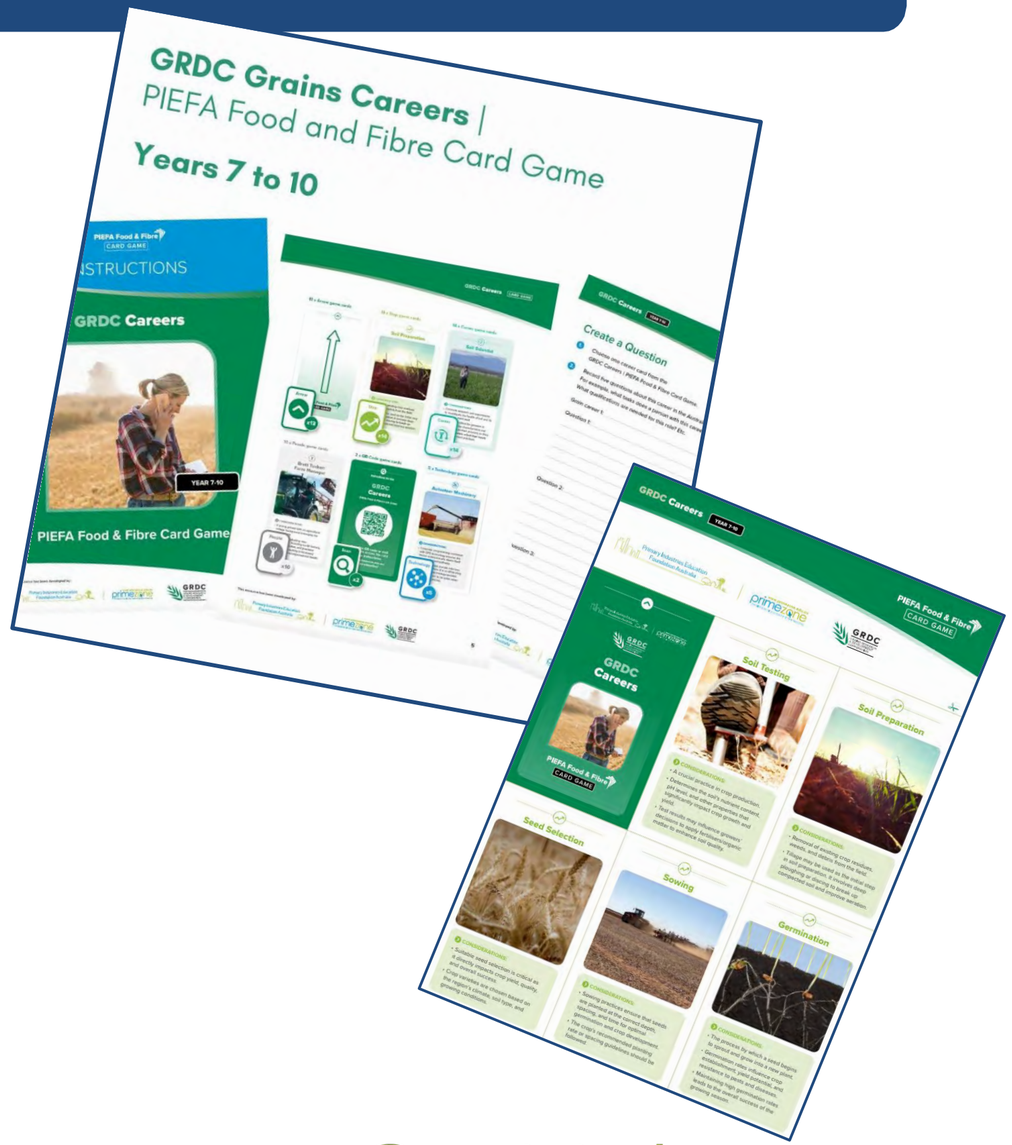
PIEFA's Teaching Resources





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SFIRP program

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ABOUT · TEACHING RESOURCES · BECOME A MEMBER · FOOD & FIBRE CAREERS · NAAE · NEWS · CONTACT ·

STORM AND FLOOD INDUSTRY RECOVERY PROGRAM

Creating resilience through empowering school curriculums about primary industries careers.

PIEFA's Storm and Flood Industry Recovery Program (SFIRP) is jointly funded by the Australian and NSW Governments under the Disaster Recovery Funding Arrangements through the Department of Regional NSW - Sector Recovery and Resilience Grants.

The project will improve community connectivity, linking schools with local primary industries and the many rewarding agricultural careers that are available in flood affected LGAs across NSW. By developing locally focussed teaching resources and careers programs, this project will deliver a stronger foundation to develop interest in local careers in the primary industries, building local resilience to improve recovery from flood disasters.

Contact

Ben Holmes, PIEFA SFIRP Project Manager
Email: Ben.holmes@piefa.edu.au Phone: 0480 458 220

Explore Storm & Flood Recovery Program Events & Resources

PLAN YOUR 2024 TEACHER/CAREER ADVISOR PD TODAY

UPCOMING TEACHER PROFESSIONAL DEVELOPMENT

PAST EVENT RESOURCES

TEACHING RESOURCES

PRIMEZONE RESOURCES

INDUSTRY PARTNER CAREER RESOURCES

CAREERS IN AGRICULTURE DIGITAL LEARNING KITS

SFIRP PRIMEZONE ACADEMY COURSES

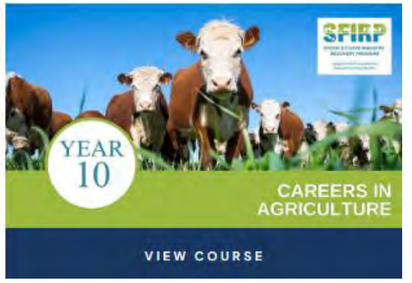
PLAN YOUR 2024 TEACHER/CAREER ADVISOR PD TODAY!

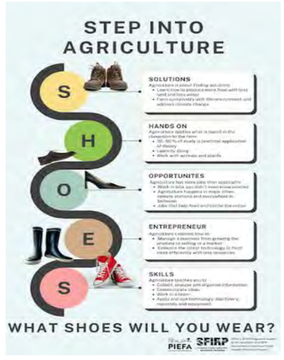
Explore upcoming NSW secondary school teacher and career advisor events

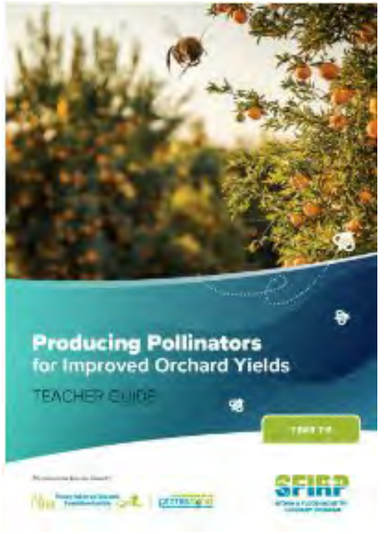
Join PIEFA's Storm and Flood Industry Recovery Program for face to face workshops, online events, new food and fibre resources and more!

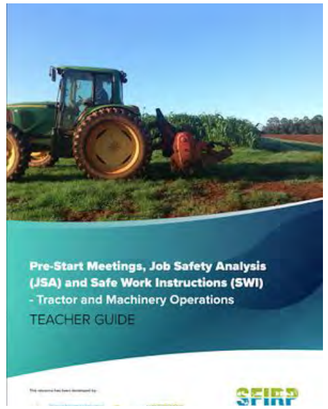
Across our events, you will take part in demonstrations and hear presentations from expert speakers. You will workshop new resources, develop your understanding of career opportunities available in the agriculture industry at entry, trade and graduate level and identify skills and training pathways for students.

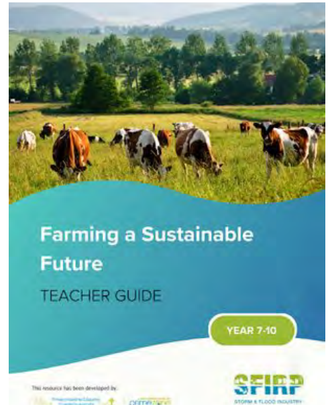
DOWNLOAD THE 2024 CALENDAR OF EVENTS HERE











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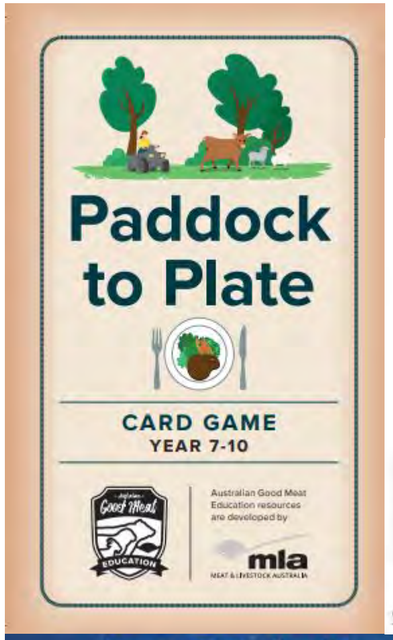
WORKSHOP MERCHANDISE:
ADDITIONAL GIFTS FROM PIEFA



myfuture

Employment outlook

This industry is projected to grow over the five years to November 2026 at a rate lower than the national average growth rate of 9.1% across all industries.

Source: ABS, Labour Force Survey, November 2023, Jobs and Skills Australia (JSA) trend data.

Dairy Australia

FOREST LEARNING

Forest Learning F

FORESTLEARNING TEACHER PACKS

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WORKSHOP PROGRAM

Part A	New Stage 4 and 5 “Maintaining Pollination for Plant Production Using AI” resource workshop Ben Holmes PIEFA
Morning tea	
Part B	“Maintaining Pollination for Plant Production Using AI” - Ben Holmes Canva video editing.
Part C	“Maintaining Pollination for Plant Production Using AI” - AI and Agtech coding workshop - Fraser Border Integrated STEM
Lunch	
Part D	“Maintaining Pollination for Plant Production Using AI” - Classroom implementation, AGtech, STEM and Careers - Fraser Border Integrated STEM
Afternoon tea	
Part E	PIEFA SFIRP new resources - Including Food and Fibre Supply Chain card games, Celebrity Heads.
Part F	ACER Evaluation survey/finish

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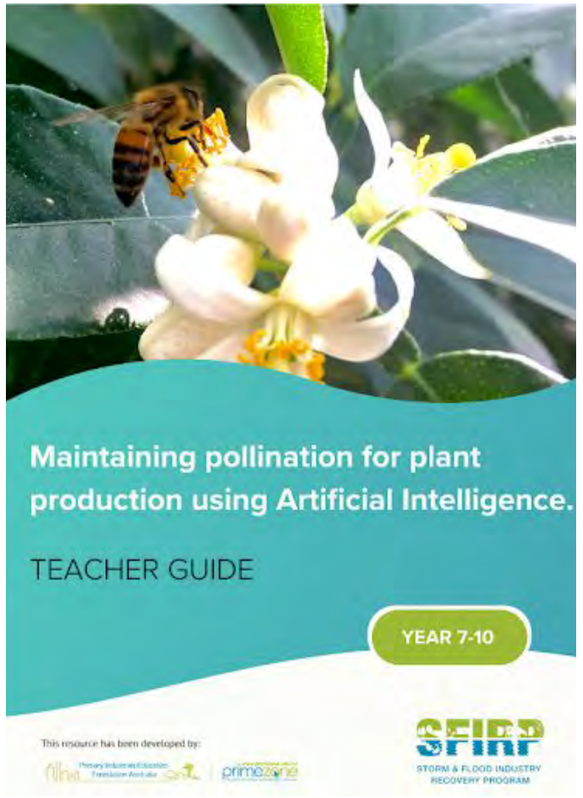
MAINTAINING POLLINATION FOR PLANT PRODUCTION USING AI

Download the resource - https://www.piefa.edu.au/sfirp

- Group Challenge: **Learning intention** - develop a creative, technological solution to an agricultural issue.
- Stage 4 & 5 – Technology Mandatory, Agriculture, Science and Geography.
- 6 lessons - Teacher guide and student workbook.
- Exploring sustainability, biodiversity, innovation, technologies and challenges in plant and animal production.



How can AI be used to provide solutions to agricultural challenges?

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Supporting resources

- **A new unit of work on native bee production has been developed in 2023 as a collaboration between the RIEP network, Rural Learning Exchange and Mount View High School. Please contact Sam Jarrett for access to these and other resources.**

- **Contact: Sam Jarrett**

  TAS Curriculum Adviser | Curriculum Secondary Learners
  0438 414 277 | samantha.mcauliffe1@det.nsw.edu.au | education.nsw.gov.au
  TAS Statewide Staffroom | TAS (nsw.gov.au)

- TAS statewide staffroom | General | Microsoft Teams - official TAS Curriculum Teams site with updates, important notices and further PL for TAS teachers in NSW.
- TAS Curriculum Teaching and Learning Webpage - official TAS team website uses to publish resources for anything TAS 7-12. As new syllabuses are released from NESA there will continue to be more resources added to this site from the TAS Curriculum Team.
- Rural Ag Network - Initiative from the Rural Learning exchange, a Teams site dedicated to collaboration and support of NSW Agriculture teachers.

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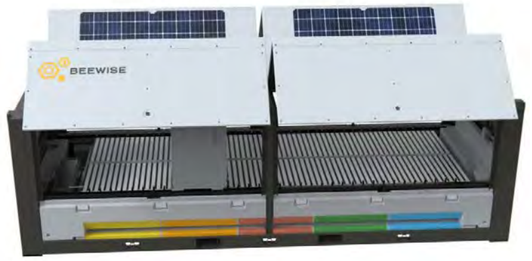
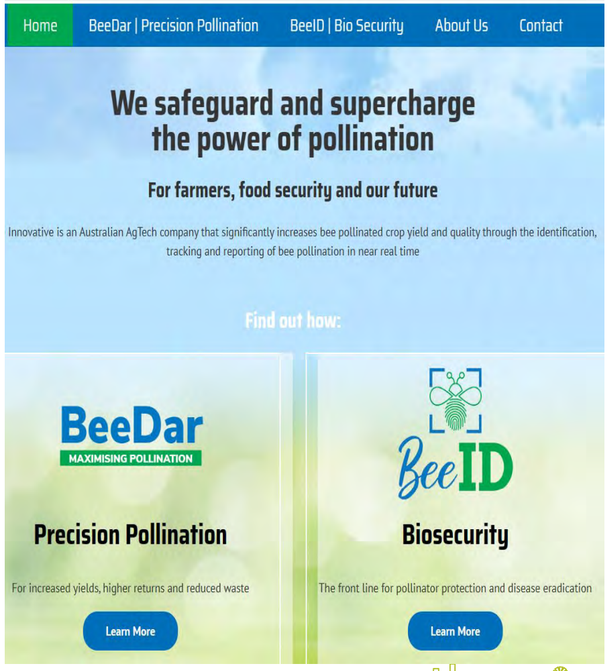
Current Industry developments:

- Robotic beehives: Beewise: out-of-the-box thinking to save the world's bees (wipo.int)
- BeeInnovative - Australian Commercial AGTECH - BeeDAR and BeeID programs - blueberry trial increase gain $20000/acre ($20/tree), sunflowers trial - increased oil content by 10%
- Further learning: Digital Technologies Hub - AI in secondary education https://www.esa.edu.au/professional-learning
- Australian Framework for Generative AI in schools (this activity is not generative AI) https://www.education.gov.au/schooling/resources/australian-framework-generative-artificial-intelligence-ai-schools
- ABC Native bee hotel video Bee Clean - Gardening Australia (abc.net.au)
- **Australian native bees:** Data - 4000 tree av orchard, 10-30% gain with effective pollination. 10kg av yield/tree, 1kg extra at $3/kg = $12000, cost of pollinating 4000 trees = $8000, min gain in return of 33%

BEEWISE

Growers Beekeepers Impact





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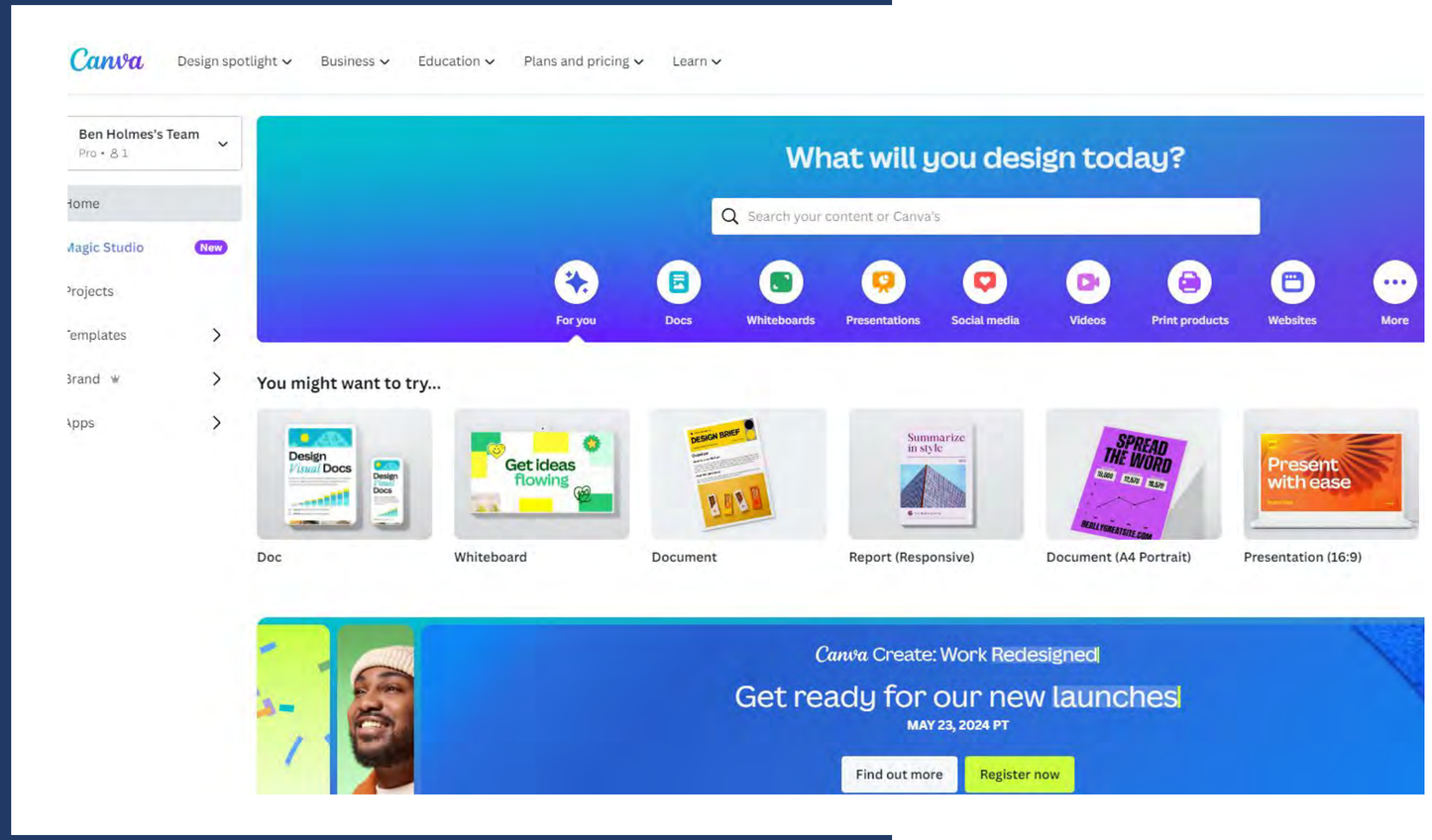
MAINTAINING POLLINATION FOR PLANT PRODUCTION USING AI

Canva video editing and document development



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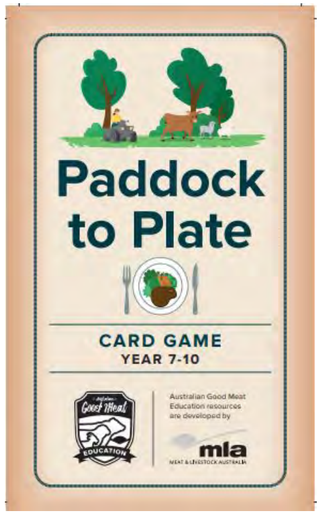
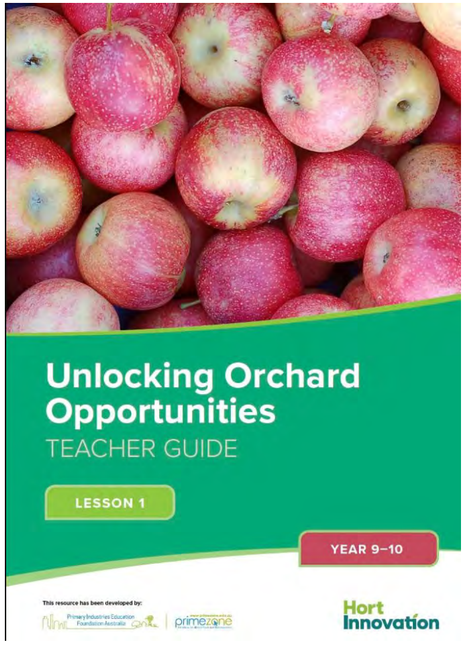
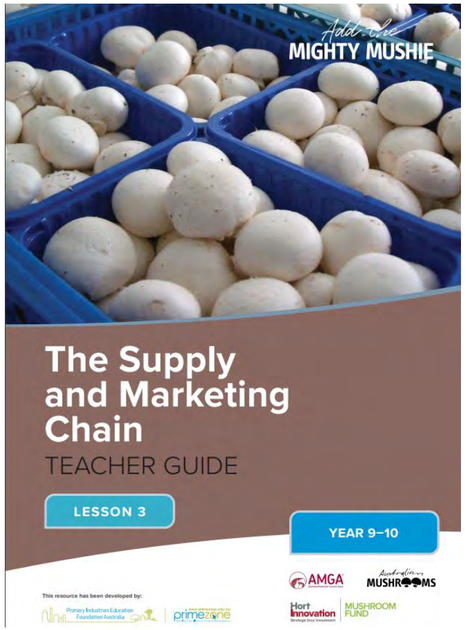
PIEFA New resources

Supply Chain card games:







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Primezone Academy courses

Exploring Drones and AI in Agriculture.
Careers in Agriculture
Sustainability in Australian Agriculture

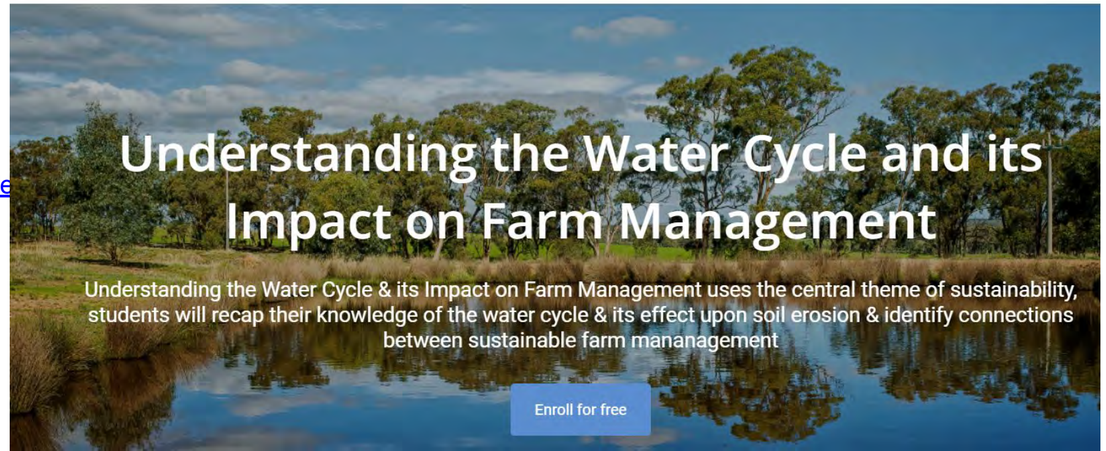
Click on the images for website links

Primary Industries Education Foundation Australia | primezone

HOME ALL COURSES PRE-REGISTER SI

New

[Understanding the Water Cycle | Impact on Farm Management (primezoneacade](#)



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Careers in Agriculture Digital Learning Kits

Click on the images for website links

Careers in Agriculture

Career Q&A Video Sessions Digital Learning Kits

These Career Q&A Digital Learning Kits have been designed to showcase the diverse career pathways and opportunities within agriculture. Each kit contains 3 videos and an associated resource.

Explore Digital Learning Kits

Traditional Farming Digital Learning Kit

This Digital Learning is centred around Traditional Farming, with a focus on the cotton industry.

Explore the Digital Learning Kit

Discover Exciting Careers from our Industry Partners

Learn about the range of opportunities available in the Australian Agricultural Industry.

Explore more videos

1. Traditional Farming
2. Vertical Farming
3. Peri-Urban farming
4. Unusual Farming

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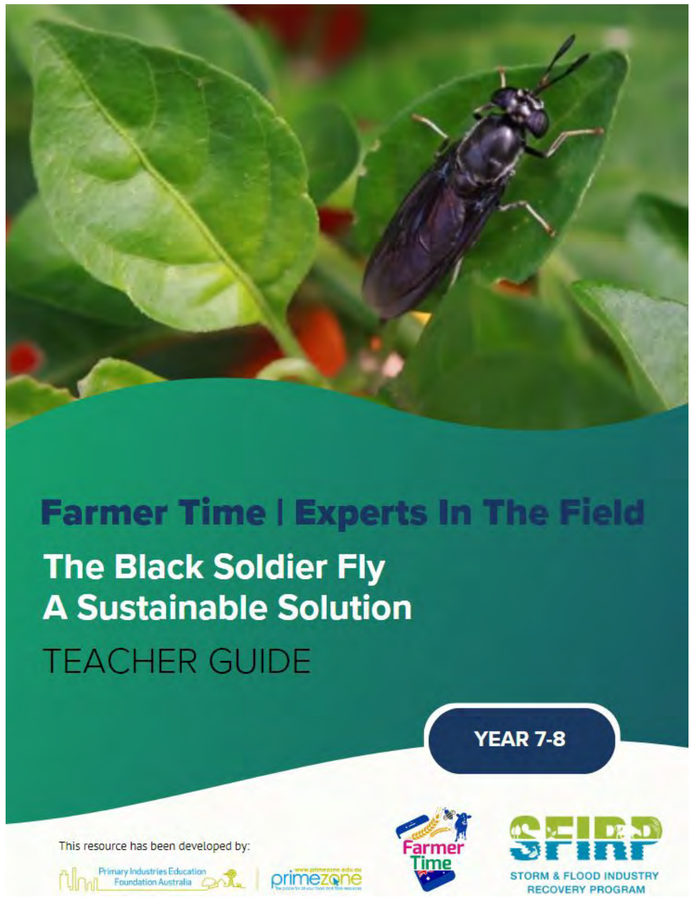
New Resources



Click on the image for website link

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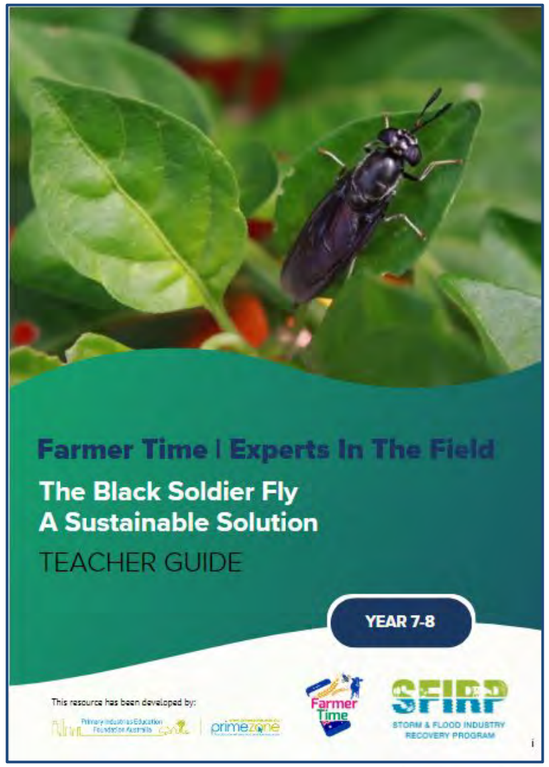
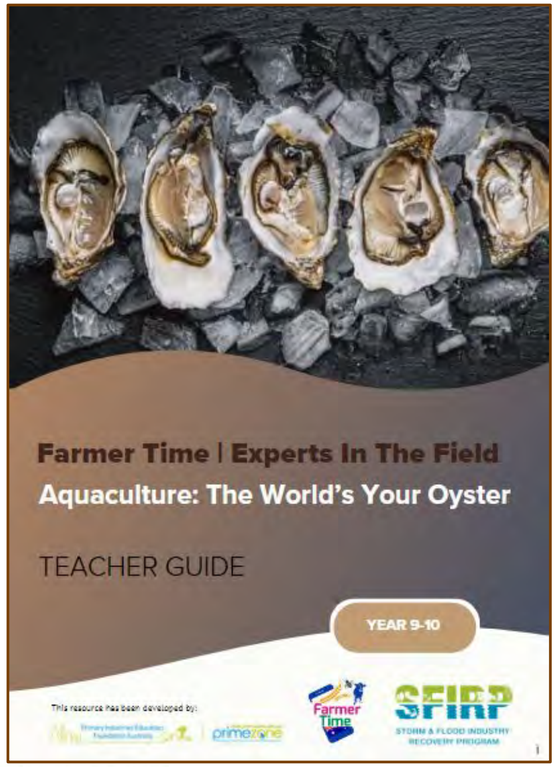
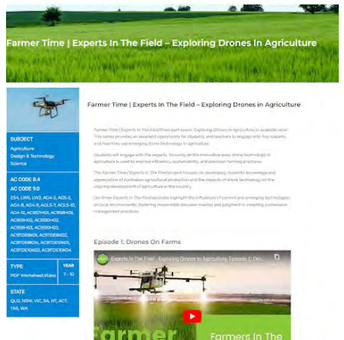
FARMER TIME | EXPERTS IN THE FIELD

EXPLORING DRONES IN AGRICULTURE

Click on the images for website links







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NEW VIDEO SERIES

Exploring careers and technologies in agriculture

www.piefa.edu.au/sfirp

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Alternate AI Teachable machine PROGRAM: Lobe

[Lobe]

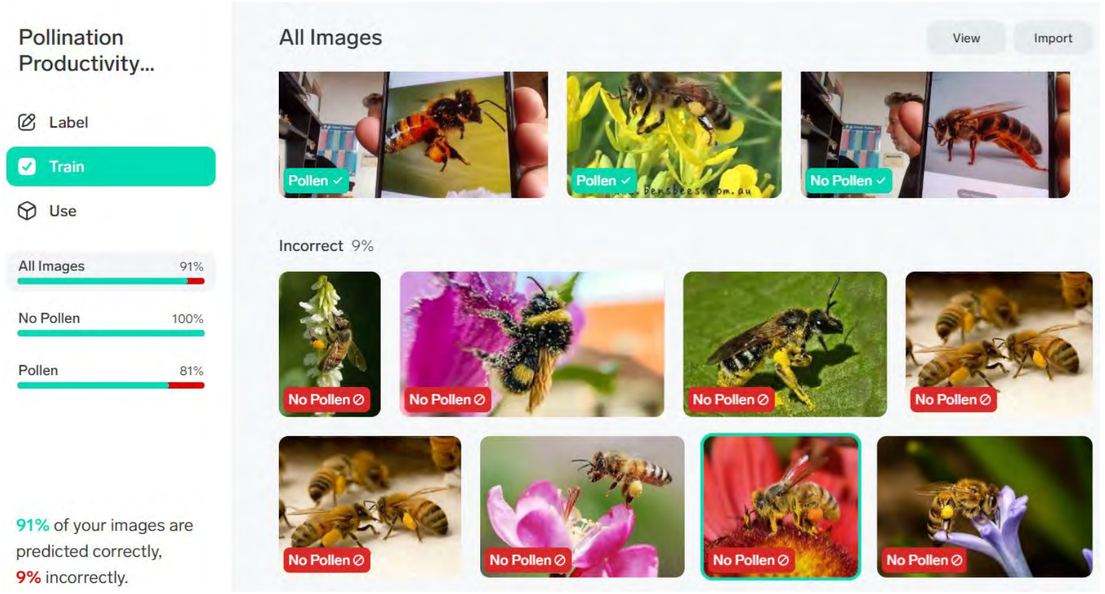
lobe

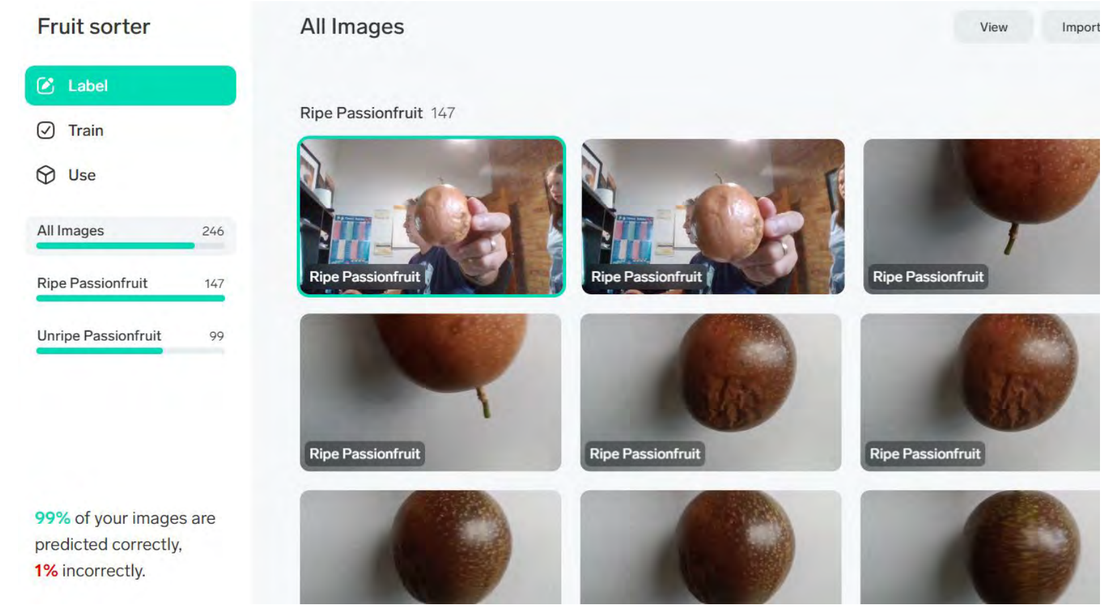
Overview Examples Tour Blog Help Downlo

Train apps to feel emotions

Lobe helps you train machine learning models with a free, easy to use tool.

Download Watch Tour





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ACER PROGRAM EVALUATION SURVEY

Survey

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Australian Good Meat - Teaching Resources

www.goodmeat.com.au/educational-resources/resources/

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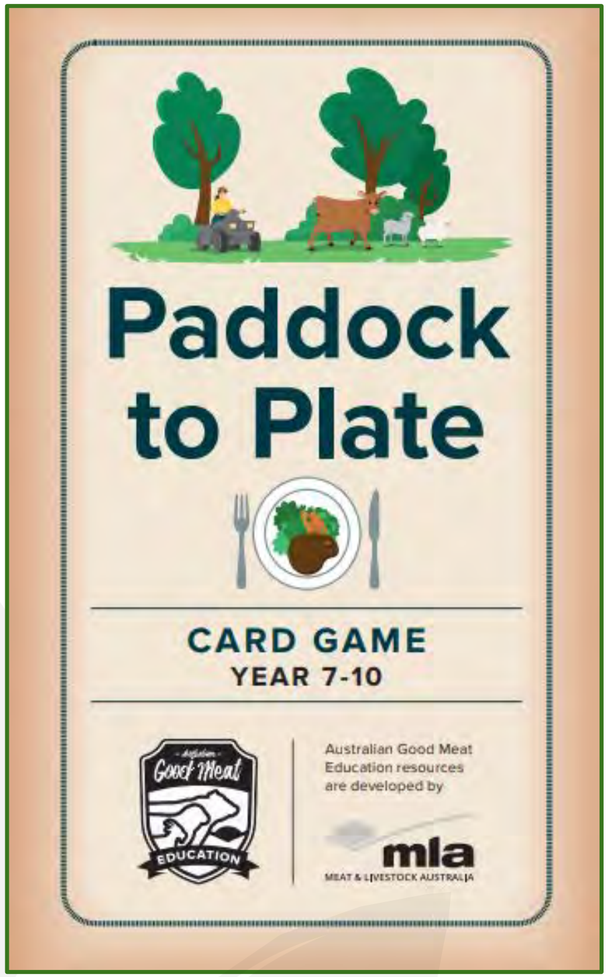
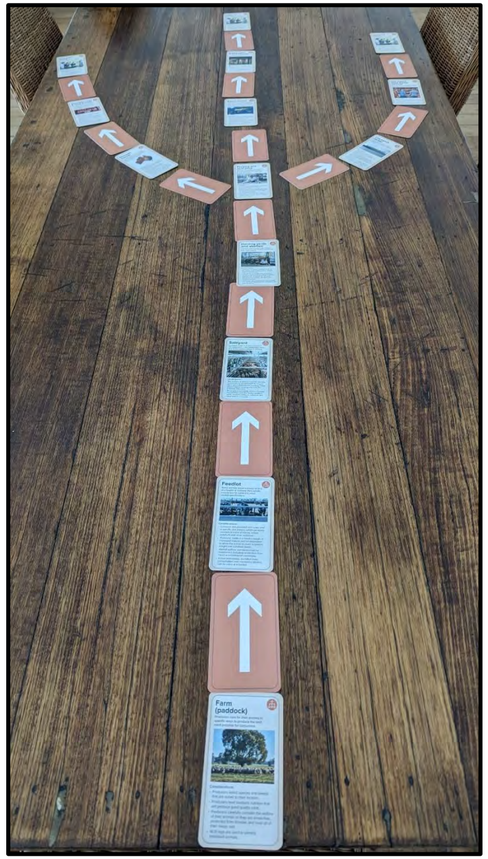
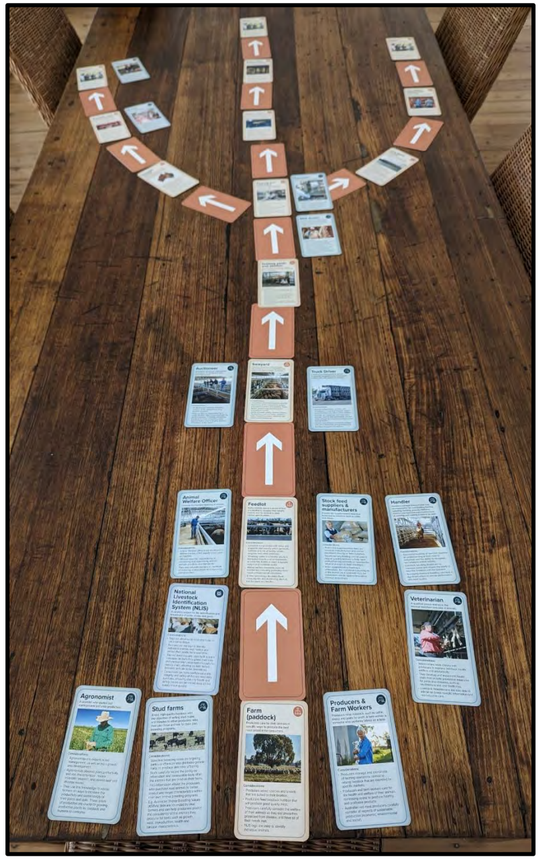
KNOWING GROWING

Game Time!







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www.healthylivingsoils.com.au

Healthy Living Soils – Growing Better Food and Fibre

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PRACTICAL IDEAS TO EXPLORE AN AGRICULTURAL CAREER

Touch, feel, think, calculate, question, innovate, suggest solutions.

Why do you think robotic farming and new technologies are attracting so much industry investment and interest?

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EXPLORING A FORESTRY CAREER

Statistics: Need to quadruple production by 2050 to meet demand

Entry level Example:

Forestry (Silviculture) Tree Planter job specifications:

- 2.1m tree spacing
- Depth
- Orientation
- Firmness
- Environment - standing timber/habitat, riparian, fire trail, trays

Practical based questions:

- Feel pogo weight, discuss body conditioning to plant 8000 trees/day (gun planter) on cultivated rows carrying up to 160 trees at a time.
- Safety: RSI, Pants - Baggy/long, boots - ankle, Shirts - long, water - regular, hygiene.
- How many steps to plant 100 trees?
- Hyco trays have 40 cells, how many trays do you need to plant to get 6000 trees/day?
- Pogo planting is 3 cents/tree, how much do you get paid for 8000 trees?

Trade level:

Machinery Operator

- Pre, op and post op checks, procedures and maintenance
- Environment - weather, substrate, gradient, erosion, heat, fuels, contamination, buffers and exclusion zones
- 2.5m row spacing
- 4m firetrail access

Graduate level:

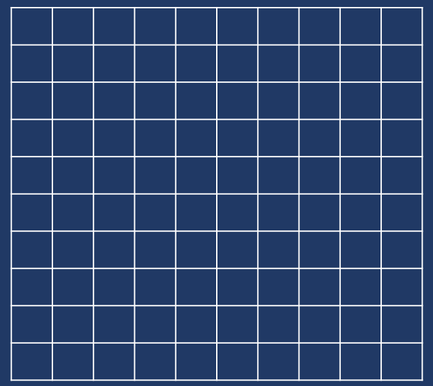
Forester or QA inspector:

Density: 16 trees per 10m * 10m cell/quadrat (4 trees for every 10m surveyed row).

Tree quality: >90% Deep, tight and straight

Forestry plot

1 Ha (100m * 100m)



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Growing the future...

Thankyou
for attending today's event

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ATTRIBUTION, CREDIT & SHARING

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