Bulletin of the NSW Association of Agriculture Teachers

B.A.A.T

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N.S.W. Association of Agriculture Teachers Inc

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President's Report

Morning All

I must say, the increased delivery of BAAT from twice a year to quarterly has me scratching my head as to what to report on in the past 3 months. The majority of the Easter show season has now passed by, with lots of schools achieving great results throughout the state.

Last BAAT, I advertised our plans of running a new teacher workshop, hoping to collect the names of appropriate teachers and help guide them through the settling in process. After speaking with Sally Bannerman, we have discovered she is also organising an equivalent workshop through the DET's lighthouse schools program. As a result, we have decided to tag on to her workshop. At this stage, there will be 2 workshops to be held in term 4. I plan to contact those early career teachers that have previously contacted me about this and pass on this info to Sally.

Our work with Michelle Fifield from DPI has been quite fruitful, whereby her survey has clearly highlighted some of our collaborative concerns regarding resources. As a result, Michelle's NSWDPI schools program is in the process of developing resources to assist:

- Stage 6 elective: Farming the 21st century
- Stage 6 elective: Climate challenge
- Stage 6: Farm product study online resources
- Improving access to the appropriate "research papers" for the above

This will be a great to access both the online resources along with face to face educational opportunities in the various DPI offices and research facilities around the state. A really simple way to access some local research with hands on learning and access to the actual scientists conducting the research, such as the New England Ag teachers group learning about chickpeas at the Tamworth CSIRO facility after our network meeting this term.

Recently, over the past month we have helped out with two HSC study days. Carl organised a study day at Leeton a few weeks back and myself presenting at Singleton High School a few weeks before. It's great to see so many senior students preparing for the big exams, asking all the right questions and collaborating with each other across multiple schools.

Congratulations to Marty Peeters and his team at Farrer Memorial Ag High School, hosting a fantastic Ag Careers day last week. I'm sure the AG and PI students attending took heaps of info away from the seminar, hopefully cementing some ideas in their heads about possible future careers.
Lastly, a quick reminder to organise a baby sitter, house sitter if needed, and lock in the dates for our Biennial conference in Sydney, "Farming on the Fringe" - 8th to 12th January 2017. Luciano and his team are working around the clock to get things in place and ready. Only 6 months to go…

Cheers
Justin Connors justin.j.connors@det.nsw.edu.au 0411 116 691

Membership

- Current Association Membership List

as at
29 June 2016

Financial until end	First Name	Surname	School
2016	Susan	ADAM	Northern Beaches Christian School
2016	Cassie	ANDERSON	St Paul's College
2016	Philip	ARMOUR	Yass High School
2016	Robbie	ASHHURST	James Ruse Agricultural High School
2017	Megan	ATKINSON	Elderslie High School
2016	Sunrae	BAILLIE	Great Lakes College, Forster Campus
2016	Dianna	BEALE	Tumut High School
2016	Susan	BEHAN	Denison College-Kelso High Campus
2016	Louise	BIANCHI	St Gregory's College, Campbelltown
2016	(William) David	BLOWES	Molong Central School
2016	Craig	BOURNE	Singleton High School
2017	Graham	BRAMLEY	St Paul's College
2017	Cathy	BREENE	Oakhill College
2016	Ali	BRIGGS	AgForce Queensland
2017	Deborah	BUNN	Galston High School
2016	Jennifer	CAINES	Mount Annan Christian College
2016	Paul	CANNINGS	Pittwater High School
2017	James	CAUGHEY	Hay War Memorial High School
2017	Dale	CHADWICK	Gundagai High School
2016	Gary	CHERRY	Tweed Valley Adventist College
2016	Carl	CHIRGWIN	Griffith High School
2016	Geoffrey	CLERKE	Caroline Chisholm College
2016	Stephanie	COLGAN	Red Bend Catholic College
2017	Luke	COLLINS	Yanco Agricultural High School
2016	Justin	CONNORS	Manilla Central School
2017	Ben	COOMBES	Peel High School
2016	Elena	DAGHER	Bossley Park High School
2016	Alison	DAHLENBERG	St Francis de Sales Regional College
2016	Sophie	DAVIDSON	Cotton Australia
2016	Anita	DE LA MOTTE	Bomaderry High School
2017	Donna	DEAN	Vincentia High School
2017	Christine	DUVER	Woolgoola High School
2016	Nicole	DWYER	Gunnedah High School
2016	Susan	EARL	Red Bend Catholic College
2016	Nicole	EVANS	Arndell Anglican College
2017	Guy	FAHEY	Albury High School
2016	Leanne	FERGUSON	Orange Anglican Grammar
2016	Michelle	FIFIELD	NSW Department of Primary Industries
2017	Rob	FORSBERG	St Joseph's College
2017	Sarah	FOSTER	Dubbo Senior College Campus
2016	Ann	FRIZELL	CSU Student

Financial until end	First Name	Surname	School
2016	Teacher of Ag	GETT, Verity	Wee Waa High School
2016	David	GIBLIN	Chifley College, Bidwill Campus
2016	Andrew	GILL	Medowie Christian School
2016	David	GILLARD	Wagga Wagga High School
2016	Milton	GOWER	Retired
2016	Justine	GREEN	CSU Student
2016	Lara	GRIFFIN	Pittwater High School
2017	Belinda	HAIGH	Dubbo School of Distance Education
2016	Adrian	HARRISON	St Gregory's College
2017	Teacher of Ag	HAWKINS, John	Wingham High School
2016	Colin	HAWTHORN	Red Bend Catholic College
2016	Callie	HEATH	Mulwaree High School
2016	Stuart	HEMMINGS	dotEdu Consulting
2016	David	HENRY	Karabar Distance Education Centre
2017	Teacher of Ag	HERWIG Kate	Lisarow High School
2016	Briony	HODGES	Nepean CAPA High School
2017	Michael	HOLLAND	Scone Grammer School
2016	Teacher of Ag	HORLEY, Ken	Yeoval Central School
2016	Kristina	HOTSON	Camden High School
2017	Peter	HUMPHRIES	Deniliquin High School
2016	Grant	JACKSON	Gosford High School
2017	Tara	JANE	CSU Student
2016	Samantha	JARRETT	Mount View High School
2016	Jacquie	JOHNSON	Pre-Service Trainee Teacher
2016	Jarrod	KELLY	Denison College-Kelso High Campus
2016	John	KILLEEN	Bossley Park High School
2017	Ilka	KLEPPER	Cootamundra High School
2016	Mykel	KOLLER	Nagle College
2016	Eliza	LANGFORD	Leumeah High School
2016	Hayley	MAHONEY	Chevalier College
2016	Teacher of Ag	MARITA, Sofia	Kingswood High School
2017	Melissa	MARSHALL	Moruya High School
2016	Diana	MARTIN	Murwillumbah High School
2016	James	McDONALD	Yass High School
2016	Jo	McHUGH	McCarthy Catholic College
2016	Jacqueline	McINTOSH	Crookwell High School
2017	Leigh	McLEAN	Portland Central School
2016	Mick	MELINO	St Johns College
2017	Luciano	MESITI	Colo High School
2017	Christina	MIKAN	St Ignatius' College, Riverview
2016	Heidi	MITCHELL	Tamworth High School

Financial until end	First Name	Surname	School
2016	Megan	MROWKA	Dubbo College South Campus
2016	Bal	MUDLIAR	Hoxton Park High School
2016	Rochelle	MUTTON	Mackillop College
2016	Simone	NEVILLE	Tuggerah Lakes Secondary College - Berkeley Vl
2016	Steven	NOAKES	Kadina High School
2016	Steve	NOTT	Carinya Christian School
2016	Erin	O'NEILL	Lake Cargelligo Central School
2017	Trish	PEARCE	Trinity Anglican College
2016	Justine	PHILLIPS	Xavier College, Llandilo
2016	Lucy	PITKIN	Elderslie High School
2016	Kathleen	PLATTS	Jindabyne Central School
2016	Claire	POLOSAK	Pittwater High School
2017	Georgina	PRICE	Parkes High School
2016	Janet	PRICE	O'Connor Catholic College
2017	Graham	QUINTAL	Retired
2016	Warwick	ROLFE	Hunter River High School
2016	Peter	RYAN	Nowra High School
2017	Natasha	SHANKELTON	Tullamore Central School
2016	Teacher of Ag	SHAW, Warwick	Woodenbong Central School
2016	Kara	SHERWOOD	"The Islands"
2016	Nicole	SIMMONS	Warialda High School
2016	Kathy	SIMS	RuralBiz Training
2016	Leanne	SJOLLEMA	WA College of Agriculture, Cunderdin
2016	Brent	SMITH	Bulahdelah Central School
2016	Geoff	SMITH	Oakhill College
2017	Jade	SMITH	Dunedoo Central School
2016	Paul	SMITH	Cowra High School
2017	Rachel	SMITH	Trinity Catholic College
2016	Laura	SOUTHWELL	Karabar High School
2017	Teacher of Ag	STANFORD, Cassandra	Mudgee High School
2016	Edward	STEFANSKI	St Gregory's College
2017	Stuart	STOUT	Leeton High School
2016	Sarah	STREETER	Charles Sturt University (Student)
2016	Katrina	THOMAS	Condobolin High School
2016	Laura	TOLLEY	Farrer Memorial Agricultural High School
2016	Brian	TRENCH	Camden Park Environmental Education Centre
2016	Katie	TWOMEY	James Ruse Agricultural High School
2016	Caroline	UNTERRHEINER	Tumbarumba High School
2016	Skye	VAN DEN BERGE	Marion College
2016	Jane	WALKER	Chatham High School
2016	Teacher of Agriculture	WALTERS, Bruce	Pennant Hills High School

Financial until end	First Name	Surname	School
2017	Gary	WEBB	Finley High School
2016	Nicolet	WESTERHOF	Elizabeth Macarthur High School
2016	Sarah	WESTERWAY	Ulladulla High School
2017	Wayne	WHALE	St Paul's College
2016	Nigel	WHITE	Dubbo College Senior Campus
2018	Melissa	WILLCOCKS	Inverell High School
2016	Paul	WITHERS	Batlow Technology School
2018	Maurice	WOODMAN	Murray High School
2018	Beth	WORTHY	Sapphire Coast Anglican College
2017	Jan	YOUNG	Murrumburrah High School
2017	Nathan	ZINGA	Kinross Wolaroi School

E&OE (please advise the Treasurer)

Life Members

Ian	BAIRD
Tony	BARNETT
Don	BARTHOLOMEW
Lisle	BROWN
Tony	BUTLER
Peter	CRICK

Rod	FRANCIS
Ivan	GANT
Bob	GUEST
Graeme	HARRIS
Phil	HURST
Peter	JONES

John	LEE
Robyn	O'LEARY
Gail	ROBERTS
Norm	ROBINSON
Trevor	SEWELL
Jenni	WILKINS

Associate Membership

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Arthur	KELLY	NSW BOSTES
NSW	RAS	Sydney Olympic Park
Cameron	ARCHER	Chairperson PIEFA
Ben	STOCKWIN	CEO PIEFA
Kelly	SPENCE	Education Officer PIEFA
Jade	HAUSER	UNE (NSW)

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Alysia	KEPERT	Agriculture Curriculum Consultant (WA)
John	LEHMAN	Yolla District High School (TAS)
Ku	LACEY	Rockhampton Girls Grammar School (Qld)
Sue	PRATT	Balaklava High School (SA)
Andrew	COSBY	Elisabeth Murdoch College (Vic)

NSWAAT Winter Muster

Agm Membership

Membership of the Association

^ *Membership fees to the NSW Association of Agriculture Teachers are now due:*

If you are:

- *not financial or*
- *a new graduate or*
- *your membership status has lapsed*

& you require

- *Resources*
- *Aggie contacts*
- *Information/subsidies of Agriculture Teachers conferences*
- *Assistance in your professional duties*

…then you need to join the Association to assist in maintaining:

- *the Association's strength & support across the state*
- *the place of your subject in the school curriculum*
- *networking throughout the state*
- *delivery of a BAAT, once a term via email (Bulletin Association of Agriculture Teachers)*
- *your say in Agriculture & PI teaching issues*
- *access to professional readings*

TREASURER

Graham Quintal

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treasurer.nswaat@gmail.com

Complete the "Application for Membership" Form on the next page, or download it from the NSWAAT Website & send to the Association's treasurer with your payment.

NSWAAT WEBSITE

www.nswaat.org.au

Please visit the website and catch up on what has been happening.
There are many resource links to assist your teaching of Agriculture and Primary Industries.

Membership Application

ABN: 81 639 285 642

TITLE		NAME			
SCHOOL					
POSTAL ADDRESS					
				Postcode	
EMAIL					
PHONE				FAX	
MOBILE				DATE	
MEMBERSHIP	School		Individual	Payment Method	

Email this Membership form to: **treasurer.nswaat@gmail.com** and make cheques payable to:
NSW Association of Agriculture Teachers (not NSWAAT)

Post cheque to: ***OR*** ***Pay via Direct Deposit:***

Graham Quintal
16 Finlay Ave
BEECROFT
NSW 2119

Account Name: NSW Association of Agriculture Teachers
BSB: 082 939
Account Number: 639 757 522
Reference: Your Initial, Surname and "Memb".

MEMBERSHIP FEES: $60 / annum

MEMBERSHIP REQUESTED	No of Years	
	PAYMENT $	

* Membership is based on a calendar year.

Office Use Only

Date Received		Receipt #		Receipt Sent	

The NSW Association Of Agriculture Teachers Conference

8th - 12th January 2017 - Homebush, Sydney

email agconf2017@gmail.com.au to recieve upates

My Big Idea is now live!

Let's shape Australia's tomorrow, today!

Our latest initiative, My Big Idea, is live, and we hope you'll get behind it! It's a nationwide ideas competition on steroids - focused on creating positive change for Australia. As you might have seen, it has attracted a massive wave of media attention, and the public has jumped on board with **over 250 Big Ideas** submitted in the first 48 hours alone!

Running until 3 August 2016, we're asking Australians to **submit ideas** to improve the 10 aspects of our country most important to them and **vote** for ideas that they feel passionate about.

The top 100 ideas will go before a judging panel, with 10 winning ideas developed thanks to the support of some of Australia's leading universities, companies and non-profits. 500 Australians will also be invited to take part in a 3-month innovation capability-building program.

- **Visit** www.mybigidea.org.au, sign up, and submit your ideas
- **Follow** our updates on Facebook, Twitter and Instagram
- **Join** the conversation using our official hashtag #mybigideaAU
- **Tell** your friends
- **Share** our My Big Idea video and David Koch's explainer video

Watch now:

Let's shape Australia's tomorrow

We created My Big Idea with some of Australia's most trusted institutions and iconic brands to spark a deeper national conversation about Australia's future based, encourage and facilitate citizen-led action towards that future, and instil a sense of possibility among Australians.

AUSTRALIAN FUTURES PROJECT

Resources

This collection of multiple choice questions was produced by teachers in the New England about five years ago, and provided by **Deb Snaith** of **Macintyre High School** who puts them into a booklet for her senior students to use as revision.

Soil, nutrients and water

1. What is the function of Rhizobia bacteria in legume roots?
   (a) To increase soil nitrogen.
   (b) To convert urea to nitrate for plants to use.
   (c) To convert nitrogen in soil air to ammonia.
   (d) To make soil nitrate available to plants.

2. Which of these fertilisers will give the greatest increase in soil nitrate available to plants?
   (a) Gypsum.
   (b) Chicken manure.
   (c) Potash.
   (d) Superphosphate.

3. Which form of irrigation transfers water to plants with least wastage?
   (a) Drip irrigation.
   (b) Flood irrigation.
   (c) Sprinkler irrigation.
   (d) They are all equally efficient.

4. Which of the following techniques could be used to maintain soil organic matter in an extensive cropping system?
   (a) addition of animal manures
   (b) application of Boron
   (c) use of stubble mulching
   (d) incorporating green manure crops

5. What is C.E.C. (cation exchange capacity) a good guide for?
   (a) Plant nutrient deficiencies
   (b) Soil fertility
   (c) Fertilizer selection
   (d) Soil acidity

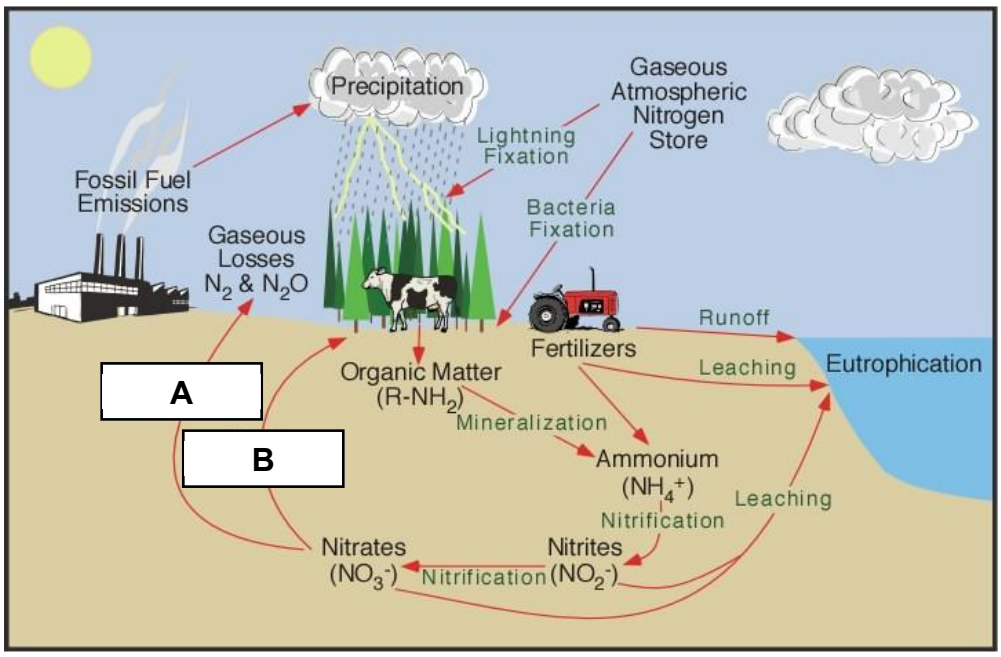
6. Why is single superphosphate the most widely used fertilizer in Australia?
   (a) Most Australian soils are susceptible to leaching
   (b) Most Australian soils are deficient in Phosphorus
   (c) Its raw materials are in abundant supply so it is cheap
   (d) It provides a balance of necessary plant nutrients.

7. Aluminium and manganese become toxic at low soil pH. How can this problem be solved?
   (a) Adding organic matter
   (b) Adding lime
   (c) Adding gypsum
   (d) Minimum tillage

8. Which of the following statements is **NOT** true regarding the role of soil Organic Matter?
   (a) Organic Matter increases soil nutrient holding ability
   (b) Organic Matter consists of tiny positively charged particles
   (c) Organic Matter assists in increasing soil fertility levels
   (d) Organic Matter improves soil structure

9. Which of the following is the correct definition of SOIL STRUCTURE?
   (a) The arrangement of soil particles (sand, silt and clay) in a soil
   (b) The amounts of sand, silt and clay in a soil
   (c) The size of particles in a soil
   (d) The amount of organic matter in a soil

10. The following is a diagram of the nitrogen cycle



What is the process which occurs at A?

(a) plant consumption

(b) Mineralisation

(c) Denitrification

(d) Nitrification

11. Using the diagram of the Nitrogen cycle, identify the process that occurs at B

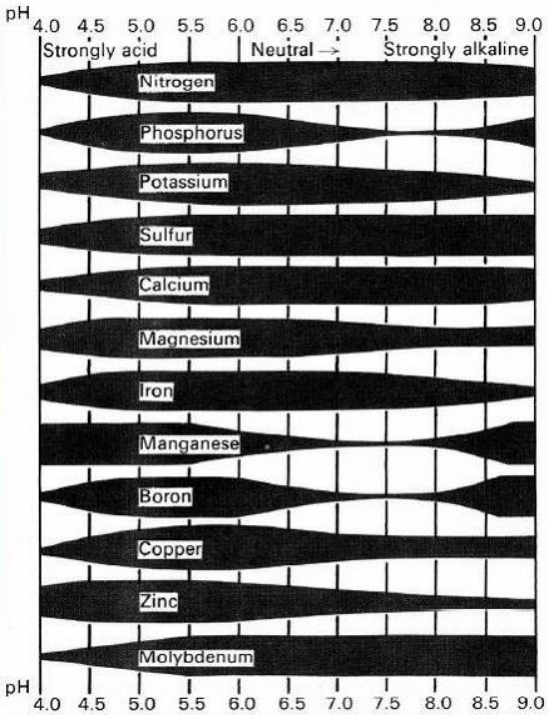
(a) plant consumption

(b) Mineralisation

(c) Denitrification

(d) Nitrification

12. Refer to the diagram below.



Which plant nutrient may become available at toxic levels in acid soils?

(a) Nitrogen

(b) Calcium

(c) Manganese

(d) Iron

13. What is an appropriate strategy to increase soil fertility without the application of inorganic fertilisers?

(a) Using green manure crops

(b) Using legumes in a crop rotation

(c) Spreading organic fertilisers on the paddock

(d) All of the above

14. Pasture leys are often used in crop rotation systems. What is the main reason for this?
    (a) They cause erosion problems
    (b) They only improve soil structure
    (c) They help improve soil structure and fertility and cause an increase in disease in following crops.
    (d) They help improve soil structure and fertility and cause a decrease in disease in following crops.

15. A benefit of using inorganic fertilisers in farming practices is that nutrients are rapidly available for plant uptake. Which of the following only contain examples of inorganic fertilisers?
    (a) Blood and bone
    (b) Urea and superphosphate
    (c) Nitram and animal manure
    (d) Nitram and superphosphate

16. The addition of Gypsum to clay soils, causes the particles to:
    (a) Conglomerate
    (b) Flocculate
    (c) Dissipate
    (d) Disintegrate

17. The arrangement of particles by their shape eg platy or prismatic is referred to as
    (a) Soil pH
    (b) Soil texture
    (c) Soil structure
    (d) Soil organic matter

18. The proportion of soil particles according to particle size is referred to as
    (a) Soil pH
    (b) Soil texture
    (c) Soil structure
    (d) Soil organic matter

19. The climate in this area can be described as
    (a) Arid
    (b) Arctic
    (c) Tropical
    (d) Temperate

20. What is the name of the method of land management as used by traditional Aboriginals in Australia?
    (a) Minimum tillage
    (b) Conservation farming
    (c) Fire stick farming
    (d) Native vegetation conservation

Answers

1.	c	2.	b	3.	a	4.	c	5.	b
6.	b	7.	b	8.	b	9.	a	10.	c
11.	a	12.	c	13.	d	14.	d	15.	d
16.	b	17.	c	18.	b	19.	*	20.	c

* depends on your area of the state

Plant Production Systems

1. What is the function of Rhizobia bacteria in legume roots?
    (a) To increase soil nitrogen.
    (b) To convert urea to nitrate for plants to use.
    (c) To convert nitrogen in soil air to ammonia.
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3. Which form of irrigation transfers water to plants with least wastage?
    (a) Drip irrigation.
    (b) Flood irrigation.
    (c) Sprinkler irrigation.
    (d) They are all equally efficient.

4. In general, at which stage of its life cycle is a weed best controlled?
    (a) Flowering
    (b) Adult plant
    (c) Young plant
    (d) Seed dispersal

5. Treatment of farm pests like weeds may include hand weeding, herbicides, release of biological agents, cultivation, slashing, cutting, burning and ripping.

   If several of these methods are used, which term is commonly used to describe them?

   (a) Individual Weed Management(IWM)

   (b) Integrated Pest Management (IPM)

   (c) Intensive Weed Management (IWM)

   (d) Involved Weed Management (IWM)

6. Which of the following best describes an Integrated Pest Management Program?

   (a) Using organic methods to manage pests

   (b) Using a range of strategies to manage a pest

   (c) Using a range of chemicals to control a pest

   (d) Using an introduced species to manage a pest

7. Micro propagation (tissue culture) places a small piece of meristem (actively growing cells) in an agar media that contains nutrients and plant hormones to stimulate plant growth.

   Which plant hormone needs to be increased to stimulate shoot growth?

   (a) Auxin

   (b) Gibberellin

   (c) Cytokinin

   (d) Ethylene

8. Which of the following plant hormones is used as a fruit ripening agent in controlled atmospheric containers?

   (a) Auxin

   (b) Gibberellin

   (c) Cytokinin

   (d) Ethylene

9. Red Delicious apples imported from America have a distinct “crown” shape at the caylx. This is due to the application after flowering of which plant hormone?

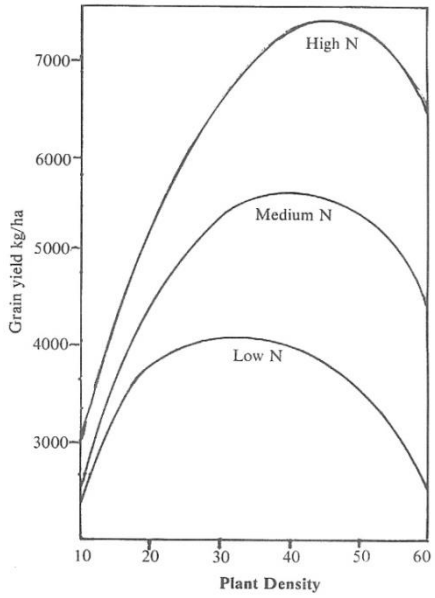
   (a) Auxin

   (b) Gibberellin

   (c) Cytokinin

   (d) Ethylene

10. The following graph shows the yield of maize under different levels of nitrogen (N).



These results depict what form of plant competition?

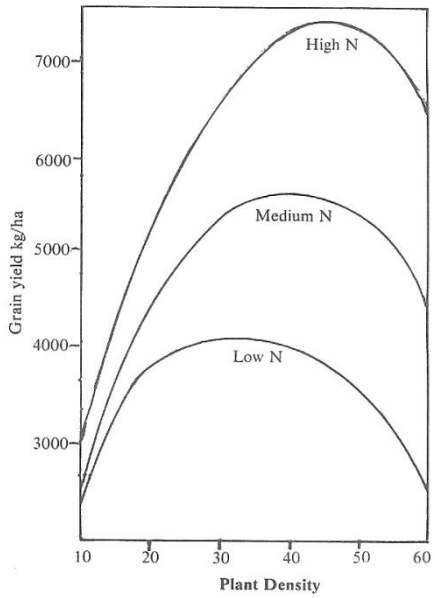
(a) Between plant species

(b) Within a plant species

(c) Between the maize and weeds

(d) Between maize plants for sunlight

11. The following graph shows the yield of maize under different levels of nitrogen (N).



Which of the following statements best describe the results shown in the graph?

(a) There is no competition at low plant densities

(b) Grain yield is affected by plant density only

(c) For low N levels, it better to have high plant densities

(d) Grain yield is greatly affected by pant density and soil nitrogen levels

12. Which of the following depict resources that plants compete for?
    (a) Soil, weeds, oxygen, nutrients
    (b) Soil, light, nutrients, water
    (c) Light, nutrients, water, space
    (d) Light, water, soil, space

13. How can plant resource competition can be managed?
    (a) Ploughing to remove weeds
    (b) Changing crop density at sowing
    (c) Irrigation
    (d) All of the above

14. Which of the following statements regarding photosyntheses is incorrect?
    (a) Photosynthesis requires carbon dioxide and its concentration effects the rate of photosynthesis.
    (b) Photosynthesis requires oxygen and its rate depends on the oxygen concentration.
    (c) Photosynthesis requires water and its availability effects photosynthetic rate.
    (d) Light intensity influences photosynthetic rate.

15. Which of the following statements is the most correct?
    (a) Chlorophyll is necessary for photosynthesis to occur.
    (b) Chlorophyll is necessary for respiration to occur.
    (c) Chlorophyll is necessary for both photosynthesis and respiration to occur.
    (d) Each of the above statements is true for some plants but not others.

16. When is inoculation of seed necessary?
    (a) Fungal diseases are present in the soil
    (b) Extra plant nutrients are needed
    (c) Soil nitrogen is low
    (d) Legumes are sown in paddocks of unknown history

17. The nutrient that is necessary for legume root growth is:
    (a) Nitrogen
    (b) Phosphorus
    (c) Aluminuim
    (d) Potassium

18. The microorganism Mycorrhizae and plant roots interact. Which of the following describes a similar microbial interaction?
    (a) *Clostridium tetani* and muscle tissue of horses
    (b) *Fasciola hepatica* and sheep liver
    (c) *Rhizobia* bacteria and legume plants
    (d) *Moraxella bovis* and the eye of cattle

19. Which of the following statements best describes how transgenic cotton has been produced?
    (a) Breeding, using hybrid trial plants
    (b) Selection from the most vigorous wild types
    (c) Crossbreeding, to utilise hybrid vigour
    (d) Selection and utilisation of a gene from a soil borne bacteria

20. Which of the following is the correct word equation for photosynthesis?
    (a) Carbon dioxde + Oxygen → Glucose + Water
    (b) Glucose + Carbon dioxide →Oxygen + Water
    (c) Carbon dioxde + Water → Glucose + Oxygen
    (d) Glucose + Oxygen → Carbon dioxide + Water

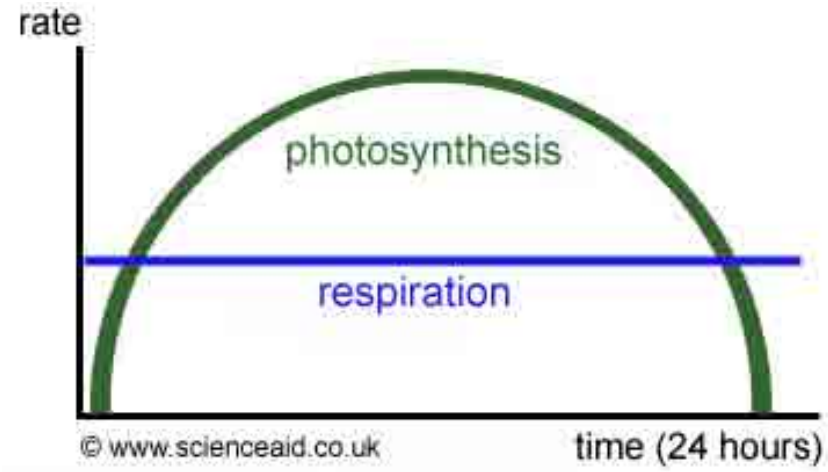
21. What is the function of the plant hormone ETHYLENE?
    (a) Cause cell elongation and fruit development
    (b) Affect cell division and root growth
    (c) Promotes the ripening of fruit
    (d) Breaks seed dormancy

22. Which of these statements describeC3 plants?
    (a) Are tropical plants that use a three carbon system
    (b) Are temperate plants that use a three carbon system
    (c) Are temperate plant that contains three carbon atoms
    (d) Are tropical plants that contain three carbon molecules

23. When does a plant's reproductive phase start?
    (a) At sowing
    (b) At germination
    (c) When flowers form
    (d) When flowers are pollinated

24. The plant hormone that affects root growth is:
    (a) Auxin
    (b) Gibberellin
    (c) Cytokinin
    (d) Ethylene

25. What does the following graph show?



    (a) Plant daily growth
    (b) Carbon Dioxide production
    (c) Net Assimilation rate
    (d) All the above

26. Monocotyledon plants have which of the following features?
    (a) 1 Seed leaf
    (b) 2 Seed leaves
    (c) 3 Seed Leaves
    (d) 4 Seed Leaves

27. What is a benefit of a diverse range of plant types in a paddock ?
    (a) Creates a monoculture
    (b) Is aesthetically pleasing
    (c) Increased resistance to disease outbreak
    (d) Allows for greater use of herbicide

28. A feature of a dicotyledon plant is
    (a) Main Tap root system
    (b) Fibrous root system
    (c) Tri-root system
    (d) Bundular root system

29. Which of these is a product of photosynthesis?
    (a) Oxygen
    (b) Carbon Dioxide
    (c) Methane
    (d) Water

30. The endosperm is:
    (a) The food reserve in the dicotyledon seed
    (b) The location of the testicles in a ram
    (c) The tube from the epididymis to the vas deferens
    (d) The food reserve in the monocot seed

31. Which of these is an advantage of using 'AutoSteer' technology combined with Global Positioning Systems when sowing a crop?
    (a) Unmanaged soil compaction from irregular traffic movement across the paddock being sown
    (b) Managed soil compaction from regular traffic movement across the paddock being sown
    (c) Use of large amounts of fertiliser
    (d) Use of large amounts of herbicide

32. What is the main nutrient element required for plant growth?
    (a) Phosphorus
    (b) Nitrogen
    (c) Potassium
    (d) Sulfur

33. A plant that is typically grown in farms in this area is
    (a) Cotton
    (b) Mangoes
    (c) Canola
    (d) Maize

34. What is the name of the method of land management as used by traditional Aboriginals in Australia?
    (a) Minimum tillage
    (b) Conservation farming
    (c) Fire stick farming
    (d) Native vegetation conservation

35. What is the part of the plant that produces food for that plant known as?
    (a) Stems
    (b) Leaves
    (c) Roots
    (d) Flowers

36. What is method of propagating plants that is a form of asexual reproduction?
    (a) Sowing seeds
    (b) Sowing seedlings
    (c) Grafting
    (d) Hydroponics

37. A macro nutrient is
    (a) An element that is required in small amounts
    (b) An element that is required in small amounts all the time
    (c) An element that is required in large amounts
    (d) An element that is required in large amounts once in the plants life

38. Which of the following statements best describes the microbe Rhizobium?
    (a) A virus that causes a pig disease
    (b) A fungus that causes stripe rust in wheat
    (c) A bacteria that legumes use to convert Nitrogen
    (d) A bacteria that canola uses to convert Nitrogen

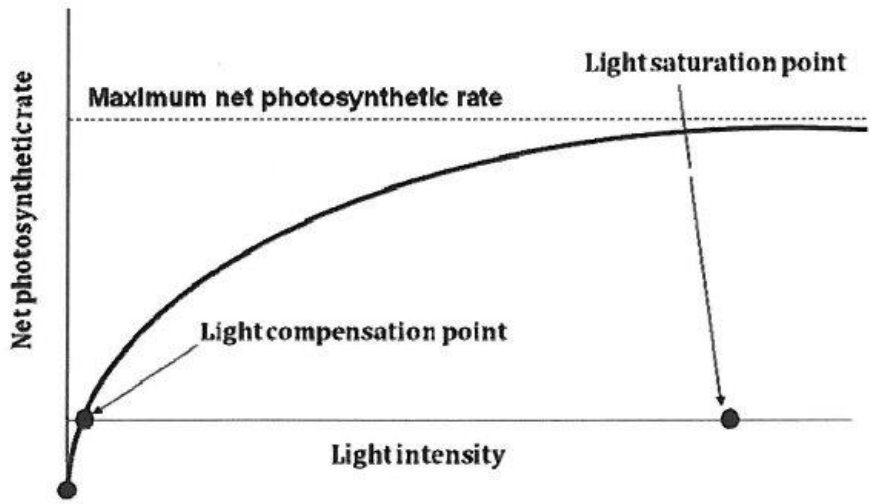
39. A monocot plant
    (a) Has 2 cotyledons
    (b) Has a Fibrous root system
    (c) Is clover
    (d) Has reticulate venation on its leaves

40. Which is the correct order for the phases of growth of a plant from seed?
    (a) Reproductive phase, vegetative phase, germination
    (b) Germination, vegetative phase, reproductive phase
    (c) Vegetative phase, reproductive phase, germination
    (d) Germination, reproductive phase, vegetative phase

41. Net Assimilation Rate is affected by a number of factors other than just photosynthesis and respiration. Which of the following factors does NOT affect Net Assimilation rate?
    (a) The size of the Leaf Area
    (b) The canopy structure of a plant
    (c) The day length (photoperiod)
    (d) Applying Nitrogen gas to the leaves

42. This question refers to the graph below

Effect of Light Intensity On Photosynthesis



The statement about the graph that is NOT correct is:

(a) The net photosynthesis rate of a growing plant increases as light intensity increases until the light saturation point is reached.
(b) Above the light saturation point, the net photosynthetic rate starts to decrease and extra light may result in burning, reduce quality and wasted water and nutrients.
(c) As the light intensity increases, the net photosynthetic rate increases indefinitely.
(d) The photosynthetic rate will decrease with light intensity decreasing.

Answers

1.	c	2.	b	3.	a	4.	c	5.	b
6.	b	7.	d	8.	d	9.	b	10.	b
11.	d	12.	c	13.	d	14.	b	15.	a
16.	d	17.	b	18.	c	19.	d	20.	c
21.	c	22.	b	23.	d	24.	a	25.	c
26.	a	27.	c	28.	a	29.	a	30.	d
31.	b	32.	b	33.	*	34.	c	35.	b
36.	c	37.	c	38.	c	39.	b	40.	b
41.	d	42.	c	* depends on your area of the state					

Animal Production Systems

1. Farmers often increase the amount of food available to female animals in the weeks prior to placing them with male animals to allow mating to occur.

   What is the reason for doing this?

   (a) It helps increase the length of the oestrous cycle.

   (b) It helps increase milk production at the end of the pregnancy.

   (c) It helps improve the rate of ovulation in their herds and flocks.

   (d) It increases the chance of survival for any offspring born at the end of the pregnancy.

2. Some farm animals breed throughout the year while others are seasonal breeders, only becoming sexually active for a part of the year.

   Which environmental factor controls this seasonal breeding?

   (a) Temperature

   (b) Daylength

   (c) Rainfall

   (d) Food availability

3. Which of the following statements is **NOT** true of embryo transfer in animals?

   (a) Embryos can be frozen, stored and used a later time.

   (b) Higher rates of pregnancy are achieved than is the case with natural mating.

   (c) Embryos can be sexed so that the farmer can choose the sex of the offspring.

   (d) Embryos can be split, resulting in four or more new identical embryos being produced.

4. Many farmers use artificial insemination in their flocks and herds.

   Which of the following statements is **NOT** true of artificial insemination?

   (a) It decreases the size of the gene pool, thus reducing the chances of inbreeding.

   (b) It allows farmers to more easily conduct cross breeding programs on their farms.

   (c) It helps in the eradication and prevention of certain venereal diseases in animals.

   (d) Semen can be transported around the world, thus allowing farmers access to a wider range of genetics.

5. What is Medicago sativa (Lucerne) predominantly used for?

   (a) Grain-feeding livestock

   (b) Supplying metabolisable energy

   (c) Baling for high quality fodder

   (d) Bedding material for stud stock

6. Why is Lambplan a valuable breeding management tool?
   (a) It supplies sire growth rates and dam feed conversion ratios.
   (b) It highlights the best breeds of sires to use
   (c) It provides pedigree information
   (d) It supplies estimated breeding values (EBV) that allow objective decision-making.

7. Why are Integrated Pest management systems vital?
   (a) They target one control method
   (b) They utilise organic principles
   (c) They are included in Quality Assurance programs
   (d) They can reduce chemical use significantly

8. How can the incidence of White muscle disease on the tablelands be reduced?
   (a) Applying low rates of copper to improved pasture
   (b) Only grazing improved pasture after it is 30cms high
   (c) Supplying phosphorus based licks blocks
   (d) Drenching with selenium-based drenches

9. Which ruminant stomach most closely resembles the true monogastric stomach?
   (a) abomasum
   (b) omasum
   (c) reticulum
   (d) rumen

10. Which of the following livestock have the most efficient Feed Conversion Ratio?
    (a) Temperate cattle (Bos Taurus)
    (b) Tropical cattle (Bos indicus)
    (c) Chickens
    (d) Sheep

11. What is the best description of Non-Protein Nitrogen?
    (a) Protein found in Nitrogenous feed
    (b) a gas made by ruminants ONLY.
    (c) Nitrogen source consumed only by Cattle
    (d) None of the above.

12. What is the Length of oestrus in a ewe?
    (a) 6-12 months
    (b) 147 days
    (c) 17 days
    (d) 30 hours

13. The digestible energy in a feed is:
    (a) Food energy
    (b) Absorbed energy
    (c) Available Energy
    (d) Energy for maintenance and production

14. The enzyme Pepsin is found in the proventriculus. What is the role of pepsin?
    (a) Absorb carbohydrates
    (b) Breakdown carbohydrates
    (c) Absorb and breakdown carbohydrates
    (d) Digest protein

15. The phenotype of a piglet is controlled by various factors. The size of the piglet at birth is due to:
    (a) Genetics only
    (b) Environment only
    (c) Both combined equally
    (d) Both combined yet unequally.

16. Fat deposition occurs in a specific order. The order from first to last is:
    (a) Subcutaneous, abdominal, intramuscular, intramuscular
    (b) Abdominal, subcutaneous, intramuscular, intermuscular
    (c) Abdominal, subcutaneous, intermuscular, intramuscular
    (d) None of the above

17. Polysaccharides are form of carbohydrate. Which of the following is an example of a Polysaccharide?
    (a) Fructose
    (b) Fructase
    (c) Starch
    (d) Lignin

18. The sigmoid flexure is located where in the sheep?
    (a) The penis
    (b) The horn of the uterus
    (c) The wall of the uterus
    (d) The ampulla

19. The following photograph is taken from a ewe's digestive tract. Name the anatomic feature shown:

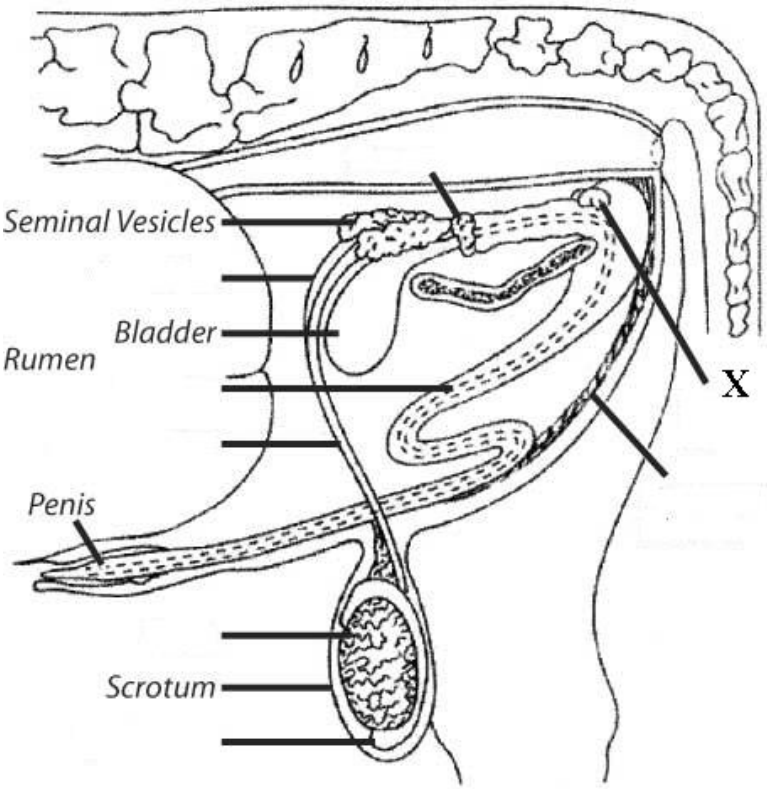
    (a) Rumen
    (b) Reticulum
    (c) Omasum
    (d) Abomasum

20. The main hormone required for milk let-down is Oxytocin. Where is it is produced?
    (a) In the anterior pituitary gland
    (b) In the posterior pituitary gland
    (c) In the testes
    (d) In the ovary

21. Multiple ovulation embryo transfer is a new technique used by cattle breeders. Complete the following statement.

    Multiple ovulation embryo transfer…..
    (a) Requires previously impregnated surrogate mothers
    (b) Can be carried out on any cow
    (c) Involves the transfer of eggs from one cow to another
    (d) Uses infertile cattle as the surrogate mothers

22. The anatomical feature labelled X is:



(a) The Ampulla

(b) The Cowper's Gland

(c) The Prostate Gland

(d) The Reticulum

23. A Farmer owns 500 breeding cattle and is current using a joining percentage of 3%. With a calving percentage of 92%, calculate the average number of calves that will be born per bull.

(a) 3%

(b) 211 calves

(c) Approx. 31

(d) Approx. 154

24. What is the correct definition of Digestible Energy?

(a) The energy available to the animal for use by the body

(b) The total energy of a food

(c) The total energy minus the energy contained in the faeces

(d) The energy available to the animal before digestion

25. In relation to animal nutrition, what does the symbol ME stand for?
    (a) Metabolisable Energy
    (b) Mineral Energy
    (c) Millimetre Energy
    (d) Minus Energy

26. Which of the following is an example of a monogastric animal?
    (a) Horse
    (b) Sheep
    (c) Alpaca
    (d) Llama

27. An animal that is typically raised on farms in this area is
    (a) Sheep for prime lamb production
    (b) Bos indicus cattle
    (c) Alpacas
    (d) Goats

28. Which of the following options is an example of an input on a dairy farm?
    (a) Milk
    (b) Hay
    (c) Milking
    (d) Vaccination

29. The four compartments of a ruminant system in order from mouth to anus are;
    (a) Reticulum, omasum, abomasum, Rumen
    (b) Rumen, reticulum, omasum, abomasum
    (c) Reticulum, rumen, abomasum, omasum
    (d) Rumen, omasum, reticulum, abomasum

30. The nutrient required by animals that helps in tissue and muscle growth is
    (a) Carbohydrates
    (b) Fats
    (c) Protein
    (d) Vitamins and minerals

31. What is the manipulation of the number of animals in a paddock called?
    (a) Stocking rate
    (b) Pasture management
    (c) Effluent management
    (d) Native vegetation protection

32. A common method used in animal disease prevention is
    (a) Drenching
    (b) Vaccination
    (c) Administering antibiotics
    (d) Culling

Answers

1.	c	2.	b	3.	b	4.	a	5.	c
6.	d	7.	d	8.	d	9.	a	10.	c
11.	d	12.	c	13.	d	14.	d	15.	d
16.	c	17.	c	18.	a	19.	c	20.	b
21.	c	22.	b	23.	c	24.	a	25.	a
26.	a	27.	*	28.	b	29.	b	30.	c
31.	a	32.	b	* you will have to modify this one for your area					

Experimental Design

1. In the design of a scientific trial, which of the following statements best describes the dependent variable?
    (a) It remains constant
    (b) It is measured
    (c) It is the control
    (d) It is replicated

2. The validity of a trial can be increased by using a statistical test. Which of the following is a statistical test?
    (a) Control
    (b) Standard error
    (c) Replication
    (d) Randomization

3. Students set up the following experiment:

4 pots received either 1 wheat seed, 3 seeds 4 seeds or 6 seeds.
Each pot was given the same amount of water, nutrients and light for the entire growing period.
The trial was replicated 6 times
At the conclusion of the experiment, grain yield was measured.

What was this trial used to determine?

(a) The effect of density on plant yield

(b) The effect of nutrients on plant yield

(c) The effect of time on plant yield

(d) Competition for water

4. Students set up the following experiment:

4 pots received either 1 wheat seed, 3 seeds 4 seeds or 6 seeds.
Each pot was given the same amount of water, nutrients and light for the entire growing period.
The trial was replicated 6 times
At the conclusion of the experiment, grain yield was measured.
This trial was used to determine the effect of plant density on yield.

What was the independent variable?

(a) Grain yield

(b) The 6 replications

(c) The number of seeds per pot

(d) The amount of fertiliser and water given to each pot

5. Students set up the following experiment:

4 pots received either 1 wheat seed, 3 seeds 4 seeds or 6 seeds.
Each pot was given the same amount of water, nutrients and light for the entire growing period.
The trial was replicated 6 times
At the conclusion of the experiment, grain yield was measured. This trial was used to determine the effect of plant density on yield.

What was the dependent variable?

(a) Grain yield

(b) The 6 replications

(c) The number of seeds per pot

(d) The amount of fertiliser and water given to each pot

6. Students set up the following experiment:

4 pots received either, 1 wheat seed, 3 seeds 4 seeds or 6 seeds.
Each pot was given the same amount of water, nutrients and light for the entire growing period.
The trial was replicated 6 times
At the conclusion of the experiment, grain yield was measured.
This trial was used to determine the effect of plant density on yield.

What should the students do, following the experiment?

(a) Graph all results

(b) Present just average results in a table

(c) Average the results for all pots

(d) Present all results in a table and average results for each plant density

7. Which of the following is the best experimental design to test the effect of temperature on photosynthetic rate?

(a) Growing one plant of variety A in a glasshouse and comparing it with one plant of variety B grown outside.

(b) Growing ten plants of variety A in a glasshouse and comparing them with ten plants of variety B grown outside.

(c) Growing one plant of variety A in a glasshouse and comparing it with one plant of variety A grown outside.

(d) Growing ten plants of variety A in a glasshouse and comparing them with ten plants of variety A grown outside.

8. One benefit of repeating an experiment is:

(a) Allows for more plants to be grown

(b) Increases the accuracy of data collected

(c) Decreases the accuracy of data collected

(d) Allows for less plants to be grown

9. When a scientist is conducting an experiment it is important that they control all the variables. What is this called?

(a) Repetition

(b) Randomisation

(c) Replication

(d) Standardisation

10. Which of these is a definition of the independent variable in an experiment?

(a) That never changes

(b) Responds to the dependent variable

(c) The variable that the researcher changes

(d) Remains the same throughout the experiment

Answers

1.	b	2.	b	3.	a	4.	c	5.	a
6.	d	7.	d	8.	b	9.	d	10.	c

Farm Product Study

1. Below is an extract from an agricultural company's website

> *Baiada Poultry Pty Limited is a privately owned Australian company which provides premium quality poultry products throughout Australia.*
>
> *Our business operations include Broiler & Breeder Farms, Hatcheries, Processing Plants, Feedmilling and Protein Recovery. Our products include sales of live poultry including breeding stock, poultry feed, fertile eggs, day old chickens, primary processed chicken (raw) and further processed chicken products and pet food.*

What is the best description of this company's marketing strategy?

(a) a cooperative.

(b) a family farm.

(c) vertically integrated.

(d) a marketing board.

2. The high value of Australian saltwater crocodile skins on the international market, relative to other crocodilian species, is largely due to: the lack of osteoderms (bone) in the ventral scales; the relatively high number of scale rows; and, the regularity of the scale pattern on the belly.

Australian researchers are trying to improve the quality of skins in farmed crocodiles by manipulating the incubation temperature to increase the rows of scales on the belly, selecting superior male crocodiles for breeding programs with regular scale patterns and by developing farming systems which minimize damage and loss of value of the crocodile skin from bite marks and injury. Which list only shows quality characteristics of Australian saltwater crocodile skins?

(a) Lack of osteoderms; ventral scales; regular scale pattern.

(b) Lack of osteoderm; high number of scale rows; regular scale pattern.

(c) ventral scales; regular scale pattern; high number of scale rows.

(d) regular scale pattern; high number of scale row; lack of bites and damage.

3. Fig. 1: An advertisement in a local newspaper

Lovedale Beef Tastes Better!
Organically grown with loving care
Produced from happy animals eating only the purest pastures.
Place your order by ringing 0299999111 or find us
on the web Lovedale@somewebsite.com

A farmer places an advertisement in a local newspaper for the product that they are producing. Refer to figure 1 above.

Why would a farmer bother to place such an advertisement in a local newspaper paper?

(a) Advertising would increase demand for the product which they are producing by making more potential customers aware of the product.

(b) Advertising would increase the supply of the product in the local area as more people will want it.

(c) The advertisement would make more people aware that organically grown beef is always produced from contented animals with love and care.

(d) The advertisement would allow the price per kilogram the customer pays to decrease as the supply for that product increases.

4. The release of a new product needs to be advertised in order for potential customers to beware of its existence. This is the same for all new products.

Which of the following suggests the best way to advertise a new product in a rural environment?

(a) Give taste –test samples out to customers in the local shopping centre so that those shoppers will tell their friends about the product.

(b) Seek Government financial support so that large newspaper advertisements can be placed in different newspapers.

(c) Mainly advertise by using television and radio during times when people are listening or watching so that they can hear and or see the product being consumed by happy customers.

(d) Use any process that is suitable to that area which will allow the maximum number of people to find out about the product and why they should purchase it.

5. Your task is to promote the product:

Randall No-Wear Oil
This is a new engine oil coming on the market for lubrication of the engines in diesel tractors.

Which of the following alternatives lists the most suitable methods which could be used to advertise this product in order to increase sales?

(a) Advertise on TV and radio between 8am to 12 noon as well as placing printed advertisements in magazines pitched at teenage girls who would tell their parents about the product.

(b) Place printed advertisements in agricultural magazines and newspapers as well as advertise on radio and TV between 6pm and 9pm.

(c) Place printed flyers on power poles along country roads as well as advertising on the radio and TV between 9pm and midnight.

(d) Performing talks at primary schools and high schools based on the benefits of this new product. The children will then go and tell their parents.

6. It is important to market your product so that customers are aware of it. There are several ways this can be performed.

Farmer Smith decides to design his own advertising campaign for the product that he is producing whilst Farmer Brown decides to hire a professional marketing company. Which alternative list the correct reason as to why a professional marketing company might be employed so as to advertise Farmer Brown's product?

(a) Tax deductions would be linked to the use of a professional marketing company and so these concessions could be claimed off Farmer Brown's income tax declaration.

(b) Farmer Brown will need to make more trips into town to discuss the marketing strategies being employed. This will have the advantage of them meeting more people and gaining a better knowledge of what is happening about the campaign.

(c) A professional marketing company has specialised experts and know the best way to increase the awareness of Farmer Brown's product.

(d) A professional marketing company has more people and hence the Advertising Cost Average per person (ACA/person) is lower than having just one person marketing the product.

7. For an Agricultural Product you have studied, how can the Government directly influence production of the product?

(a) Tell the farmer when he should sell the product.

(b) Implement O. H. S. Legislation relating to the production of the product.

(c) Inform the farmer which chemicals he is to use on his product.

(d) Insist that a Model Code of Practice be strictly adhered to in the production of the product.

8. Which of the following are carcase specifications for lamb?
   (a) Fat score and meat colour
   (b) Carcase weight and fat score
   (c) Fat colour and pH
   (d) Marbling and tenderness

9. Why is OTH (over the hook) selling popular?
   (a) You will always get top price
   (b) Feedback on carcase specifications is a standard component
   (c) It offers higher prices than saleyards
   (d) It is easy to comply with the processor's requirements

10. Why does Durum wheat attract a higher price than "Australian standard white" wheat?
   (a) It is a standard soft wheat
   (b) It is a hard wheat of high protein
   (c) It is commonly used for bread making
   (d) It is grown all over NSW

11. Which of the following can lead to value-adding for a producer?
   (a) Involvement in "Quality Assurance" programs
   (b) Certification as an organic producer
   (c) Producers collectively "Branding" and selling their product
   (d) All of the above

12. Gross margins are a management tool based on:
   (a) Whole farm profit and operating loss
   (b) Fixed costs and depreciation
   (c) Variable costs and enterprise gross income
   (d) Parametric budgets and producer offsets

13. Gross Margins are used to compare the profitability of two farm enterprises.

   Which of the following includes only VARIABLE COSTS associated with crop production?
   (a) seed, fertiliser, council rates
   (b) fuel, electricity, contract harvester
   (c) crop insurance, fertiliser, seed
   (d) home loan interest, contract harvester, fuel

14. Which of the following is NOT a value added agricultural product?
    (a) Woollen socks
    (b) Whole milk
    (c) Diced beef
    (d) Cheddar cheese

15. Which of the following is the LAW OF DEMAND?
    (a) At HIGH prices, consumers buy more of the product; and as market process DECREASE, less of the product is purchased.
    (b) As producers SUPPLY more of the product, consumers DEMAND more product.
    (c) At LOW prices, consumers buy more of the product; and as the prices INCREASE, less of the product is purchased.
    (d) Producers are willing to SUPPLY more of the product onto the market as market prices INCREASE.

16. Which of the following statements best applies to Statutory Marketing Boards?
    (a) Voluntary
    (b) Compulsory
    (c) Possibly neither
    (d) Possibly both

17. Which of the statements below best describe the process of Gilling?
    (a) Drying wool through the process of blowing hot air through the fibres for 8 hours
    (b) Removal of wool clumps and aligning fibres in a parallel fashion.
    (c) Removing Vegetable Matter from a fleece
    (d) Two rollers draw out a sliver into a lightweight longer more even sliver.

18. The profitability of a farm enterprise can be measured by subtracting variable costs from the income. What is this known as?
    (a) Cash flow budget
    (b) Partial budget
    (c) Equity
    (d) Gross margin

Answers

1. c	2. d	3. a	4. d	5. b
6. c	7. b	8. b	9. b	10. b
11. d	12. c	13. c	14. b	15. c
16. b	17. d	18. d		

Finley High School

STUDENT NAME: _____

PRELIMINARY AGRICULTURE 2016 Task 1

Skills in effective research, experimentation and communication.

Value: 25%
Date Issued: 16/03/2016
Date Due/ Submitted: 01/04/2016 (in class)
Date Returned: ……/04/2016

Outcome assessed

P2.2 describes the biological and physical resources and applies the processes that cause changes in animal production systems

P4.1 applies the principles and procedures of experimental design and agricultural research

The work presented in the following section contributes towards achieving the following syllabus content areas:
Students learn about:
Experimental design and research

- experimental design
- the collection and simple analysis of data
- recent research findings that contribute to animal production systems.

Research the following questions. The information will assist with the second part of this task.

1. **Define** the term broiler?

2. **Outline** how stocking rate influences feed intake and productivity in broiler production systems.

3. **Explain** how temperature impacts on broiler production.

4. There are other management factors which the producer can employ in his/her attempt to maximise broiler productivity. **State** TWO other such factors and **discuss** the impact of each of these.

5. Using the above information select what you believe to be the most influential management factor in determining broiler feed intake and efficiency. **Justify** your selection.

Bibliography

The following website outlines how to write a bibliography. http://www.sac.sa.edu.au/Library/Library/Bibliography/bibliography.htm#internet

Chicken Growth Trial

An experiment was carried out to determine the effect of sex on the growth rates of broiler chickens. This experiment began in February. 14 chickens were used in the experiment of which 7 were males and 7 were females. They arrived at school as day old chicks; they all came from the same gene pool and had all received the same vaccinations.

The aim, method and results are shown below.

Aim: To compare the effect of sex on weight gain in broilers.

Method:

1. All chickens were given a numbered leg band.
2. All 14 chickens were kept in the same brooder shed.
3. All chickens were feed Chicken Starter Crumbles for 2 weeks and then they were fed Turkey Starter Crumbles for the remaining 5 weeks of the trial.
4. The chickens were individually weighed at the start of each week at a time that suited the class.

Results:

The live weights for a selection of the chickens are shown in the table on the below.

Week	**Weekly Weights (grams)**			
	Tag 21	**Tag 32**	**Tag 44**	**Tag 57**
1	50	53	42	49
2	160	199	156	191
3	570	629	567	585
4	1036	1036	902	974
5	1630	1617	1414	1607
6	2600	2350	2050	2370
7	3350	2950	2820	3240
Total Weight gained				
Average Weekly Weight Gain				

Graph the weekly weights for the selection of broilers given.

Questions

1. **Outline** what the control is in this experiment.

_____

_____

2. **Identify** the different variables in the trial and place them in the appropriate column in the table.

Independent variable(s)	Dependent variable(s)	Controlled variable(s)

3. **Identify** the measure of performance examined in this experiment.

_____

_____

4. **Name** the product being produced and **identify** the subsystems which are interacting in this trial.

_____

_____

_____

_____

_____

_____

_____

_____

5. **Construct** a conclusion for this experiment.

6. Could the design of this experiment be improved? **Explain** your answer in terms of the inclusion of a control, randomisation, standardisation and replication.

Upcoming Agricultural Events

Agricultural Shows

Aug - 16

Mungindi Show - 6th to 7th
Tullamore Show - 12th to 13th
Trundle Show - 16th to 17th
Bedgerabong Show - 20th
Ganmain Show - 20th
Weethalle Show - 21st
Peak Hill Show - 23rd to 24th
Condobolin Show - 26th to 27th
Barellan Show - 27th
Penrith Show - 27th to 28th
Wentworth Show - 27th to 28th
Parkes Show - 29th to 31st

Sep - 16

Grenfell Show - 2nd to 3rd
Narromine Agricultural Show - 2nd to 3rd
Wagga Wagga Show - 2nd to 3rd
Barmedman Show - 3rd to 4th
Dapto Show - 3rd
Lake Cargelligo Show - 3rd
Manildra Show - 3rd
Narrandera Show - 3rd
Finley Show - 4th
Woodstock Memorial Show - 4th
West Wyalong Show - 6th to 7th
Forbes Show - 9th to 10th
Murrumburrah Harden Show - 9th to 10th
Quirindi Show - 9th to 11th
Hay Show - 10th to 11th
Ungarie Show - 10th
Ariah Park Show - 11th
Cudal Show - 11th
Cowra Show - 13th to 14th
Eugowra Show - 16th to 17th
Merriwa Show - 16th to 18th
Ardlethan Show - 17th
Molong Show - 18th
Wyong Shire Agricultural Show - 18th
Canowindra Show - 23rd to 24th
Singleton Show - 23rd to 24th
Hillston Show - 24th
Nimbin Show - 24th to 25th
Temora Show - 24th
Lockhart Show - 25th
Menangle Park Show - 25th
Young Show - 25th to 27th

Field Days

Mudgee Small Farm Field Days	15 – 16 July
AgQuip Field Days	16 - 18 August
Henty Machinery Field Days	20 – 22 September
Murrumbateman Field Days	15 – 16 October
Australian National Field Days	20 - 22 October

For details of Field Days in other states go to http://www.aafda.com.au/events.html

Schools in the News

School students get a taste of country life as part of the UniSchools Steer Challenge

Western Sydney University's annual UniSchools Steer Challenge has officially begun, with school kids from across Sydney putting their animal husbandry skills to the test as they set about hand raising their very own Poll Hereford steer.

Organised by the University's School of Science and Health (opens in new window)Opens in a new window and the Office of Widening Participation (opens in new window)Opens in a new window, the steer-raising challenge brings together students from 14 high schools to compete both as individuals and school teams.

Each school receives their own Poll Hereford that the students then feed, handle and care for over the next 100 days.

Adjunct Fellow with the School of Science and Health, Mr Stephen Blunden, says providing a practical and theoretical side to the reality of beef production is why high schools take up this challenge.

"The UniSchools Steer Challenge has been running for over 16 years now, and we continue to be impressed with the enthusiasm and pride that the students have for the competition and for taking care of their steers," says Mr Blunden.

"Importantly, it is also a chance for the students – many who have grown up in suburbia and an increasingly urbanised environment – to be hands-on with agriculture and better understand what it takes to raise a farm animal for production."

Approximately 120 participating students recently came together at the University's Hawkesbury campus to receive their Poll Hereford, and receive advice on everything from feeding, nutrition and animal welfare, to fitting, grooming and how to appraise their steer.

Mr Blunden says the University is pleased to have the support of industry to help with the competition.

He says this year the Conqueror Milling Company in Cootamundra has not only donated a tonne of K2 pellets for the challenge, but also generously offered the University further feed at a discounted price.

"Our donors involvement is vital to the success of the competition. Their kind donations are what make the UniSchools Steer Challenge possible each year," says Mr Blunden.

The competition ends with students presenting their allotted steers for show at the Hawkesbury Showground in September 2016.

Schools competing this year are:

Arndell Anglican College
Bede Polding College
Caroline Chisholm College
Colo High
Crestwood High
Elizabeth Macarthur High
Hurlstone Agricultural High
McCarthy Catholic College
Macarthur Anglican School
Mount Annan Christian School
Oakhill College
Richmond TAFE
Richmond High
Xavier College

http://www.uws.edu.au/newscentre/news_centre/more_news_stories/school_students_get_a_taste_of_country_life_as_part_of_the_unischools_steer_challenge

MCCARTHY CATHOLIC COLLEGE

Schools Property Planning Competition 2016

On the 8th of March my Year 11 Agriculture class attended the 2016 Schools Property Planning Competition Field day which was held at a property called Beverley about 10-15 km out of Manilla. The day was run by Local Land Services (North West) and in particular Col Easton who did a tremendous job of organising everything.

The aim of the day was for the students to gain information about the property in order to develop a sustainable and profitable property management plan using property planning principles. The best plans are eventually to be entered into a competition judged by Local Land Services where the top overall winning management plan receives an award presented at Ag Quip in August.

I was "the new kid on the block" and I was pleasantly surprised by the organisation of the day and by the excellent content delivered by the enthusiastic and knowledgeable Land Services team at differing stations located around the farm.

The 1st station we went to was termed the Riparian station where the students learnt about the Namoi River which runs along the farm boundary. The students measured the turbidity levels of the river and what factors affected this measurement such as pollution and erosion. They also learnt how to assess the health of a river and what factors influence this including adjoining farm management. The flooding capacity of this area was considered as it is affected by the Lake Keepit dam downstream, there was also discussion on weeds along the river and the impact of thick regrowth of River Red Gums.

Turbidity measurements at The Namoi River

The 2nd station was termed Biodiversity and was situated at an area of remnant native vegetation or woodland. The students were instructed on the importance of preserving these areas which maintain ecosystem biodiversity and ultimately have a positive impact on grazing and cropping enterprises by providing habitats for native owls and other predators for vermin control and in providing valuable shelter. The students also got an opportunity to think about farm biosecurity at this station and the implications of not taking this seriously and about how to have an action plan in place as a responsible farm owner/manager.

The 3rd station was Ag-production which firstly included a soil station where a soil pit had been dug out to expose a soil profile with A and B horizons visible. Soil Texture, structure and pH were previously measured and the subsequent measurements were then explained. Soil formation, and the associated advantages and limitations of each soil type on the property was discussed in detail and the appropriate management of each soil type in order to maintain soil health was considered.

Biosecurity Station dress ups

Pasture and ground cover assessments

The other part of this station was Pasture and Ground Cover where students used quadrats to assess ground cover, plant litter, soil surface and the proportions of different pasture species present which eventually helped the students to assess the areas suitability for animal production.

Finally we all went to the farm house where we sat outside and enjoyed a BBQ while listening to guest speakers who spoke about organic beef growing and successful beef marketing strategies. It was a great day out, apart from the sweltering heat, it was interesting, informative and generally a day I can recommend to other year 11 Agriculture teachers as a part of the Farm Case Study unit.

The McCarthy Catholic College Yr 11 Agriculture class

Jo McHugh

Lake Cargelligo Central School

Last week Year 12 Agriculture students Gerard, Shantelle and Chloe travelled to Whitton to visit the Southern Cotton Gin.

They enjoyed a tour showing them where the modules are delivered, how the plastic wrap is removed, then the machines that clean the trash and seed from the lint.

The students were shown how the cotton is baled and stored. Something very interesting they learnt was how each module is given a barcode for traceability and can be traced to which paddock it came from, which farmer, which picker and who was driving the picker along with longitude and latitude information. Thank you to Miss Ireland for organising the excursion and Mr Mick Hately for the tour of the farm.

Primary Industries Education Foundation Australia

Selected snippets from the April and May 2016 PIEFA Newsletters.

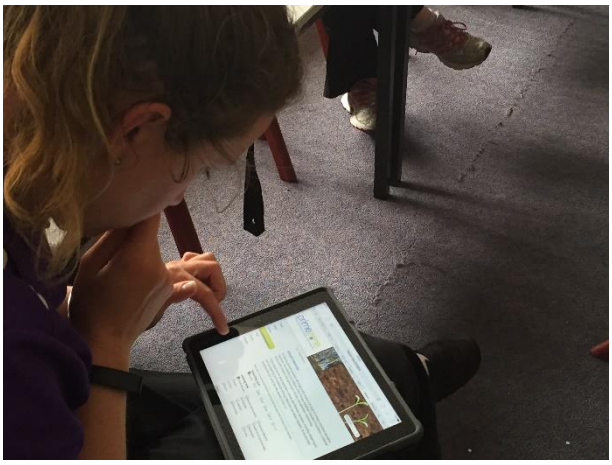
Newsletter Archive

Foundation News

Resources on Primezone

Serving up food and fibre education in every classroom

There is growing momentum with in food and fibre education for schools. Schools are taking up opportunities to be involved in school garden initiatives such as Stephanie Alexander, 24 Carrots, and other garden programs. These initiatives are fantastic because they get students enthusiastic about food and fibre. It will be important to make sure that these programs are coupled with key curriculum content to provide a holistic educational program.



Due to the work of groups such as PIEFA and NSW Farmers, the Australian curriculum provides more opportunities than ever for teachers to incorporate Food and Fibre content into the F-10 curriculum with over 168 compulsory examples of Food and Fibre at the content descriptor level across all Learning Areas. However, teacher knowledge and confidence remain the biggest impediment to its implementation. The federal governments funding of $2 million to the 'Agriculture in Education' program has seen PIEFA develop and host a range of teacher-ready resources for schools. The funding has also allowed PIEFA to run teacher workshops within schools.

In 2015 PIEFA was funded to write (with key industry input) 17 digitally integrated resources that are available to download for free at www.primezone.edu.au. The resources are an integrated primary industries education program that emphasises the relationship between food and fibre industries, individuals, communities, the environment and our economy. The units come with 17 accompanying 'teacher to teacher' videos and 17 'producer to audience' videos relevant to the resources. All resources have been mapped to the NSW syllabus.

Following the success of the first release of resources, PIEFA was approached to produce a further set of resources to address the gaps in 168 food and fibre outcomes in the Australian curriculum. Many of these outcomes are found in the science, geography and design and technologies curricula. In late 2016 PIEFA will release 9 new resources. The resources highlight innovation in the primary industries sector.

Bringing food and fibre education into the classroom

The PIEFA approach is gaining momentum, in particular with providing teachers with food and fibre educational resources that support the Australian curriculum. In addition to PIEFA writing relevant resources in the last year PIEFA has attended relevant conferences talking to over 1000 teachers and conducting both conference and school based workshops promoting and providing professional learning opportunities for teachers around food and fibre production.

Primezone

In addition to attending teacher conferences and working with schools, PIEFA has recently re-vamped 'Primezone' – every teacher's one-stop portal for food and fibre resources. www.primezone.edu.au

PIEFA engages with teachers to run teacher professional development workshops to assist teachers in how incorporate the resources into their classroom. PIEFA expects these sessions to have BOSTES accreditation shortly. If you are interested in hosting a PD at your school, please get in contact (ceo@piefa.edu.au).

As part of a teacher completing a unit of work, PIEFA would like to encourage teachers to fill in a survey located on the units webpage www.primezone.edu.au Feedback will provide further information and guidance as to how PIEFA can improve the units.

Kelly Spence, Education Officer
Primary Industries Education Foundation Australia (PIEFA)

Investigating Australian approaches to producing fish, seafood and meat

Years 7 – 8: Design and Technologies, Geography, Science

This unit encourages students to investigate new and existing practices used to produce meat, seafood and fish. Students are given an insight into ways primary producers in the fisheries, beef and lamb, pork and chicken industries produce, process and bring their products to consumers.

VIEW RESOURCE

Exploring the production and marketing of seafood

Years 9 – 10: Design and Technologies, Science

This unit encourages students to investigate and make judgements about the production and marketing of seafood. The unit explores the variety of technologies and methods used by the wild-catch and aquaculture industries to catch or farm seafood. It also explores the challenges and opportunities that exist in seafood production in Australian and overseas contexts, including depletion and recovery of fish stocks, developing new aquaculture technologies, consumer perceptions, and media coverage.

VIEW RESOURCE

VIDEO You won't believe what this sheep can do

The Woolmark Company has developed a short-film using the latest animation techniques to highlight the natural benefits and versatility of wool.

VIEW RESOURCE

Industry News

Improvement in supply of graduates for agriculture

In this month's Australian Farm Institute newsletter, Professor Jim Pratley from the Australian Council of Deans of Agriculture reports on the increase in student enrolments in agricultural courses. From 900 enrolments in 2012, unofficial university data shows enrolments have risen to over 1500 students in 2016. While Professor Pratley says the reasons for this turnaround are complex, he points to the range of initiatives by industry groups and universities promoting careers in agriculture as contributing to the improvement in numbers.

READ MORE

Learn About Wool

Australia's iconic wool industry and home-grown premium natural fibre - Merino wool - provides the basis for teachers across all grades to deliver exciting and relevant content in the classroom. In line with the Australian school curriculum, Australian Wool Innovation (AWI) and The Woolmark Company have developed a range of interactive, hands-on educational resources and samples as part of its Learn About Wool program. Learn About Wool provides the opportunity to engage and educate students across a range of subjects including science, design and technology, history, business and economics. For other unique classroom ideas, don't forget to check out Wool4School and the National Merino Challenge.

World Environment Day

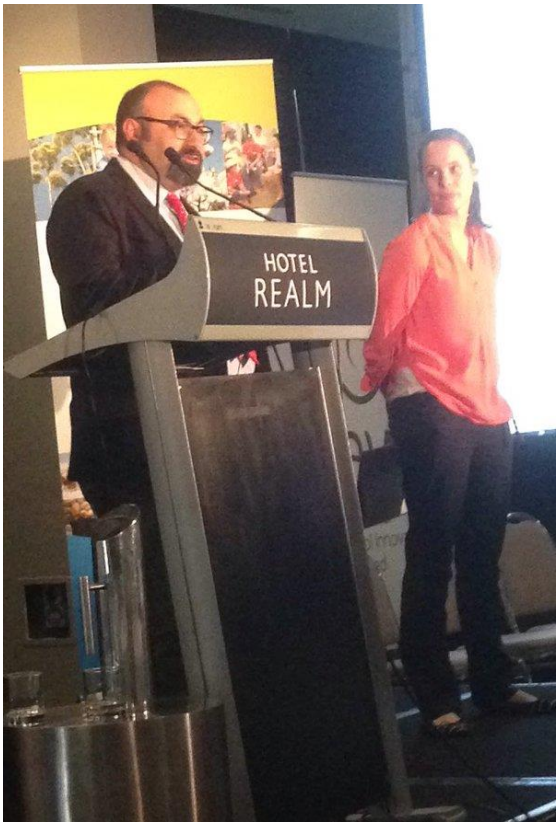
Landcare Australia have recently launched the #Action4theLand World Environment Day 2016 campaign and is calling all schools across Australia to support this important occasion and make Australia a better place. For World Environment Day, Landcare is asking school... What positive **#Action4theLand** will you take?

MORE INFORMATION

PIEFA Conference

Sydney Branch of the NSWAAT attends the PIEFA conference in Canberra

Members of the Sydney branch of the association recently attended the PIEFA conference in Canberra. The conference was an excellent opportunity to network with other teachers and the various industry organizations in attendance.



Justine Phillips and Luciano Mesiti gave a presentation on the upcoming 2017 conference, which was received well. Also, Luciano gave a perspective of Ag teaching in NSW schools. A representative from each state association gave a brief rundown on the current status of agriculture in the schools. It was apparent from this presentation that NSW has a well-supported and thriving school agricultural curriculums and had by far the largest number of students engaged in agricultural programs in Australia.

Justine and Luciano also presented a session about a new linkage program, working with local primary schools to engage primary students in agriculture, through new and innovative class based activities. Luciano is trialling this with his local primary feeder schools.

Young Farmer Business project

The Young Farmer Business Project is a joint initiative between the NSW Department of Primary Industries (DPI), NSW Young Farmers Council and NSW Farmers Association, which aims to increase the number of young people in agriculture across NSW.

As part of the initiative, an information hub is being developed to provide business support resources using digital platforms that meet the needs of our younger generation of farmers.

We invite you to take this survey to help create an online Young Farmer Business Hub. The aim is to provide an easy way to connect with others, find information and use tools to develop your farm business. This survey is open until the 30th June 2016. If you would like more information on this project please contact James Leigo on 0419 110 714 or email **james.leigo@dpi.nsw.gov.au**

Then choose your link :

Social media **https://www.surveymonkey.com/r/youngfarmerbusinessprojectsocialmedia**

Email **https://www.surveymonkey.com/r/youngfarmerbusinessprojectemail**

Web site **https://www.surveymonkey.com/r/youngfarmerbusinessprojectweb**

COTTON AUSTRALIA

1. Ground-breaking research case study on an agricultural biotechnology for stage 6 Agricultural science teachers and students

2016 is a significant year in the history of the use of genetically modified (GM) cotton in Australia. It marks 20 years of successful use of GM cotton crops and the commercial release of the third generation of GM cotton seed known as Bollgard 3. Bollgard 3 will be first used from August when the planting season begins and will, for the first time, contain the gene VIP3A along with the two genes that are currently used in GM cotton seed Cry1Ac or Cry2Ab. The use of VIP3A was identified by Australian scientists as another way to combat the resistance to Cry1Ac or Cry2Ab in Helicoverpa armigera populations – the main pest to the cotton industry globally. Managing resistance safeguards the ability of cotton growers to manage helicoverpa populations with 92% less insecticides than in previous years.

Senior Agricultural Science Teacher Greg McAlpin has rewritten research that proceeded the release of cotton seed with VIP3A genes looking at how the Helicoverpa population responded to the gene for year 11 and 12. The research case study can be used for NSW Agriculture Stage 6 students and teachers undertaking elective 1: analyse a research study of the development and/or implementation of one agricultural biotechnology or elective 3: analyse a research study of the development and/or implementation of one recent agricultural technology. The case study allows students to analyse the research design, methodology, collection of data, presentation of data, conclusion and recommendations. Mr McAlpin has kindly made this available to teachers through Cotton Australia's online Cotton Classrooms. It can be downloaded here.

Teacher Greg McAplin has developed a case study into the research undertaken prior to the release of the 3rd generation of GM cotton in Australia in August for year 11 and 12 students. Photo courtesy of Cotton Australia.

2. Nine teachers scholarship recipients announced to attend the Cotton Conference

9 teachers from across QLD and NSW have been awarded scholarships to attend the 18th Australian Cotton Conference – New Frontiers – which will take place at the Gold Coast Convention & Exhibition Centre, Broadbeach, Queensland from August 2-4, 2016. The conference will unite the cotton industry – from researchers through to brandowners – providing a forum where supply chain partners can come together to hear from international and national speakers as they deliver market leading information and analysis for the industry – physical, economic, social and political. Sessions will cover topical issues such as farm performance, the latest in cotton research, water issues and opportunities, digital agriculture, new traits, sustainability and opportunities for Australian cotton in the global market and cotton and the curriculum. Teachers play an integral role in nurturing those who will contribute to the ongoing vibrancy of this industry. Cotton Australia is proud to sponsor the following teachers to attend:

Sofia Marita, Agriculture Teacher, Kingswood High Schools, Kingswood, NSW
Graham Bramley, Agriculture and Primary Industries Teacher, St Paul's College, West Kempsey, NSW
Grant Jackson, Senior Agriculture and Science Teacher, Gosford High School, NSW
Jane Marie-Louise Greffe, Home Economics Teacher, Marymount College, Burleigh Waters, QLD
Emorfia Cutler, Textiles & Design and Agriculture Teacher, Camden Haven High School, Laurieton, NSW
Paul MacNamara, Agriculture Teacher, Beaudesert State High School, Beaudesert, QLD
Janet Price, Agriculture and Science Teacher, O'Connor Catholic College, Armidale, NSW
Lucy Easton, Senior Agricultural Science and Biology Teacher, Fairholme College, Toowoomba, QLD
Verity Gett, Agriculture and Primary Industries Teacher, Wee Waa High School, NSW

This scholarship has been enabled by the Cotton Catchments Communities Co-operative Research Centre's Legacy Fund.

9 teachers have been sponsored to attend the Cotton Conference in August. Photo courtesy of Cotton Australia.

Outcomes of the NSW Department of Primary Industries survey of members

The objective of the online survey NSWDPI asked NSWAAT members to complete in late 2015 was to identify the education resource needs of Agriculture teachers and students in NSW.

Stage 6 Agriculture electives were the highest ranking subject areas requiring investment in both teaching resources and teacher professional development. Members also indicated that attending regional agricultural events and DPI facilities for practical learning and skills development was a valuable educational experience. Activity suggestions were also made and of these, the most common responses were:

- fencing
- animal husbandry and handling including health and welfare
- engagement with latest innovations and technologies
- a variety of production facilities and industries
- cropping
- operation of equipment

These suggestions all relate to the need for teachers to access materials and equipment outside those available in the school context. Additionally it provides opportunities to extend students learning by interacting with industry members from a range of careers.

As a result NSWDPI Schools Program is developing a range of resources to support the teaching and learning of agriculture and primary industries subjects in NSW schools. They will be provided online to ensure accessibility for all students and teachers across the state, and also onsite to provide students with opportunities to interact with NSWDPI staff and learn about career pathways.

- Farming in the 21st century teaching resource including a range of research papers
- Climate Challenge online teacher professional development
- Belgenny: a virtual farm to support the HSC farm case study and product study.
- Expansion of onsite school programs through Tocal College

For more information please contact Michelle Fifield, Education Officer

E: michelle.fifield@dpi.nsw.gov.au or P: 02 6391 3292.

Useful research and extension links

eXtensionAUS
This pilot program provides an interactive online learning environment that aims to deliver the best, most researched knowledge from the best knowledge sources, to the consumers who need to use it 24/7/365. It taps into the resources of public and private research, development and extension specialists. You can do everything from ask an expert a question, to participate in a webinar on drones

SheepConnect
Sheep Connect NSW is an industry-focused network developed through a NSWDPI and AWI partnership to connect producers to information, events, technical expertise and producer groups. By becoming a member (no cost) you can select to receive region specific event information. The resources section contains a range of webinar recordings and video clips of extension activities delivered by subject matter experts.

DPI Social media: connect to obtain the latest information, facts, media releases, photos and other media.

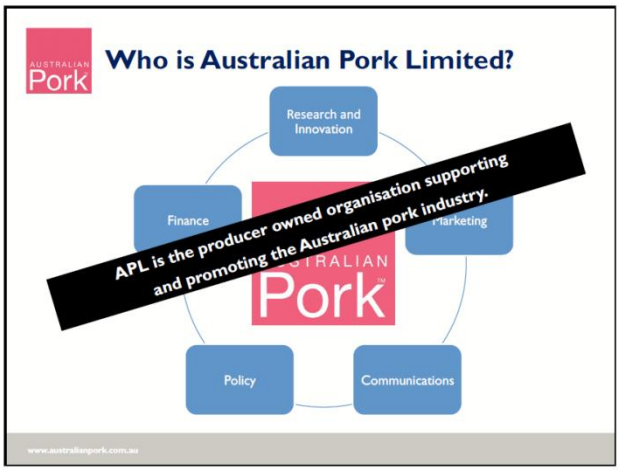
- NSWDPI on Facebook**:** look for DPI Biosecurity, DPI Dairy, Tocal College, NSW Food Authority
- NSWDPI on you tube: NSWDPI, Agriculture or Tocal College
- NSW DPI: @nswdpi
- DPI Water: @DPI_water
- NSW DPI Agronomy: @NSWDPI_AGRONOMY
- NSW DPI Sustaining the Basin: Irrigated Farm Modernisation: @NSWDPI_STBIFM
- NSW DPI Soils Unit: @NSWDPI_Soils
- NSW Food Authority: @NSWFoodAuth
- Tocal College: @TocalCollege

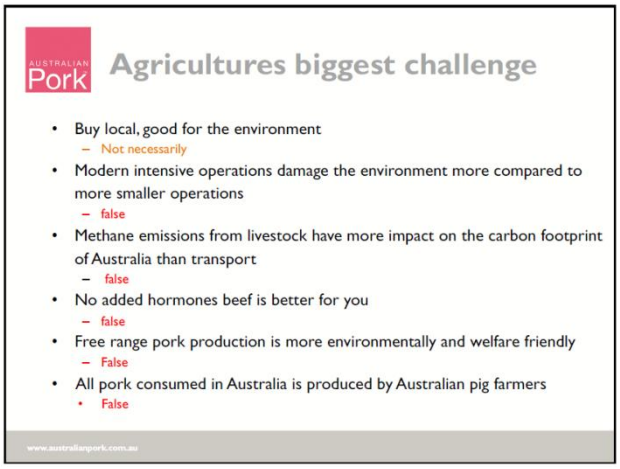
Apps

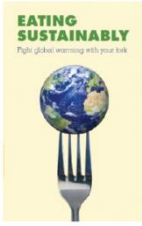
Drought feed calculator (iTunes): is an essential tool for sheep and cattle producers in any location to easily and quickly determine the minimum feed requirement for a range of animals with different nutritional needs.

NSW Weedwise (Google Play): provides key information to help users reduce the impact of noxious and environmental weeds in New South Wales (NSW). The app profiles over 300 weeds, describing their legal requirements under the Noxious Weeds Act 1993, control information and registered herbicide options.

Australian Pork Limited Presentation to NAAE Conference







Source: Animal Liberation NSW & ACT

AUSTRALIAN Pork

China ~ 50M
USA ~ 6M

Breeding herd size : ~272,000 sows
Annual slaughter: 4.9 M

Pig producers: 1,400
- 400 producers ~90% of production
- 1,000 producers ~ 10% of production

Production systems:
- Conventional housed ~ 90%
- Outdoor housed ~10%

Pork consumption: ~ 26kg
- Fresh ~ 10kg
- Processed ~ 16kg
- Imported processed ~70%

AUSTRALIAN Pork

www.australianpork.com.au

AUSTRALIAN Pork

The Australian Pork Industry

Indoor Conventional: 48%

www.australianpork.com.au

AUSTRALIAN Pork

The Australian Pork Industry

Indoor Deep Litter: 46%

www.australianpork.com.au

AUSTRALIAN Pork

The Australian Pork Industry

Free Range: 6%
Outdoor Bred-raised indoors on straw: 4%

www.australianpork.com.au

AUSTRALIAN Pork

Outdoor Bred

www.australianpork.com.au

AUSTRALIAN Pork

Our Pigs

- APL has invested >$1mil in research to improve pig welfare and educate stock people
- Uses world leading independent scientists
- In Nov 2010 industry voted to voluntarily phase out gestation sow stalls- World first!
- Industry conforms to Model Code of Practice for the welfare of Animals 2007- developed in consultation with regulators, RSPCA, scientists and industry
- Model Code incorp. into APIQ✓® which is independently audited annually to ensure producers comply

www.australianpork.com.au

The industry (delegates) vote

83% of delegates voted in favour of the voluntary ban on sow gestation stalls.


MEDIA RELEASE

WEDNESDAY 17 NOVEMBER 2010

WORLD FIRST FOR AUSTRALIAN PORK PRODUCERS

In a world first, the Australian pork industry voted today to pursue the voluntary phasing out of gestation stalls by 2017.

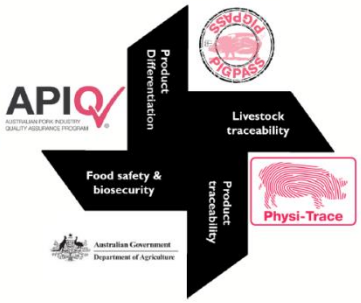
The vote, held at the Annual General Meeting (AGM) of Australian Pork Limited (APL), the industry's peak representative body, is a major step for Australian pork producers.

APL CEO Andrew Spencer said "The phasing out of gestation stalls will come at a significant cost to farmers, with initial modelling estimating it will cost up to $95 million. To successfully achieve this outcome by 2017, pork farmers will require support from regulators, political stake holders, the retail sector, consumers and the general community."

www.australianpork.com.au

Food Safety and Biosecurity

- Australian pig herd is free from many diseases found overseas
- On farm biosecurity and product integrity one of the most important aspects of Australian production



www.australianpork.com.au

APIQ✓®

- Australian Pork Industry Quality Assurance program
- On farm quality assurance program - allows producers to demonstrate good farming practices around management, food safety, animal welfare, biosecurity, traceability, transport and environment
- Uptake of APIQ✓® is currently at 91% of Australian Production

APIQ
AUSTRALIAN PORK INDUSTRY
QUALITY ASSURANCE PROGRAM

www.australianpork.com.au

Traceability

- Australian pork industry leading the world to ensure products are fully traced from paddock to plate
- PigPass National Vendor Declaration provides key information to trace pigs or pork back to property of origin
- Physi-Trace™ enables industry to rapidly trace back pork sold in supermarkets & butchers to farm/country of origin

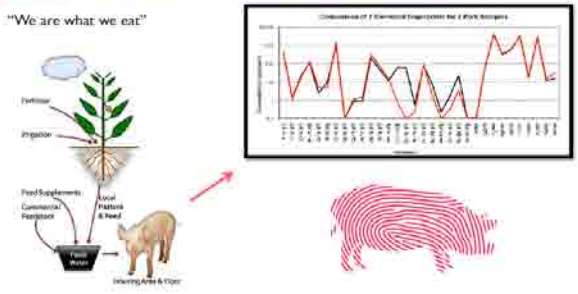
PIGPASS

Physi-Trace

www.australianpork.com.au

Physi-Trace: Trace elemental discrimination

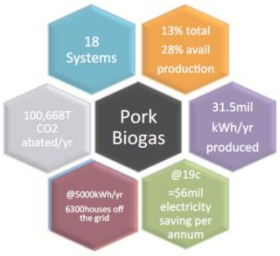
"We are what we eat"



Environment

- APL invests over $600,000/yr on environmental research
  - Reducing GHG emissions and carbon footprint
  - Alternative waste systems, feed and fertilisers and algae
  - New technologies-neural network processing
  - Reducing resource use and increasing renewable energies
  - Nutrient management and by-product reuse
  - Soil and land health
- Australian pork producers have a very low carbon footprint compared to internationally produced pork.
- Industry goal of reducing GHG emissions to 1kg of CO2 per kg pork produced- target hit using biogas making us have the lowest carbon footprint of pork production worldwide!

Biogas Facts



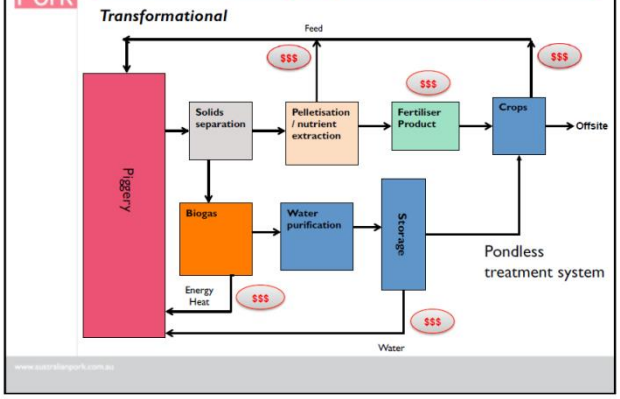
- 500 sow piggery has the potential to produce enough energy to run 3.1 million 100W globes for 1hr or electricity to run 62 houses/yr
- If combusted and destroyed it would eliminate the eq. of fossil fuel GHG emissions from 458 small cars travelling 20,000km/yr burning 7L/100km
- Current industry taken off eq. 32930 small cars off road!

www.australianpork.com.au

Biogas Systems

www.australianpork.com.au

New & Emerging Technologies



APL School Resources

- All of the information I have discussed today is available to you in more detail in our APL 'Pigs in Schools' resources.
- APL's schools resources are free.
- Should you miss out please don't hesitate to contact Ashley Norval ashley.norval@australianpork.com.au or on 02 6270 8823 for your copy.

APL School Resources

- APL resources designed to introduce young people to pork production in Australia
- Intended to raise awareness of management practices
- Information can be copied, translated or reproduced for the purposes of study, research, education (source acknowledged)
- Follows Australian curriculum content
- Contains information and complimentary activity/experiment ideas for individual. Small group or entire classes
- Follows a step by step process

1. Engage with topic | 2. Explore topic | 3. Explain diff practices and effects | 4. Elaborate on concepts and ideas | 5. Evaluating

School Resource distribution

- Total number of resources directly delivered to teachers across Australia:

  513

- The total number of students potentially educated about the Australian pork industry and where their food comes from:

  15 390

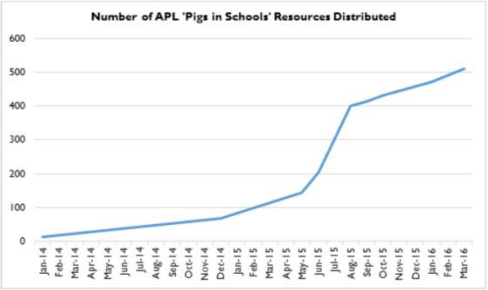
- The number of people educated about our industry to some capacity:

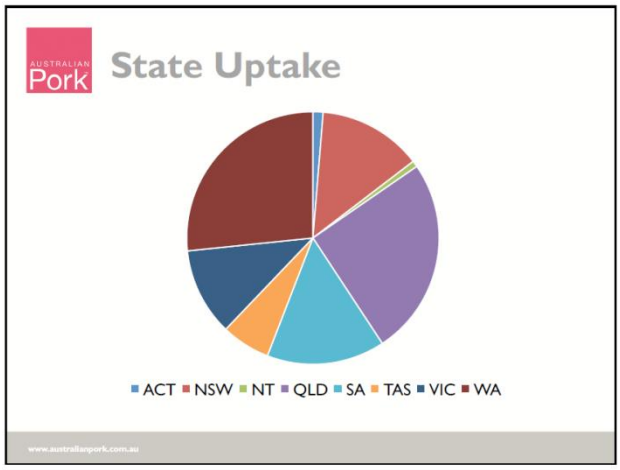
  31 293

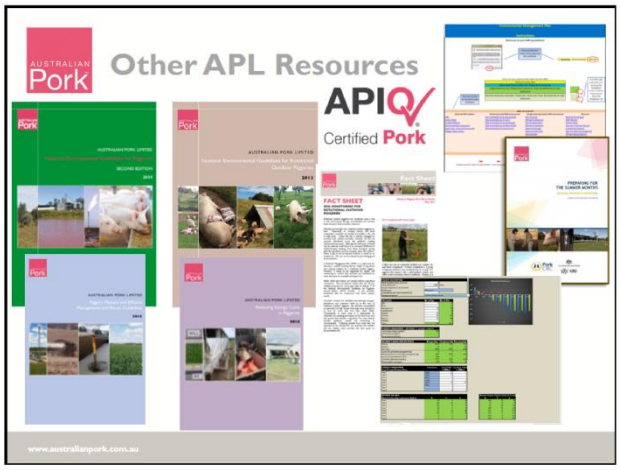
APL's KPI

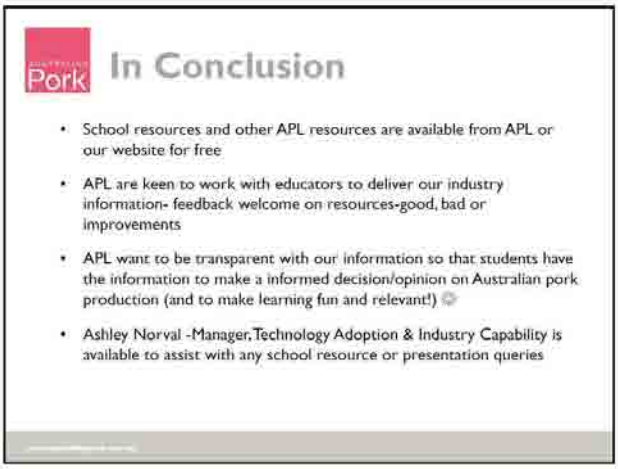
- The KPI was to have 400 schools across Australia with a copy of the resources by the end of June 2016
- We currently have 513

Timeline of Resource Distribution









Australian Pork Limited has a range of material available for download from their website:

Education Toolkit – Units

Fact Sheets

Pigs N' Mud Newsletter

BITS N PIECES

The event registrations for the **Taste Riverina Festival 2016** are now open!

We encourage you to get involved and register online via www.tasteriverina.com.au. A handbook is available to assist you with your event registration process, including information on how to register, which Local Government Areas can participate, what criteria have to be met and the investment levels and benefits available.

Events can be registered until the end of September. Please note that in order to be included in the printed program (30,000 copies will be distributed across the region), you'll have to register your event by **Sunday, 03 July 2016**.

Check out link below. Very useful in terms of **pasture production**. And it's free until August.

http://www.greenprecision.com.au/

One of the better websites for information on **Animal Breeds** is the Oklahoma State University. It covers Cattle, Sheep, Goats, Pigs, Horses, Poultry and a range of Other species. You might find it useful with junior Agriculture. Go to http://www.ansi.okstate.edu/breeds

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The Kondinin Group has a series of books in their **Workboot Series** suitable for Upper Primary and Junior Secondary students. They make a useful reference and can be purchased from their bookstore at http://www.kondininbookstore.com.au/workboot-series/. While there, PI teachers might like to check out the Manuals and Workshop Series.

Has anyone had any experience with TM Agricultural Soil Activator? I have heard from a couple of sources that it is the next best thing to sliced bread. If you know anything of the product's performance I would be pleased to hear from you. Send a reply to Graham Quintal.

Some good **diary industry statistics** can be found here.

An Agricultural and Horticultural Science Work Book and Study Guide can be found on Amanda Newton's website. Supporting this are videos, practical activities and quizzes.

And for those that miss the old HSC Online resources, they have been archived here. All you need to do is then select your subject. Unfortunately a few of the links have dropped off so you might need to search for them online or substitute something else.

Rotary Club of Narromine Inc.

Rotary Youth in Cotton(RYCOTT) 2017.

Following on the successful RYCOTT Camp of 2016, our club has decided to maintain its projects by continuing a camp for year 9 to 12 agriculture students, specifically designed for the cotton industry. This will be a live-in, three day camp, based at Narromine Showground from 30th April to 3rd May, 2017. The camp will provide the students with a broad overview of the cotton industry, as a stepping stone to entering the industry. Visits to cotton farms, cotton gins, machinery retailers where professionals will explain their operations. Insurance brokers, financiers, agronomists etc will provide the students with an outline of what is required to grow a cotton crop. Numbers are limited to 16 students and the cost is $130 per student. Rotarians will be in attendance 24/7 and all meals will be made in the Rotary Food Van. Games and entertainment will occur in the evenings. A cadetship is available.

2014 Testimonials

Amazing! A whole new field of agriculture.....Dave
I had no idea how cotton was ginned. Thanks Rotary.....Joe

We see this camp as a wonderful opportunity for agriculture students to broaden their agriculture horizons. Nomination forms are available from the co-ordinator of RYCOTT 2017.

Geoff Smith **Ph 02 6889 5447** **gsmi2709@bigpond.net.au**

RYCAGS

NARROMINE

Rotary Youth Crops, Agronomy, Grain and Seed (RYCAGS) Camp

Conducted by the members of the

Rotary Club of Narromine Inc.

The **eighth** RYCAGS Camp will be held in October 2017 and schools are invited to nominate two year 9/10 agriculture students to attend the camp in Narromine from 22 October to 27 October, 2017. The week long live-in camp will expose students to several crops on working farms, crops under trial at a research station, how a weather station works, grain used in a cattle feed lot, inspection of grain wholesalers operations, an irrigation scheme, machinery retailers, grain storage, transport and marketing. Professionals will advise students on agronomy, crop finance and crop insurance, genetic modification etc. Students looking for a career in agriculture should attend this camp. There are several activities arranged after hours to keep the students busy. Rotarians are in attendance 24/7 and all meals are prepared in the Rotary Food Van

Comments from past students

*RYCAGS was great!!!!! Thank you .**Brendon***

*Having so much fun and meeting new friends. **Fiona***

*Thanks for treating us like young adults and not like school kids. **Luke***

To register for RYCAGS 2017 please contact the RYCAGS Co-ordinator:

Geoff Smith **Ph 02 6889 5447** **gsmi2709@ bigpond.net.au**


Should I tell him...
Or just see what happens.


THIS GUY.....
THIS GUY HAS A BRIGHT FUTURE AHEAD.