Excellent Worksheets.

BULLETIN

OF THE NSW ASSOCIATION OF AGRICULTURE TEACHERS

B. A. A. T.

Volume III 1990

EDITORS NOTE

This is the last edition of BAAT for 1990 and once again I hope it is one that will provide you with information and ideas that will be useful to you as teachers of Agriculture. We are enclosing some information on the Associations Biennial Conference which is to be held at Yanco on the 20th - 23rd of January. The Conference theme is "Sustaining Agriculture through the 90's" and if you are going to the Conference fill out the form supplied and post it off to the address on the sheet.

The topic is a highly appropriate one and hopefully strategies and ideas will come from the Conference which will help teachers of Agriculture adapt to the many demands that are being placed on us as Education is "renewed". It seems it wont be enough to keep abreast of the changes that occur in the subject matter and teaching methods. The challenge could be ensuring Agriculture has a prominent place in the Curriculum of schools and will be adaptable in the implementation of Key Learning Areas as a part of "Excellence and Equity".

Unfortunately new contributors for this issue are a bit thin on the ground. The material presented is supplied by staff of Shalvey High School, Charles Cassels and Ian Judd and contains a variety of resource material.

This is the last issue which I will be editing, as the job will pass onto the person elected at the Biennial Conference in January. I would like to thank those people who have helped in compiling the Bulletin over the last 2 years, particularly the contributors who are essential in maintaining the viability of the Bulletin. The next few years will be very important for Agriculture and it is obvious the Department sees Professional Associations in the scheme of things. If this is the case it is essential that they back this more active role with increased resource assistance.

Peter Crick
Editor

Filleting Truth (7.3.4.)

(1) I have included a copy of the Agriculture Performance Descriptors for the School Certificate in Agriculture. As at the time of printing these Descriptors had not arrived in schools in this area, so they are included "just in case". It is most important that teachers of School Certificate Agriculture familiarise themselves with the Descriptors and their implementation. Particular attention should be paid to the statement "current assessment procedures which follow syllabus guide-lines should not need to be altered to satisfy Course Performance Descriptors". It is hoped to have a session on application of Performance Descriptors at the Conference.

(2) In this issue, there is a rundown on the Board of Studies structure and how its implementation may influence the structure of Agriculture in Secondary Schools as it becomes part of the Key Learning Area "Technology and Applied Science". It has to be emphasised that no firm decisions have been made as of yet, but the Key Learning Areas will be implemented in schools in 1992.

(3) Has anybody received regional funding for Agriculture in their schools for 1991? Like many things currently, it is hard to get a commitment from anybody as to whether this structure remains or if alternative structures are to be put in its place.

(4) Note the "Care and Use of Animals" document which should have arrived in all schools by now. It requires schools to nominate an Animal Welfare Liaison Officer and also specifies a list of Approved and Prohibited activities. Contact person for problems is Duncan Sutherland and his number is (02) 561 8537.

(5) **S.O.B. Department.** My lack of access to BAAT 1 1989 leads me to repeat two articles in that issue, in subsequent issues of BAAT this year. Both were excellent articles on propagating native plants and while they were worth good exposure they probably did not need to be rotated that quickly.

(6) Cheers to everybody for Christmas and New Year. I am off to Singleton High School next year as Head Teacher (Agriculture). Good luck to all in '91, particularly to those transfering, promoting, leaving or retiring

Peter Crick

NEW SOUTH WALES ASSOCIATION OF AGRICULTURE TEACHERS

BIENNIAL CONFERENCE:

"SUSTAINING AGRICULTURE THROUGH THE 90's".

VENUE : MURRUMBIDGEE COLLEGE OF AGRICULTURE AT YANCO

JANUARY 20 - 23 1991

The committee would like to invite all agricultural teachers to come and visit the Riverina and take part in what will be an informative and enjoyable conference.

In order to assist in planning we would greatly appreciate it if you could complete the following and post a cheque for your registration as soon as possible. Final date, Friday ~~14 December~~ 30th November 1990.

A. INFORMATION

	Yes	No
1. I will be attending		
2. I will be arriving for Sunday night meal		

3. Do you wish to attend part-time, if so please explain .....

B. EXPENSES

The total cost will be approximately $220 depending on numbers. This will cover your registration fee, all meals and accomodation.

1. Registration $60 ($40 for members) 2. Meal and Accomodation $180.

NAME .....

SCHOOL .....

HOME PHONE ( ) ..... SIGNED .....

I enclose a cheque (made to NSWAAT) for my registration.

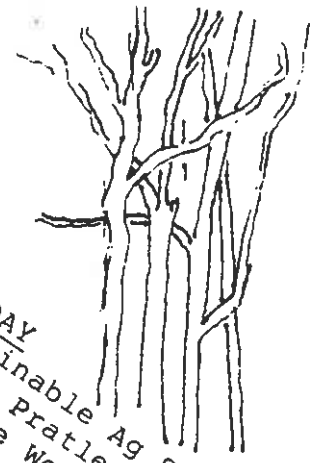
SEND TO

Ron Forsyth
c/- Kooringal High School
Ziegler Avenue
WAGGA WAGGA NSW 2650

OR

Rod Francis
C/- 1 Poplar Road
WAGGA WAGGA NSW 2650

SEE REVERSE OUTLINE ITINERARY



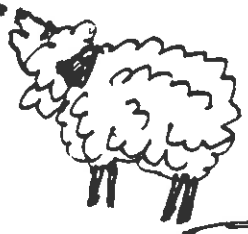
SUNDAY
BBQ and Ag Inservice in 1990

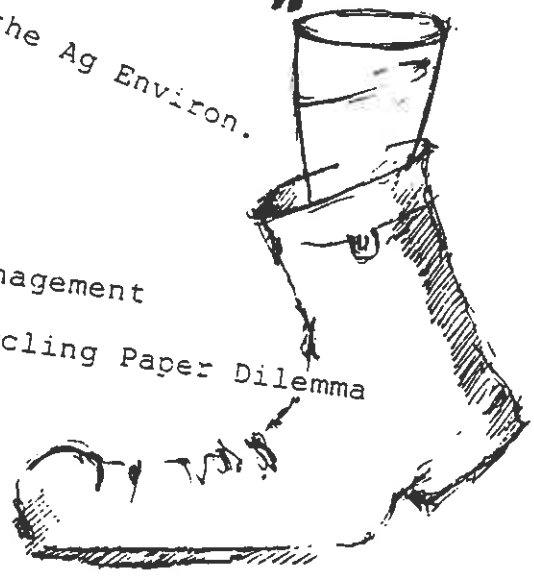


MONDAY
Sustainable Ag Speaker
Dr Jim Pratley
Elective Workshops
Computers in Ag
Financing Ag in Schools
Environmental Ag
plus many more
Dinner
Sharing of ideas

TUESDAY
Feedlots
Field trips
Rice Farm
Winery
Milking Shop
Cheese Factory
Conference Dinner
The Social Costs of the Ag Environ.
Speaker Dr G Lawrence







WEDNESDAY
Total Catchment Management
Salinity
The Murray and Recycling Paper Dilemma
Lunch
HOME

All these topics are new and ongoing, you cannot afford to miss out. Hope to see you there.

Ron Forsyth

BOARD OF STUDIES

SCHOOL CERTIFICATE GRADING SYSTEM

AGRICULTURE

COURSE PERFORMANCE DESCRIPTORS

(FOR IMPLEMENTATION IN YEAR 10 IN 1991)

Introduction

The Board of Studies will report student achievement in courses taken in Year 10 by awarding grades A to E to signify the student's level of achievement in that course. These grades will be reported on the Year 10 Record of Achievement.

The grades in English, Mathematics and Science will be awarded on the basis of a group's performance on Reference Tests. In other courses grades will be awarded by relating student achievement to *Performance Descriptors*.

Assessing and Grading Student Achievement

Assessing student achievement is the process of collecting information on student performance on certain tasks in relation to the objectives of a course.

In setting tasks teachers should give careful consideration to the syllabus objectives being assessed. By measuring student achievement of these objectives teachers can build up a profile of the achievement of each student in relation to the Course Performance Descriptors.

Grading student achievement is the process of assigning a letter (A, B, C, D, E, or N) to summarise the level of a student's achievement in a course.

The SC Grading System is concerned with describing the student' achievement *at the end* of Year 10. Teachers will make the final judgement of the grade deserved on the basis of available assessment information and with reference to the Course Performance Descriptors. In order to increase the accuracy of the final assessment, earlier performance *in Year 10* can be used.

In establishing an assessment program it is important that the type of assessment tasks used are appropriate to the objectives being assessed. It will generally be necessary to use a number of different assessment tasks in order to ensure that student achievement in all the knowledge and skills objectives is assessed.

Where tasks are scheduled throughout Year 10, greater weight would generally be given to those tasks held towards the end of the course. There are, however, a number of different ways of organising the teaching/learning program for a course. The scheduling of tasks and the weights applied should reflect the course organisation. In this way students are given the opportunity to demonstrate their maximum level of achievement relative to the Course Performance Descriptors.

The Course Performance Descriptors

The Course Performance Descriptors are a point of reference against which teachers must match their professional judgement in determining students' final grades. They describe the main features of a typical student's performance at each level of achievement in that course.

The section at the top, *Areas for Assessment*, provides groupings of the knowledge and skills objectives from the syllabus. These objectives are both observable and measurable. Objectives from the affective domain, such as attitudes and interests, have not been included because they should not be used in determining a student's grade.

The five columns contain descriptions of different levels of student attainment of the syllabus objectives. These descriptions range from *Elementary Achievement* to *Excellent Achievement*. The descriptors are expressed in positive terms to emphasise what students can, rather than can not, do.

Applying the Course Performance Descriptors

Teachers will make the final judgement of the grade deserved on the basis of available assessment information and with reference to the Course Performance Descriptors.

> *The choice of a particular grade should be made because it relates to the best overall description of the student's achievement.*

The grades awarded should reflect the relative emphasis placed on the assessable objectives of school programs and the syllabus. For example, where a school has placed considerable emphasis on the development of research skills that emphasis should be reflected in the assessment program.

The N Grade

Teachers can recommend an N grade when a student has failed to meet one or more of the following requirements:

a) attendance - meeting the required number of hours;
b) participation in the required learning experiences and assessment tasks;
c) meeting requirements in terms of effort and achievement;
d) reaching at least some of the course goals.

Further details relating to the explanation of these terms will be given in the relevant sections of the ACE Manual.

Feedback to Students

Students should continue to receive normal feedback throughout the course on their achievement relevant to the assessable objectives of the course.

AGRICULTURE

AREAS FOR ASSESSMENT	*The following are groupings of the knowledge and skills objectives of the Syllabus (1983) used to assess student achievement:* KNOWLEDGE AND UNDERSTANDING of: Principles of animal and plant production systems (2.1); Historical and socio-economic importance of Agriculture (2.2, 2.4); Environmental significance (2.3) and Principles of experimentation (2.5) SKILLS AND TECHNIQUES in: Husbandry of plants and animals (1.1, 1.2); Designing and performing experiments (1.5); Observing, analysing andinterpreting data (1.3); Communicating (1.4) and Management techniques (1.1-1.5)

Course Performance Descriptors

ELEMENTARY ACHIEVEMENT	SATISFACTORY ACHIEVEMENT	SUBSTANTIAL ACHIEVEMENT	HIGH ACHIEVEMENT	EXCELLENT ACHIEVEMENT
The typical student: • identifies some differences between plant and animal production systems • recognises basic physiology and anatomy of plants and animals • identifies a factor which affects plant and animal production • locates information on Australian Agriculture systems with guidance • makes observations on agricultural problems • conducts simple experiments with guidance • makes simple records from observations • communicates adequately in a single medium • performs basic tasks in animal and plant husbandry • follows management instructions	*The typical student:* • describes some differences between plant and animal production systems • lists the basic features of the physiology and anatomy of plants and animals • identifies some factors which affect plant and animal production • locates and describes information relevant to the changes in Australian Agriculture over time • describes how agricultural problems affect the environment • conducts simple experiments and makes observations with guidance • collects and records data • communicates effectively in a single medium • performs a range of tasks in plant and animal husbandry • follows a simple management plan	*The typical student:* • describes the differences and some interactions between plant and animal production systems • describes the physiology and anatomy of plants and animals • identifies a range of important factors affecting plant and animal production • recalls knowledge of the historical and socio-economic importance of Australian Agriculture over time • describes agricultural eco-systems and their impact on the environment • conducts experiments and makes observations from them with minimal guidance • collects and records data and draws simple conclusions • communicates effectively using a number of methods • demonstrates competence in the husbandry of plants and animals • uses management skills with guidance to optimise output in a production system	*The typical student:* • describes and accounts for the differences and interactions between plant and animal production systems • describes the interrelationships between the physiology and anatomy of both plants and animals • describes factors affecting plant and animal production which are needed to maximise output • recalls and understands knowledge of the historical and socio-economic importance of Australian Agriculture • identifies and explains agricultural eco-systems and their impact on their environment • designs and conducts experiments and makes observations from them with minimal guidance • collects and records data, analyses results and draws conclusions • communicates in a comprehensive and integrated manner using several methods • demonstrates expertise in the husbandry of plants and animals • recognises, selects and uses management skills to optimise output in a production system	*The typical student:* • analyses and explains the differences and interactions between plant and animal production systems • demonstrates a comprehensive knowledge and understanding of the interrelationships between physiology and anatomy of plants and animals • describes and applies a knowledge of the factors affecting plant and animal production to maximise output • expresses informed opinions on historical and socio-economic importance of Australian Agriculture over time • analyses the role and relationship of agricultural eco-systems and their impact on the environment • independently designs and conducts experiments and makes observations from them • collects and records data, analyses results and draws correct conclusions • communicates effectively in a comprehensive, integrated and creative manner • demonstrates initiative and expertise in the husbandry of plants and animals • adapts and uses management skills to optimise output in a production system

Note: at time of compilation "Descriptors" were at draft stage only

n above shows the initial functions of the newly constituted "Board of As you are probably aware the Board is responsible for developing registering non-Government schools, assessment and credentialling, links with TAFE and Universities, developing curriculum support ıd monitoring applications of policies.

that has been stated by the Board is that syllabuses and syllabus are to be changed. Every Secondary Syllabus will be revised in the next n terms of their outcomes. It has also been stated that the committees :essarily be representative. Most syllabus committees have about 16 - 17 the total number of syllabus committees has been halved. We have ulture senior and junior, now become "Agriculture Studies" and ther related subjects as well. The Board's intent is to stress 'expertness' for syllabus committee membership, not representativeness. The ederation, for one, is negotiating with the Minister to maintain › representation on all syllabus committees.

K-12 continuity, define areas of study in Key Learning Areas, to identify d omissions in existing syllabuses and to advise the Board, Key Learning dinating Committees (KLACCS) consisting of 8 - 9 people have been This group is quite different from that of the syllabus committee and n the Key Learning Area, rather than in the specific subject area.

arning Area that concerns us as Agriculture Teachers is "Technology and .ence", and the that is considering this area includes representatives bject groups embodied in this area such as Industrial Arts, Computers, d Agriculture etc. This KLACC has already had a number of meetings ıendations to the Board will be implemented, if accepted, in schools in

hat appears to have come out of the "Technology and Applied Science" ıat Agriculture will probably not be offered in Year 7 and 8 as a subject in ıt. Instead it is likely to be presented as part of an integrated subject nology and Design", which will be a compulsory subject in Year 7 and 8. : could be presented over those two years as modules of the subjects n the Key Learning Areas eg. a module of Technics, a module of etc. The organisation of the teaching of subject will probably be left to Obviously it would be desirable to have teachers with subject expertise ; relevant module within the subject, particularly in something as wide "Technology and Design". There may be some teaching outside of the griculture in presenting it within particular schools.

in Years 9 and 10 and in Years 11 and 12 is likely to continue as an der much the same conditions as is the case presently. Obviously this ıenced by priorities within the individual schools, and one hopes things ıe as they have in the past. A better idea of the direction of overall reform and the perspective for "Technology and Applied Sciences" can from reading "Excellence and Equity - NSW curriculum reform", a let that was released earlier this year and should be available in your

The above material are my impressions of how Agriculture could be effected by the implementation of Key Learning Areas and have been gained through discussions with some people involved in KLACCS or who are on the Board. It is not an official position and could be a view that may change as the process evolves. The direction of Agriculture as a subject in the context of "Technology and Applied Science" should become clearer next year as the processes are ratified by the Board of Studies.

Peter Crick

From just a little bud...

By 'CURRAWONG'

Try your hand at budding a fruit tree this month by adding another variety to your existing favorite tree and, at the same time, saving space in your garden.

Of all the different methods of propagating plants so that they are identical to their parent, the one which concerns us in February in our fruit garden is the budding method.

Budding is a vegetative way of propagating a wanted variety with desired characteristics and qualities onto a suitable "stock." This stock may be a young seedling tree, or it can be prepared new shoots on an established tree which it is desired to change over to something different.

When seedlings are to be used as stocks, they should be in their first year of growth, and preferably no more than pencil thickness and not less than 5 mm thick; or budding will be difficult.

When it is proposed to re-work an older tree of apricot, peach or nectarine, budding is the only successful method.

In the pruning season before the budding is to be done, all old limbs are cut to about 30 cm above the crown of the tree to force out new growth. The shoots which appear are thinned out to leave only enough to replace the removed limbs.

When shoots are about 30 cm long, strip off all leaves on the lower 20 cm of the shoot, at least a month before budding, to allow all leaf scars to heal before budding.

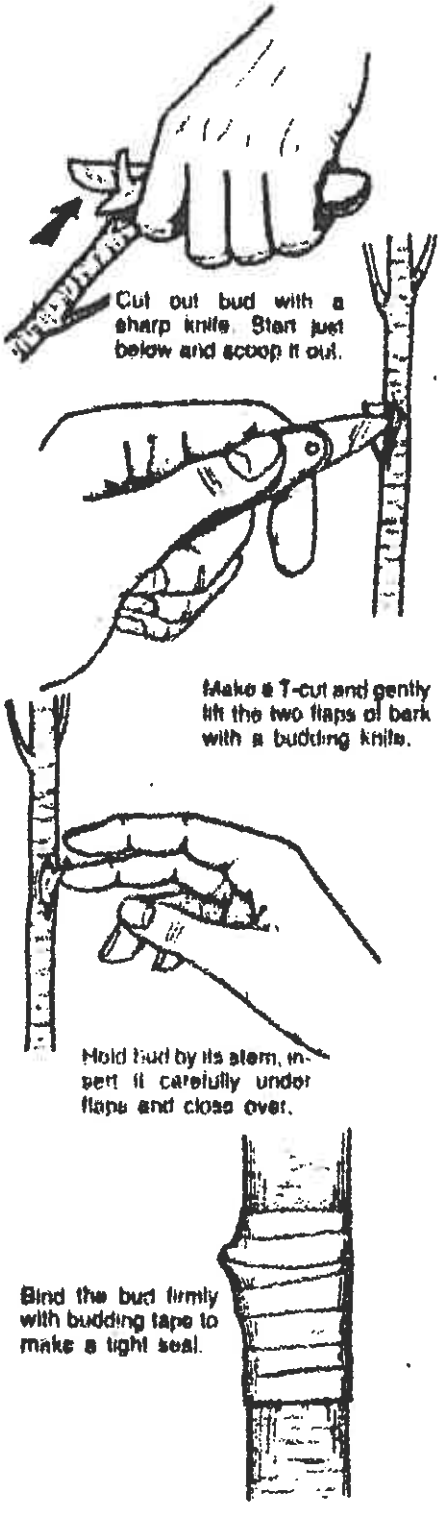
Budding is the only method for propagating citrus trees, whether as seedlings or re-working older trees.

With very few exceptions, budding should be tried only on new, current season's growth, as success is most unlikely on older wood.

Even though you may never have tried to bud a tree, with patience and practice it should be possible to achieve success by following a few simple rules, and paying attention to details.

It is a good idea to practice on unwanted shoots before trying the stocks. Probably the best material to start on is weeping willow, because the bark usually will lift very easily, making the job easier to grasp.

If you decide to try this fascinating aspect of horticulture, get the necessary tools and equipment, and follow the rules. You will need a good quality budding knife, sharp secateurs, PVC budding tape and wet hessian or similar material to keep the bud-sticks in.



Cut out bud with a sharp knife. Start just below and scoop it out.

Make a T-cut and gently lift the two flaps of bark with a budding knife.

Hold bud by its stem, insert it carefully under flaps and close over.

Bind the bud firmly with budding tape to make a tight seal.

BASIC RULES

Both the parent tree from which the buds are to be taken and the stocks must be watered thoroughly several days before the budding is proposed to be done to ensure a good sap flow. You can check this by making a cut through the bark well above the site where the bud will be inserted; then gently peeling it upwards. If the bark lifts cleanly and the wood looks wet, it is ready to bud.

The bud-stick from the parent tree should be a new shoot with matured buds and preferably about 30 to 35 cm long. Cut it off, then cut off the thin end and cut off the leaves, leaving the leaf stem about one centimetre long. This leaf stem (often referred to as a handle) is the only part of the bud that is handled during the budding operation.

As soon as the bud-stick has been trimmed, put it in the wet hessian to prevent it drying out; dry buds spell failure!

Avoid budding in the hottest part of summer, or on a very hot day; this will avoid some of the failures which result from buds drying out.

Hygiene is most important, so make sure that your secateurs and knife are clean. If there is any doubt, sterilise them in a 10 per cent formalin solution.

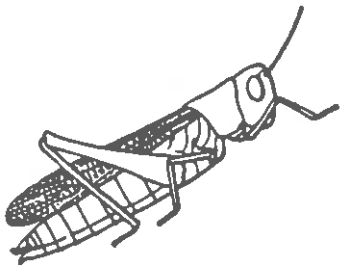
Once the bud shield has been cut from the bud-stick, do not allow anything to touch the back of the bud. Handle it by the leaf stem or "handle" referred to above, and insert the bud into the T-shaped cut in the bark of the stock as quickly and neatly as possible to avoid drying out.

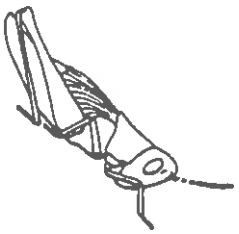
As soon as the bud is in place, it should be taped over firmly with PVC budding tape, making sure to seal completely over the top of the bud, including the handle.

Just a little warning before you start: as the budding knife must be extremely sharp to make clean cuts, be very careful how it is handled, especially when slicing out the bud, as the slightest slip could result in a deep gash.

Also, be very careful how and where you put the knife between operations, to avoid damaging the fine edge on the blade.

Be sure that the knife and other sharp tools are stored securely where children cannot get at them, avoiding unnecessary accidents.





"ADVANCING LOCUSTS BEWARE"

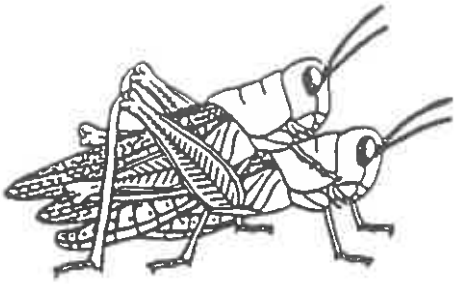
"ADVANCING LOCUSTS BEWARE"

"ADVANCING LOCUSTS BEWARE"

Sung to music of "Advance Australia Fair"

Farmers all let us rejoice,
For we have stopped the rampage,
We´ve golden crops and healthy lambs,
But locusts have ravaged all feed,
Our land is stripped of natures´ gifts,
Of wheat and pastures bare,
Insecticides will stop their rage,
Advancing Locusts Beware.

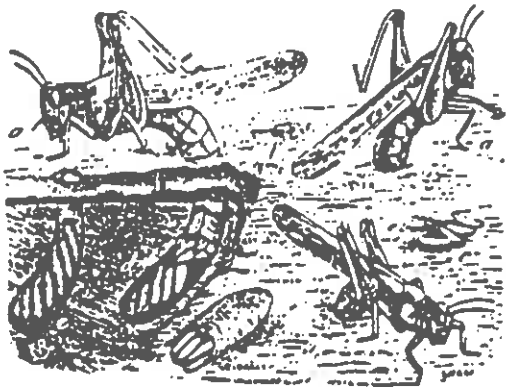
Beneath our insecticide boom spray,
We´ll kill those locust pest,
To make this farming land of ours,
Free of the locusts´ death,
For those hoppers that have come from afar,
We´ve a biological plan to snare,
With pathogens let us all destroy,
To Advancing Locusts Beware.



In joyful strains then let us shout
Advancing Locusts Beware.

Review time:

(1) What do the locusts eat?
(2) Why is the locust so bad for the farmer?
(3) What is the locust nymph called?
(4) How can we stop the locust plague?
(5) Draw a picture of the locust and label.



THE REPRODUCTIVE SYSTEMS OF SHEEP

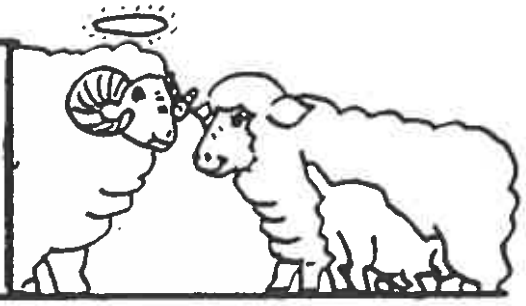
Part 2. Fill in the missing words in the passage below as you write it in your notebook. Note you will find the missing words in the Word List below.

The main reproductive organs of the ram are the _____, in which the male sex cells or _____ are made. The testes lie outside the body in a sac called the _____. The sperm are collected and carried by the _____ into the _____ _____ where they are stored. When needed they are mixed with a fluid and pass to the outside through the _____.

The main organs of reproduction the ewe are the _____, which make egg cells or _____. When an egg is released it moves through a large muscular organ called the _____, and through the _____ to the outside.

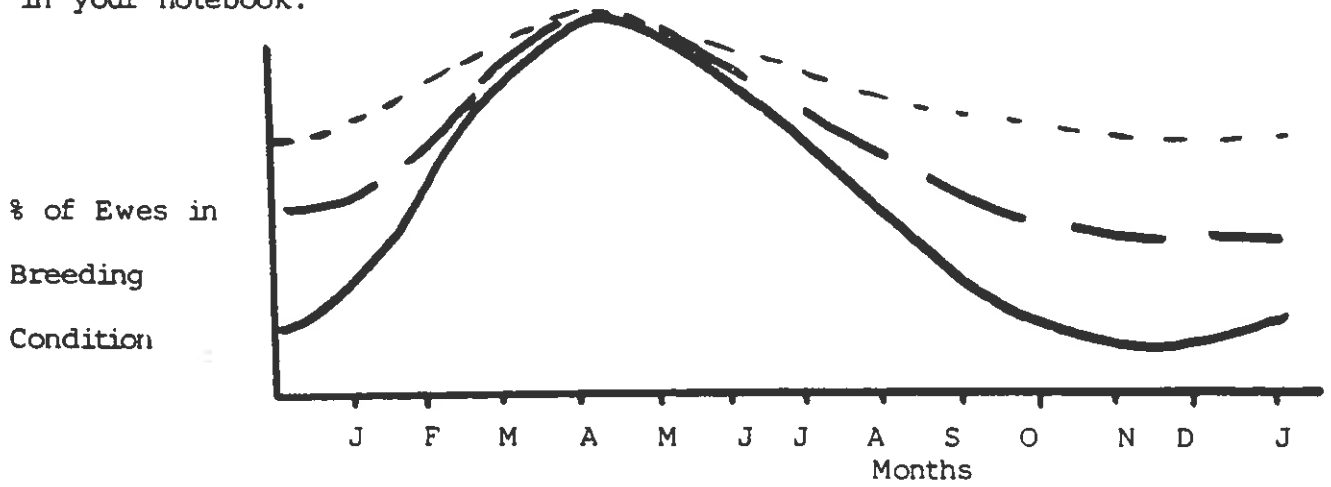
Word List

uterus, scrotum, sperm ducts, testis
ova, sperm, seminal vesicles.
ovary, penis, vagina.



Part 3. SEASONAL BREEDERS : Unlike cattle, sheep are seasonal breeders.

The respond to decreasing _ _ _ _ _ _ _ _ _ . Write this sentence in your notebook.



KEY	
M	Merino
M/BL	Merino/ Border Leicester Cross
BL	Border Leicester

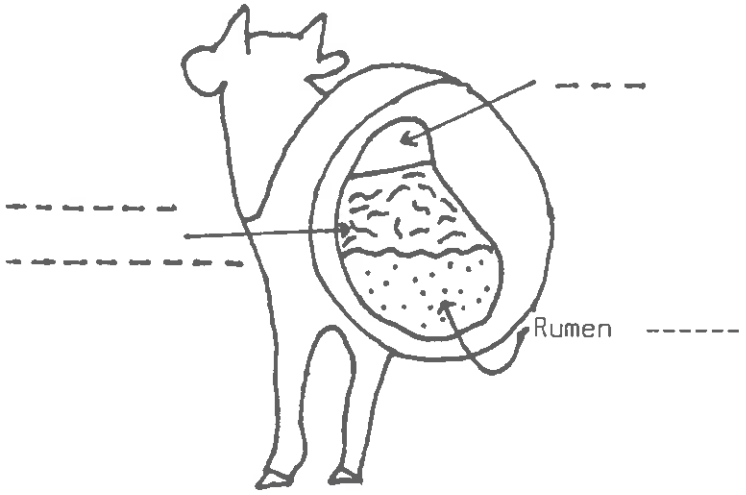
* Write the following in your notebook and fill in the missing spaces.

The best season to join is in _____. After a _____ month period the lambs will be born in _____.

CATTLE ARE RUMINANTS

Cattle are ruminants and have four stomachs. These are called the -----, ---------, ------, --------.

The rumen is the largest of the four stomachs and it occupies almost the entire left side of the abdomen.



Cross section of a cow to show the large size of the -----.
Coarse material floats on top of the rumen liquor while --- collects at the ---- of the rumen.

The inner lining of the rumen is covered by a large number of papillae (small protrusions) which increase the surface area of the rumen.

The first process of ruminent digestion occurs in the - e - - -. Feed is chewed and mixed with large quantities of s - - - - - . In the rumen microbes attack the feed. After a period of feeding the animal re - - - - - - - - - -. Some of the coarser rumen contents to the mouth where it is chewed and mixed with - - - - - - again. The - - - - - - - - in the rumen break the feed down into more easily a b - - - - - - molecules.

During this process done by the microbes, a gas is continually being produced. This gas is - - - - - - o - - - - - -. This gas is eliminated by the animal "B - - - - - - -."

Muscular contractions cause the particles of f - - - and l - - - - to be washed into the next stomach which is called the - - - - - - - - -.

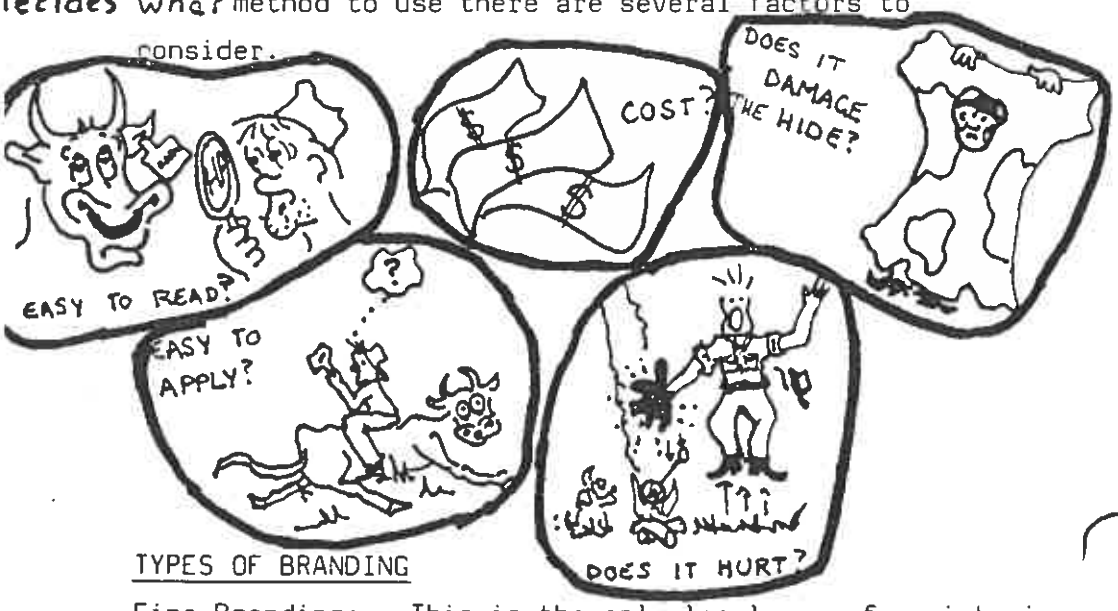
NOW PLEASE ANSWER THE QUESTIONS ON THE BOARD.

CATTLE IDENTIFICATION



It is important for all farmers who own cattle to have some way of identifying them. A farmer must be able to identify his own cattle for (A) his own herd recording and (B) for sale and auction, and (C) as proof of ownership should he lose them or if they are stolen.

There are 2 systems of identification for cattle (A) PERMANENT (B) TEMPORARY. When a farmer decides what method to use there are several factors to consider.





TYPES OF BRANDING

Fire Branding: This is the only legal way of registering cattle. It is done with metal branding irons. They are to a blue heat (not red hot), and placed on the cattle rump for 2 seconds. Branding is generally done on calves of 3 - 5 months of age. Some of the disadvantages are fire risks, difficult to read from a distance, pain, judging when the iron is hot enough.

Ear Tags: These are not permanent because they can be lost or damaged. They are good, however, for farmers general management procedures. They are easy to apply, large and bright, durable.

Tail Tags: These have to be put on all cattle before they are sold at an auction. If an animal has an infection at the saleyard then, because it has a tail tag on it, it can be traced back to the owner. There are two types of tail tags:
(a) adhesive (b) ratchet (clip on)

NOW ANSWER THE FOLLOWING QUESTIONS ON THE BOARD FROM THIS SHEET.
WRITE THE QUESTIONS IN YOUR BOOK ALSO.

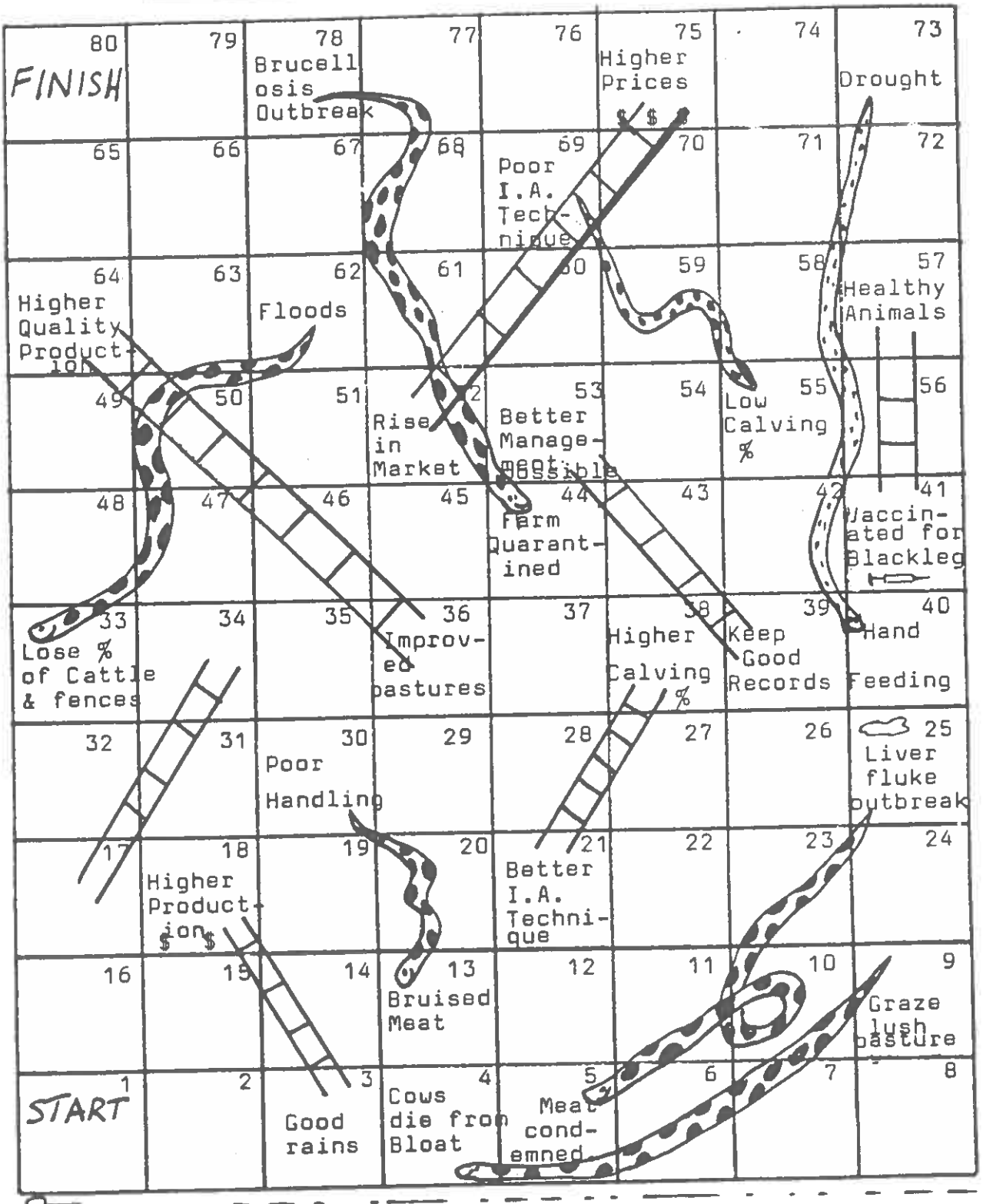
SHALVEY HIGH SCHOOL
FILE COPY

AGRICULTURE WORKSHEET

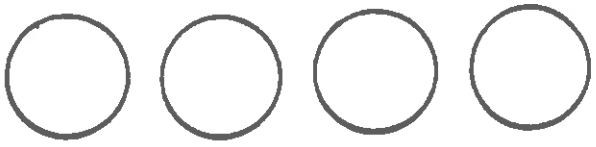
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TEACHERS NOTES:

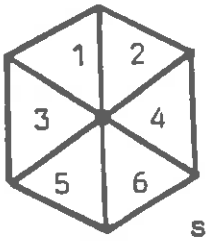
ARE YOU A GOOD BEEF CATTLE MANAGER ?



Cut along this line.



Colour these different colours, & cut out.





Cut out, and spin . Good luck!

PIG BREEDING

Mixed ancestry is quite common in pig breeding. Farmers will mate pigs of different b_____. This is sometimes called c_____. The piglets from mating a Berkshire s____ with a Large White b_____ would be called Berkshire white cross piglets (or Berkshire white x piglets).

There is no harm in m_____ pigs but if farmers c_____ in a thoughtful way they will get much better results. If they match a good p_____ sow of one breed with a good pure-bred boar of another breed, the results in most cases will be better than either original. This is called "h_____ v_____".

There are two main types of pig, the p_____ and the l_____, two main shapes the b_____ and the p_____ and two main colours the b_____ and the w_____. Lop eared pigs are supposed to be quieter than prick-eared pigs, because the ears half cover the e____ and they cannot see as well. A mixture of bacon and pork shape pigs will give a good all round pig which is very h_____. This means it doesn't get s_____ easily.

Berkshire sows m_____ with Large White boars give piglets that have "hybrid vigour" and are a good pork-bacon shape. The white boar also ensures that most of the piglets are white. Some people don't like black pigs because they often have a grey colour in the bacon, where some of the h_____ haven't come out of the rind. White hairs don't come out either but are nearly i_____.



F1 Hybrids

sow, mongrel, invisible, eyes, baconer, crossbred, hairs, hybrid vigour, sick, breeds, crossbreeding, boar, mated, prick-eared, hardy, white, porker, black, lop-eared, pure-bred.

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TEACHERS NOTES:

Name _____ Class _____

What are the Hen and Rooster doing?

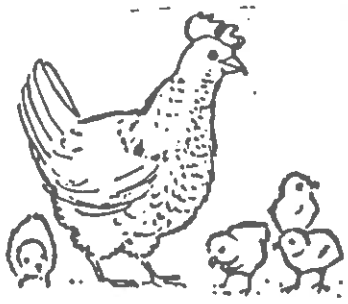


CODE

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m

* Each letter in the top row will be coded by using the letter underneath it (eg. k = x , s = f). Decode the answers to the questions.

1. nqqvat ferez gb gur rtt. _____
2. zngvat _____
3. pbchyngvat _____
4. univat frkhny vagrepbhefr _____
5. sregvyvmvat gur rtt. _____



NOTE : Answer number 4 is usually used for uhznaf.

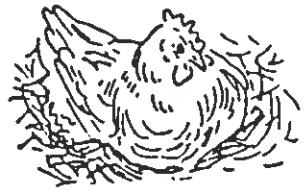
_____

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* TEACHERS NOTES: * Fertile eggs available from S.F.Barter & Sons, Great Western Highway Eastern Creek Ph. 622 1836
* Include some infertile eggs in incubator.

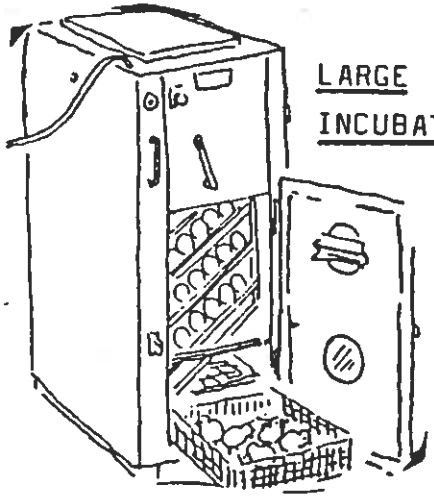
INCUBATING EGGS

Name_____ Class_____



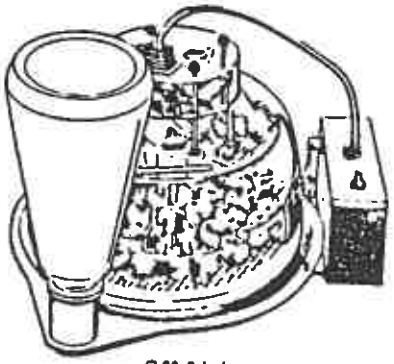
BROODY HEN.

There are two methods used for hatching e_____. The n_____ method using a b_____ hen and the a_____ method using some form of mechanical i_____. Broody h_____ are those who wish to lay a c_____ of eggs, a dozen or so, and sit on them till hatched. Some breeds are naturally broody while others are not. W_____ L_____ hens will not go broody while A_____ hens will.



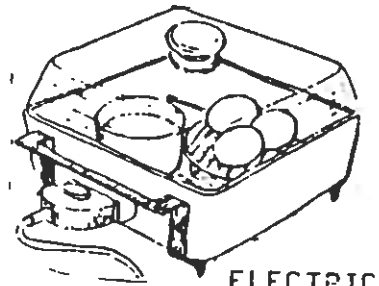
LARGE INCUBATOR

The C_____ Silkie b_____ makes a very good broody. A S_____ will lay a clutch of eggs and then go broody. Her eggs can be removed and other eggs to be h_____ put in their place. A hen sitting on eggs keeps them w_____ and t_____ them several times a day. She keeps them d_____ with the moisture from her body. These three things help the e_____ to develop.



SMALL INCUBATOR

An e_____ f_____ p_____ may be used as an incubator. The eggs must be looked after as well as the hen does. A t_____ and a dish of water must be placed in the pan. The eggs must be turned several times a day.



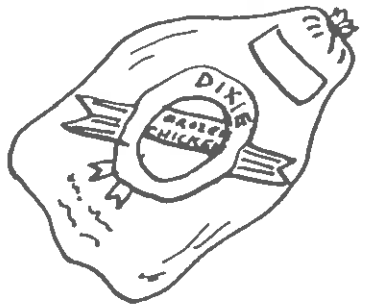
ELECTRIC FRYING PAN

EMBRYOS — CHINESE — INCUBATOR — EGGS — THERMOMETER — NATURAL — BANTAM — FRYING PAN — BROODY — HENS
AUSTRALORP — ARTIFICIAL — SILKIE — ELECTRIC — HATCHED — WHITE LEGHORN — DAMP — TURNS — CLUTCH — WARM

THE BROILER INDUSTRY Page 1



7 to 8 weeks



About 450 farmers grow broiler chickens in N.S.W. They produce 83 million birds a year, worth $200 million when sold in shops.

Most Broilers are produced by contract growers. Chickens are mostly grown and processed in the outer areas around Sydney , Gosford and Newcastle. Processors usually supply chickens and feed to the farmer and collect the grown birds for processing. The contract grower supplies the land , sheds, equipment and labour. At no stage does the farmer actually own the birds.

PRODUCTION METHODS

Broilers are mostly reared on litter floors consisting of sawdust or wood shavings in large open sided corrugated iron sheds. Sheds can be as large as 12 m. wide and 150 m long. Fifteen birds are kept in each square metre of floor space in the shed .

A typical family farm has 3 to 5 sheds and keeps about 20,000 birds in each shed. About 4 to 5 lots of chickens are kept in each shed during a year.

In growing meat birds the farmer triee to produce heavy birds in a short time, using the least amount of food. There are two stages involved in broiler production, the brooding period and the growing period.

BROODING PERIOD

The brooding period is the first 2 ½ to 3 weeks when chickens are kept warm by brooders. When the downy coat changes to feathers the chicken can better handle changes in temperature . To save energy , the brooding area is usually confined to about one third of the shed.

The temperature at chicken height in the brooding area in the first few days is about 31°C to 33°C. During the brooding period the farmer has to work very hard and take great care with his chickens. Any break downs or blackout could result in many chickens dying or catching diseases and slow rates of growth.

During brooding the temperature is gradually reduced so that the chickens get use to the outside temperature by about 3 weeks of age.

THE BROILER INDUSTRY

GROWING STAGE

Between 3 and 8 weeks the birds grow very fast, and at 8 weeks of age a 60,000 bird flock eat about 7 tonnes of food and drink up to 15,000 litres of water per day.

The farmer has to keep up the supply of food and water, look after their health , keep the sheds well ventilated and remove wet or caked litter.

Broiler flocks are prone to heavy losses from smothering if panicked by sudden unexpected noise. The farmer tries to keep things likely to cause panic away from the sheds.

At the end of the growing period birds are picked up by specialised catching crews and loaded into crates for delivery to a processing plant. This is usually done at night or early morning to help stop birds dying from heat stress. After all birds are picked up all sheds and equipment are thoroughly cleaned ready for the next batch.

Broilers are sold at about 7 weeks of age when they weigh 1.8kg. They eat about 2 kg of feed for every kilogram they weigh.

QUESTIONS:

1. Contract broiler growers are supplied chickens and feed by the processor . What does the grower have to supply ? _____
2. Where in N.S.W. are broiler chickens grown ? _____
3. Why are they grown in these areas ? _____
4. What is the size of a large broiler shed ? _____ wide _____ long
5. How many chickens do they keep per square metre ? _____
6. How many would they keep in a shed 12 m by 150 m ? _____
7. How many lots of chickens would the farmer keep in the shed each year ? _____
8. Why does the farmer want to grow heavy birds in a short time, using the least amount of food? _____
9. How long are the chickens kept warm with brooders ? _____
10. How old are the birds when they are ready for processing ? _____

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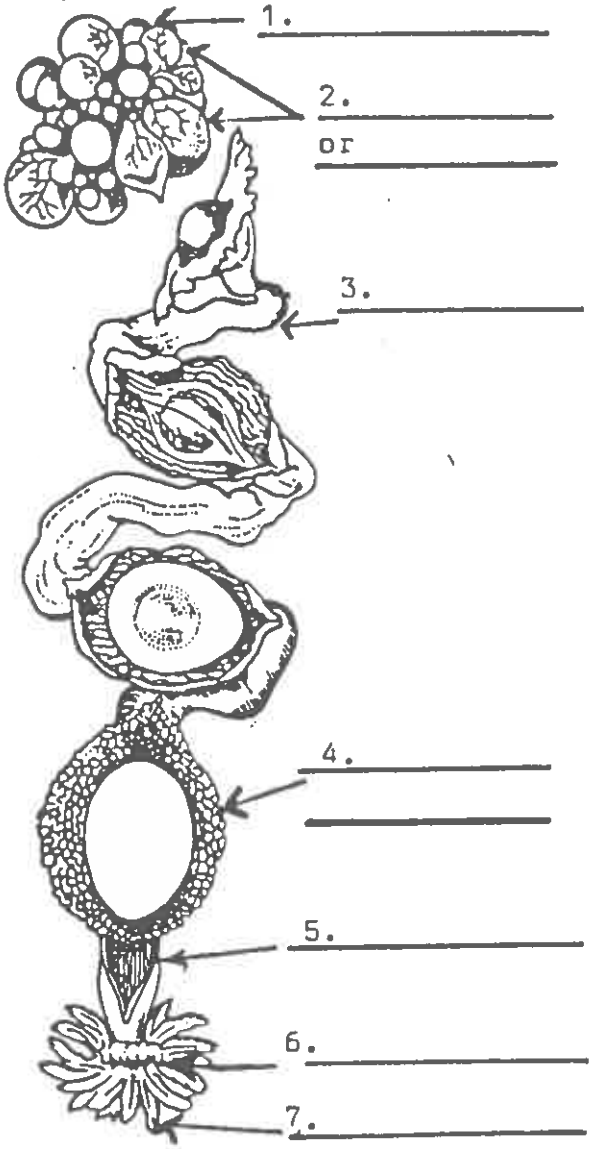
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TEACHERS NOTES:

Name _____ Class _____

THE DEVELOPMENT OF AN EGG.

1. Name the parts 1 to 7 on the drawing of the reproductive system of a hen.



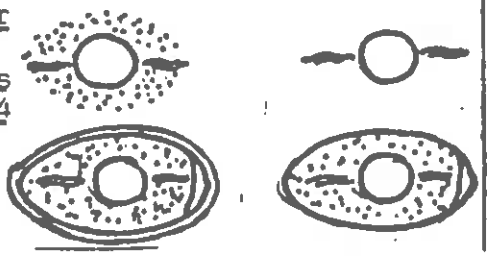
2. Fill in the missing words.

The _____ in the drawing shows _____ or _____ in different stages of development held together like a bunch of grapes. When a yolk grows to full size it drops off and passes through the mouth of the _____. As soon as it enters the oviduct it meets _____ and is _____. As the yolk passes down the _____ layers of _____ are twisted around it. The Shell is formed by the _____ _____. After the shell is formed the egg passes into the _____. Then it is laid. It passes out through the _____.

white , yolks or ova, oviduct, vent, sperm, cloaca, feathers, shell, ovary , vent, fertilized, shell gland, .

SHOWN ABOVE ARE WORDS YOU MAY FIND USEFUL IN QUESTIONS 1 & 2.

3. Number the stages 1 to 4

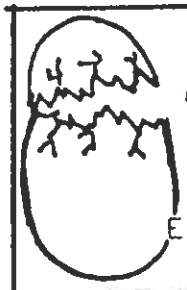


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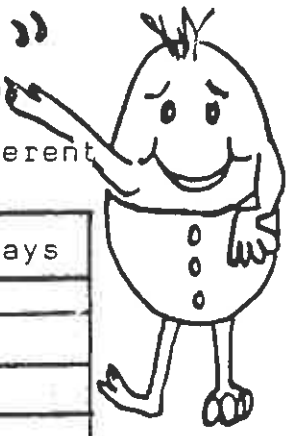
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TEACHERS NOTES :



Name _____ Class _____

"Hatching Eggs"



Eggs of different types of poultry have different incubation periods .

Type of poultry	Length of incubation in days
FOWL	21
TURKEY	28
DUCK	28
GOOSE	30
GUINEA FOWL	27
PHEASANT	25
PIGEON	18
QUAIL	17

USING THE GUIDE ABOVE work out , starting from the date circled below, when the eggs will hatch.

Date eggs set

JULY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	(24)	25	26	27
28	29	30	31			

AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

FOWL	14 AUG
DUCK	
GUINEA FOWL	
TURKEY	
PHEASANT	
GOOSE	
QUAIL	

QUESTIONS :

1. Which type of poultry has the shortest incubation period?
   _____
2. Which type has the longest incubation period ? _____
3. Which types have the same incubation period ? _____ and _____.
4. How many weeks does it take for fowl eggs to hatch ? _____
5. How many weeks does it take for duck eggs to hatch ?_____

AGRICULTURE WORKSHEET

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TEACHERS NOTES :

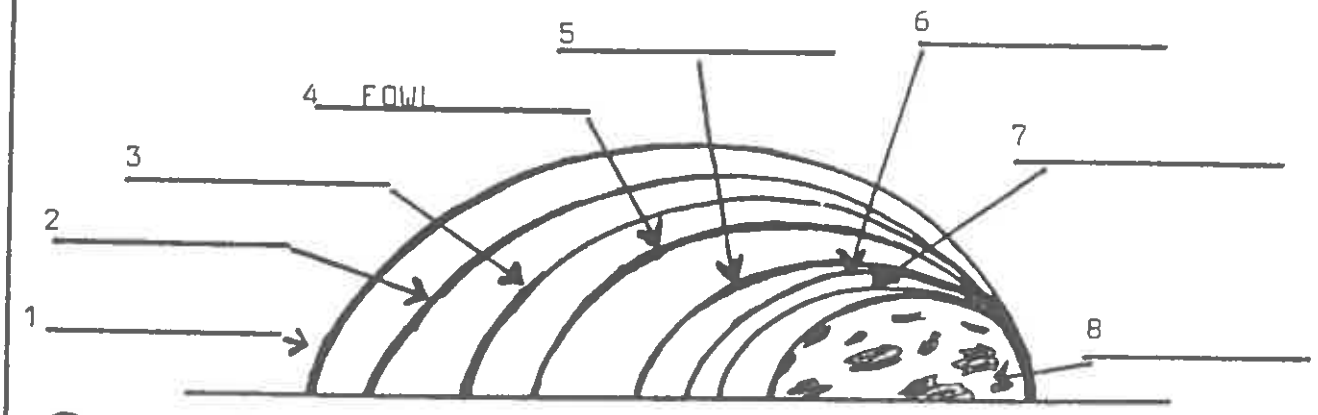
* Ask pupil to try and break an egg holding it end to end in the palm of hand.
* Show how to " blow " an egg.
* Develop collection of eggs from different types of poultry.

Name _____ Class _____

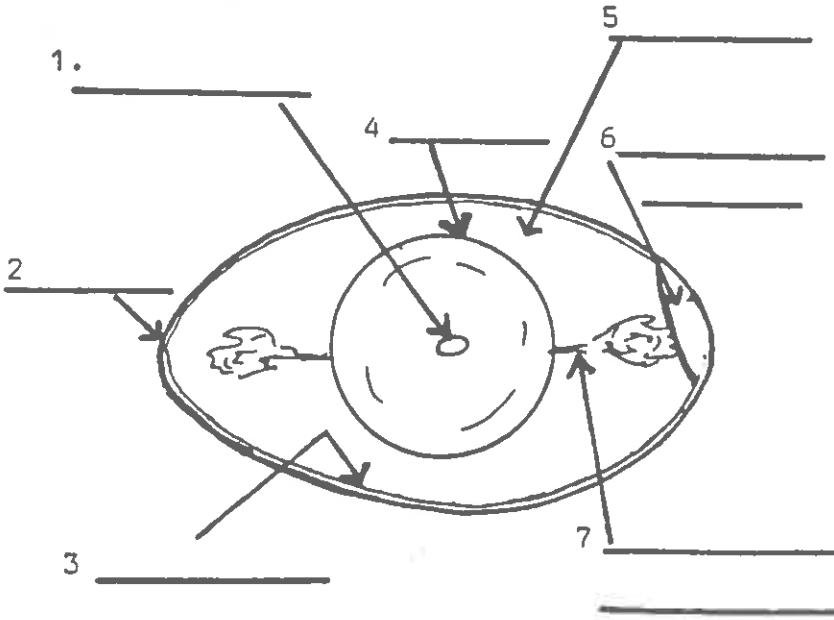
"Poultry Eggs"

1. Different types of poultry lay different sized eggs. Name the egg which belongs to each type of poultry .

FOWL , DUCK , GUINEA FOWL , PIGEON , TURKEY, PHEASANT, GOOSE , QUAIL



2. Name the parts of an egg.



* shell
* shell membrane
* white
* air space
* yolk
* germinal disc
* strand of white supporting yolk.

MY FAMILY

by B.B.

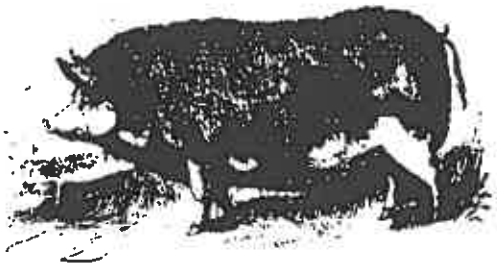
Let me introduce you to my family,
bear with me, its not very big.
I will mention the important members
in this home of a dual purpose pig.



Listen to those piglets screaming.
Making demands of their mum -
for some tucker.
Barely four weeks old, you know,
but each one is a definite sucker.

I feel sorry for that little Raymond,
his big brothers never let him near the teat.
He was always a poor scrawny piglet.
Being a runt is no mean feat.

Those piglets don't know it,
but they are always on show.
If one sucker stands out,
old farmer Joe will know.
If they are not up to scratch,
being a boar is no go.
So the boys are castrated,
and spend life "a barrow".



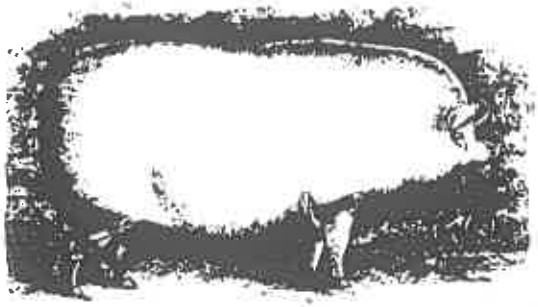
All good things must come to an end.
Especially for these little screamers.
They only have six weeks with mother,
then its out, and about, as weaners.

My favourite, in here, is Gillian Guilt,
a sweetie, so young and petite.
She is expecting her first litter soon,
We think she will farrow by the
end of next week.

/Over

Make the most of it Gillian,
Enjoy being a guilt for now.
As soon as your first litter arrives,
You'll spend the rest of your life
- as a sow.

Steven the store is a skinny excuse
When compared to his brothers and mates.
He needs to put on some kilo's
before he'll make the market gates.



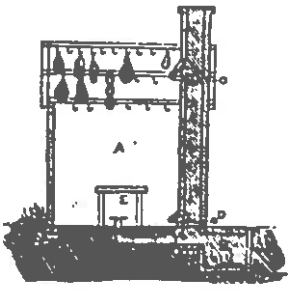
Over there is Percy the Porker,
I hear he has no great ambition,
(he is between 40/70 kilograms)
but he's in prime porker condition.

When comparing Percy and Steven
its like comparing copper to gold.
But their ages are almost identical.
They are both 5-6 months old.

Now six months is up,
and it is nearly time
for Percy to say "Bye" to his mates.
Soon he will join Uncle Arthur
At the stores, on the shelves, as steaks.

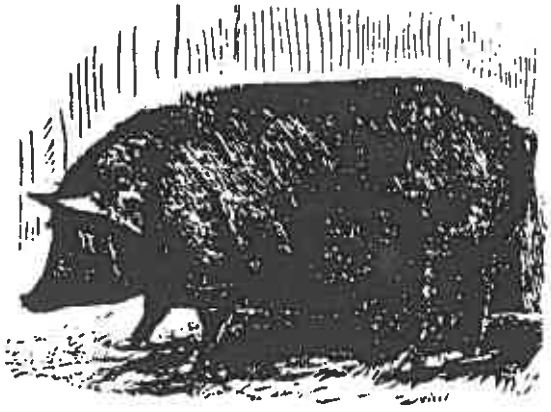
Well now, here is Basil Baconer
after 6-8 months he's a treat.
A pig in prime market condition,
moderate fat, with ample lean meat.

Over here is Charlie the Chopper.
He's one of the heavyweight dags,
at 110 kgs plus, he is too big for bacon,
My guess is he'll end up in snags.



INTERIOR OF SMOKE HOUSE.

/Over



Over there is a friend
(Ex Benny the Boar)
Farmer Joe thinks he's a fag.
So after a quick castration -
Benny Boar became Benny the stag.

Benny's brother Ron
was a strange sort of pig.
He had dropped only one testicle,
so that made him a bit of a rig.

I was very annoyed,
and worried for a while,
Because farmer Joe only half did the job,
and Ron was still quite fertile.

So now you have met all my family.
To meet, there is only one more.
Have you guessed just who I might be.
Thats right,
I'm BORIS, THE BOAR .

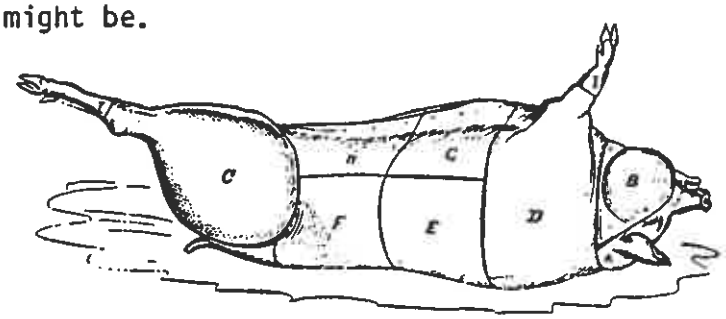


Fig. 1.—OUTSIDE OF CARCASS OF HOG—SHOWING THE CUTS.

Let's read through the poem and answer the following questions.

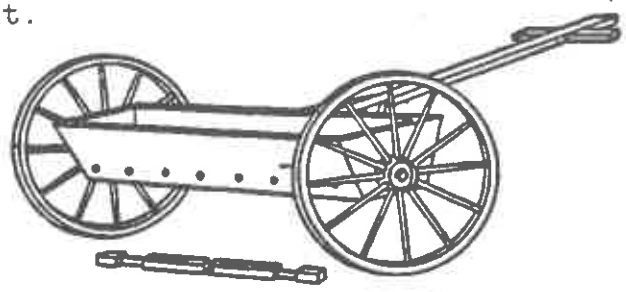
1) How old are piglet suckers?
2) What is a runt? What may happen to the runt?
3) What do we call a castrated male pig? Why might we castrate them?
4) How old are the weaners and what happens to them?
5) Why is Gillian so special? What does farrow mean?
6) Who's a prime porker and how much does he weigh?
7) How old is Basil the baconer and what characteristics does he show?
8) What happens to Charlie? Why don't we use him for, say bacon?
9) What happened to Ron? What effect would this have on Ron's performance?
10) Where did Boris learn to read and write poetry?
Answer: At skool of corse!!!!!!!!!

AG'S A DRAG

A one act play outlining the history of agriculture in Australia.

CHARACTERS:

Albert: A bored Year 7 student.
McArthur: A sheep farmer
Ruse: A crop farmer.
Farrer: A wheat breeder.
Marsden: A sheep farmer.
Peppin: A sheep farmer.
Smith: A farming engineer.
D.J.: A disc jockey.
Bunjil: An aboriginal farmer



A SOWING MACHINE

Act 1.
Scene 1.

Albert a bright but bored year 7 student is sitting at his desk doing his homework. The radio is loudly playing in the background.

D.J.: ... and here at radio rock ag. it is a quarter past eleven or for all you digitalis´ that´s 11:15. Keep on listening for more rock and roll.....

Albert turns the radio down and cries out in exasperation.

Albert: I´ve had it. All this work. What do they think we are? How do they expect us to do three titlepages in one night?

(He mimics the teachers he has.)

Albert: Maths-"the area of a rectangle equals length times breadth"...English-"an adjective is a doing word" and Ohh Science-"... put the hydrochloric acid into the test tube". It´s all so much to learn. Oh well what´s next. Agriculture, oh no, ag is such a drag. And look at this list of names we have to know by tomorrow. Ruse, Farrer, McArthur, I give up there´s so much to learn. So much to learn. So ... much .... to ..... learn.

Albert rubs his eyes, and puts his head on his crossed arms. Time passes.

McArthur: Gidday, Albert.

Albert: (jumps up startled) Who? ... What? ... Who are you???

McArthur: Well my boy, my names John McArthur and I´m here to stop Ag being a drag.

Albert: But you lived almost 200 years ago!!!

McArthur: That I did my boy, you see I´m the ghost of John McArthur, and I´m here to tell you a remarkable story and introduce you to a number of my friends.

Albert: Wow, this is better than listening to a stuffy old teacher, or reading boring old books. Please go on Mr. McArthur.

McArthur: Now Agriculture first started in Australia some 40,000 years ago. The aboriginees were the first farmers of this ancient and beautiful land. They view the land as their mother and lived in harmony with the land. The aboriginees believe that the world, the sun and all things on it were created by Bunjil and here he is to tell you something of aboriginal agriculture.



Bunjil: Sit back, relax, I am the, the storyteller, here to tell a story for you. Aboriginees lived in harmony with the environment, they learnt the way of the land and did not exploit what was being offered. They were more than "Hunters and collectors". We knew the land and what was being offered at certain times of the year. We acquired a knowledge of the rhythm of the country. From early years we learnt when the vegetable foods ripen, and where they could be gathered; the seasons of the year; when the reptiles awakened from their winter sleep, and in what place there would be water to drink. We grew YAM farms and used fire to promote plant growth to eat and for animals. Yes, we farmed the land, we moved across it's body and lived as one with the land.

McArthur: Thanks, Bunjil. Now just over 200 years ago a few pommys came sailing over from old Britain and enjoyed the place so much they decided to stay. With the introduction of Europeans came a totally different style of agriculture. With them they brought new plants, animals and machinary.

Albert: You mean sheep did not always live in this country.

McArthur: That's right Albert. The first farmer on the first fleet was a chap by the name of James Ruse.



Albert: I know him, isn't there a high school by that name in Sydney.

Ruse: That's very good young Albert. Now I would like to tell my story. I James Ruse have the distinguished honour of establishing the first farms in Sydney Cove. Blimey, it was hard at first. None of this modern equipment. We slaved our guts out to grow our crops. No tractors then; we used horses or convict labour. The farmers of today lead a more mechanized life than we did. That's progress I guess ahh John.

McArthur: That's true James. Why this school was actually built on a big farm.

Albert: I didn't know that. tell me more Mr. McArthur.

McArthur: Another great pioneer was Farrer in the field of crop research.

Albert: Is he the fella on the old $2 note?

Farrer: True blue Albert. Farrer's me name and wheat breedin' is me game. Pretty good I was too. Made this one type called Federation. bonza wheat seed it was, grew well, produced lots of grain. Right proud of it I was. Released in 1901, I guess that's why I called it Federation.



Albert: Yes, I know Sir. because in 1901, we had the federation or joining of all the states in Austraia to form the Commonwealth of Australia.

Farrer: Struth, this Albert certainly knows his stuff.

McArthur: He does indeed mate. Now whose next.

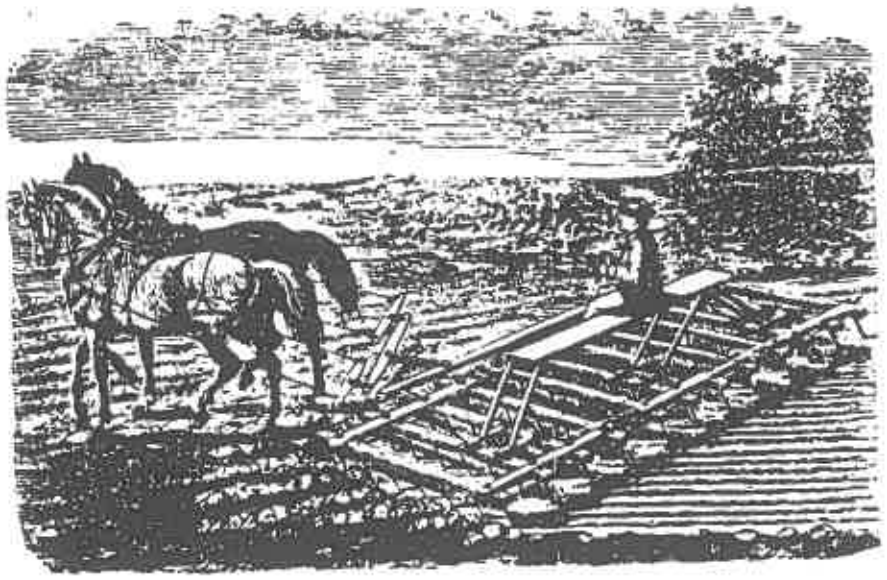
Smith: I guess I'm up John

McArthur: Smithy, how are ya buddy

Smith: Good John, so Albert wants to know all about agriculture.

Albert: Yes thanks Mr. Smith.

Smith: Well, well, well, -three holes in the ground, ha ha ha. My story starts, not only with having the most common name in the western world, but with inventing the famous stump jump plough. Pretty impressive what! Great piece of equipment it was. Australia is different to Europe, no big



stumps or rocks in the ground over there to smash our ploughs to pieces. The ploughs we brought over from the mother country soon packed it in. This got me athinken, and I came up with this new revolutionary stump jump plough. When it strikes a stump or rock a spring makes the plough actually jump, that´s right, jump over the object. Quite amazing I thought and mighty proud am I. Aussies have produced some great inventions to make the farmers job a bit easier. Machines allow farmers to grow more crops and pasture, whilst using less time labour and money.

Albert: So Mr. Smith, with machines you produce more for less work.

Smith: Yes, something like that.

Albert: I think I get it. Agriculture is becoming more mechanised due to the technological revolution utilising inputs such as computers, machinary and economic principal and leading to improved outputs for the benifit of the farmer and society.

Smith: Yes, (CONFUSED) something like that.

Walks off scratching his head.

Albert: I think I am getting the hang of this. It makes more sense because agriculture is such an important part of our everyday life. Food, clothing, shelter, all sorts of things come from agriculture. Hey Mr. Mac. what are you famous for?

Marsden: Maybe I can help you out there Albert. John McArthur, along with some friends, have made the Australian sheep industry what it is today. Australian farmers are very good and efficient at producing crops and livestock. One industry that excells is the sheep industry. producing lovely meat and wool. Pioneers like John. Peppin. whom produced a breed of merino better suited to the western plains, and myself, has made Australia one of the best growers of wool in the world.

Albert: So what did Mr. Mac actually do?

Peppin: Perhaps I can answer that. John McArthur has contributed greatly to agriculture. He was the first person to bring the Spanish Merino to Australia and devoloped the breed. along with men and women like Marsden. who is a sheep breeder, into a breed ideally suited to Australian conditions and producing some of the best wool in the world.



Albert: Gee Mr. McArthur I´m impressed, and I just thought you were a ghost that talked.

McArthur: I thank you Albert for those kind words and I trust you now know something of the agricultural history in Australia. You see Albert, what we know today has taken hundreds if not thousands of years for men and woman to discover. We now have the opportunity to relive their lives and discover for ourselves the amazing, interesting, intriguing and wonderful world of agriculture, ...world.....of ..... agriculture.

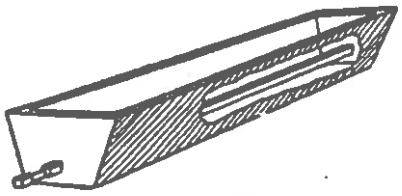
Albert wakes up as if startled and dazed.

Albert: What, where, who, Mr. McArthur???? I must of been dreaming.

He notices a piece of wool on his desk and picks it up.

Albert: Or was I. ?????? Oh who believes in ghosts anyway.

"The Beginning"



THE SEED BOX

Answer the following questions in full sentance form in your book.

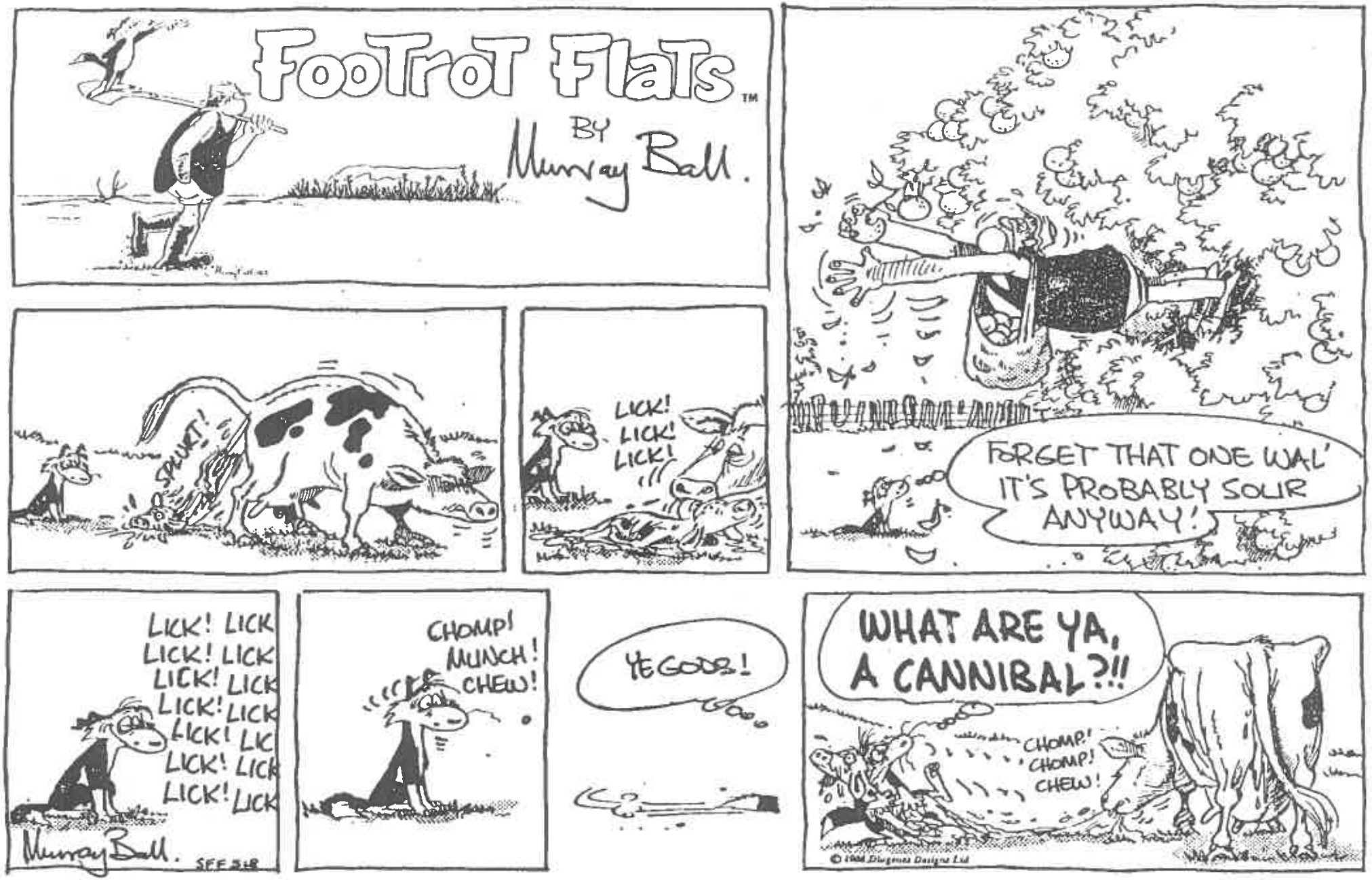
(1) Why was Albert exasperated?
(2) When and by whom did agriculture first start in Australia?
(3) What does the term "hunters and collectors" mean?
(4) What is a yam?
(5) Briefly outline aboriginal agriculture.
(6) What were the following people fomous for: a) McArthur b) Ruse c) Farrer d) Smith e) Marsden f) Peppin
(7) Write a short story, it may be true or fiction, on why agriculture is so important to us.

BAAT
THE COMICS



"Idiot! When I said give her a couple of shots, I mean injections!"




FooTroT FlaTs™
BY
Murray Ball.
SPLURT!
LICK!
LICK!
LICK!
FORGET THAT ONE WAS' IT'S PROBABLY SOUR ANYWAY!
LICK! LICK
LICK! LICK
LICK! LICK
LICK! LICK
LICK! LIC
LICK! LICK
LICK! LICK
Murray Ball. SEE 5:18
CHOMP!
MUNCH!
CHEW!
YE GODS!
WHAT ARE YA, A CANNIBAL?!!
CHOMP!
CHOMP!
CHEW!
© 1984 Diagonal Designs Ltd

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October 1990

Dear Agriculture Teachers/Careers Advisers,

As we head into the final term for 1990, I am pleased for the opportunity provided by this regular communication with secondary school teachers, to signpost the developments that have taken place at the University of New England - Orange Agricultural College this year.

In negotiations between TAFE and the University of New England, progress has been achieved on reaching an appropriate agreement on credits and advanced standing between TAFE courses and UNE courses. I anticipate an agreement by the end of the year, at which time we will notify all agriculture teachers and careers advisers so that this important information can be passed on to students.

John Chudleigh, UNE-Orange Agricultural College's Head of School, is a member of the panel reviewing agricultural and related education in Australia. The panel's report is expected in the next few months. We expect that the review will be recommending ways to achieve better coordination of agricultural education, more client orientation, improved access and improved flexibility.

Arising from our activity associated with the review, we are giving serious thought to appropriate ways of achieving the ongoing training of agriculture teachers. We also feel that we should put much greater effort into providing careers advisers with information relevant to agricultural education.

We would appreciate any thoughts from you regarding your needs for ongoing training - whether this relates to short courses, or to a whole range of higher education courses. We want to be able to package training in ways that agriculture teachers and careers advisers can accommodate, given your time constraints. We are investigating the potential for distance education, and the possibility of a third semester in the summer, so that some training activities could be held outside of school time.

We are delighted to announce the appointment of our Director of Continuing Education, Ms Pauline Ramsay. Prior to coming to Orange, Pauline was for many years the coordinator of the Continuing Education Program at the Australian National University in Canberra. She is an opal cutter and gemologist with a keen interest in bushwalking and exploring new countryside, and looks forward to responding to any course requests from the community.

The College in its strategic plan is committed to a more educationally sound continuing education program, and as part of that program we are planning short courses that lead to credit into existing programs.

We have just completed an exciting University/industry partnership between the College and Westpac to present a Diploma in Agribusiness. Designed initially for employees of Westpac, we expect the Diploma to be available more widely within the next few years.

We are also considering the addition of a third optional year to our very successful Associate Diploma in Farm Management, with students who complete that year being awarded a Diploma in Applied Farm Management. This is being considered because of the increasing demands of farm management, the need for farm managers to have high level training in finance, in risk management and in project management.

The Bachelor of Business (Agricultural Commerce) degree course which commenced in 1989 is proceeding well, with large student numbers and dedicated staff making sure that this new agribusiness program is a success. We would recommend it very strongly to students who want business training at degree level, and who want the flexibility to fit in anywhere from farm production all the way through the agribusiness chain - in marketing, retailing, transport, value adding, finance, etc.

Teachers within the College's region might like to draw the attention of their students to a powerful short course - **WINNING IN EMPLOYMENT** - being offered in Orange on 10 November 1990, and in Dubbo on 17 November 1990. To be conducted by Bronwen Grey, Lecturer in Communication at the College, the one-day course presents a realistic, business-world approach to entering today's competitive workforce.

We are moving towards the end of our first year as a University College, which is part of the new University of New England. I am pleased to report that the settling in arrangements are proceeding extremely well, with the College's role being reinforced and expanded, and the opening of greater opportunities for our students. We believe that the new arrangement will lead to more resources for the College, enabling us to provide an improved and wider-ranging set of services to our students.

May I take this opportunity to wish you and your students a successful completion of the school year, and I look forward to the opportunity to resume our communication in 1991.

Yours sincerely

Robert J. Napier

ROBERT J NAPIER
PRINCIPAL