



STORM & FLOOD INDUSTRY
RECOVERY PROGRAM

A project of the Primary Industries
Education Foundation Australia

Cultivating Classrooms: Farming in the digital age

Creating resilience through
empowering school curriculums
about primary industries careers.

UNE
University of
New England

Faculty of Science,
Agriculture, Business
and Law

PIEFA
The leader in food and fibre education.

Presented by:
Ben Holmes
SFIRP Project Manager



piefa.edu.au/sfirp



ACKNOWLEDGEMENT OF COUNTRY

PIEFA acknowledges Traditional Owners of Country throughout Australia (Armidale - Anaiwan people) 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.

Introduction

- **PIEFA -who, why and what.**
- **PIEFA Conference 2025**
- **SFIRP program**
- **PIEFA surveys**
- **PIEFA upcoming events and programs**
- **PIEFA resources**
- **Practical activities**

Activity: Blooket My Sets

1. Use laptop/lpad or Mobile phone
2. Google search "Play Blooket"
3. Select "join a game"
4. Add Game ID
5. Create nickname
6. 5 minute time limit





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

Current challenges to food and fibre education



1

TEACHING CRISIS

Casual and skilled teacher shortages.

2

LACK OF RESOURCES

Locally relevant, up to date, industry engagement, careers.

3

DECLINE IN FOCUS ON FOOD & FIBRE

Too hard, too expensive, not enough champions.

4

LACK OF UNDERSTANDING

Career prospects, diversity of opportunities, future of industry

5

RURAL URBAN DIVIDE

Distances, opportunities, urban agriculture not well understood.

Australian and state-based curriculum challenges



1

AUSTRALIAN VS STATE CURRICULUM

NESA vs ACARA

2

PRESCHOOL TO YEAR 6

Many opportunities to teach food and fibre.

3

YEARS 7-10

Stage 4 Technology Mandatory - Cross curriculum links.

4

YEARS 11-12

Agriculture, VET Primary Industries and board endorsed courses such as Aviation-remote pilot, farm mechanics and aquaculture.

5

CAREERS INITIATIVES

Work education stage 5, stage 6 Work studies, VET courses, work placement, work experience.

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](http://primezoneacademy.edu.au)



**Farmer
Time**

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

farmertime.com.au



CAREER HARVEST

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

careerharvest.com.au



PIEFA
The leader in food and fibre education.

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

piefa.edu.au

SEIRD
STORM & FLOOD INDUSTRY
RECOVERY PROGRAM

PIEFA
The leader in food and fibre education.

PIEFA'S PROGRAMS

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



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



Resource package that addresses safety issues on farms.
piefa.edu.au/future-farm-safety-for-life



Creating resilience through empowering school curriculums about primary industries.
piefa.edu.au/sfirp



Online and in-person Teacher PD opportunities throughout the year.
primezone.edu.au/stem-teacher-pd



Teacher PD run in collaboration with NSW DPI and RASNSW.
knowingandgrowing.edu.au

PIEFA Conference Growing the NEXTGEN of food and fibre education.

https://www.piefa.edu.au/wp-content/uploads/2023/05/2023program_for



KEYNOTE SPEAKERS

KEYNOTE 1: The Future of Primary Industries



Michael McQueen
Multi-award winning speaker, trend forecaster and bestselling author



Troy Setter
Chief Executive Officer, Consolidated Pastoral Company
Chairman, Council of RDCs, LiveCorp and Dolly's Dream



Emma Germano
President, Victorian Farmers' Federation
Managing Director, I Love Farms
Director, The Queen Victoria Market



KEYNOTE 2: Innovation in Food & Fibre



Prof. David Lamb
Chief Scientist, Food Agility Cooperative Research Centre



Renee Anderson
Cotton Grower, Consultant Owner/Manager, Anderson Farming



Natasa Sikman
Deputy CEO, People, Culture and Processes
Senior Climate Policy Manager, Australian Forest Products Association



KEYNOTE 3: Successes and Innovation in Education



Fraser Border
AgTech Engineer and Founder, integratedSTEM



Gullara McInnes
University Student / Drone Pilot



Scott Graham
Head of Agriculture, Barker College



KEYNOTE 4: Careers and Workforce in Primary Industries



Prof. Jim Pratley
Professor of Agriculture, Charles Sturt University



Kari Moffat
Livestock Sustainability Manager, Australian Rural Exports Pty Ltd (AUSTREX)



Dr. Nicole McDonald
Senior Research Officer, Agricultural Education and Extension Research Cluster, CQUniversity



Anthony Lee
Chief Executive Officer and Director, Australian Country Choice Group



Hardy Manser
Training Manager, UQ Skills
Higher Degree Candidate | Charles Sturt University



GROWING THE NEXTGEN
OF FOOD AND FIBRE EDUCATION



PIEFA CONFERENCE 2023
HOTEL REALM, CANBERRA

1st and 2nd May, 2023



PROGRAM



STORM & FLOOD INDUSTRY RECOVERY PROGRAM

The leader in food and fibre education.

SUCCESS STORIES

The people and organisations who are leading the way in food and fibre education.

PIEFA

Through a range of programs and projects that promote careers, education and opportunities in Australia's primary industries.

BARKER COLLEGE

Scott Graham transforming perspectives and delivery

QUIET ACHIEVERS

Josie Clarke Ability Ag, Ben and Brooke Watts Bralca, Banyula Farm, NSWAAAT and Rural learning exchange

OTHERS

Rotary, DPI, RAS, Agshows Australia, Landcare, NSW Farmers etc.



Snapshot: Agriculture, Forestry and Fishing (7 June 2022)



EMPLOYED

278,500



WORKFORCE SHARE

2.1%



PAST GROWTH

-10.0%



FULL-TIME SHARE

77.5%



FUTURE GROWTH

1.2%



FEMALE SHARE

30.2%



WEEKLY EARNINGS

\$1,053



AVERAGE AGE

51

DAFF:

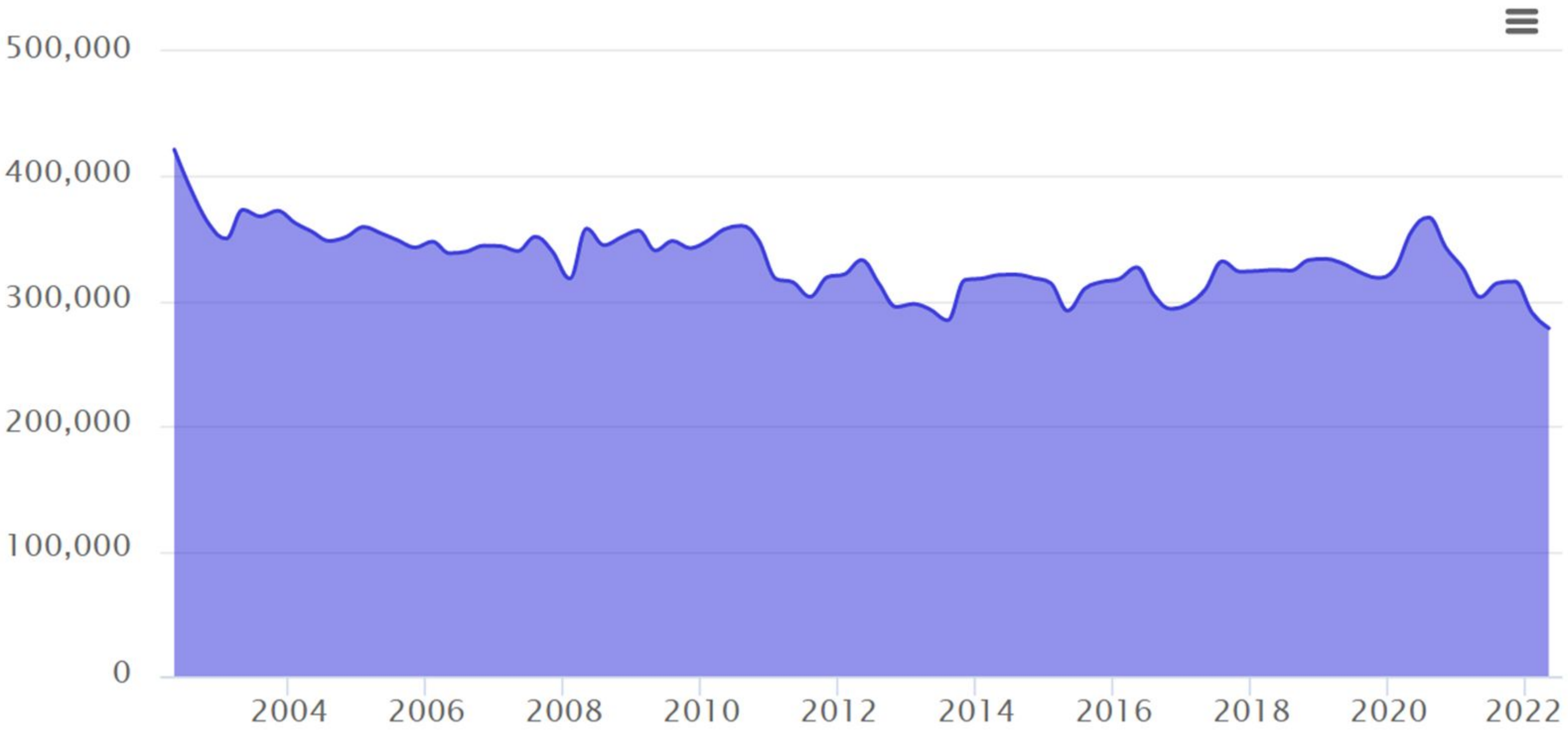
2022-2023 = \$92 billion
Aim= \$100 billion by 2030

Biggest challenge is **securing an appropriate workforce.**

Requires:

- #invest in skills,
- #opportunities in the regions
- #secure pathways for overseas workers,
- #workers are protected.

Quarterly employment update, Agriculture, Forestry and Fishing



Source: ABS, Labour Force Survey, Detailed, May 2022, seasonally adjusted.



Careers and opportunities in agriculture

- **70% Increased global food and fibre demand** by 2050.
- **Data** - 6 graduate level positions for every agriculture graduate student. CSU professor Jim Pratley, PIEFA conference 2023.
- **Longerenong Smart Farm Vic** - 9-10 job offers before graduation. David Lamb, UNE, PIEFA conference 2023.
- **Workforce**- 30% on farm, 45% off farm and 25% metropolitan. Scott Graham, PIEFA conference 2023.
- Range of positions available (entry, trade/certificate and graduate).
- **Range of sectors** - Beef, Dairy, Horticulture and Aquaculture, Education, Agribusiness, Agtech, Agronomy and Food Value Chains.



Key themes to consider

Skills needs - various operational, business, HR, R&D, agritech, regulation and compliance, QA, biosecurity and health, sustainability, carbon mitigation, communications, marketing and finally education.

Rachel Rodney ANU PIEFA conference 2023.



Industry Issues - skills shortages, lack of workers, farm safety and unlocking the value of human capital - high death rate (3-8 times other industries).

Troy Setter CPC PIEFA conference 2023.



Key attractors to industry

- Youth want to “make a difference, improve environmental outcomes and be at the forefront for innovation”

Andrew Metcalf (DAFF), PIEFA conference 2023.



Key themes to consider

Range of training programs available - transferable skills, industry supported programs - PIEFA's Agcareers Start, Agforce SIPP, Thoroughbred Breeders, AWI etc.



Cost of land a barrier to youth



Students have diverse backgrounds, skills and interests

Career pathways not clear unless looking back on the past. Gullara McInnes, Kari Moffat, PIEFA conference 2023.





SFIRP project outputs

4 key activities focussed on locally relevant industries and careers.

- Professional development for Teachers
- Professional development for Careers Advisors
- Farmertime video resources
- Teaching resources developed and utilised by schools



Why these projects?

Where did we get our data?

Findings:

- Not all schools deliver an agriculture program
- Students engagement varies
- Hands on activities in demand
- Variation in cross curricular collaboration/delivery
- Teacher needs: locally relevant, industry contacts, incursion and excursions.
- Knowledge of the diversity of careers in agriculture



2020 PIEFA Student Study



Student knowledge about food and fibre

- 30% students said leather shoes were made from something other than animal product
- 30% said Yoghurt was made from something other than animal product
- 35% said pasta was made from something other than a plant product
- 37% said cotton socks were made from something other than a plant product

Jobs in agriculture, food and fibre

- Currently there are 170,000 jobs available across Australia
- For every graduate there are 6 jobs available
- Food supply chains greatly affected by labour shortages e.g. the recent Inghams chickens strike Sept 2023.
- 80% of agriculture happens beyond farm gate
- Over 50% jobs are in capital cities
- STEM / technology and science plays a significant role





SOLUTIONS



#1 Industry > School connection | Policy and local level



#2 Development of Year 11/12 agriculture curriculum



#3 Creation of more accessible classroom lessons | Interactive and available online



#4 Link resources to key priorities with your people | Including climate change, sustainability innovation and ethics



#5 Improve industry access for teachers and schools



#6 Networking, collaboration, cross curricular connections



#7 Industry and Government funded programs

Student edge Youth insight Survey.



Primary Industries Education Foundation Australia (PIEFA)

NSW Teacher and Career Advisor Survey

YouthInsight Research Report

25 September 2023

YOUTH INSIGHT

Powered by **STUDENT EDGE**

support@youthinsight.com.au
youthinsight.com.au | studentedge.org



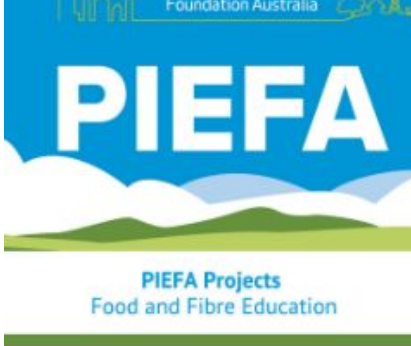
Executive Summary

TEACHERS: CURRENT SUPPORT, FACILITIES AND RESOURCES

- Most teachers are satisfied with current support levels (73% very / somewhat satisfied). For many, teaching agricultural subjects is a passion point and most feel they have a strong foundation of knowledge on the subject.
- However, limited funding, under-staffed departments and limited access to facilities are pain points across the industry.
- Recent flooding and natural disasters have only exacerbated these tensions, with many having lost live-stock, restricting access to school farms, or lost volunteer support.
- Most teachers have access to basic facilities (agricultural plot 83%, seeds/seedlings/plants 73%, vegetable plot 73%) and most (71%) agree it is somewhat or very easy to access these facilities.
- There are myriad facilities which teachers deem very useful, but do not currently have access to: Apiary, Vermiculture, Aquaculture, Cropping, Chickens (broiler) and Dairy cattle are some examples. Opportunity to focus efforts on increasing accessibility in this space.
- Teachers use numerous resources – both practical and theoretical. Growing vegetables, worksheets, resources developed by the teachers themselves are among the most used, and some of the most useful.
- However, few have access to expert speakers / local industry connections or kitchen gardens but would find these resources very useful. Opportunity to focus efforts on increasing accessibility in this space.

Pilot projects

- Mid North Coast Careers in Agriculture and Food Value Chains.
- Banyula Farm Field Day
- PIEFA in Schools - possibilities



SFIRP impact report



STORM AND FLOOD
INDUSTRY RECOVERY
PROGRAM

Impact Report



STORM & FLOOD INDUSTRY
RECOVERY PROGRAM

A project of the Primary Industries
Education Foundation Australia



Participants who
obtained valuable
resources to use in
schools

100%

Participants
inspired/reinspired
to advocate for
agriculture

97.7%

Participants with
increased
understanding of
agriculutre careers
and pathways

97.2%

Participants who
made contacts to
support students to
consider a career in
agriculute

100%

Participants who
intend to use the
applicable PIEFA
programs

95.5%

Participants with
increased
understanding/ability
to teach sustainable
food and fibre
production*

100%

*Banyula teacher tour only



STORM & FLOOD INDUSTRY
RECOVERY PROGRAM



PIEFA

The leader in food and fibre education.



UPCOMING NSW TEACHER AND CAREER ADVISOR PD EVENTS

2023 - 2024

Plan your 2024 food and fibre TPD now!

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.

Storm and Flood Industry Recovery Program: Creating resilience through empowering school curriculums about primary industries careers.

PIEFA's SFIRP Program is funded by the Australian and NSW Governments' Storm and Flood Industry Recovery Program. However, the material contained herein does not necessarily represent the views of either Government.



**FOR MORE
INFORMATION, VISIT
WWW.PIEFA.EDU.AU/SFIRP
OR SCAN THE QR CODE:**



2023

UPCOMING EVENTS

19 October



Integrating Food and Fibre Workshops

Face to face teacher workshop with free teaching resources and presentations.

6 Nov & 13 Nov



Knowing and Growing Workshops

In-person (6 Nov) and online (13 Nov) workshops with expert speakers, free resources and more.

30 Nov - 1 Dec



Hunter Valley Careers in Agriculture Workshop

Free two-day teacher and career advisor tour of NSW DPI sites.

**PLAN YOUR TPD NOW!
VISIT
WWW.PIEFA.EDU.AU/SFIRP
OR SCAN THE QR CODE:**



PIEFA's SFIRP Program is funded by the Australian and NSW Governments' Storm and Flood Industry Recovery Program.

2024

UPCOMING EVENTS



Feb - Nov

Careers in Agriculture Online Q&A Sessions

Individual career stories, expert speakers and more.



Feb, Jun & Aug

Ag, Agtech and A.I Workshops

Tech mandatory-focussed STEM workshops with free equipment to monitor hive health & pests.



Mar - Sep

Integrating Food and Fibre Workshops

Online and in-person workshops with expert speakers, free resources and more.

Plan your 2024 food and fibre TPD now!
For more information, please contact:

Ben Holmes
Project Manager
ben.holmes@piefa.edu.au



STORM & FLOOD INDUSTRY
RECOVERY PROGRAM

A project of the Primary Industries
Education Foundation Australia

PIEFA's SFIRP Program is
funded by The Australian
and NSW Government's
Storm and Flood Industry
Recovery Program.

CALENDAR 2024



JANUARY

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STORM & FLOOD INDUSTRY
RECOVERY PROGRAM



PIEFA

The leader in food and fibre education.

FREE PROFESSIONAL DEVELOPMENT EXCURSION FOR TEACHERS AND CAREER ADVISORS



CULTIVATING CLASSROOMS: HUNTER VALLEY CAREERS IN AGRICULTURE WORKSHOPS

**FREE PROFESSIONAL DEVELOPMENT FOR
NSW TEACHERS AND CAREERS ADVISORS.**

Join us for a series of free workshops on
November 30 and December 1, 2023.

These workshops are a collaboration between
PIEFA and the NSW Department of Primary
Industries and will be held at a number of NSW
DPI sites, including Tocal Agricultural Centre
(Paterson), the Port Stephens Fisheries Institute
and the Central Coast Primary Industries Centre
Ourimbah.

Workshops will include **tours of the sites** and
presentations by speakers with experience in
industry and training, and will develop teachers'
understanding of the **diverse range of career
opportunities** in primary industries, including
entry, trade and graduate level positions.

REGISTER:



**FOR FURTHER INFORMATION OR TO
REGISTER, SCAN THE QR CODE OR VISIT
WWW.PIEFA.EDU.AU/SFIRP**



SFIRP
STORM & FLOOD INDUSTRY
RECOVERY PROGRAM

Storm and Flood Industry Recovery Program:
Creating resilience through empowering school curriculums
about primary industries careers.

PIEFA's SFIRP Program is funded by the Australian and NSW Government's Storm and Flood Industry Recovery Program. However, the material contained herein does not necessarily represent the views of either Government.

Cultivating Classrooms: Hunter Valley Careers in Agriculture Workshops

DATE: November 30 to December 1, 2023
LOCATION: Various NSW DPI sites across NSW

Join us for a series of workshops on November 30 and December 1, 2023.

These workshops are a collaboration between PIEFA and the NSW Department of Primary Industries and will be held at a number of NSW DPI sites including Tocal Agricultural Centre (Paterson), the Port Stephens Fisheries Institute and the Central Coast Primary Industries Centre Ourimbah.

Workshops will include tours of the sites and presentations by speakers with experience in industry and training, and will develop teachers' understanding of the diverse range of career opportunities in primary industries (including entry, trade and graduate level positions).

Overnight accommodation, catering and 2 days teacher relief funding provided

REGISTRATION IS OPEN

REGISTER NOW



FREE PROFESSIONAL DEVELOPMENT FOR SECONDARY TEACHERS



FREE PROFESSIONAL DEVELOPMENT FOR SECONDARY TEACHERS

Cultivating Classrooms: Integrating Food and Fibre Workshop
for Agriculture, Science and Geography

DATE: THURSDAY, 19 OCTOBER AT 4PM - 6PM

LOCATION: BARKER COLLEGE, 91 PACIFIC HWY, HORNSBY

KEY SPEAKERS

- **Scott Graham, Head of Agriculture at Barker College** will discuss teaching agriculture in an urban setting and provide a tour of the College's agricultural facilities.
- **Luciano Mesiti, CEO at PIEFA** will give an overview of PIEFA's role in helping teacher's integrate food and fibre into the classroom.
- **PIEFA staff** will present exciting new resources developed in conjunction with Australian Good Meat.

Free teaching resources and afternoon tea provided.

NESEA standards 2.1.2, 2.6.2 and 6.3.2 will be addressed.

FOR FURTHER INFORMATION AND TO REGISTER, VISIT WWW.PIEFA.EDU.AU/SFIRP OR SCAN THE QR CODE:



SFIRP

STORM & FLOOD INDUSTRY RECOVERY PROGRAM

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Cultivating Classrooms: Integrating Food and Fibre Workshop

FOR AGRICULTURE, SCIENCE AND GEOGRAPHY

DATE: Thursday, October 19

TIME: 4:00pm - 6:00pm

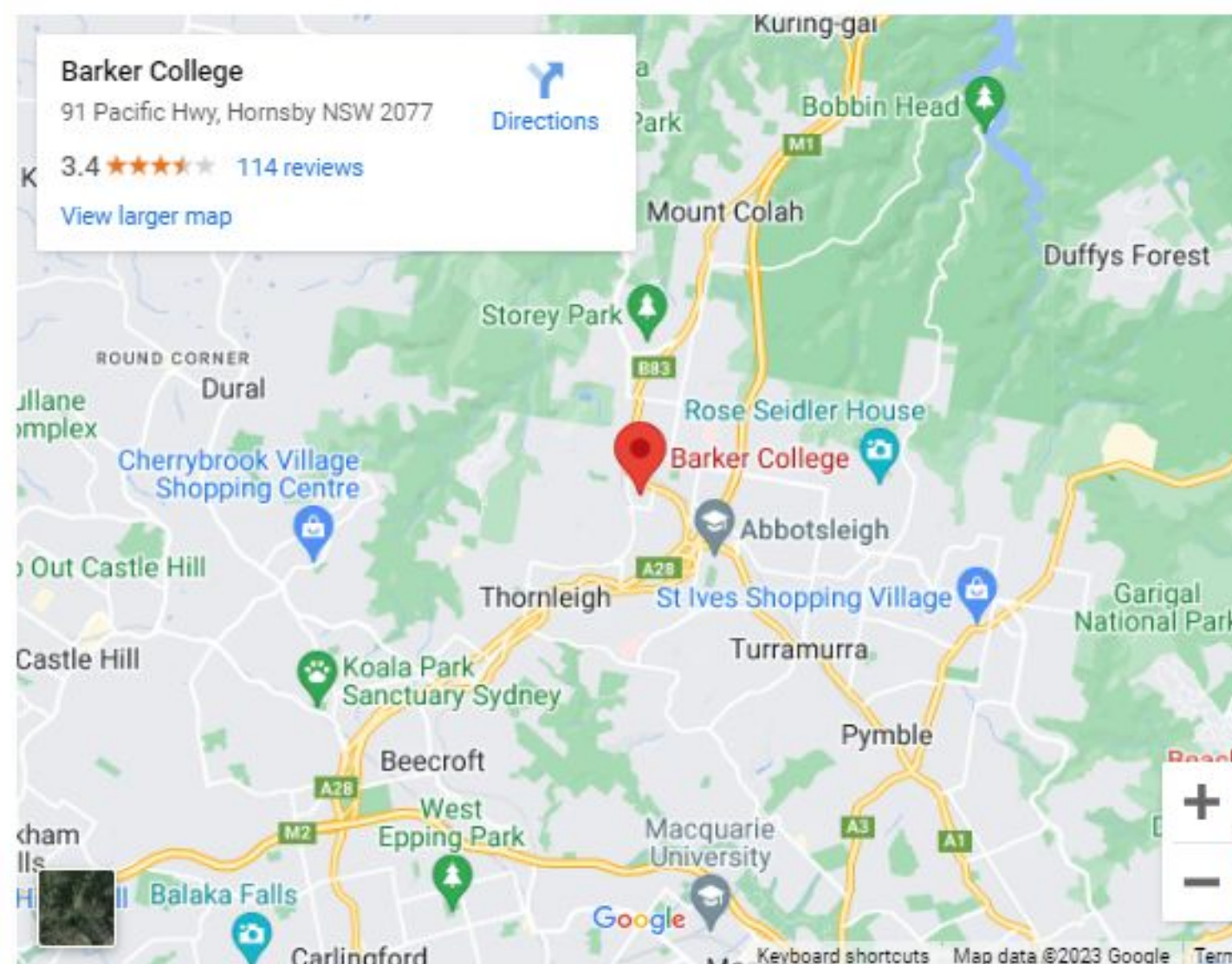
LOCATION: Barker College, Hornsby

Join guest speakers Scott Graham, Luciano Mesiti and PIEFA staff as they explore different methods and platforms to integrate food and fibre content in the classroom!

Participants receive free teaching resources and afternoon tea.

REGISTRATION IS OPEN

CLICK HERE TO BOOK NOW



FREE PROFESSIONAL DEVELOPMENT FOR SECONDARY TEACHERS



**KNOWING AND GROWING:
FREE PROFESSIONAL DEVELOPMENT FOR
SECONDARY TEACHERS**
Integrating Food and Fibre Workshop
for Agriculture, Science and Geography

Knowing and Growing: Integrating Food and Fibre Workshop
FOR AGRICULTURE, SCIENCE AND GEOGRAPHY TEACHERS

DATE: Monday, 6 November

TIME: 4.00pm – 6.00pm

Join guest speakers from the NSW Department of Primary Industries, Royal Agricultural Society of NSW and PIEFA staff as they discuss fieldwork at Belgenny Farm and the integration of food and fibre across the curriculum.

Free teaching resources and afternoon tea will be provided!

REGISTRATION IS OPEN

REGISTER NOW

DATE: MONDAY, 6 NOVEMBER AT 4PM - 6PM

LOCATION: BELGENNY FARM, 100 ELIZABETH MACARTHUR AVE,
CAMDEN SOUTH

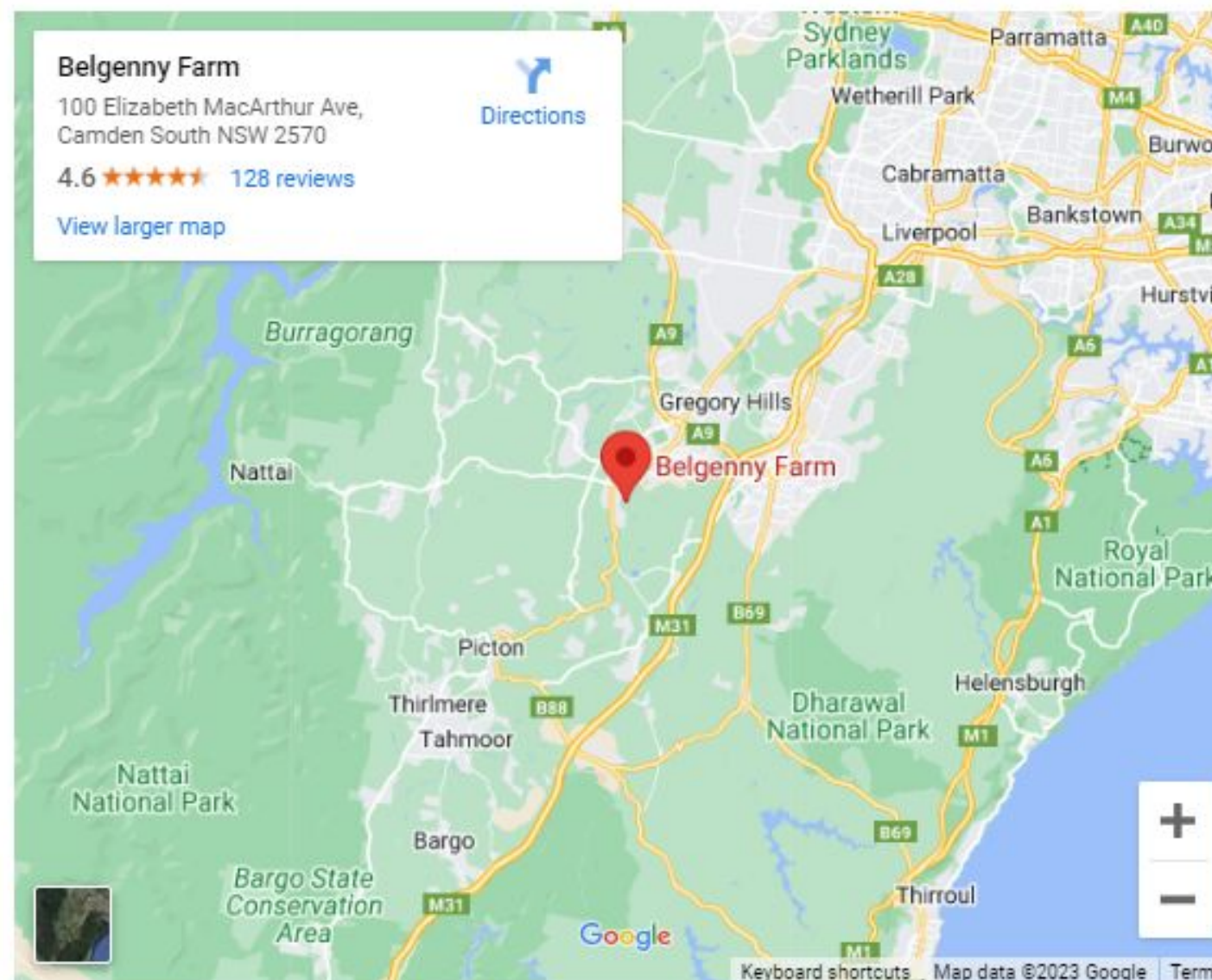
THEME: FIELDWORK AT BELGENNY FARM

KEY PRESENTERS:

- ➔ NSW Department of Primary Industries will discuss how Belgenny Farm can be utilised as a fieldwork location for Agriculture, Science and Geography.
- ➔ Royal Agricultural Society of NSW will discuss the integration of food and fibre across the curriculum.
- ➔ PIEFA staff will present exciting new resources developed in conjunction with key industry partners.

*Access to free teaching resources and
afternoon tea will be provided.
NESA standards 2.1.2, 2.6.2 and 6.3.2 will be addressed.*

FOR FURTHER
INFORMATION AND
TO REGISTER, VISIT
WWW.PIEFA.EDU.AU/SFIRP
OR SCAN THE QR CODE:



FREE ONLINE PROFESSIONAL DEVELOPMENT FOR TEACHERS



Knowing and Growing: Integrating Food and Fibre Workshop
FOR AGRICULTURE, SCIENCE AND GEOGRAPHY TEACHERS

DATE: Monday, 13 November
TIME: 4.00pm – 5.00pm

Join guest speakers from the NSW Department of Primary Industries, Royal Agricultural Society of NSW and PIEFA staff as they discuss the use of soils to enhance teaching, learning and cross-curricular priorities.

Free teaching resources will be provided!

REGISTRATION IS OPEN

[CLICK HERE TO REGISTER NOW](#)

DATE: MONDAY, 13 NOVEMBER AT 4PM - 5PM

LOCATION: ONLINE LIVE WEBINAR

THEME: SOILS

KEY PRESENTERS:

- ➔ NSW Department of Primary Industries and Royal Agricultural Society of NSW will discuss the theme of soils to enhance teaching and learning and cross-curricular priorities.
- ➔ PIEFA staff will present exciting new resources developed in conjunction with key industry partners.

Access to free teaching resources will be provided.

NESA standards 2.1.2, 2.6.2 and 6.3.2 will be addressed.

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NSW Department of Primary Industries Royal Agricultural Society of NSW

Primary Industries Education Foundation Australia

SFIRP Storm & Flood Industry Recovery Program
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SEIRD
STORM & FLOOD INDUSTRY RECOVERY PROGRAM

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Soils

PAST EVENT RESOURCES

MID NORTH COAST CAREERS IN AGRICULTURE TOUR FOR CAREERS ADVISORS | APRIL 2023

The Mid North Coast Careers in Agriculture and Food Value Chains Tour was a 2-day workshop across flood-affected areas on NSW. The event took place in April 2023 and showcased a variety of careers and career pathways across multiple locations including Coffs Harbour, Bellingen, Dorrigo, Kempsey and Port Macquarie. 26 teachers and Careers advisors attended.

A Careers in Agriculture poster was developed with RDAMNC and a Career Harvest teaching resource to support students investigating careers in agriculture was also developed.

[ACCESS MORE INFORMATION HERE](#)

BANYULA FARM FIELD DAY | JULY 2023

This event was a collaborative between Banyula Farm, Southern Cross University and PIEFA. 43 teachers attended presentations on regenerative farming and workshopped a series of teaching resources targeting curriculum for agriculture, primary industries, science and geography.

[ACCESS MORE INFORMATION HERE](#)

[SFIRP Program - PIEFA Food Fibre Education Resources](#)

TEACHING RESOURCES

SEED PACK | EDUCATIONAL RESOURCE

Teaching resource: Insectary and pasture regenerator seed blend supports the Banyula 'Producing Pollinators for Improved Orchard Yields' teaching resource.

The SFIRP program has been providing an Autumn seed packet to attendees at events, workshops and expos for teachers to use with experimental trials within Agriculture and Science classes.

There are 9 different species of plants that perform different functions to improve soils and farm biodiversity, such as green manure/carbon storage, biomass for foragers, nitrogen fixation, biotillage for infiltration and flowers to support

PRODUCING POLLINATORS | TEACHING RESOURCE

Teaching resource: Producing Pollinators for Improved Orchard Yields is a year 7-8 resource that introduces students to the importance of pollinators for improving orchard yields, human management of bees for orchard pollination and the impacts of farm management on the sustainability of a farm enterprise.

This teacher guide consists of 3 activities (and optional extension activities), worksheets and answer guide. These activities will build students' vocabulary and knowledge around pollinators and their impact on food production, assist them to develop ideas to solve existing problems, and design and build their own pollinator habitat box.

PIEFA resources for agriculture careers education

Agri-business

Jointly funded by the Australian and NSW Government under the Disaster Recovery Funding Arrangements in association with PIEFA.

QUALIFICATIONS

On the job training
Certificate I or II in a relevant field
Apprenticeship or traineeship

SKILLS

Reliable
Hardworking
Physically fit – able to cope with physical demands of the job
Practical skills – good with hands
Aptitude for machinery

JOBS

Farm worker
Nursery worker
Fruit/nut/vegetable picker
Fishing hand
Forestry worker
Fencer
Fruit, vegetable, meat packer
Groundkeeper

ENTRY LEVEL

"I live on my family's dairy farm and study Primary Industries through my school's agricultural program. I enjoy showing cattle for my family's farm and through the school – we won second prize at our most recent show. I am looking forward to a career in Agriculture and running my own agriculture business."

Charlee Woods
QUALIFICATIONS: Certificate II Agriculture student, Bawrville Central



VOCATIONAL QUALIFICATIONS AND TRADES

"I enjoy the constant challenges of my work, which requires resilience and ingenuity to overcome in an ever-changing environment. Working outdoors in all conditions is part of the fun!"

Alex Curran
JOB: Horticulturist with Dymocks Farms
QUALIFICATIONS: Certificate IV in Horticulture

QUALIFICATIONS

On the job training
Certificate III through to Advanced Diploma
Apprenticeship

SKILLS

Specialised knowledge of their industry
Good interpersonal skills
Good decision-making and problem-solving skills
Physically fit – able to cope with the physical demands of the job
Able to operate machinery

JOBS

Nursery person
Arborist
Apiarist (beekeeper)
Horse trainer/farrier/riding instructor
Horticulturist
Technical officer
Agricultural technician
Quarantine officer
Inspector
Bush regenerator

DEGREE QUALIFIED AND MANAGERIAL

"I love working outside with farmers to find the best outcome suited to them and their enterprise to make them more productive and profitable. I also enjoy working within a great network that gives me access to knowledge and resources at my request."

Jade Taylor
JOB: Sales Agronomist with Nutrien Ag Solutions
QUALIFICATIONS: Bachelor of Rural Science

QUALIFICATIONS

Certificate IV and higher
Bachelor Degree
On the job training

SKILLS

Industry experience
Critical thinking
Leadership skills
Communication and interpersonal skills
Strategy and planning skills
Logistical skills
Able to operate machinery
Technology adept

JOBS

Farm/Farm Manager – livestock, crops, orchard or mixed
Grower – vegetables, flowers, turf
Forestry Plantation Coordinator
Agronomist
Agricultural engineer
Master fisher
Agricultural Scientist
Agricultural Consultant
Field Officer
Wine maker
Agriculture teacher



Industry prospects

- \$54,756 Annual median salary
- 70% of workers are full time
- 72% of workers are male
- Average (full time) weekly hours: 50+
- 2.2% Size of industry: employs 297,400
- 5% projected growth in all agricultural sectors over the next 3 years
- 15-24: Entry level positions
- 20-30% Workforce aged

Agriculture on the Mid North Coast

- Seasonal, market and climate variations
- High demand for degree qualified candidates
- Recruitment through online job boards, word of mouth and social media
- Significant range of support industries including suppliers, services, processing, transport
- Logistics and warehousing
- Area prone to natural disasters
- Climate, location and marketing advantages

Useful links

Industry Organisations:
AgriBusiness Australia: agribusiness.aunz.net.au/about-us/overview
AgriFutures Australia: agrifutures.com.au
Department of Agriculture, Fisheries and Forestry: agriculture.gov.au/abares
Department of Primary Industries: dpi.nsw.gov.au

Career Information:
Career Harvest: careerharvest.com.au
My Future: myfuture.edu.au/industries/details/agriculture-forestry-and-fishing#essentials
Your Career - Agriculture, Forestry, Fishing: yourcareer.gov.au/industries/agriculture-forestry-fishing
Harvest Trail: dear.gov.au/harvest-trail
SkillsNSW: education.nsw.gov.au/skills-nsw/apprentices-and-trainees
Skills Road: skillroad.com.au
Skills One TV: skillsonetv.com.au

Agri-business

Jointly funded by the Australian and NSW Government in association with PIEFA.

Entry Level

"I love that I'm working outside all the time with plants. I like the problem solving when coming across something new and the range of different jobs. I find it a really rewarding job. It offers a chance to connect with nature and have a meaningful impact."

JESS EDWARDS, Mountain Blue
Qualifications: Certificate II in Horticulture

QUALIFICATIONS

On the job training
Certificate I or II
Apprenticeship or traineeship

SKILLS

Reliable
Hardworking
Good communication
Ability to learn new skills
Physically capable
Practical hands-on skills
Aptitude for machinery

JOBS

Farm worker
Nursery person
Fruit/nut/vegetable picker
Fishing hand
Dairy hand
Forestry worker
Fencer
Fruit, vegetable, meat packer
Groundkeeper
Tractor operator



Vocational & Trades Qualification

"I never intended to work in the agriculture sector, it was purely a short-term job, however, I can now see a career path for myself that I never knew existed and wish more young people were aware of the opportunities. From working with the farmers and suppliers to liaising with The Department of Agriculture and overseas customers there is never the same day twice."

KALAM MOSS, Casino Food Co-op
Qualifications: Certificate IV in Meat Processing (Quality Assurance)

QUALIFICATIONS

On the job training
Certificate III through to Advanced Diploma
Apprenticeship

SKILLS

Specialised knowledge of the industry
Good interpersonal skills
Good decision-making and problem solving skills
Critical thinking and ability to work in a fast-paced environment
Knowledge and understanding of standards and regulations
Physically capable
Able to operate machinery

JOBS

Nursery person
Arborist
Apiarist (beekeeper)
Horse trainer/farrier/riding instructor
Horticulturist
Technical officer
Agricultural technician
Quarantine officer
Inspector
Bush regenerator



Degree Qualified

"I would advocate a career in agriculture to young people because of the diverse career paths the industry offers. There are so many different roles within the industry, which prior to starting my career, I was unaware of. With new technologies and advancements in science, agriculture is a great place for young people to start and grow their careers in."

LUCY ANDREWS, Murrumbidgee District
Qualifications: Bachelor of Food Science in Human Nutrition

QUALIFICATIONS

Cert IV or higher
Bachelor Degree
Post Graduate Degree
On the job training

SKILLS

Industry experience
Critical thinking
Leadership
Strategy and planning
Statistical data analysis
Logistics
Ability to operate machinery
Knowledge of legislation and industry safety standards
Technology adept

JOBS

Farm/Farm manager: livestock, crops, orchard or mixed
Grower: broad acre crops, vegetables, flowers, turf
Forestry plantation coordinator
Quality assurance manager
Agronomist
Agricultural engineer
Master fisher
Agricultural scientist
Agricultural consultant
Field officer
Agriculture teacher



Industry prospects

- \$43,379 Annual median salary
- 2.1% Size of industry: employed 78,867
- 69% male Opportunities for female workers
- 49 hours Average weekly (fulltime)
- 60% Workers are fulltime
- 3.35% growth Projected industry growth
- 28% Positions are entry level
- 8.3% workers aged 15-24

Agriculture in the Northern Rivers

Active in all Councils of Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed

TOP INDUSTRY SECTORS (by Gross Value of Production)
Fruit (t: nuts, beef, broadacre crops, dairy, nurseries, cut flowers or cultivated turf)

3rd largest export industry in the region

- High demand for degree qualified candidates
- Recruitment through online job boards, word of mouth and social media
- Comprehensive and diverse supply of support services and infrastructure in close proximity to transport, logistics and warehousing
- Value adding opportunities
- Climate, location and marketing advantages

Useful links

AgriBusiness Australia: agribusiness.aunz.net.au/about-us/overview
AgriFutures Australia: agrifutures.com.au
Department of Agriculture, Fisheries and Forestry: agriculture.gov.au/abares
NSW Department of Primary Industries: dpi.nsw.gov.au
Career Harvest: careerharvest.com.au

My Future: myfuture.edu.au/industries/details/agriculture-forestry-and-fishing#essentials
Harvest Trail: dear.gov.au/harvest-trail
Jobs Northern Rivers: jobsnorthernrivers.com.au
SkillsNSW: education.nsw.gov.au/skills-nsw/apprentices-and-trainees
Skills Road: skillroad.com.au
Skills One TV: skillsonetv.com.au

PIEFA's SRPP Program is funded by the Australian and NSW Government's Storm and Flood Industry Recovery Program.

Although funding for this product has been provided by both Australian and NSW Governments, the material contained herein does not necessarily represent the views of either Government.



Future resources:
Subject selection to promote agriculture to students and parents.
Scott Graham, Barker College, PIEFA conference 2023.



PIEFA contact: Ingrid Gow - Education Officer
0483832405
ingrid.gow@piefa.edu.au



Agricultural Careers Wheel of Fortune | STUDENT COPY

Most jobs require specific skills (specialist tasks), core skills (soft skills) and technology skills. Importantly, many of these skills are often transferable. Complete this task to explore various skills that are related to agricultural careers.



Student Work Part 1: You have just won a career on the Career Wheel of Fortune

1. Review your card. The underlined word is the career you will be investigating. Read through the lists of specific skills (specialist tasks) for your underlined career.
2. Select three skills (specialist tasks) you would enjoy doing. Write each of them down, explaining why you would enjoy practising them.
3. Select one skill (specialist task) you would not enjoy. Write it down and explain why you would not enjoy practising this skill.
4. Based on the specific skills (specialist tasks) of your career, list four core/soft skills the job requires.

Student Work Part 2: Skills in the Real World

1. Using the website [SEEK.com.au](https://www.seek.com.au), use your career title as the keyword to find an advertised job. Click the Classification box 'Farming, animals and conservation' to narrow your search. (if no jobs are found, unclick this classification.)
2. Select a job advertisement which provides the salary, roles and skills required.
3. Using the information found within the job advertisement, answer the following questions:
 - a. Where is the job?

Animal attendant

- Prepare and deliver food and water to animals
- Assist with animal behavioural assessments and behaviour modification
- Clean sleeping quarters for animals
- Clear away animal waste and maintain animal enclosures
- Transfer animals between enclosures
- Bathe and groom animals, and treat them with insecticide to control insect pests
- Treat minor injuries and report serious health problems and administer basic medications



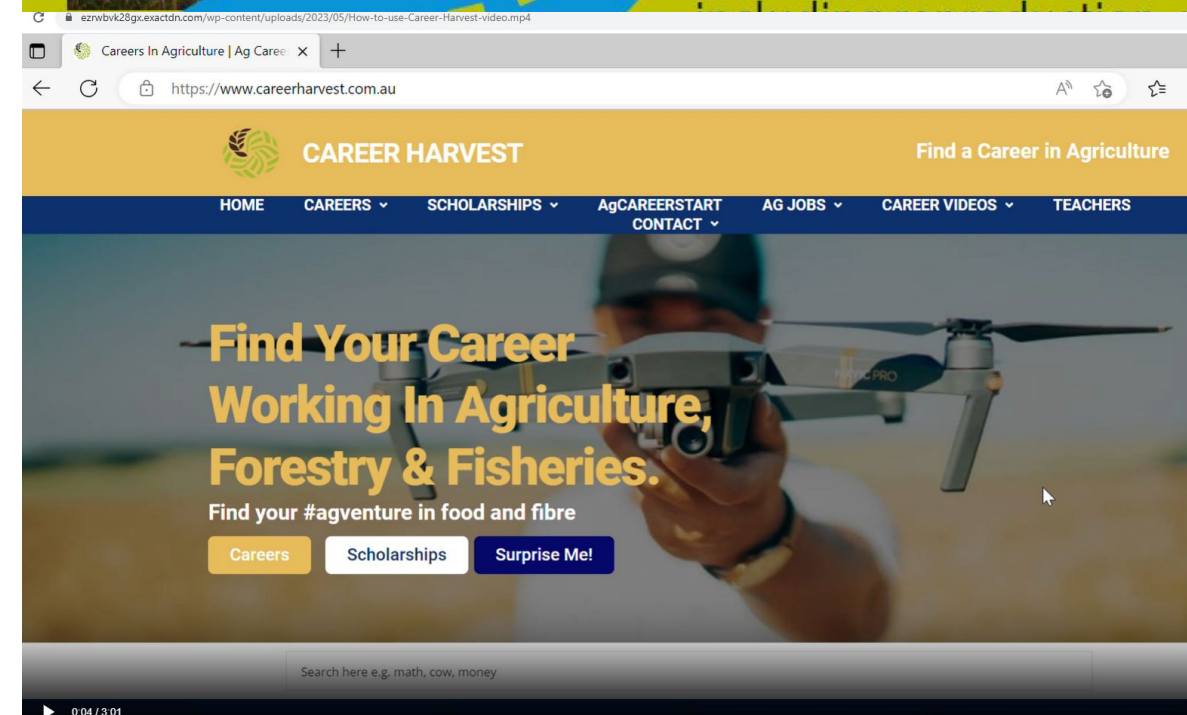
Animal Welfare Officer

- Undertake inspections of properties and commercial operations
- Educate people about the proper treatment of animals
- Prepare cases for court hearings



Animal Physiologist

- Study and research animal anatomy and function, and the relationship between movement and growth



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[ACCESS MORE INFORMATION HERE](#)

[SFIRP
Program
- PIEFA
Food
Fibre
Education
Resources](#)

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PRODUCING POLLINATORS | TEACHING RESOURCE

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New resources



Farming a Sustainable Future

TEACHER GUIDE

YEAR 7-10

This resource has been developed by:



Stage 4 and 5 AG4-4, AG4-5, AG5-4, AG5-8

WORKSHEET 1

Farming a Sustainable Future

Producers are working to create sustainable farms that protect the biotic and abiotic factors of the environment to ensure productive and profitable yields from the farm for long term environmental health and economic prosperity.

1. Construct your own Sustainable Farm KinetiKit by following the assembly instructions. Your final product should look like the image below.



SFIRP Program
- PIEFA Food
Fibre
Education
Resources



New Farmer Time: Episode 2 and 3.



Farmer Time | Experts In The Field – Exploring Drones in Agriculture

You can now access the first in our *Farmer Time | Experts In The Field* three part series: *Exploring Drones In Agriculture*. This series provides an excellent opportunity for students and teachers to engage with four experts and how they use emerging drone technology in agriculture.

Students will engage with the experts, focusing on the innovative ways drone technology in agriculture is used to improve efficiency, sustainability, and precision farming practices.

The *Farmer Time | Experts In The Field* project focuses on developing students' knowledge and appreciation of Australian agricultural production and the impacts of drone technology on the ongoing development of agriculture in the country.

Our three *Experts In The Field* episodes highlight the influences of current and emerging technologies on local environments, fostering responsible decision-making and judgment in adopting sustainable management practices.

Episode 1: Drones On Farms

SUBJECT
Agriculture
Design & Technology
Science

AC CODE 8.4
AC CODE 9.0
ES4, LW5, LW2, AG4-2, AG5-2, AG4-8, AG4-9, AGLS-7, AGLS-10, AG4-12, AC9S7H03, AC9S8H03, AC9S9H02, AC9S10H02, AC9S9H03, AC9S10H03, AC9TDE8K01, AC9TDE8K02, AC9TDE8K04, AC9TDE10K01, AC9TDE10K02, AC9TDE10K04

TYPE **YEAR**
Activity, PDF, Video, Worksheets 7-10

STATE
Qld, NSW, SA, NT, ACT, Tas, WA



Farmer Time | Experts In The Field – Exploring Drones in Agriculture

Episode 2 Youtube:
<https://youtu.be/0Q68OZWYkUg>

Teacher resource available this week.

New subject selection tools

[Subject Selection Tool.pptx](#)

Select Agriculture...

Subject selection could be...

- Agricultural Technology Years 7–10
- Agriculture Years 11 - 12
- Primary Industries HSC VET Years 11-12



STEP INTO AGRICULTURE



WHAT SHOES WILL YOU WEAR?

PIEFA SFIRP
STORM & FLOOD INDUSTRY RECOVERY PROGRAM



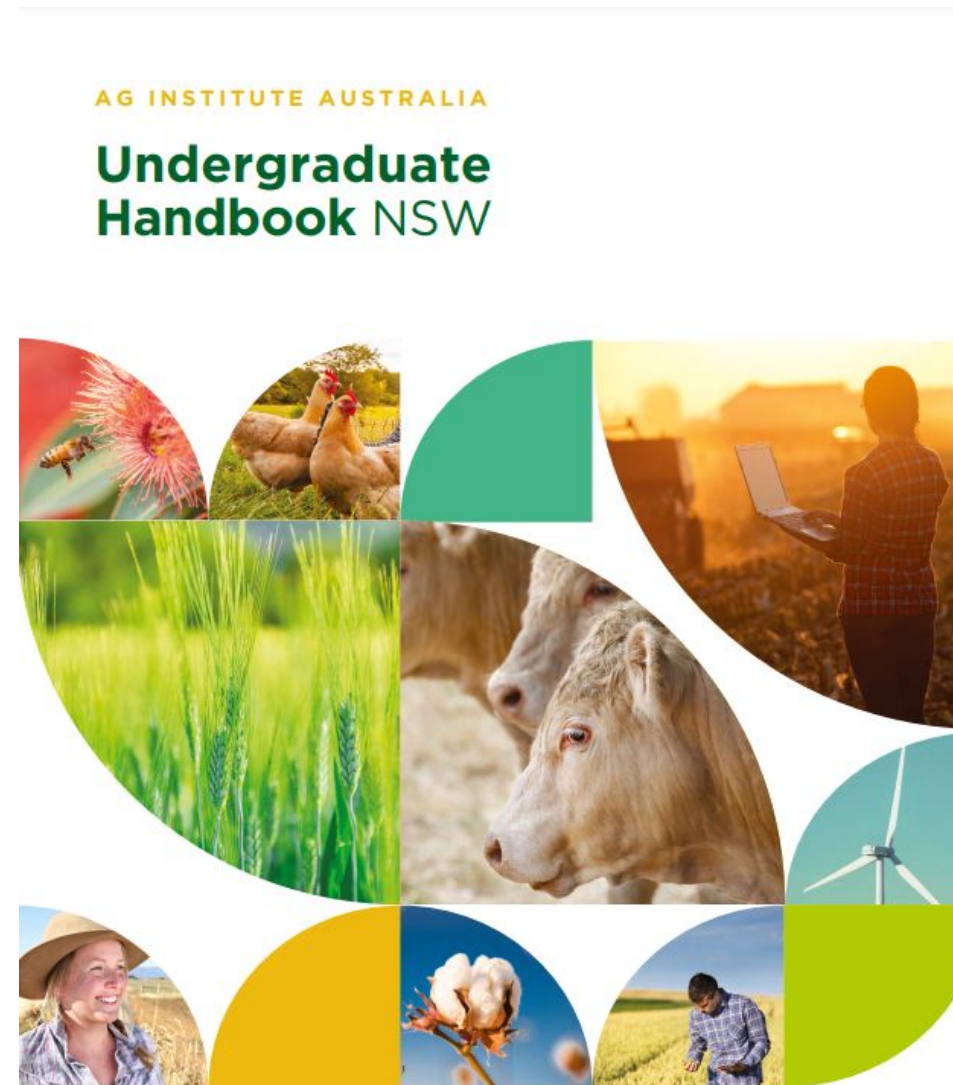
STORM & FLOOD INDUSTRY RECOVERY PROGRAM

PIEFA
The leader in food and fibre education.

New resources and opportunities for senior students.

NSW Agriculture Institute Undergraduate Handbook.

<https://www.aginstitute.com.au/public/129/files/NSW%20UnderGrad%20Handbook%20Final%20for%20web.pdf>



A compendium of scholarships, graduate programs and other opportunities for professionals in agriculture



CSU Foundation Rural Relief Scholarship | Agricultural Study Scholarships (careerharvest.com.au)



Find a Career in Agriculture

HOME CAREERS ▾ SCHOLARSHIPS ▾ AgCAREERSTART AG JOBS ▾ CAREER VIDEOS ▾ TEACHERS CONTACT ▾



CSU Foundation Rural Relief Scholarship

Apply Now

The Charles Sturt University Foundation, through generous donations provided by individuals, companies and organisations, are offering scholarships to students whose ability to attend or complete university is being impacted by the recent floods and ongoing drought conditions.

MUST BE STUDYING IN:

- Any Year
- Any Undergraduate or Postgraduate course

CONDITIONS:

Students **MUST** include in the **Tell us about yourself** application question how the recent floods, or ongoing drought has affected their ability to undertake or complete their university studies.

Preference will be given to applicants who can demonstrate financial hardship through attachment of a Centrelink Income Statement and/or able to outline their financial difficulties in the **Additional Financial Information** free text box in their application

Continuing students to have a GPA of 3.5 or above, commencing students to have an ATAR score of 60 or above



New resource developed for this event



Agricultural Technology Exploring the New Frontier

TEACHER GUIDE

YEAR 7-10

Agriculture Technology - Exploring the New Frontier
Teacher Guide

Stage 4 and 5
WORKSHEET 1a
Agricultural Technology - Where does food come from?

Have you ever wondered where the food on your plate comes from? Brainstorm with your classmates using the discussion prompts and complete the simple paddock to plate schematic diagram below by filling in the squares with the appropriate step.

| Farming | Discussion Points |
|--|---|
| Define farming | Where does your food and fibre come from? Where does it grow? How does your food and fibre get from the farm to you? What does a farmer do to produce food and fibre? |
| What issues can cause problems on a farm? What are the big expenses? | How do farmers get energy? What happens when there is not enough water? How do farmers know the soil and water content? |
| What forms of technology are available for farming? | Can you describe any forms of technology available for farming? What are the advantages of the technology? What are the limitations of the technology? |

STEPS

Ready to eat!
Preparation
Farm
Processing Plant

Primary Industries Education Foundation Australia | primezone | SFIRP STORM & FLOOD INDUSTRY RECOVERY PROGRAM

Agriculture Technology - Exploring the New Frontier
Teacher Guide

Stage 4 and 5
WORKSHEET 1b
Agricultural Technology - Challenges to farming

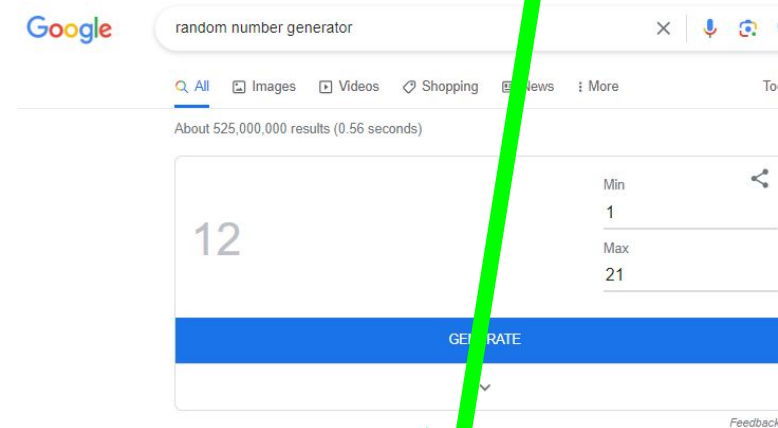
Farm challenges are issues or problems to daily operations. Farming activities are labour intensive, time consuming, repetitive, sometimes dangerous and can be hot, wet and/or dirty at times. Match the terms below with the correct icon.

| | | | |
|--|---|---|--|
| | • | • | Fresh water access |
| | • | • | Livestock tracking |
| | • | • | Distances required to travel on site and to a range of markets |
| | • | • | Variable weather patterns and climate change |
| | • | • | Soil health |
| | • | • | Pests / weeds / diseases |
| | • | • | Productivity quality and yields |
| | • | • | Animal welfare |
| | • | • | Environmental concerns / biodiversity |

Primary Industries Education Foundation Australia | primezone | SFIRP STORM & FLOOD INDUSTRY RECOVERY PROGRAM

[Agricultural Technology - Exploring the new frontier \(2\).pdf](#)

Congratulations registration number 12 (Steve) wins a soil test kit!



Hands On Activity!
Refer to Risk assessment.

Agriculture Technology - Exploring the New Frontier
Teacher Guide

Stage 4 and 5
WORKSHEET 2a
Agricultural Technology - Mapping NDVI Health

Now that you have the NDVI object mapped, observe the thematic pattern against the legend below. What does your pattern indicate?

DATA FARMING Understanding your NDVI imagery.

TAP INTO THIS POWERFUL TOOL FOR FREE ON OUR DATA FARMING PLATFORM

NDVI is a formula using red and near infrared (NIR) light used to measure plant health. Our maps show a colour gradient from red to blue - red being the low values and blue being the high. Quick rules of thumb:

- Values for growing crops and pastures starts at 0.2
- The highest readings are around 0.85
- The bigger the number the better/bigger/healthier the vegetation

Once you have electronically mapped the NDVI of the selected field in your school, you will need to validate the data with a site inspection called **ground truthing**. Please proceed to the site and take pictures of the ground cover in each of the different coloured zones. Conduct a soil test in each zone using page 8 of the DPI Northern Rivers Soil Health Card (3 tests in each zone will ensure reliable data using an average).

Northern Rivers Soil Health Card

Compare the online data to your site visit and soil tests.
Similarities between zones e.g. same pasture species:

Differences between zones e.g. slope/gradient, groundcover etc.

Primary Industries Education Foundation Australia | primezone | SFIRP STORM & FLOOD INDUSTRY RECOVERY PROGRAM

Horticulture

Key word search - horticulture innovation
[Primezone](#)

Growing And Grafting | Hort Innovation (Years 9-10)



| | |
|-------------------------------------|-------------|
| SUBJECT | |
| Design and Technologies Science | |
| AC CODE 8.4 | |
| AC CODE 9.0 | |
| AC959U02, AC9510U01, AC9TDE10K04 | |
| TYPE | YEAR |
| PDF | 9 - 10 |
| STATE | |
| Qld, NSW, SA, NT, ACT, Tas, WA | |

Growing and Grafting | Hort Innovation (Years 9-10)

A two lesson resource investigating the use of plant propagation techniques in Australia's Nursery industry. Throughout these lessons, students will explore asexual and sexual reproduction methods and consider the advantages and disadvantages of these forms of reproduction for plants and plant producers. This resource covers Design and Technologies and Science Content Descriptors from the Australian Curriculum.

Access the following PDF downloads:

TEACHER GUIDE

- LESSON 1 | Sexual and Asexual Reproduction in Plants
- LESSON 2 | Growing and Grafting

STUDENT WORKSHEETS

- LESSON 1 | Sexual and Asexual Reproduction in Plants
- LESSON 2 | Growing and Grafting

TEACHER GUIDE | WEBINAR

The below teacher webinar explains the Growing and Grafting resource, providing detailed explanation on how to use it in the classroom.



| | |
|---|-------------|
| SUBJECT | |
| Design and Technologies Health And PE Horticulture | |
| AC CODE 8.4 | |
| ACTDEK033, ACTDEK032 | |
| AC CODE 9.0 | |
| AC9TDEBK05, AC9TDEBK04 | |
| TYPE | YEAR |
| Activity, Download, PDF, Video ^B (YouTube), Workbook, Worksheet | |
| STATE | |
| | |

Australian Avocados | Our green gold superfood (TEACHER GUIDE)

This Teachers Guide supports the student resource 'Australian Avocados: Our Green Gold Superfood'.

The teacher guide provides a course outline, including learning areas and syllabus outcomes to help you deliver an interactive and engaging lesson on Australian avocados. Designed for Year 7 and 8 students to support their learning in Design and Technologies, the student workbook gives particular focus to two main technologies contexts: Food and fibre production and Food specialisations. The course provides students with the opportunity to design and produce various products, including experimenting with food preparation and presentation techniques.

Download the free PDF student workbook which contains five separate interactive lessons. Each lesson will require students to read or view important information. Some lessons will require students to complete quizzes based on the information they have learnt. The answers to these quiz questions are provided within this teacher guide. Students will complete a range of activities based on what they have learnt and record their learning in the space provided in the student workbook.

Download the free PDF Teacher Guide [HERE!](#)

Link

Keywords

Australian avocados, avocado, horticulture, hort innovation, green and gold, superfood, hass, shepherd

Developed by: PIEFA



Search PIEFA Programs & Projects Academy FarmerTime Careers News Contact Us



| | |
|-----------------------------|-------------|
| SUBJECT | |
| Agriculture Horticulture | |
| AC CODE 8.4 | |
| AC CODE 9.0 | |
| TYPE | YEAR |
| PDF | 9 - 12 |
| STATE | |
| | |

Getting Work in Horticulture – A Guide to Careers in Horticulture

Horticulture is an industry that will always be with us; human life cannot exist and thrive without plants – they are integral to human survival. That fact alone makes horticulture not only important, but perhaps the only career that mankind is unlikely to ever see disappear.

Sound, broad-based training in the fundamentals of horticulture is a good starting point for entering this industry. However, not all courses on offer will be broad enough or in-depth enough to set you up for a sustainable, lifelong career – so you need to understand the fundamentals required in horticulture (in general) and then choose a diverse course, that enables you to achieve these aims.

ACS Distance Education are pleased to offer this ebook for free (valued at \$24.95) as a promotion with PIEFA.

Please search for 'Working with Animals' for the second in this series by author.

DOWNLOAD the ebook | [Getting Work in Horticulture.](#)

Link

Keywords

agriculture, horticulture, careers, work, ACS Distance Education, John Mason

Developed by:

Australian Avocados | Our green gold superfood (STUDENT WORKBOOK) | Agriculture Lessons

ATCM Dashboard



Soils for Life and Soil Science Australia Targeting Year 7-10 students.

The Healthy Living Soils Project features **seven extensive resources**, including online digital tools, geospatial tools/technologies, Google Earth Projects, soils technologies for sustainable agricultural production.

[Healthy Living Soils](#)

Lessons 5 (5.3 and 5.4) and 6 (innovative farm strategies).



HOME TEACHERS STUDENTS PRIMEZONE PIEFA



Healthy Living Soils | Years 7-10

Access this suite of curriculum linked resources for both teachers and students targeting the Year bands of 7-10 and Learning areas of Science, Geography, and Design & Technologies via a dedicated website. Learn more about our valuable and productive Australian soils by accessing the 'Learn', 'Watch' and 'Do' areas.

Lessons feature hands-on practical tasks, collaborative activities, research opportunities, video content, case studies and suggested answers to support and engage teachers and students.

Link

<https://healthylivingsoils.com.au/>

Keywords

soil, healthy, organism, health, soil structure, biology, food production, food security, natural resource, environment, biomes, flora, fauna, soils, First Nations, Indigenous, water cycle, carbon, case studies, food web, food chain

Developed by: PIEFA, Soil Science Australia, Soils for Life

SUBJECT
Design and Technologies
Geography

AC CODE 8.4
AC CODE 9.0
AC9HG7K01, AC9HG7K04,
AC9HG7S01, AC9HG7S02,
AC9HG7S04, AC9HG7S05,
AC9HG7S06, AC9HG9K01,
AC9HG9K01, AC9HG9K03,
AC9HG9K04, AC9HG9S02,
AC9HG9S06, AC9S9U03,



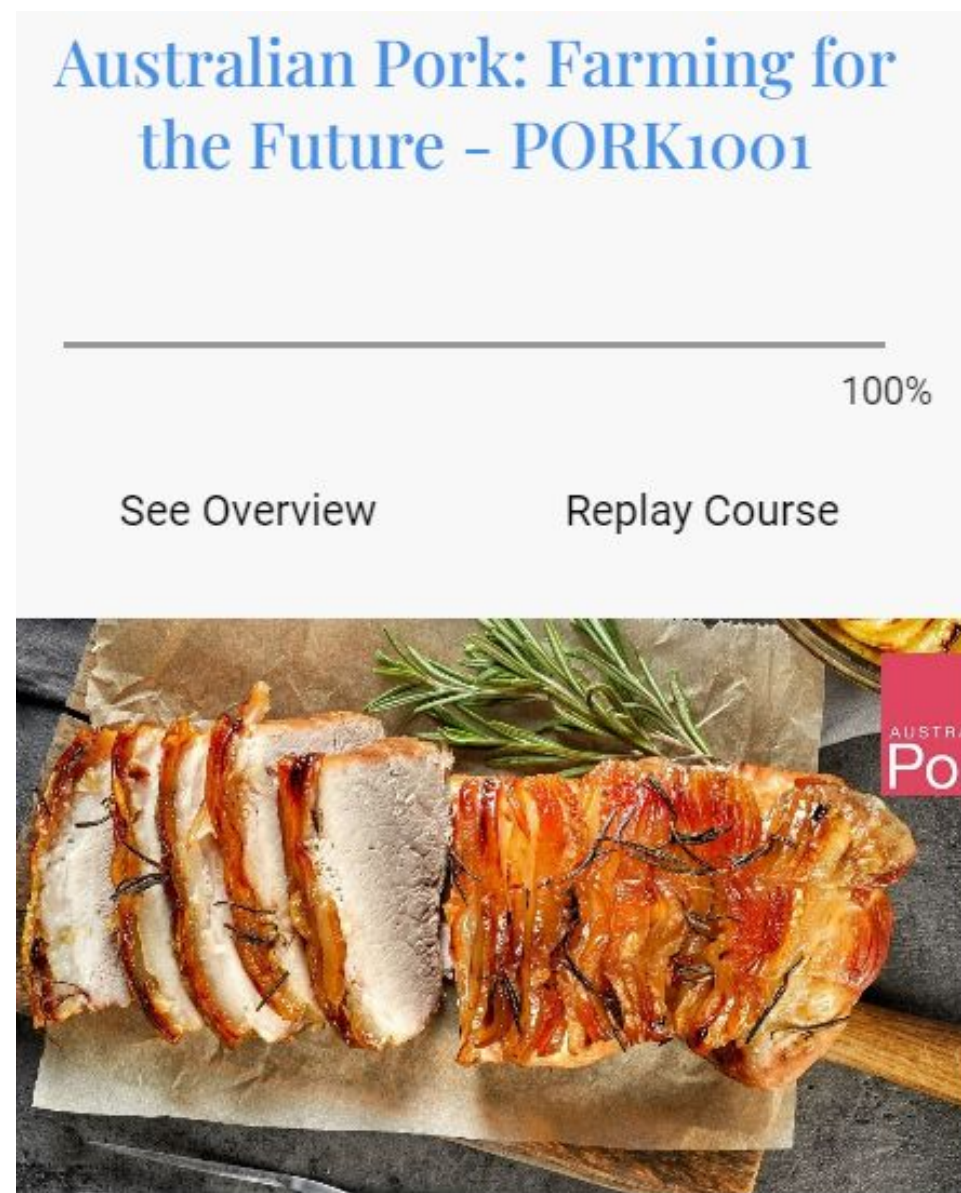
Primezone Academy

Australian Pork-Farming for the Future

Australian Pork: Farming for the Future -

PORK1001

Lesson 3, 4 and 5



Hort Innovation - Food production through protected cropping

Food Production Through Protected Cropping | Online Course



Primezone - MLA Good Meat Stage 4

https://primezone.edu.au/resource/mla-australian-good-meat-teacher-resources/?mc_cid=e31b6f39f4&mc_eid=77bc1cf7db

Students will learn about the steps in the red meat 'paddock to plate' supply chain and how technologies can target areas within the chain to improve production.

Student Resources:

ACTIVITY 5.1 – **Paddock to plate** story

ACTIVITY 5.2 – Building the **supply chain**

Worksheet 5.2a The paddock to plate chain

ACTIVITY 5.3 – **Technologies and the supply chain**

Worksheet 5.3a Technologies and agriculture

Worksheet 5.3b Technologies in the red meat supply chain

Paddock to plate card games.

National Livestock Identification System (NLIS)
Australia's system for the identification and traceability of cattle, sheep and goats.

Considerations:

- Tags are attached to an animal's ear or via a rumen bolus.
- Farmers use the tags to identify individual animals and monitor and record their productivity over time.
- The red meat industry uses NUIS to trace individual animals throughout their lives and monitor their movement through the supply chain, allowing contact history between animals to be determined.
- Consumers can have confidence in the integrity and safety of the red meat they purchase, knowing that any health and safety issues can be traced back up the supply chain quickly.

BunkBot

MLA Grainfed R&D insights BunkBot testing at Murr & Co. Finegrove Feedlot (2:52)

| | |
|-------------------------------|---|
| Description of the technology | Identify the advantages of the technology |
| | |

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

NEWS

New Australian Good Meat classroom resources for Foundation to Year 10

08/16/2023 • By Dianne

Get your free Australian Good Meat classroom pack

Years 5-6 and 7-10

Classroom posters

Student card game

Get your free Australian Good Meat classroom pack

PIEFA and Meat and Livestock Australia are excited to announce the release of a new set of classroom resources for students and teachers in primary and high school. This suite of resources, which are **curriculum-aligned** (Australian curriculum 9.0) and **classroom-ready**, use the most current Australian red meat industry information and include:

- Student worksheets
- Lesson plans
- Online learning tasks
- Teacher instructional videos
- Supplementary materials

Available now through Meat and Livestock Australia's Australian Good Meat website and PIEFA's Primezone online platform, students will learn about on-farm practices, the red meat supply chain, health and nutrition, marketing, climate, and the environment - all with a focus on sustainability and technology as a cross-curriculum priority.

FREE CLASSROOM PACKS | Posters and Paddock to Plate Card Game!

To celebrate the launch of this suite of Australian Good Meat resources, the team at Meat and Livestock Australia are giving away free classroom packs to teachers across Australia! Packs are suited to classes in **Year 5-6** and **Years 7-10** and include a range of **posters to display in the classroom** and a **paddock-to-plate card game with instructions**. The card game is engaging and hands-on, allowing students to learn about the process of converting 'on-farm' food into a product suitable for retail sale. Additionally, they will gain an understanding of the careers and sustainable approaches involved in the supply chain of red meat, from paddock to plate. **Simply complete the online form below and a classroom pack will be posted out towards the end of Term 3.** * Terms and conditions apply. See form for details.

ACCESS RESOURCES

COMPLETE ONLINE FORM

Recent Posts

- New Australian Good Meat classroom resources for Foundation to Year 10
- Integrating Food and Fibre Education Across Subject Areas
- National Ag Education Strategy Working Group Gets Underway
- Hampering Innovation: Empowering Future Primary Industries during Science Week 2023
- PIEFA Conference 2023

Archives

- August 2023
- July 2023
- June 2023
- November 2022
- August 2022
- December 2021
- November 2021
- September 2020

CEIDD
STORM & FLOOD INDUSTRY RECOVERY PROGRAM

PIEFA
The leader in food and fibre education.

Good Meat website Yrs 9-10

https://primezone.edu.au/resource/mla-australian-good-meat-teacher-resources/?mc_cid=e31b6f39f4&mc_eid=77bc1cf7db

Lesson 6: Example lesson on technologies.

<https://www.goodmeat.com.au/globalassets/good-meat-v2/education/teaching-resources/teacher/9-10/lesson-6/ame-teacher-9-10-lesson-6-v1.pdf>



Australian Good Meat Education resources are developed by **mla** MEAT & LIVESTOCK AUSTRALIA

9-10 | ONLINE LEARNING TASKS

Lesson 6

BunkBot digital technology

A new autonomous robot for manoeuvring a feed bunk scanner around a feedlot is now undergoing on-site evaluations.



The device is a combination of mapping, sensor and robotic technology aimed at delivering real-time data with precision and accuracy.

Benefits to the feedlot industry will include; a greater understanding of cattle consumption and feeding habits, reducing feed waste, advancements in distributing rations to animals in feedlots as well as; reduced expenditure in purchasing feed requirements and diverting labour to other necessary areas.



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

NEWS

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08/16/2023 - By Dianne



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ACCESS RESOURCES



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COMPLETE ONLINE FORM



Recent Posts

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- Harnessing Innovation: Empowering Future Primary Industries during Science Week 2023
- PIEFA Conference 2023

Archives

- August 2023
- July 2023
- June 2023
- November 2022
- August 2022
- December 2021
- November 2021
- September 2020

Lesson 3 - NLIS tagging, reducing waste



Australian Good Meat Education resources are developed by **mla** MEAT & LIVESTOCK AUSTRALIA

9-10 | ONLINE LEARNING TASKS

Lesson 3

The importance of the National Livestock Identification System

The National Livestock Identification System (NLIS) is an Australian system that allows identification and traceability of cattle, sheep and goats.



The system was developed in 1999 and the rules for tracing livestock through their lifespans were developed by the meat industry and the government. This level of traceability is crucial to Australia's reputation of producing high quality red meat.

It helps to facilitate a response to disease, guarantees food security for public health, and helps to maintain international trust.

Lesson 5 _ preserving and preventing waste - Preservation and storage technologies.

Storage life of chilled red meat

Observe the table below.

Practical storage life of chilled meat

| Product | Storage life |
|--|----------------|
| Carcasses/quarters etc. in air (0°C to 2°C) | |
| • Beef (non-kinetite) | 3-4 weeks |
| • Beef (kinetite) | 12 days |
| • Lamb & mutton | 10-13 days |
| • Offals | 7 days |
| Primal cuts - vacuum packed (0°C) | |
| • Beef | 20 weeks |
| • Lamb & mutton | 12 weeks |
| • Beef & lamb offal | 3-4 weeks |
| CO₂ (100%) gas flushed (0°C) | |
| • Lamb & mutton carcasses and cuts | Up to 16 weeks |



(Shelf life of Australian red meat, 2nd edition, Meat & Livestock Australia)



Primezone - Australian Alpacas

[All About Alpacas | Agriculture Lessons](#)

Teacher Guide:

Lesson Four: Technology, Careers and Alpacas

Students learn about

- **Emerging technologies**
- The **National Livestock Identification System (NLIS)**
- **Genetic technologies** to improve **traceability, productivity and welfare**
- **Jobs and careers** throughout the alpaca supply chain.



Technology, Careers and Alpacas

TEACHER GUIDE

LESSON 4

YEAR 7-10

This resource has been developed by:



Key content

NLIS

Farming robots [The Future of Farming Robots - 13 High Tech Examples \(Compilation\)](#)

Genetics

Performance and productivity monitoring
Gene technology and innovation

WORKSHEET 4.2c
(PAGE 1 OF 2)

ALPACAS - YEAR 7-10

CASE STUDY ACTIVITY

Gene Technology and Innovation



Colour Genetic Testing Desirable Colours and Genetic Defects

Scan the QR code or click on the [link](#) to view the source material. Read the text and listen to the recording focused on colour genetic testing.

▶ Alpaca breeders learn colour genetics to achieve better breeding outcomes
<https://www.abc.net.au/news/rural/2014-11-12/determining-colour-in-alpacas/5882552>



DNA tests are available for coat colour testing through the Australian Alpaca Association (current cost \$38.50).

The DNA test for identifying colour in alpacas helps breeders better predict breeding outcomes. This interests alpaca breeders as an alpaca may look like one colour, but it might be something else! Coat colour in alpacas is a complex trait involving two central genes



STORM & FLOOD INDUSTRY RECOVERY PROGRAM



The leader in food and fibre education.

Year 7-10 Grains & Research Development Corporation



<https://ezrwbvk28gx.exactdn.com/wp-content/uploads/2023/07/L1-Yr7-10-Grains-Student-Worksheets-1.pdf>

Growing Australian Grains

- What Does a Grains Scientist Do?
- Case Studies: Breeding Wheat for a Changing Climate.
- **Case Study Two: Frost Mapping a Future Management Tool**
- Case Study Three: Heat Tolerant Wheat
- Grains Research and Plant Breeding
- Who Invests in Grains Research?
- Plant Breeding
- Breeding a New Plant Variety

Students will learn about

- **innovations and technologies in the cropping Industry.**
- Developing new varieties of productive plants in a changing climate.
- **Technologies that generate data to enable improved risk management and crop decision-making by producers.**

WORKSHEET 1.2a (PAGE 1 OF 3) WHAT DOES A GRAINS SCIENTIST DO? CASE STUDIES YEAR 7-10

Case Study Two: Frost Mapping a Future Management Tool

Scan the QR code or click on the [link](https://www.youtube.com/watch?v=Pbnrnwj23rt4&t=381s) to view the video focused on innovation and technology in the grain industry.

Frost Mapping a Future Management Tool (6:51)
<https://www.youtube.com/watch?v=Pbnrnwj23rt4&t=381s>

SUBJECT: Design and Technologies
AC CODE 8.4
AC CODE 9.0
AC3TDEBK01, AC3TDEBK04, AC3TDEBK05, AC3TDEBK06
TYPE: Download PDF
YEAR: 7-10
STATE:

LESSON 1 | What Does a Grains Scientist Do? Case Studies
Students will learn about innovations and technologies in the cropping industry. They will view source materials that are focused on developing new varieties of productive plants in a changing climate, and technologies that generate data to enable improved risk management and crop decision-making by producers.
Lesson 1 Teaching Guide: L1 (Y7-10) Grains - Teaching Guide
Lesson 1 Student Worksheets: L1 (Y7-10) Grains - Student Worksheets



Primezone Smart water

Smart Water – Precision Irrigation | Agriculture Lessons



Agriculture in Education:
an educational resource for Year 7- 8 Design and Technologies

Smart Water – Precision Irrigation

The screenshot shows the Primezone website interface. At the top, there is a navigation bar with links for Search, PIEFA Programs & Projects, Academy, FarmerTime, Careers, News, and Contact Us. Below the navigation is a large green field image with the text 'Smart Water – Precision Irrigation'. The main content area is divided into two columns. The left column features two product listings: 'Aqua Systems Electronic Digital Tap Timer' priced at \$33.90 and 'Holman Electronic 2 Dial Tap Timer' priced at \$39.95. A blue arrow points from the \$39.95 price to the suggested activity text below. The right column displays a lesson page titled 'Smart Water – Precision Irrigation' for 'Year 7-8 Design and Technologies'. The lesson page includes a 'SUBJECT' of Design & Technology, 'AC CODE 8.4' (ACTDEK032, ACTDEP038, ACSSU116, ACHGK040), and 'AC CODE 9.0' (AC9TDEBK04, AC9TDEBP04, AC9S7U03, AC9HG7K02). It also lists 'TYPE' as Multimedia and 'YEAR' as 7-8. The 'STATE' field is empty. The 'Content Description' section lists two bullet points: 'Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable (ACTDEK032)' and 'Independently develop criteria for success to evaluate design ideas, processes and solutions and their sustainability (ACTDEP038)'. Below this, it states 'This unit also supports elements of the following content descriptions:' followed by two more bullet points: 'Some of Earth's resources are renewable, including water that cycles through the environment, but others are non-renewable (ACSSU116)' and 'The nature of water scarcity and ways of overcoming it, including studies drawn from Australia and West Asia and/or North Africa (ACHGK040)'. At the bottom of the lesson page, it mentions 'Teacher guide, student activities and accompanying video provide an example of sustainable water use and management for agricultural purposes within the Murray-Darling Basin. Students investigate an Australian designed and manufactured automated irrigation system delivering water saving'.

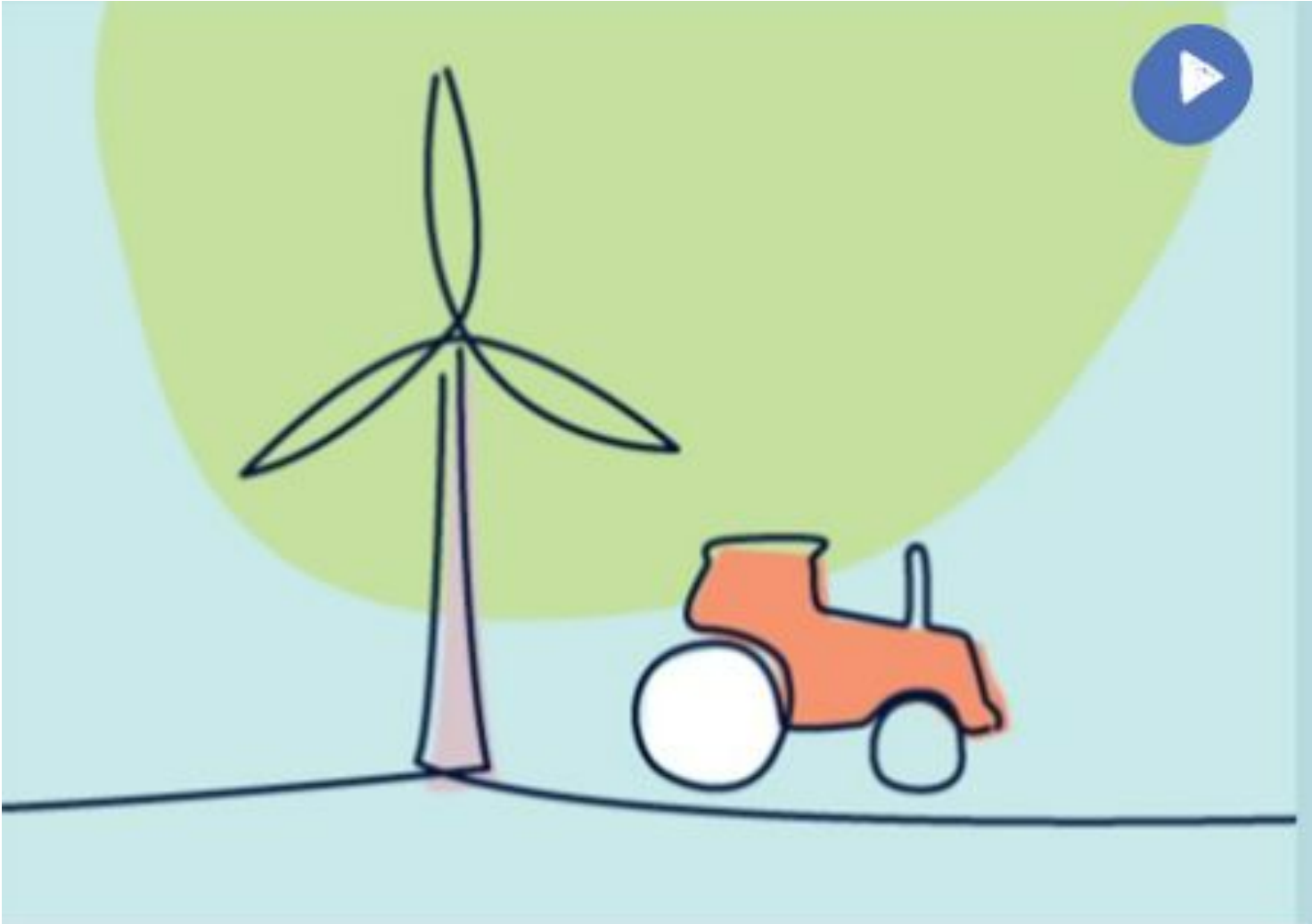
Suggested optional practical activity for students - get a tap timer/instructions and simple irrigation equipment - get students in teams to design a system controlled by set 1 min program, attach to water point and deliver within a defined time period in teams. Extension: add a fertigation application rate
Put a formative assessment mark /5 (1 mark teamwork, 4 marks ability to complete the following - accuracy, timeframe, connectivity, assembly).



Dairy Australia.

[Discover Dairy | Online platform – Classroom Resources | Agriculture Lessons](#)

The screenshot shows the Dairy Australia website. At the top left is the Dairy Australia logo. On the right, there are navigation links for Teachers, Students, Programs, and My Lesson Plan. The main heading is "DISCOVER DAIRY" in large blue letters. Below it is a sub-heading: "All the tools and curriculum linked resources needed to bring the Australian dairy industry into the classroom - Discover Dairy at your school today!". There are three dropdown menus: "I'm teaching" (Please Select), "Looking for resources in (up to 3 learning areas)" (Please Select), and "With resource type" (Please Select). Below these is a search button with a magnifying glass icon and the text "Find a resource". At the bottom, there is a yellow banner with the text "Subscribe and stay updated with the latest Discover Dairy news and events!" and an input field for "Your email address" with a right-pointing arrow.



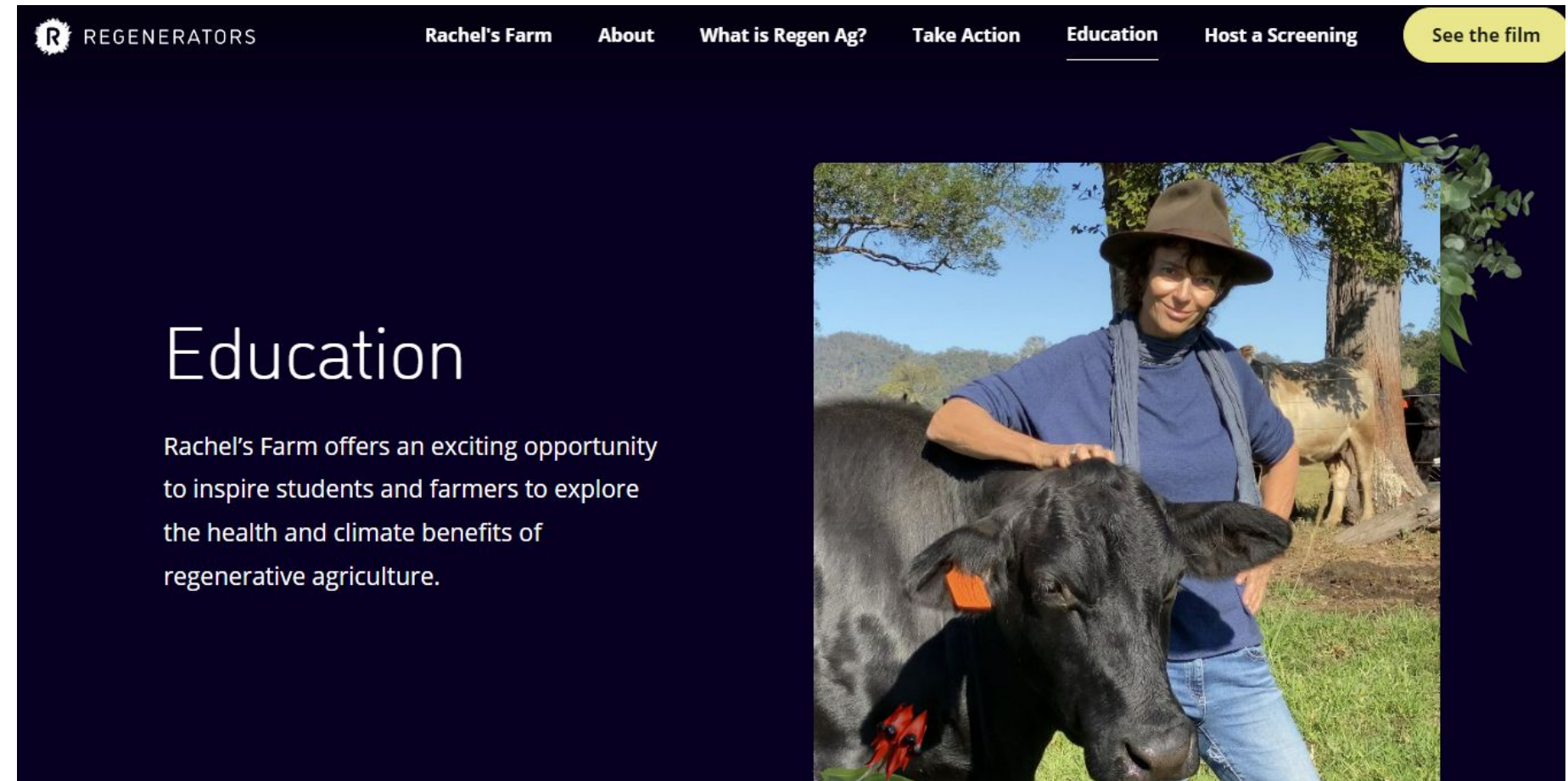
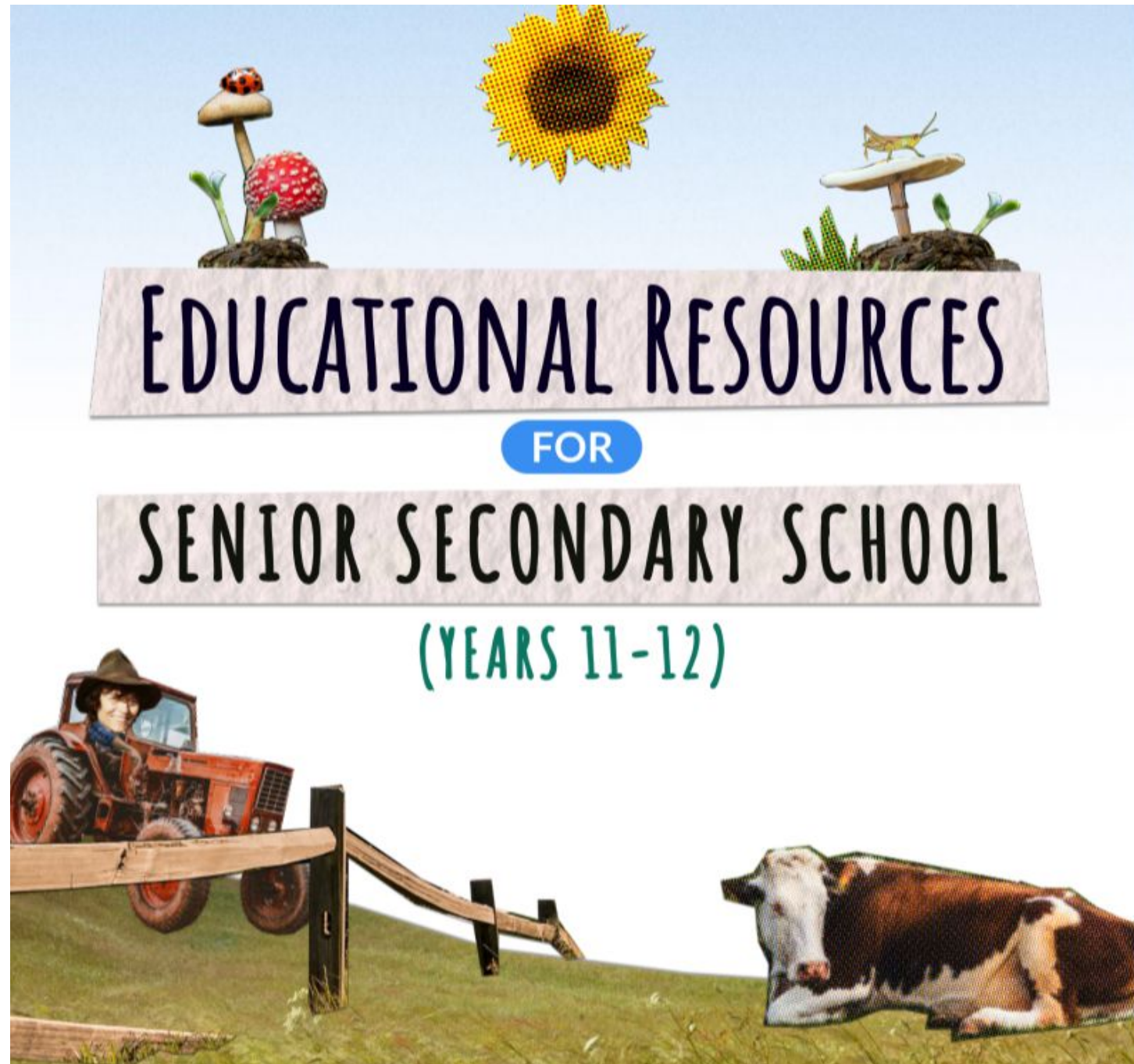
Sustainable Dairy Production YR 9 & 10

This interactive slideshow is for Year 9 and 10 students investigating food and fibre production in Australia. It is linked to Design and Technologies content in the Australian Curriculum and has further curriculum links to English and the Sustainability Cross-Curriculum Priority.

- Cows, Dairy, Environment, Australian, Healthy, Industry, Milk

Primezone - Stage 6 geography/science Farm case study Regen Ag "Rachels Farm"

Senior Secondary School - Educational Resources
for Rachel's Farm (2).pdf

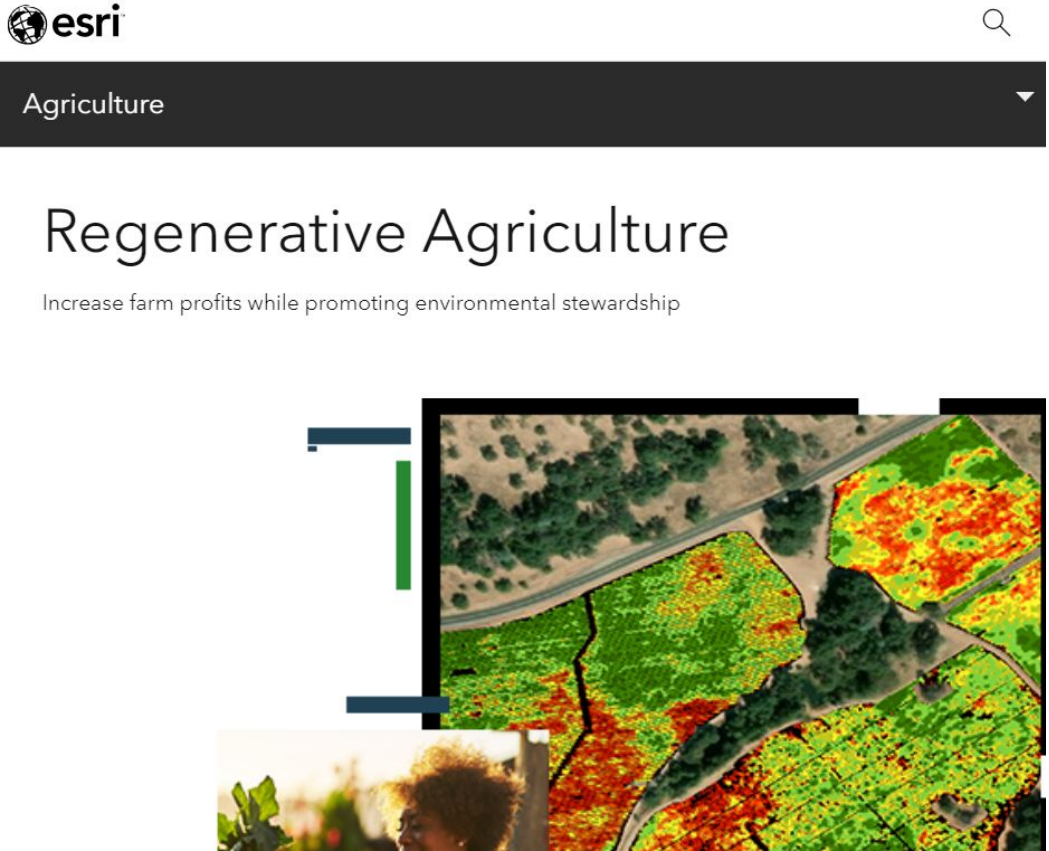


Supporting sources of information on technologies relating to Regenerative agriculture

ESRI regen Ag Regenerative Agriculture | Sustainable Agriculture Technology

<https://www.esri.com/about/newsroom/blog/how-location-intelligence-powers-sustainable-agriculture/>

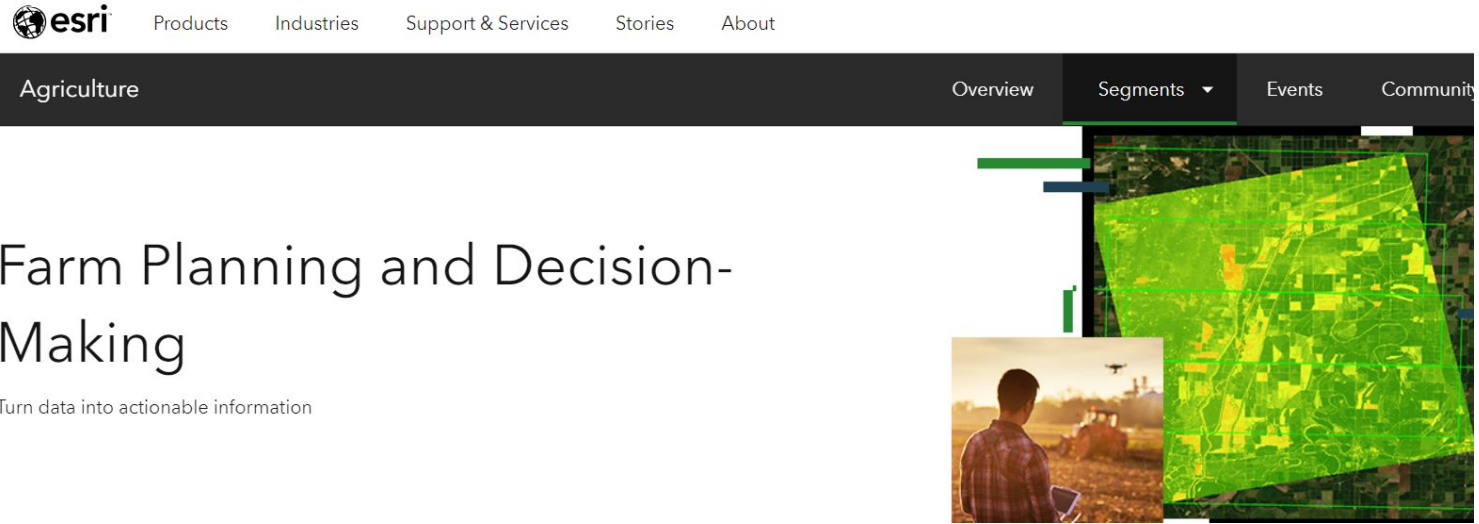
Commercial applications/products. Farm Planning & Decision-Making



The screenshot shows the ESRI logo and a search icon at the top left. Below it is a dark navigation bar with the word "Agriculture" and a dropdown arrow. The main content area features the title "Regenerative Agriculture" and a sub-headline "Increase farm profits while promoting environmental stewardship". A large image shows a colorful heatmap overlaid on a satellite map of a farm, with a smaller inset image of a person in a field.



The screenshot shows a blog post header with "Esri Blog | Sustainability | August 6, 2020". The title is "The Technology Behind a New Agricultural Revolution" by Matt Harman. The main image shows a person standing in a field with a drone flying in the sky above.



The screenshot shows the ESRI logo and navigation menu at the top. The main content area features the title "Farm Planning and Decision-Making" and a sub-headline "Turn data into actionable information". A large image shows a person in a field with a drone flying in the sky above, and a smaller inset image of a heatmap overlaid on a satellite map.

Australian Meat Processing.

Networked, Ethical, Sustainable and Intelligent

A Year 9 & 10 Educational Resource for Schools

Australian Meat Processing.

Page 24 (Robotic cutting)
page 26-28 - next evolution of meat processing.



Stage 6 DET resources

Agriculture

Watch

Watch raising the steaks – the science of cattle breeding video (23:18).

Raising the steaks – the science of cattle breeding.

**RAISING
THE
STEAKS**
The Science of Cattle Breeding

Watch dairy farming into the future video (13:54).

Dairy farming into the future

**Dairy farming
into the future**

SEIRD
STORM & FLOOD INDUSTRY
RECOVERY PROGRAM

PIEFA
The Leader in food and fibre education.



| SUBJECT | |
|---|--------|
| Business & Economics | |
| Design & Technology | |
| Geography | |
| Science | |
| AC CODE 8.4 | |
| ACTDEP037, ACTDEK029, ACTDEK032, ACHGK048, ACHGK061, ACHGK062, ACHGK063, ACHGK064, ACHGS067, ACHGK070, ACHGK073, ACHGK075, ACSHE121, ACSSU150, ACSHE134, ACSHE136, ACHEK038, ACHEK039, ACHEK050 | |
| AC CODE 9.0 | |
| TYPE | YEAR |
| Multimedia | 7 - 12 |
| STATE | |

Farms of the Future

The NSW DPI has taken the initiative to provide teachers with a wealth of educational resources for students studying the Agriculture elective in the HSC curriculum. The aim of these resources is to provide a hands-on, interactive experience for students, giving them a glimpse into the exciting world of modern agriculture and the innovative technologies being used in the field. The 3-part webinar series is an engaging and interactive way for students to learn about the latest advancements in agriculture, from the comfort of their own classrooms.

The virtual farm tours in VR provide students with an immersive experience that takes them inside the workings of a modern farm, giving them a chance to see the innovative technology in action. The interactive maps and live data sensors provide students with real-time information about the commercial farms, allowing them to see how the technology is being used to improve crop yields, increase efficiency and reduce waste. This information is invaluable in helping students understand the importance of using technology in modern agriculture and how it is helping to shape the future of the industry.

The lesson plans, webinars, VR tours and interactive maps are all designed to complement the HSC Agriculture elective and provide students with a well-rounded education in the subject. These resources are a must-have for any teacher looking to engage their students and help them gain a deeper understanding of the exciting world of agriculture. With the focus on sustainability, the NSW DPI is showing students how farming for the 21st century is about more than just growing crops, it's about using innovative technologies to protect the environment and ensure a sustainable future for all.

Link
<https://www.dpi.nsw.gov.au/dpi/climate/farms-of-the-future>

Keywords

Sensors, digital, agritech, farming for the 21st century, enterprise, management, VR, live data, real time, 2D mapping

<https://primezone.edu.au/resource/farms-of-the-future/>

A NSW Government website



- Fishing
- Hunting
- Agriculture
- Animals & livestock
- Forestry
- Biosecurity & food safety
- Climate
- Emergencies
- Education & training

About Education & training →

Agtech Training Program

Farms of the Future Grants Program

Program Partners for Agtech Catalogue

Supplier Expression of Interest

Agtech Pilot Farm Blayney

Agtech Pilot Farm Narromine

Agtech Pilot Farm Coonamble

Farms of the Future e-Resources

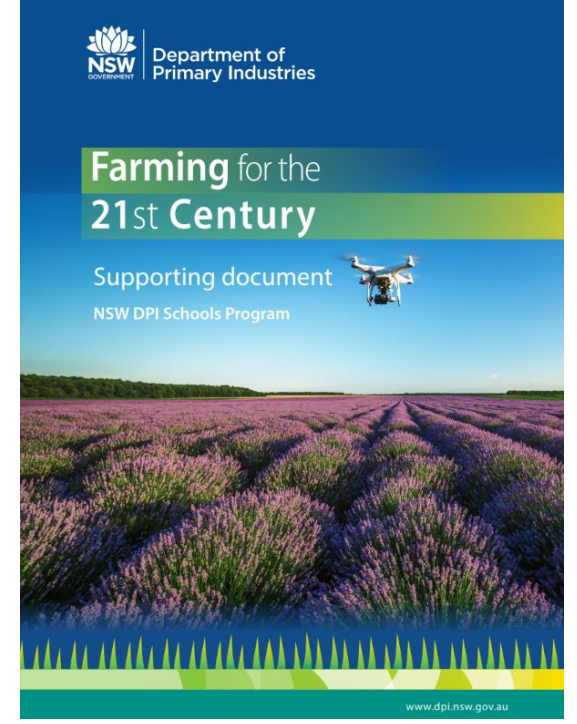
Farms of the Future digital resources

A range of digital resources, including a 3-part webinar series and virtual farm walks, have been produced to showcase the on-farm technology in use, to provide producers with unique insight and an opportunity to learn about the farmers' first-hand experiences and the benefits to their farming enterprises.

If you enjoy our digital resources and want to know more, fill in the form at the bottom of our Regional Digital Connectivity program [webpage](#) to receive further information and program updates.

3-part Farms of the Future webinar series

Webinar 1 - Introduction to AgTech



New DPI resource
[Farming for the 21st Century DOC.pdf](#)

Example Page 22-25
 John Deere Technologies

Agtech Alley [Agtech Alley at Australian National Field Days | Department of Primary Industries](#)

Embark on a journey into the heart of agricultural innovation at Agtech Alley. Featuring a line-up of 20 leading suppliers, Agtech Alley serves as your premier destination for exploring the latest breakthroughs in agricultural technology. From cutting-edge IoT devices and advanced sensors to revolutionary connectivity solutions and user-friendly dashboards, our alley features the most recent strides in Agtech.

If you're a farmer searching for answers to monitor water levels, maintaining the well-being of your animals, track fuel levels, bolster site security, and optimise plant health, your answers are available at Agtech Alley. Make sure to drop by Agtech Alley to explore the solutions that are reshaping farming. Your farm's transformation begins right here! Agtech Alley is a NSW Department of Primary Industries and a Farms of the Future initiative.

AGTECH ALLEY

SITE B B-10
 DISCOVER THE FUTURE OF FARMING WITH 20 LEADING SUPPLIERS AND A FULL PROGRAM OF SPEAKERS

EXHIBITORS

THURSDAY 26 October 2023

AGTECH TALK HUB

GUEST SPEAKERS AND PANEL DISCUSSIONS

- 9:30am Welcome to Agtech Alley 2023
- 9:45am Official Launch: Agtech Community of Practice - Tom Pennington, Farms of the Future
- 10:00am Digital Solutions for sheep farming: Exploring Agtech and IoT Tags - Ffrench, Victoria - Queensland - NSW DPI, Sun West, Braica, Paul Truitt - Systems
- 10:15am Sensing technologies to power up beef efficiency: How farm individualisation works - Gena Tag
- 10:30am Mapping, Inventory and Zoning - The framework for data-led decisions - Gus Hagen, Delta Ag
- 10:45am What's the future going to look like in the next 10 years? - Brooke Morris, Braica
- 11:00am Pathways for success in Agriculture - Brooke Morris, Braica
- 11:15am Agtech's role in farm safety and security - Sarah Work NDM & Tom Pennington, Farms of the Future
- 11:30am Spotlight on the newest game-changer for in-cab connectivity - Connected Farms
- 1:00pm Taming Information Overload, getting more from what you need for sheep and beef - Hannah Munn, Proline Intelligence
- 1:30pm Making Agtech easy to edit - Nick Sweeney, Farms
- 2:00pm What's New: Resilient Water Monitoring - Anthony Dunn, Fundera
- 2:30pm How will we drive flow on time weather prediction ecosystem leading - John Pothier, Gannon Ag
- 3:00pm 6G IT connectivity for the farm on the road - Luke Brunick, Zetifi

FRIDAY 27 October 2023

AGTECH TALK HUB

GUEST SPEAKERS AND PANEL DISCUSSIONS

- 9:30am Welcome to Agtech Alley 2023
- 9:45am What is the Agtech Community of Practice? - Tom Pennington, Farms of the Future
- 10:00am The Evolution of Animal Agtech & what this means to the future of livestock farming - BM Mitchell, Outback
- 10:15am Digital Solutions for sheep farming: Exploring Agtech and IoT Tags - Ffrench, Victoria - Queensland - NSW DPI, Sun West, Braica, Paul Truitt - Systems
- 10:30am Business stories and lessons learned from farmers who've adopted technology - Livestock
- 10:45am NSW DPI Seasonal conditions overview - Kim Emswiler, NSW DPI
- 11:00am Water is Water Out - Linking soil moisture with weather sensing - Ben Eyles, METOS
- 11:15am A busy day with Agtech Innovation for optimising crop yields - Gus Hagen, Delta Ag
- 11:30am The benefits of in-cab connectivity weight monitoring - Max Smith, Outback
- 1:00pm Taking the guesswork out of Pasture Management - Nathaniel Clark, Repulse
- 1:15pm Research updates and insights from the field - Matt Armstrong, NSW
- 1:45pm AI Farm evaluation - Key points for successful planning and implementation - Jo O'Brien, E-Extension
- 2:00pm NSW DPI On Farm Carbon Advice - Glenn Edwards, NSW DPI
- 2:30pm Wi-Fi connectivity for the farm on the road - Luke Brunick, Zetifi



In development: Science

Year 7-10 Hort Innovation: The Mighty Mushie Education Resources.
These resources feature uses of technology in the production chain.

**Hort
Innovation**



**What are Mushrooms?
A Focus on
Classification**
TEACHER GUIDE





Growing the future.....

Thank you for attending this event.



ATTRIBUTION, CREDIT & SHARING



This resource was produced by Primary Industries Education Foundation Australia (PIEFA) with thanks to the support of UNE Armidale, UNE staff and academics for the access to the sites and presentations. Primary Industries Education Foundation Australia's resources support and facilitate effective teaching and learning about Australia's food and fibre 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.



While reasonable efforts have been made to ensure that the contents of this educational resource are factually correct, PIEFA does not accept responsibility for the accuracy or completeness of the contents and shall not be liable for any loss or damage that may be occasioned directly or indirectly from using, or reliance on, the contents of this educational resource.

Schools and users of this resource are responsible for generating their own risk assessments and for their own compliance, procedures and reporting related to the use of animals, equipment and other materials for educational purposes.



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