Summer 1999 BAAT Edition No. 12

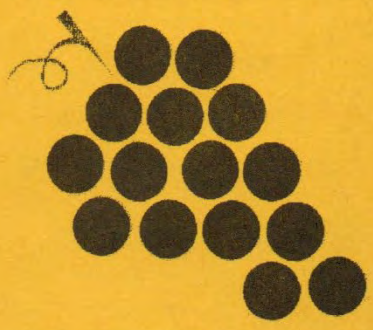
NSW Association of Agriculture Teachers Inc.

Bulletin of the NSW Association of Agriculture Teachers Incorporated

B.A.T.

Thanks to....

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NSW Dept of Agriculture
NSW Association of Ag Teachers
Cotton Australia
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National World Travel – Orange
Virbac
Orange Agricultural College
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inside....

New Executive
HSC Sample Answers
VOCED

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NSW Agriculture
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Editorial

Welcome to the first edition of BAAT for 1999.

Firstly, my sincere apologies for the delay in this first edition, combined with a very hectic term and settling into the position as BAAT Editor, this edition has taken longer to complete than I anticipated. However, I am sure that some of the material in this edition is well worth the wait.

I would very much like to introduce you all to the new Executive which were voted in at the Biennial Conference held in Orange earlier this year. Like myself, we are all feeling the pressures of first term and on a new learning curve.

With the Trial HSC not that far away, I have included the results from the 1998 HSC paper. I hope this will be of benefit to most teachers.

A special thank you to all those AGGIES who took the time to return the Survey for the new syllabus. The Board of Studies has greatly appreciated your comments and even the smallest comment has to be considered. Well done! We need to continue this if we are to be heard. In relation to the Senior courses being implemented next year, the Board of Studies will be running inservices for all areas to help implement and programme. Dates for these are presented in the report from the Board of Studies.

Finally, I wish to acknowledge the support that has been given to me in getting this magazine to publication. Mr Craig O'Brien who has had to deal with my numerous phone calls for help, my trusty typists - Andrea Simson and Angela Gangell, and all those teachers and supporters who have given the appropriate material.

Please enjoy the 1st issue of BAAT for 1999, and I hope it continues to meet the needs of the teachers as we head to the new Millennium.

Karen Damic

N.S.W. Association of Agriculture Teachers Inc

President's Report

Firstly, I would like to thank the previous executive of our association, President – Sue Hope, Treasurer – Phil Armour, Secretary – Trevor Sewell, and BAAT Editor - Craig O'Brien, for the amount of effort they put into the Association over the previous two years.

In their term, they had the unenviable position of being involved in the changes to the Stage 6 Agriculture course as well as the Primary Industries course. This involved the attendance at countless meetings, the filling in of reports, submissions and questionnaires for organisations such as the Board of Studies, Department of Education and Training, Catholic Education Commission, and the Association of Independent Schools.

The executive also developed the concept of regional co-ordinators, so that a central person in each region could disseminate information to all teachers in their area. This is an initiative that the current members of the executive are going to continue to work on over the next 2 years.

Thanks must go to Craig O'Brien and Don Selway and their team for the way that they brought the standard of BAAT to an even higher standard than before. I consider BAAT to be the most important part of our Association as it is often the only source of information that many teachers, particularly in isolated areas, receive to help support them in teaching Agriculture in their schools.

We look forward to continuing the high standard that has been set and ask that all members help Karen Damic and her team to achieve this high standard by sending in information, resource ideas, worksheets, or any information that teachers will find useful. Remember that BAAT can only be as good as the standard of contribution from our members.

Thanks must also go to Phil Armour for his zealous effort to chase up memberships during his time as Treasurer. The more members we have, the more benefits that we can pass onto our members. A reminder that if you have not paid your membership fees, that this will be the last BAAT you receive until you have become financial again. It is only $35.00 per year, or $70.00 for two years, and is tax deductible.

The hard work of Trevor Sewell must also be thanked, as he spent many hours working on submissions, questionnaires and reports to various bodies and organisations on behalf of the Association. It is of great benefit to the Association to have such a well-respected and experienced secretary to be there to get our Association's ideas and points of view over to the relevant Government Department or organisation.

One of the catalysts behind our Association is the Sydney Branch. They organise and co-ordinate events such as the Agriculture Competition, as well as Senior and Junior Ag camps which benefit all agriculture teachers and students.

Sydney Branch has also accepted the challenge of developing the next biennial conference for our Association. Come on Sydney, you have a lot to live up to after hosting the Olympics!! Thanks must go to Ian Judd who has recently been promoted to the far north coast for all the work he put into the Sydney Branch.

Ian and the Sydney Branch have also been the driving force behind the development of the Special Interest Group. This group has a link with the Teachers Federation and is attempting to fight issues such as class sizes. They need lots of support to help provide you with an ideal teaching environment. Our thanks to Tony Turner from Muirfield High School who has willingly taken on the chairman position of this group.

continued

N.S.W. Association of Agriculture Teachers Inc
President's Report

continued...

The driving force behind Agriculture Teachers for the past two years has been Sue Hope, and I would like to thank her for the hard work she put into the Association. Her work continues to have an influence on decisions that affect all of us in places like the Board of Studies, and Professional Teachers Association

January of this year saw the biennial conference held at Orange. Once again, our conference was well supported by dedicated teachers who gave up a week of their holidays to attend the conference. The most dedicated of them all included Attila Babos, Martin McGee, Peter Napier, Karen Damic, Trevor Thompson, Helen Kleinsberg, Reg Kidd, Warwick Moore, Anne Clark, and Bruce Dymock, and anyone I have forgotten, for hosting such a successful week. The easy going set-up was relaxing for all those who attended as well as a lot of business being addressed at the dinner table over numerous glasses of local wine, as well as wines from Mt View High School, courtesy of Bill Hazard.

The next two years is going to be one of change with the new Stage 6 Syllabus as well as the introduction of Primary Industries. Thanks must go to Ivan Gant as the Project Officer with the Board of Studies and the writing and consultative teams that have spent many hours trying to perfect a new course under many constrictions

Ivan will be co-ordinating meetings all over NSW during early Term 3, to discuss the implementation of the new Stage 6 course into schools for the year 2000. Watch out for information from your region, diocese, or association in regards to the time and places of these meetings.

Peter Green has been placed in the unenviable position of concluding the preparation, writing and implementation of the Primary Industries Course. Peter is an experienced agriculture teacher and he should provide a valuable insight into developing a replacement course for the current Rural Industries. Thanks must go to the previous project officer, Paul Rodney, for his role in the development of the new course.

A concern was raised at the AGM held at the NSW Biennial Conference in regard to the role of the National Association of Agriculture Educators (NAAE). I have had discussions with members of the association and a number of initiatives are being developed for 1999 and beyond. NAAE is also proposing a national newsletter or bulletin be published so that information and ideas can be passed from state to state. The NAAE is hosting their Biennial Conference from the 11th to the 14th January, in Fremantle, Western Australia. I would urge anyone going on holidays to WA in January to make it coincide with the conference so that we, as the NSW Association, can have a good representation.

Currently, as an association, we are in the process of investigating the set-up of a web site for our members. This web site will be able to be used as a means of keeping up to date with the association, as well as links to other useful sites and for the promotion of upcoming association activities, i.e. inservices. I would like to thank the people who are working on this, and look forward to having our own Association Web Site.

The new executive look forward to attempting to represent all agriculture teachers in the same professional and capable way as the past executive. If you have any issues that you would like raised or addressed, please feel free to contact me or any of the executive and we will do our best to solve your concerns.

Patrick McCann

NSW Agriculture
1998 / 1999 Gold Sponsor

SECRETARY'S REPORT

Hello, I hope this edition of BAAT finds everyone well and having enough time off from your many duties to read, digest, and enjoy the inter 'Aggie' communication before you.

Like all past executive, I hope we can serve our fellow members well. I have appreciated the work and good will of Sue, Trevor, Phil, and Craig, and other South Coast workers. Please remember in our 'voluntary' capacity, we are juggling our own commitments to help NSW AAT to be effective.

As one past executive expressed, 'it would be encouraging if members gave some *feedback* occasionally, particularly where material has been specifically sent to a school'. So please, where you can write or fax an encouragement or respond to fellow members that are initiating a development to improve our Agriculture, it will HELP.

From our recent Biennial Conference held at Orange, some developments:-

1. The trip to the **Pinaroo Cattle Centre**, near Canowindra, has resulted in a Teaching day for Agriculture Teachers (and others) Handling Cattle, being offered by the entertaining Mr Brian Ahearn on Friday 18th June.

2. Bruce Ward, one of the conference presenters and the NSW Dept Ag – Web Site developer, has put a lot of work into producing a very useful six page article on basic aspects of the Internet **"The Internet – Surfing Without Getting Wet"**. Don't file this one away – use it!!!

3. Talking of Web sites, a development ongoing from the last year or so is the work and investigation into our own **NSW AAT web page**. Any feedback or ideas contact Rob Fosberg – TAS Armidale, Graham Quintal – Pennant Hills High, or our President Pat McCann – St Joseph's Hunters Hill.

Just two other communication matters that need promoting. Sydney branch through Ian Judd and Sheree Bourke have placed a lot of work into developing an ongoing NSW Agriculture Teachers Data Base of 314 schools teaching Agriculture !! See BAAT article 'Are Your Schools Details Entered?'. Your details are pertinent to Point 6 AGM General Business. Please support this valuable database by faxing Sheree Bourke – Menai High on 02 9543 5513.

As we all know, district / region networking of Agriculture teachers is invaluable. Over many years many districts or old regions have met regularly and good things have resulted for members. Finally, to help in maintaining and updating our State networking, could the present district or regional reps fax myself on 02 6361 3616, as to who is the co-ordinator and a list of schools involved. The 1997/1998 list is in this BAAT edition, reconfirmation or changes of details will be needed.

Thanking You

Peter Napier

Secretary

PROFILES

PRESIDENT



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Teaching Agriculture for 12 years at Humpton High School, St Gregory's College Campbelltown, James Sheahan Catholic High Orange, Murrimbidgee College of Agriculture Yanco, and St Joseph's Hunters Hill

Interest in Sheep and Stud Cattle Has been involved in Rural Industries development and the implementation of Vocational Education in Schools.

TREASURER



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Teaching Agriculture for 7 years in a variety of schools, including Bede Polding College, Erskine Park High School, Bathurst High School, Mt Erin Catholic School, and Clare College Hassell Grove.

Interest in animals, especially horses.

SECRETARY



Peter John Napier
Dip.App.Sc. (AG) WAC, 1975
Dip.Ed. RCAE, 1976
Orange High School
ORANGE NSW 280

Ph 02 6362 3444 (BH)
Fax 02 6361 3616
Ph 02 6362 6295 (AH)

Teaching Agriculture for 22 years in a variety of schools, including Finley High 1977-1979, Gulargambone Central, 1988 - 1996, Young Technology High School 1988 - 1996, and Orange High School 1997 - Present date

BAAT Editor



Karen Damic
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Teaching Agriculture for 4 years. A term at Nyngan High School with a transfer to Bathurst High School.

Interest in animals, particularly sheep. Since teaching, have become involved in various activities, showing poultry and cattle, and developing new skills

Into The Millenium....

Professor John Chudleigh (Orange College Principal) spoke at length about the growth of Agriculture in Australia at the recent Biennial Conference.

'Your conference is important at this time when certain sectors of our agricultural industries and the press seem to be creating an image for agriculture which is not as positive as the facts suggest.

Dr Sheridan will elaborate on this paradox which I have called the 'Image Paradox'. On one hand we have many negative images of agriculture, or low commodity prices, drought, frost, poor farmers, and overseas competition, while the positive facts are; a growth industry, except for 1998/1999, which has increased exports by an average of over $1billion/year for each of the previous seven years, and which has created jobs in the last three years at a faster rate relatively than any other sector of the economy.

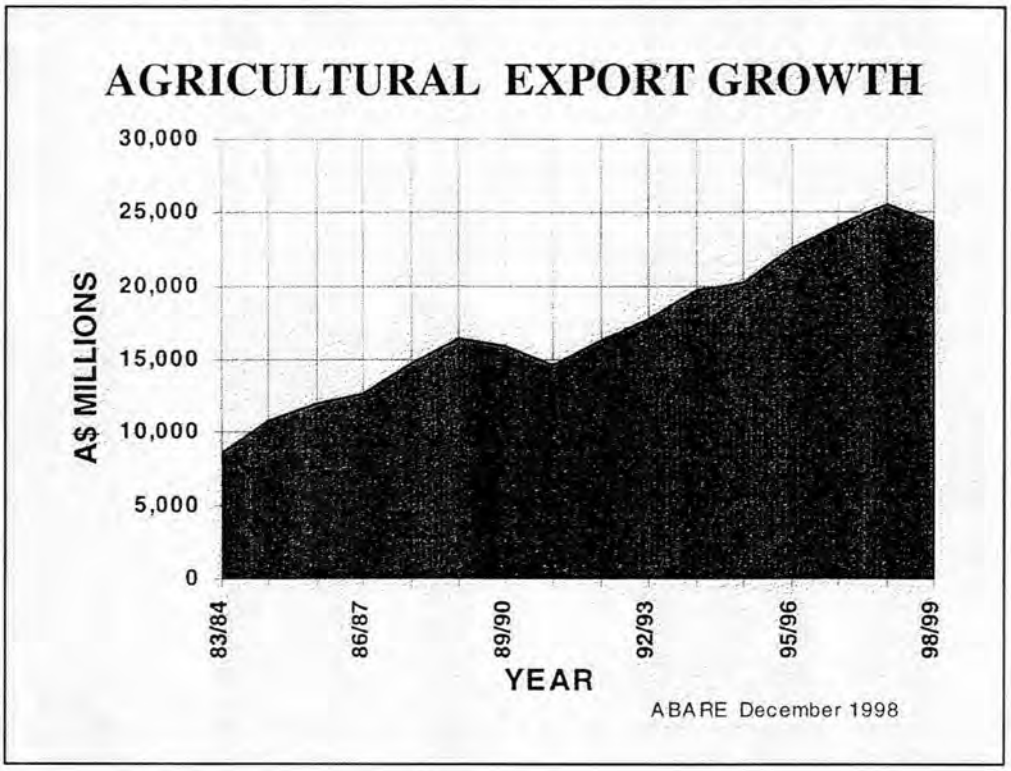
Chart 1 shows the continuing growth in agricultural exports which is reflecting new industries and a broadening of the base of agricultural production. Dr Sheridan will elaborate more on these new industries in his Opening Address.

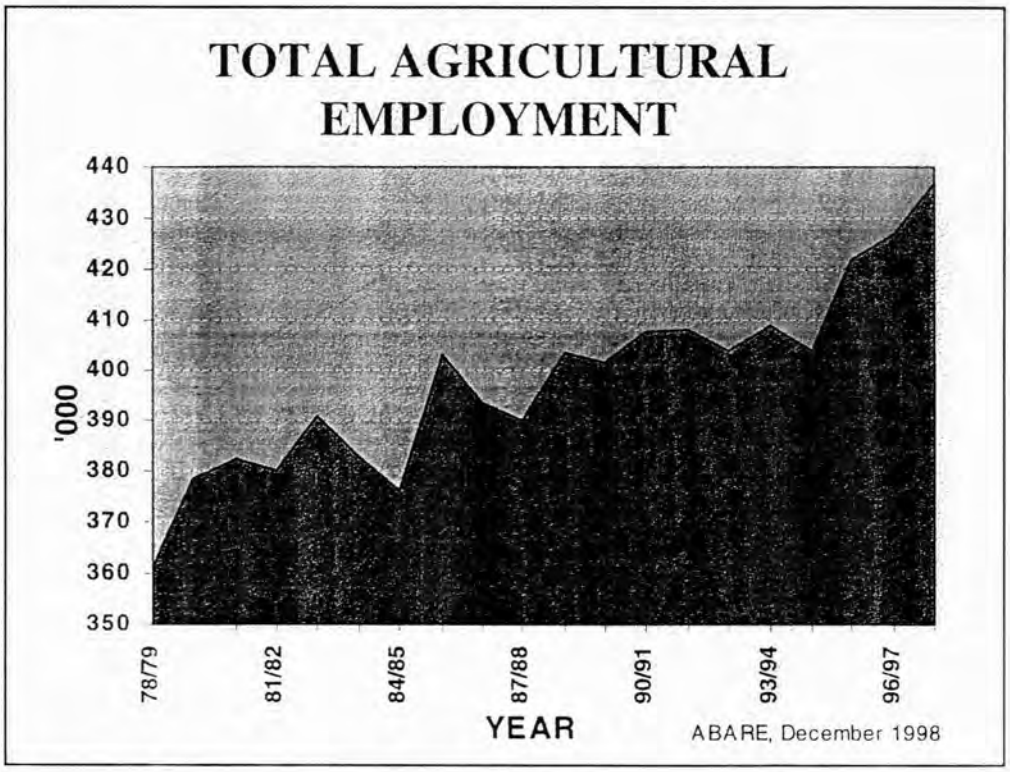
Chart 2 shows the total numbers employed in agriculture and its service sector and the dramatic growth of the last three years, including an increase of 10,000 new jobs expected in 1998/99 and over 1997/98.

This job growth is reflected in demand for the college's graduates which has never been higher. You can with confidence encourage young people to seek a career in agriculture through tertiary study as many jobs cannot be filled with qualified people. This shortage of well trained managers for a range of rural careers in the production as well as service sector is destined to worsen unless more young people are encouraged to follow a career in our great industries. This does not mean that they will become farmers, but will work in a wide range of careers associated with agriculture and which require a knowledge of our agricultural industries.

Enough of the educators perspective! I have pleasure in introducing the Director-General of Agriculture in NSW, Dr Kevin Sheridan, to open your conference.'

Professor John Chudleigh
College Principal


AGRICULTURAL EXPORT GROWTH
30,000
25,000
20,000
15,000
10,000
5,000
0
A$ MILLIONS
83/84
86/87
89/90
92/93
95/96
98/99
YEAR
ABARE December 1998


TOTAL AGRICULTURAL EMPLOYMENT
440
430
420
410
400
390
380
370
360
350
'000
78/79
81/82
84/85
87/88
90/91
93/94
96/97
YEAR
ABARE, December 1998

NSW ASSOCIATION OF AGRICULTURE TEACHERS 1999 BIENNIAL GENERAL MEETING



Held at Orange Agriculture College

Minutes of Biennial Meeting held for the election of office bearers for 1999/2000. Tuesday 19th January 1999 – Opened 6.05pm.

Apologies:- Dr Rod Francis, Jenni Wilkin, Russel Firth, Sheree Bourke

Presidents Report:- From President Sue Hope, Copy printed in BAAT and also distributed at AGM. Sue Hope spoke of her report.

Treasurers Report:- Presented by Treasurer Phil Armour. Copy of Association financial statement given to all members. Phil Armour spoke of the Report. Sec report be received Ian Judd, carried.

Business Arising:- No business arising from the minutes as tabled.

Officers declared vacant and nominations called to fill all the vacant positions. Chair taken by John Lee.

President: Patrick McCann (St Joseph's Hunters Hill) nom by Atila Babos sec Phil Armour. Accepted/Elected.

Secretary: Peter Napier (Orange High School) nom by Patrick McCann sec Craig O'Brien. Accepted/Elected.

Treasurer: Angela McCann (Clare Catholic College) nom by Karen Damic sec Nicolette Westerhof. Accepted/Elected.

BAAT Editor: Karen Damic (Bathurst High School) nom by Patrick McCann sec David Crofts. Accepted/Elected.

New President Patrick McCann acknowledged and thanked Sue Hope and outgoing executive for the outstanding job performed over the last two years.

First Meeting of 1999
NSW Association of Agriculture Teachers

Notices of Motion:

1. That the Association allocate $1,000 to the Sydney Branch each biennial to assist in funding the running of the Agriculture Competition and other such important events. Moved Sue Hope, Sec John Lee, Carried.

2. That an additional executive position be created to assist with the increasing need to assess technology in the Association. Moved Phil Armour, Sec Trevor Sewell that this matter be discussed in General Business.

3. That the Association support the 'Farm Chemical User Certificate Course' being accessible state wide. Moved by Sue Hope and Sec by Col McEntyre.

GENERAL BUSINESS

1. Ian Judd nominated Sydney (Uni of Western Sydney) as the host for the 201 Biennial Agriculture Teachers Conference. Dates and other details released in time. Sec Sue Hope, Carried.

2. From the second Notice of Motion that was earlier deferred. Discussion was had re Web site possibilities for the Association to assist with communication / technology. Points raised were considerations of cost, time, legalities, etc.

   New Motion moved 'That the executive access expertise to investigate the viability of the introduction and implementation of an Association web site." Moved Craig O'Brien, Sec David Crofts, Carried.

   Rob Forsberg (TAS Armidale) and Graham Quintal (Pennant Hills High) kindly offered to investigate web options after the AGM.

3. Sue Hope expressed concern at the benefits of the National Agriculture Teachers Association presently for the NSW Association. A letter of this concern was sent last year and still no reply! NSW membership costs over $1,000 /year.

   Moved Sue Hope 'That the new executive send a request to the NATA requesting they clearly indicate their role, present office bearers plus that at least four reports per year be furnished to NSW. The first report to be received and published by NSW in mid March this year.' Sec John Lee. Carried.

4. Moved by Lyle Brown 'That the NSW AAT membership be raised by $5 to $35 /annum, sec Craig O'Brien. Carried.

5. Moved by Peter Jones 'That Craig O'Brien and Phil Armour be the Association representatives at the State Advisory.' Sec Ian Judd, Carried.

6. All Association members encouraged by Ian Judd to be aware of issues affecting Agriculture Teachers and to fax Ian Judd (Menai High School 02 9543 5513). Fax details re concerns and please provide details to Ian Judd to complete the survey – 'Teacher and School Data Base'.

   Issues that our Federation through Peter Carruthers are looking into include:

   (a) Farm period allowance
   (b) Class size
   (c) Agriculture Teacher training
   (d) Farm chemical and Tractor safety

7. Moved Nigel Cox "That a vote of thanks, acknowledgement, and commendation be extended to Ivan Johnson (Ulladulla High school) for forty valuable years of education to NSW pupils'. Carried by acclimation.

8. Moved by Patrick McCann 'That a vote of thanks, acknowledgement and appreciation be extended to Atila Babos for providing the driving force behind this years' conference'.

There being no further business, the 1999 Biennial meeting closed at 7.35pm.

Peter Napier

Peter Napier
Secretary

NSW Ass Ag Teachers

Information to Share???

Send it in for the next BAAT Newsletter.

Ring Karen Damic on 02 6331 3755 or fax her on 02 6332 2302







NSWAAT Special Meeting

Special Meeting of NSWAAT and Other Groups

Monday 3rd May 1999 Bathurst 10.00am – 3.30pm

Present: Pat McCann, Angela McCann, Karen Damic, Peter Napier (NSWAAT Executive), Ken Langford, Michael Hawkesbury (West Uni), Reg Kidd (Ag Assist), Warwick Moore (Dept Ag), Tony Turner (SIG), Sheree Bourke, Karen Heap (Sydney Branch), Sue Hope, Phil Armour, Craig O'Brien (past NSWAAT Executive), Ivan Gant, Peter Green (BOS). **Apologies** Peter Jones.

1. Peter Green – New Primary Industries course spoke to issues, concerns and developments of Primary Industries. Teachers encouraged to complete Primary Industries survey. Peter will finish report for BAAT.

2. Ivan Gant – New stage 6 Agriculture Syllabus. BOS is acting on teacher feedback. Increase in practical areas with animals. Detail in support documents to be incorporated into syllabus. Dept to run thirteen state inservices later this year to develop working programs that day. Greater info placed onto BOS web site. Ivan will finish report for BAAT.

3. Karen Damic – Spoke on developments of upcoming Autumn BAAT magazine. Karen would like to see a greater contribution of practical items that would be of benefit to all teachers especially inexperienced teachers.

4. Reg Kidd – SILO spoke of the assistance program to help secondary education (largest body of Agriculture students) connect with invaluable work placements in many rural industries. Funding to employ a Project Officer to help co-ordinate such. Very successful example viewed on ABC TV Landline in Tullibegal district. Brochures available at Rural Skills. Fax ACT 02 62737364. Reg spoke on developments with School displays at Orange National Field Days. Discussion had as to judging criteria for School Farm displays and guidelines being issued to competing schools beforehand.

5. Ken Lanford reaffirmed Western Sydney University ongoing help for NSWAAT and teachers of agriculture. Some funds to help with workcover, occ health and safety particularly in areas of animal handling.

6. Warrick Moore Dept of Ag – Stated that there had been a 30% increase in student numbers with pupils undertaking some rural training courses eg Tocal College. Good possibility of the positive impact from School Agriculture with this increase. Warrick expressed the Dept Ag's keenness to support the NSWAAT. Also Yanco and Murrumbidgee College happy to assist with VOCED Training. Rural Youth possibilities for Sydney mentioned.

7. Pat McCann and Karen Heap spoke of ongoing developments and possibilities for NSWAAT on the Internet Web. NAAT through TEFA may obtain a National Web Site completely free. Investigations into the workings of a website for NSWAAT still continuing. continued..

NSWAAT Special Meeting

continued..

8. State Data Base (27pages – 314 schools) has been up and running as provided by Sydney branch. Fax Sheree Bourke, Menai High of your school Agriculture details. Possibility of NSWAAT members obtaining a disc of this database in the future.

9. Pat spoke of the need for promoting NSWAAT as a positive contributor to education through the NSWAAT providing awards in possibly cattle and lamb shows. Much discussion was had for the need to form a careful wholistic approach to what the NSWAAT could reasonably do and the need for the generation of NSWAAT funds through well considered sponsorship. For this issue to be resolved well more time was needed plus a small sub-committee containing industry experience in such matters.

10. Karen Heap emphasised the few active workers in Sydney Branch would find it very difficult to muster the time and manpower to organise the Junior State Wide Agriculture Competition. Discussion was had as to whether the competition should be a state or Sydney responsibility. In the meantime, Pat offered to advertise the need for a willing Ag teacher(s) to organise this years competition with $1,000 being paid to the co-ordinators.

11. Tony Turner SIG (Special Interest Group), spoke of the close work being carried out with Peter Carruthers in relation to federation matters such as class sizes. Also Peter Jones was close to having the manual for Farm Assistants released into Schools offering Agriculture.

12. Meeting closed at 3.30pm with the remaining two matters committed to BAAT, namely what is happening with NAAE (National Association of Agriculture Educators), and improving the network of District Co-ordinators.

Peter Napier

Secretary
NSWAAT

NSW Agriculture

Reminder

NSWAAT MEMBERSHIPS ARE NOW DUE

PINNAROO
RURAL CENTRE
AUSTRALIA'S LEADING CATTLE CENTRE

Pinaroo is centrally located in the Central West of NSW – Cowra (20min), Bathurst (55mins), and Orange (45min). All with airports, including Cudal.

Pinaroo – an update of Cattle Handling for experienced and inexperienced Ag Teachers

DATE: Friday 20th August 1999 9.00am – 4.00pm
Pinaroo via Canowindra

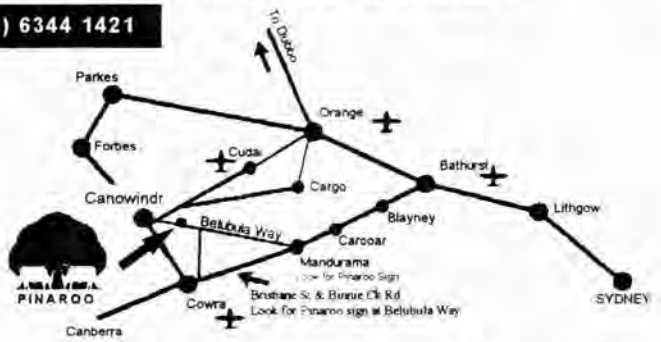
Registration (copy this page) and payment of $95.00 per person payable to: Pinaroo Rural Centre via Canowindra **due Friday 6th August 1999**
To Peter Napier, Orange High School, Woodward St, Orange 2800
Fax 63613616

Name:_____ **School**_____

Address_____ **ph/fax**_____

Due to the Pinaroo cost structure, a minimum of sixteen participants need to attend to keep the cost at this level.
If insufficient numbers by the deadline of Friday 6th August, the day will be cancelled and money refunded.
If the day goes ahead, **non-attendance** unfortunately means your registration CANNOT be refunded.

LOCATION MAP Phone (02) 6344 1421



Herd Management:
Planning, Crossbreeding, Recording, Nutrition

Artificial Breeding:
Overview, Video, Computer, Live Demonstration

Animal Handling:
Muster, Handling Individuals, Yard / Crush

Cattle Husbandry:
Identification of problems, Cause / Treatments, Instruments, Identification

Cattle Care / Quality Assurance:
Industry Issues, Outline of the Course.

NEWS FLASH

Increase in Jobs in Agriculture

The saying that Australia rides on the sheep's back will not change with the turn of the century, despite continual references to the nation's declining rural sector. The NSW Agricultural Teachers Conference in Orange brought to light the positive attitude of those involved in agricultural training and education and the opportunities available to young Australians.

ANNE BRANSDON investigates....

Increased job growth and export earnings in agriculture and primary industries are expected to continue to flourish in the 21st Century, following the trend of the past decade. It is just an image problem the experts need to work on, according to NSW Agriculture's staff training and development and education training program leader, Mr Warwick Moore.

"There is a paradox in agriculture. There has been a growth in jobs over the past three years and export earnings have been increasing consistently for the past 10 years, but people have this image that agriculture is dying", Mr Moore said.

In fact, Australian Bureau of Statistics figures show an increase of 30,000 agricultural jobs since 1995, taking the national figure to 437,000. Agricultural exports have also increased consistently from $15billion in 1990 - 1991, to $25billion in 1997 - 1998.

"That is over a billion dollars a year in the growth of exports," Mr Moore said. "In agricultural and direct agricultural services there is an image problem that people think the industry is not an industry to go into."

Expansion in the areas of marketing, communication, and management, success in some of the more traditional crops such as canola, vegetables, and cut flowers, as well as growing trends in new areas such as viticulture, would maintain Australia's strong educational base.

"There will be jobs there to support that. While traditional jobs may be in decline, other opportunities are opening up. That means real jobs for people with training, be it full time or seasonal," he said.

Have You Paid your NSWAAT Fees?

COTTON AUSTRALIA

VOCATIONAL EDUCATION IS CRUCIAL

The 21st Century will offer young Australians the opportunity to develop and diversify the nation's agriculture, and high schools are playing a crucial role in the training process.

Co-organiser of the NSW Agricultural Teachers Conference, Pat McCann, who taught Agriculture at James Sheahan High School for seven years, said rural producers who could diversify would survive, and vocational education at Higher School Certificate level played a major part in it.

He said vocational training provided a range of skills including animal and crop production, management strategies, soil preparation, fertiliser requirements, nutrition, and technology such as information gathering from the Internet.



NSW Agricultural Teachers conference Co-organiser, Pat McCann said vocational education was an important part of Australian Agriculture.

These issues, plus the new State syllabus of teaching agriculture and primary industries, were some of the areas canvassed at the conference at Orange Agricultural College.

'There are a lot more students choosing vocational education rather than the traditional two-unit course', Mr McCann said.



Bruce Ward from NSW Agriculture provides Internet Training for NSW agricultural teachers.

IMPORTANT TEACHING ROLE

ORANGE Agricultural College was host to 70 high school agricultural teachers from across NSW in January. College Principal Professor John Chudleigh said high school teachers played an important role in the development of Australia's agricultural industries.

"They inspire people to develop an interest in industries and because most high school students who study agriculture really enjoy the subject, many pursue the interest into tertiary studies and their careers," he said.

"Agriculture in high schools gives many city-based children a special opportunity to learn about food and fibre production. This is critically important for Australian agriculture, as our population is now overwhelmingly based in cities and on the coastline."

"Studying agriculture gives students a wonderful opportunity to understand how the interaction of science and technology, economics and politics, and the environment creates challenges and change in our lives. Agriculture is considered to be a practical, hands-on type subject and this enables many high school students to experience different ways of learning.

REGION TO LEAD IN VITICULTURE TRAINING

THE CENTRAL WEST has been chosen as one of the state's primary education regions for viticulture this year, with Canowindra, Orange, and Cowra offering vocational education courses.

The course, a two-unit Higher School Certificate subject, is being co-ordinated by the Murrumbidgee College of Agriculture, and is a two-year program developed from the Certificate II Food Processing Wine Traineeship.

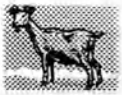
Students spend one afternoon a week involved in 70 per cent practical work and 30 per cent theory, and their performance is assessed under national competency standards.
Modules studied include harvesting, pruning, pests and diseases, irrigation, and occupational health and safety. In the second year, students study vineyard equipment, soil and canopy management, vine propagation, and vineyard establishment.

"Vocational courses give kids an opportunity who don't want to, or won't, go to University a head start in Agriculture," NSW Agriculture staff training and development education and training program leader, Warwick Moore, said.

"It is an opportunity for years 11 and 12 kids to study vocational courses that contribute to the HSC, but gives them a pathway into vocational courses past year 12," he said.



Ag-Craft 1999



Junior Judging Competition

At Hawkesbury District Agricultural Association's 'Hawkesbury AG-CRAFT Weekend'
To be held at Showground, Clarendon, on Saturday 28th and Sunday 29th August 1999.

Categories



Poultry
Goats/Angora/Boer Goats
Alpaca
Cattle/Beef/Dairy
Merino Sheep/Merino Fleece
Grain - Possible



Students of any age can participate.
Students between 15 years and under 25 years on 31st May in the year of the final at the Royal Easter Show and living in zone area will be eligible.
The competition will be divided into 2 classes:-

1. Under 15 years
2. Between 15 years and under 25 years.

Trophies/Ribbons will be awarded to winners and place-getters in both classes.
Talks will be held in conjunction with junior judging which will be useful to students interested in learning breeding standards and specifications.

Note: Junior Judging is free, but entrants will have to pay gate fee.
Please assist by returning the application ASAP to the secretary by mail.

For more information contact Carolyn Low on ph/fax 02 4588 5371
Postal Address: PO Box 382 Richmond NSW 2756

NSW AAT Membership

- A HUGE reminder that memberships are now due.
- A copy of the membership form can be found in this copy of BAAT.
- Remember your membership is tax deductible and you receive BAAT as well as any other information that is passed onto NSWAAT.
- Some schools also cover their teacher's membership within their school budget.

The 1999 Murray Grey Cattle Team at Royal Bathurst Show



Agriculture at BATHURST HIGH SCHOOL

Bathurst High School is situated in the City of Bathurst, in the Central Tablelands, New South Wales.

Agriculture at Bathurst High School, is taught to students in years seven and eight through the mandatory design and technology course. Students can then elect to continue agriculture through years nine and ten as an elective and year eleven and twelve in rural industries and two unit agriculture. The agriculture courses, for all years, are designed so that students study equal proportions of both theory and practical work in a wide range of topics.



Year 11, 2 Unit, students out for the day at a local farm.



The school farm is approximately five hectares. It consists of sheep and cattle yards, shade house, hot house, shed, wash bay and poultry cages, as well as permaculture and vegetable gardens. The farm caters for practical work to take place in both plant and animal production courses.

The main animal enterprise is prime lamb production. Students are taught the practical skills of shearing, vaccinating, drenching, and castrating the lambs, which are grazed and then sold at the local sale yards.



Year 9 students attempting to shear.

Show season at Bathurst High School is the most hectic time for agriculture staff and students. The Royal Bathurst Show, Orange Ag Show, the National Dubbo Steer Show, and the Australian National Field Days held at Orange, being the most important events on the agriculture calendar.

The Bathurst High School students spent the whole of first term working hard in preparation for the Royal Bathurst Show. Bathurst High exhibits Murray Grey and Angus cattle, prime lambs, poultry, giant pumpkins, and steward the animal nursery. Selected students are also given the chance to participate in the Young Country Rural Achievers programme run by the Royal Bathurst Show Society.

The giant pumpkins Bathurst High School exhibited at the show.



The animal nursery at the Royal Bathurst Show is organised, planned, and staffed, by Bathurst High students and staff. Students and staff put on a great display of animals every year, from a variety of enterprises such as poultry, miniature horses, alpacas, pigs, sheep, and cattle.



Students working in the animal nursery at the Royal Bathurst Show.

The Angus and Murray Grey cattle teams are very successful in the show ring and always leave with plenty of ribbons. The Murray Greys are bred by Mr & Mrs A Upton of Newhaven Park, Bathurst. The Angus cattle are bred by Mr & Mrs P Gilbert of 'The Meadows' Angus Cattle Stud or Oberon. Students are involved in breaking in the animals, preparing and parading.



The 1999 Angus Cattle team out in the paddock.

Cattle parading competitions are very competitive within our school. Students strive to achieve the ribbons awarded, and the more experienced members are always put up in the finals, against some of the best paraders as competition, and often come out with outstanding results.

The poultry team exhibit the school's own chooks and ducks in the Schools and Open Sections of the poultry competition. Every year is a successful year for the poultry team. The poultry team is continually growing with students now entering the judging competitions.



Some of the members of the 1999 Poultry Team at the Royal Bathurst Show.

The National Dubbo Steer Show is the most anticipated event among the students of Bathurst High School. The school buys steers and raises them on the farm for approximately five months. Students spend these five months feeding, breaking in, and washing, all in preparation for the steer show. All students previously involved with the steer show have made plenty of friends, had a great time, and have learnt about the beef cattle industry in a fun and practical way.



The 1998 Dubbo Steer Show Team with their steers.

Students also learn how to judge cattle, merino sheep and poultry. Students spend much time preparing and studying for their preferred judging competition. We have had success at shows in all categories with at least one student placing each year.

The Australian National Field Days is the finale of the Bathurst High School Show season. Ag students participate in the 'My School Farm' competition against other schools in the Central West. The students spend the whole year planning and working their site for this prestigious competition. Every one involved works together as a team and displays excellent school spirit as they represent the agriculture department of Bathurst High School.



The 1998 Australian National Field Days Team with their winnings.

The agriculture department could not be successful without the continual support of every one at Bathurst High School and the community.



The new wash bay built last year by students.

Written and prepared by Amanda Simons of Year 10, and Sarah Druce of Year 12 from Bathurst High School.

JAMES SHEAHAN HIGH SCHOOL ORANGE

RURAL INDUSTRIES

Waterloo, a 6,400ha property near Narromine, is an excellent location for students doing Year 11 and 12 Rural Industries. James Sheahan took sixteen students (for 6 days in April) to Narromine to fulfil their practical requirements.

The property has a diverse range of enterprises and is currently initiating a million dollar investment in irrigated cotton.

Enterprises available include:-

Beef Cattle
Fat Lamb Production
Wool Production
Dryland Cropping
Cotton



Year 11 & 12 Rural Industry Classes, James Sheahan High School, and Mr & Mrs Gill

Adjoining properties also provided work so that students could undertake a variety of activities, including: -

- Working in shearing sheds.
- Driving utes and tractors.
- Lamb marking.
- Presentations by district agronomists.
- Welding and machinery maintenance.
- Mustering stock on motorbikes.
- Drafting, counting and working with sheep and cattle.
- Stick picking.
- Cropping activities such as innoculating seed.
- Fencing.

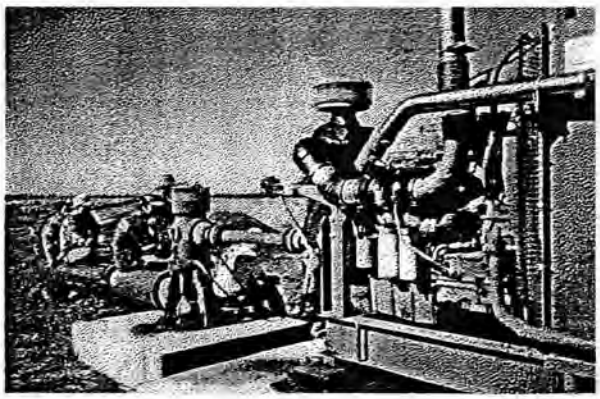
The property provides full board and keep, and Mr Gill, his wife and 2 sons provide assistance for all activities.



Sleeping Quarters



Waterloo, Shearing Quarters



Engines for pumping water to cotton



Cat tractor for cropping enterprises

COST OF AN EXCURSION FOR 15 STUDENTS WOULD BE:

15 Students Full Board and Keep 6 days @ $30 per day	$ 2,700.00
Use of farm facilities, machinery and farmers time, labour & supervision @ $200 per day	$ 1,200.00
TOTAL COST:	**$ 3,900.00**

Funding is available for these activities and this property is well worth considering if you teach Rural Industries.



Students mustering stock



Students moving hay

S.I.G. Is Still Alive

YES !!! The Special Interest Group is still operating out of Sydney Branch.

It is our political link through Federation pursuing issues such as:-

Period Allocations for Ag Teachers

Class Sizes for Agriculture

Want to be involved??

You have to be a Federation Member,
and involved in Agriculture.

Contact Tony Turner (SIG President) to receive relevant information, minutes of meetings, general progress.

Cotton Australia's World Wide Web Site -
www.cottonaustralia.com.au
Carries a lot of general information on cotton growing in Australia; and we can be emailed for further information on
cottonaus@cottonaustralia.com.au

This web site includes an interactive education section where students can, among other things, design their own farm, including setting up crop rotations, etc



Reminder..

NSWAAT Membership Fees Now DUE

1998 2/3 UNIT (Common) AGRICULTURE SAMPLE ANSWERS

The NSW Association of Agriculture Teachers

Acknowledges the support of the Office of the Board of Studies in the production of the 1998 HSC Agriculture 2/3 Unit Examination
© Board of Studies

Please note:

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- *The Board of Studies is not responsible for the answers described in this document.*

1998

AGRICULTURE

2/3 UNIT (COMMON)

SECTION I

(20 Marks)

Total time allowed for Sections I, II, III and IV—Three hours
(Plus 5 minutes reading time)

SAMPLE ANSWERS

DIRECTIONS TO CANDIDATES

- Write your Student Number and Centre Number at the top right-hand corner of this page.
- Board-approved calculators may be used.

Section I

- Attempt ALL questions.
- Answer the questions in the spaces provided in this paper.

MARKER'S USE ONLY

SECTION I

(20 Marks)

Attempt ALL questions.

Allow about 35 minutes for this Section.

QUESTION 1

(a)

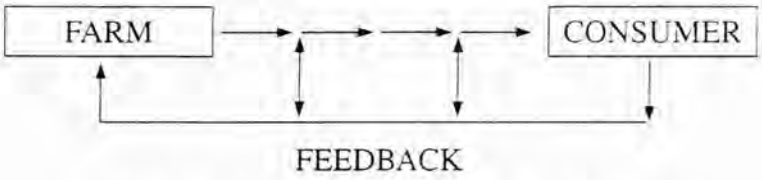


FIG. 1. A MODEL OF AGRICULTURAL MARKETING

Name ONE farm product you have studied.

Name of farm product ..... PRIME LAMB .....

(i) List TWO steps that occur in the marketing chain as the product moves from farm to consumer as shown in Figure 1.

1. Slaughtering (includes preparation for slaughter, removal of intestines and skin.)
2. Boning and packaging.

(ii) For ONE of the steps listed in part (a) (i), outline how this step affects the product received by the consumer.

Marketing chain step ..... Boning and Packaging .....

During boning and packaging, the meat is prepared into marketable sizes. It is trimmed and presented in an attractive style and protected from contamination.

(iii) Outline how feedback influences farmer decision making for the product.

Feedback helps them make their product meet product specifications and achieve top prices, e.g. kill sheets showing fat, carcase weight, and eye muscle area, can be used to select sires, formulate feed rations and determine when to sell.

QUESTION 1. (Continued)

MARKER'S USE ONLY

(b)

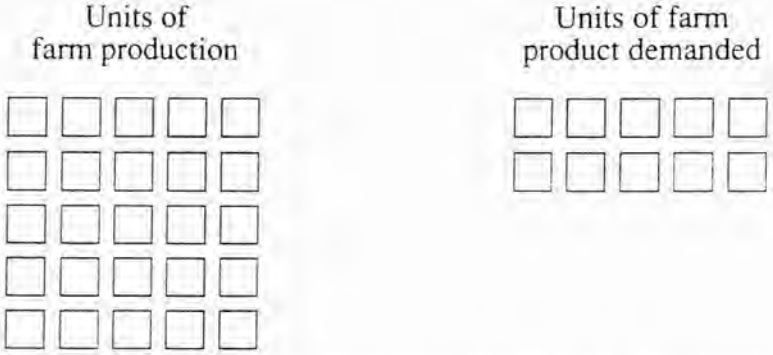


FIG. 2. RELATIVE QUANTITIES OF PRODUCT SUPPLIED AND DEMANDED

(i) State the problem illustrated in Figure 2.

An excess of supply can cause price (income) drop.

(ii) Outline TWO strategies that a producer could use to overcome the problem you identified in Figure 2.

1. On farm storage to reduce the supply onto the market and hold the product in the hope (or prediction) that prices will improve through increase in demand or reduction of supply.

2. Add value to make the product more saleable - could create a niche market through value adding. This may increase demand for the product or make the low product price more profitable.

(iii) Name ONE off-farm agency/organisation, and outline how it might help to overcome the problem in Figure 2.

CALM - (Computer Aided Livestock Marketing) can reach a much wider market and offers sale by specification and description which enables more buyers to be in the sale.

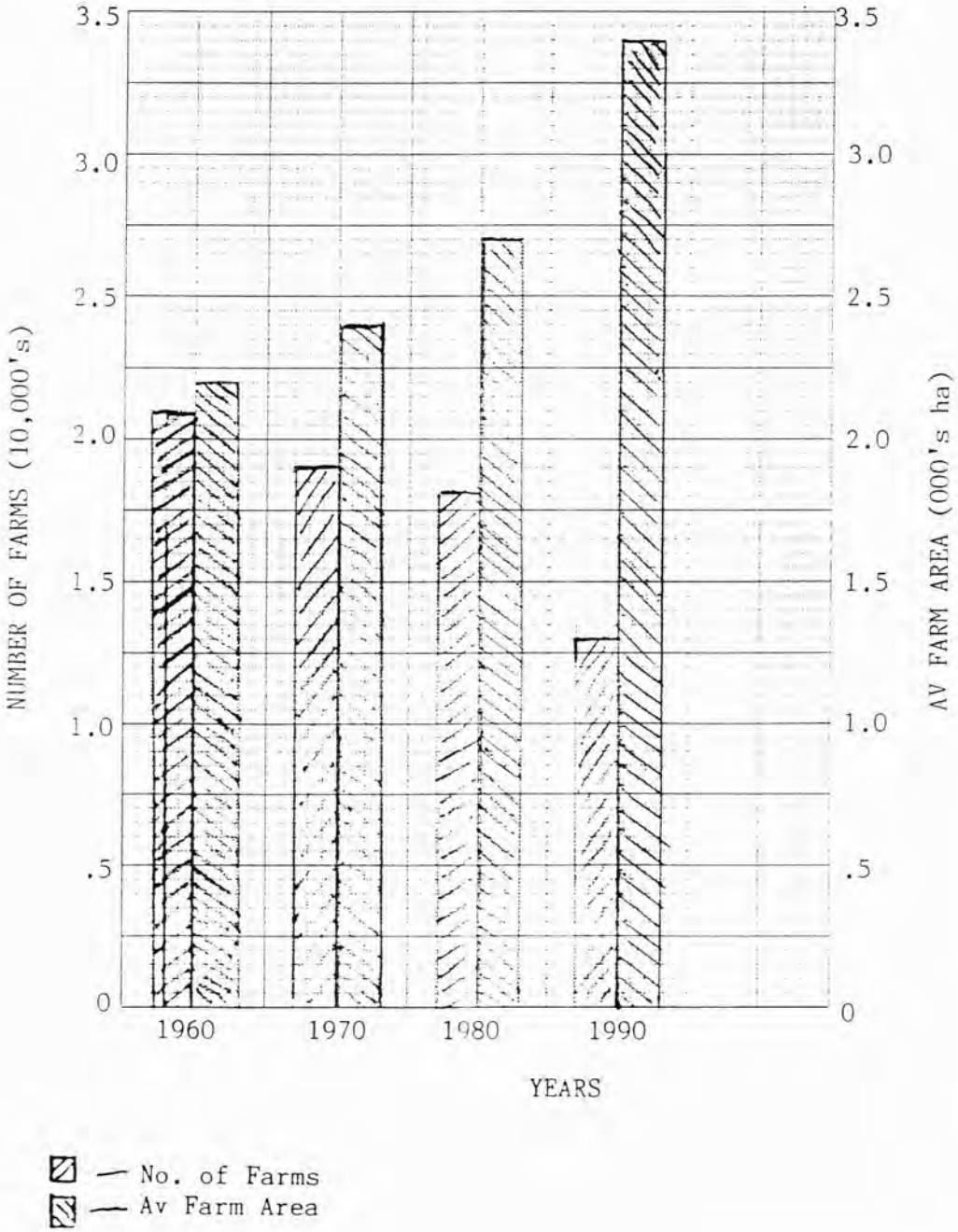
QUESTION 2

MARKER'S USE ONLY

TABLE 1. CHANGE IN FARM OWNERSHIP

	Number of farms (10 000s)	*Average farm area ha* (000s)
1960	2·1	2·2
1970	1·9	2·4
1980	1·8	2·7
1990	1·3	3·4

(a) Use a bar graph to represent the data from Table 1 on the grid below.



5

QUESTION 2. (Continued)

MARKER'S USE ONLY

(b) From your graph, describe the trends for farm ownership in Australia.

Declining number of farms, but farm size increasing. 2

(c) Describe the possible role/impact of technology on these trends.

Specific technology with an example, relate the effect clearly on to show the trend. 3

(d) State TWO factors, other than technology, that may have contributed to these trends.

(i) Scales of Production/Economics/Production Costs

(ii) Decrease prices, better 'off-farm' opportunities, increase corporation farming. 2

(e) Describe the social implications of these trends on the wider rural community.

Reduced rural population, reduced work force, demise of rural towns, decrease in rural industry/business. Increase corporate farms/hobby farms, changing rural demographics and populations, increase in stress - family breakdown → suicides. 4

QUESTION 3

MARKER'S USE ONLY

A crop was growing poorly. Soil tests were taken from the paddock and these, combined with observation of plant symptoms, suggested that growth was limited by either sulfur or potassium, or a combination of both nutrients. Soil samples were collected from the site and a glasshouse pot trial was set up with five replications of the following treatments:

- control
- potassium fertiliser (50 kg K/ha)
- sulfur fertiliser (40 kg S/ha).

The results given in Table 2 show dry matter yields (grams/pot) when the plants were cut after eight week's growth.

TABLE 2. DRY MATTER YIELD. (g/pot)

	DRY MATTER YIELD (g/pot)					
Treatment	*Rep. 1*	*Rep. 2*	*Rep. 3*	*Rep. 4*	*Rep. 5*	*Mean*
Control	1·8	2·5	2·0	2·2	1·5	2·0
Potassium	2·3	2·7	2·0	2·1	2·4	2·3
Sulfur	6·2	5·7	5·3	6·5	6·3	

(a) Calculate the mean yield for the sulfur treatment.

The mean for the Sulfur treatment is 6.0g/pot.

(b) Outline the contents of the pots in the control treatment in this experiment.

The pots comprising the control contain soil samples from the paddock and plants. No fertiliser was added to the pots.

(c) Which nutrient was the main limitation to growth?

Sulfur was the major limiting factor to growth.

(d) Outline an additional treatment that should have been included in the glasshouse experiment to answer the question suggested by the soil test results.

An additional treatment which should have been included would be a combined treatment of Sulfur and Potassium.

(e) Describe further experimental work that would need to be done before making field recommendations about fertiliser rates.

Further experimental work would include trial plots, then field trials involving the treatments and control, as well as a combined treatment. Statistical and economical analysis of results required to form the basis of recommendations.

1998

AGRICULTURE

2/3 UNIT (COMMON)

SECTION II

(45 Marks)

Total time allowed for Sections I, II, III and IV—Three hours
(Plus 5 minutes reading time)

SAMPLE ANSWERS

DIRECTIONS TO CANDIDATES

- Write your Student Number and Centre Number at the top right-hand corner of this page.
- Board-approved calculators may be used.

Section II

- Attempt THREE questions.
- Answer the questions in the spaces provided in this paper.
- Place a tick in the boxes on this page to indicate the questions you have attempted in Section II.

MARKER'S USE ONLY

SECTION II

(45 marks)

Attempt THREE questions.

Each question is worth 15 marks.

Allow about 80 minutes for this Section.

QUESTION 4

(a) Table 3 shows the average feed conversion ratios (FCR) that were determined for two groups of animals in a feeding trial.

TABLE 3. RESULTS OF A FEEDING TRIAL

GROUP A				GROUP B			
Pen	*Feed in kg*	*Weight gain in kg*	*FCR*	*Pen*	*Feed in kg*	*Weight gain in kg*	*FCR*
1	58·0	5·0	11·6	1	28·0	5·6	5·0
2	116·0	8·0		2	24·8	5·5	4·5
3	86·4	7·2	12·0	3	32·8	8·0	4·1

(i) Calculate the feed conversion ratio for Pen 2 in Group A.

14.5 1

(ii) On the basis of the data presented in Table 3, explain which group is most likely to be monogastric.

Group B is most likely to be monogastric as the Food Conversion Ratios are lower than Group A. 2

(iii) Explain why animals in Group A have such a high feed conversion ratio.

The animals in Group A are ruminant. Ruminants have a high feed conversion ratio due to the energy losses from methane and CO_2 (g) production from microbial fermentation, the degredation of high quality protein into microbial protein and the generally low quality feed fed. 3

QUESTION 4. (Continued)

MARKER'S USE ONLY

(iv) Describe ONE practice that can be used by producers to aid ruminant digestion.

The practice of feeding protected proteins to protect them from degradation by microbes in the rumen. They can then be more efficiently digested in the small intestine. 3

(b)

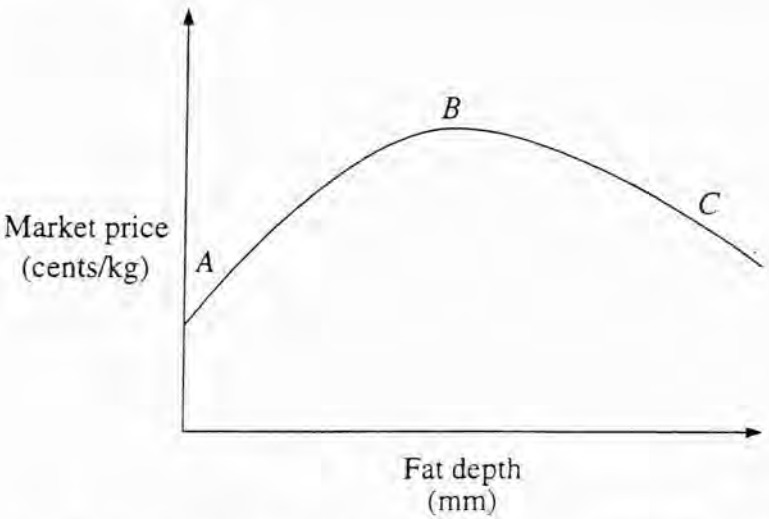


FIG. 3. RELATIONSHIP BETWEEN MARKET PRICE AND FAT DEPTH

(i) Describe the relationship illustrated in Figure 3 above.

Market price increases as fat depth increases to the optimum point 'B'. Market price decreases with increasing fat depth after 'B'. 2

(ii) Give ONE reason for the market price trend between *B* and *C*.

There is a low demand by consumers for meat with a high fat depth, therefore there is a reduced return for high fat depth. 2

(iii) Explain why a farm manager may decide to sell animals at a point other than *B*.

During a drought a farmer may sell animals before they reach point 'B', as the cost of supplementary feeds may be greater than the increased price recovered for meat/animal with increased fat. 3

Question 4 continues on page 12

QUESTION 4. (Continued)

MARKER'S USE ONLY

(c) For a named animal production system, answer the following questions.

Animal production system ..... DAIRY CATTLE 0

(i) Outline how ONE animal characteristic, other than fat depth, affects the price received by the farmer.

Payment for milk involves compositional payments. The higher the protein percentage of milk, the higher the price received by the Farmer. 3

(ii) Explain how selective breeding can be used to improve the quality of the animal product in this animal production system.

Using ABV's, farmers can select bulls whose daughters' produce milk with high protein levels. The semen from these bulls is used in an AI program. 3

(iii) Describe ONE management practice that aims to maximise the reproductive efficiency of the animal production system.

Accurate heat detection ensures artificial insemination occurs at the most fertile period thereby reducing the calving interval and maximising reproductive efficiency. 3

(iv) For a named pest, describe how it affects the productivity of the animal production system.

Staphylacoccal bacteria cause mastitis in dairy cows which causes a dramatic drop in milk production and reduces the quality of the milk by increasing the somatic cell count. 3

QUESTION 5

MARKER'S USE ONLY

(a) Experiments were carried out to determine the number of days it took for vegetable seedlings to emerge at different temperatures. The data for the experiment are shown in Table 4.

TABLE 4. NUMBER OF DAYS FOR VEGETABLE SEEDLINGS TO EMERGE AT DIFFERENT TEMPERATURES

Vegetable	*0°C*	*5°C*	*10°C*	*15°C*	*20°C*	*25°C*	*30°C*	*35°C*	*40°C*
Carrot	–	51	18	10	7	6	6	9	–
Lettuce	49	15	7	4	3	2	3	–	–
Radish	–	30	11	6	4	4	3	–	–
Tomato	–	–	43	14	8	6	6	9	–

(i) What is the temperature for the most rapid emergence of lettuce seedlings?

25°C 1

(ii) Explain why seedlings take longer to emerge at lower temperatures.

They require conditions which trigger hormone and enzyme release, like the right moisture and warmth. 2

(iii) Describe ONE management technique that a farmer may use to reduce the effect of low temperatures on the emergence of seedlings.

Place seeds in a greenhouse where the temperature is warmer, or can be controlled, then transplant them. 2

Question 5 continues on page 14

QUESTION 5. (Continued)

MARKER'S USE ONLY

(b) At all stages in the life cycle of a plant, the plant interacts with its environment.

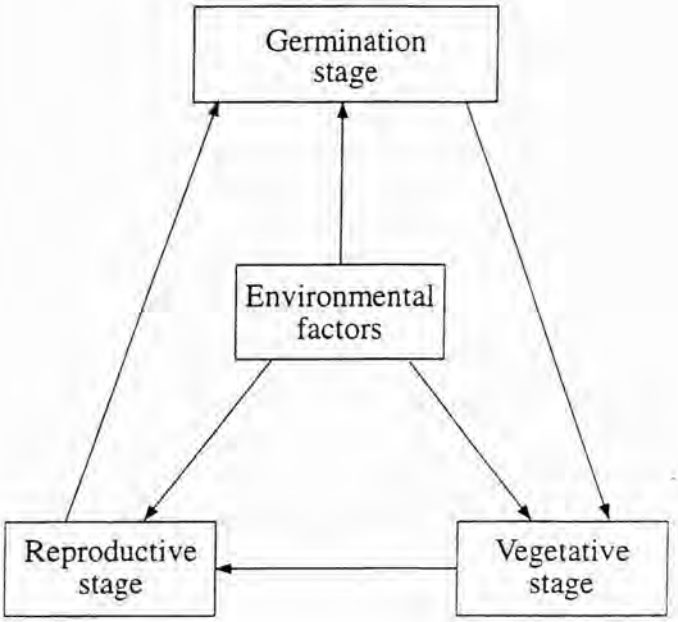


FIG. 4. INTERACTION OF THE PLANT LIFE CYCLE AND THE ENVIRONMENT

(i) Name TWO environmental factors, other than temperature, that affect plant growth and development.

1. Sunlight 1

2. Amount of precipitation 1

(ii) For ONE environmental factor named in part (b) (i), explain how its impact on the stages of the plant life cycle affects the final plant product.

Sunlight is essential for plant growth. It provides warmth (energy) to trigger germination stage. It helps the plant photosynthesise to manufacture sugars, starches and cellulose for tissues in the vegetation stage. These products of photosynthesis are pumped into flowers and fruits in the reproduction stage. 6

QUESTION 5. (Continued)

MARKER'S USE ONLY

(c) (i) Outline why a top dressing of artificial nitrogenous fertiliser is often applied to a pasture for the benefit of:

1. pasture plants;

Increases amount of N in soil - essential to plant proteins. Replaces N lost in production, increases yield. 2

2. grazing animals.

Extra N means more feed of better quality resulting in quicker finishing, bigger, healthier. 2

(ii) Describe the possible negative effects of the nutrients in fertilisers on waterways in the wider ecosystem.

Nutrients in fertiliser may be washed or leached into waterways causing excessive algal growth, eutrophication ↓O_2 and possibly poisoning of stock and humans using H_2O. 3

(iii) Describe ONE strategy that a farmer could use to help prevent the nutrients in fertilisers being transferred to the wider ecosystem.

Could apply the optimum amount using a technique like banding when soil moisture is right as opposed to broadcasting. 2

(iv) Explain how micro-organisms are involved in ONE alternative method of providing nitrogen for pastures.

Rhizobia-bacteria symbiotically infecting legume roots cause nodules. These slough, decompose and then become available to other plants. Host plant provides sugars while rhizobia trap atmospheric N → host plant but produce more than needed. 4

(v) Trampling of pastures is a major cause of lost production. Describe TWO management techniques a farmer might use to reduce the loss of pasture due to trampling by animals.

1. He could use techniques like strip grazing where the movement of animals is controlled to minimise trampling. 2

2. Cell grazing, where animals are on a pasture for a minimal time to minimise trampling and maximise recovery. 2

QUESTION 6

MARKER'S USE ONLY

(a) Farmers may use oats for both grazing and grain production. Grazing an oat crop during the vegetative phase affects subsequent grain production. Figure 5 shows the effect of the time of grazing on oat grain yield and sheep liveweight gain when compared with no grazing.

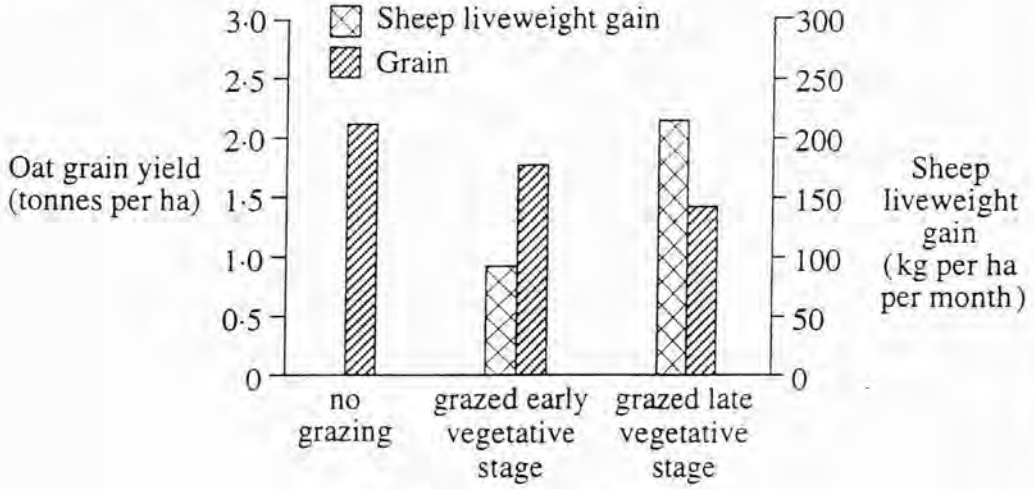


FIG. 5. TIME OF GRAZING, OAT GRAIN YIELD AND SHEEP LIVEWEIGHT GAIN

(i) Describe the effect of the time of grazing on:

1. oat grain yield:

Grazing lowers yield of grain - Grazing in the late vegetative stage lowers grain yield even more than grazing in the early vegetative stage. 2

2. sheep liveweight gain.

Grazing late leads to more liveweight gain than grazing early. 2

(ii) What further information would a producer need to make a financial analysis, to assess if or when to graze the crop?

The producer would need to know the market prices being received for oats and sheep. Also the costs of feeding sheep on different pastures or hays, also the costs involved in producing grain and sheep (eg cost of seeds, vaccines). 4

(iii) Describe a form of financial analysis that could be used to determine the most profitable management option for oats.

By using gross margins of the sheep and oats to determine the higher return per acre or hectare. 2

QUESTION 6. (Continued)

MARKER'S USE ONLY

(b) Figure 6 shows the effect of the rate of selection of bulls on genetic gain.

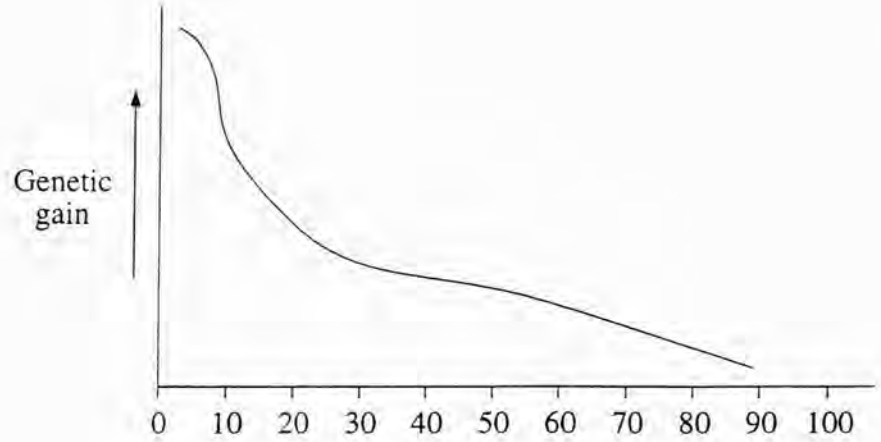


FIG. 6. PERCENTAGE OF BULLS SELECTED FOR BREEDING

(i) State the relationship between the percentage of bulls selected for breeding and genetic gain.

The lower the percentage of bulls selected, the greater the genetic gain. 1

(ii) Outline an implication of this relationship for farmers involved in on-farm breeding programs.

Farmers would need to select for a particular trait(s), eg eye muscle area possibly using EBV's. 2

(iii) For an animal system you have studied, explain the changes in management that should occur to achieve the potential of the genetic gain.

Animal system BEEF	0

The farmer should ensure that cattle are fed adequate nutrition, control pest and diseases, and ensure animals are suited to the climate so that environmental factors do not restrict cattle from meeting genetic potential. 4

Question 6 continues on page 18

QUESTION 6. (Continued)

MARKER'S USE ONLY

(c) A market garden was mulched with wheat straw on one area and legume hay on another. After a period of time it was observed that the mass of legume hay was considerably reduced, compared to the wheat straw.

(i) List THREE reasons why the garden was mulched.

1. To reduce evaporation ie to increase soil water.

2. To increase the level of organic matter in the soil.

3. To increase nutrients such as nitrogen in the soil.

(ii) Explain why the mass of legume hay decreased at a faster rate than the wheat straw.

Wheat straw is higher in lignin than legume hay, and lignin takes longer to break down. 2

(iii) Describe TWO effects the decomposition of legume hay would have on soil properties.

1. nutrients (especially nitrogen) will be returned to the soil. 1

2. improve soil structure by turning into humus which binds the soil. 1

(iv) State the effect mulching has on the number of earthworms in the soil. Give reasons for your answer.

Increases earthworm numbers since it keeps the soil warmer and more moist, and earthworms are attracted to this. Also earthworms are drawn to its food supply of organic matter. 3

(v) Describe the effect of the breakdown of organic matter by earthworms on physical and chemical properties of soil.

The burrowing down by earthworms increases aeration in the soil. They help to speed up the breakdown of organic matter, and the castings increase soil nutrients. 3

QUESTION 7

MARKER'S USE ONLY

(a) Figure 7 is a diary extract from a researcher who was collecting data on insect numbers in response to the number of natural predators. The researcher took three samples of insects and predators in each sampling.

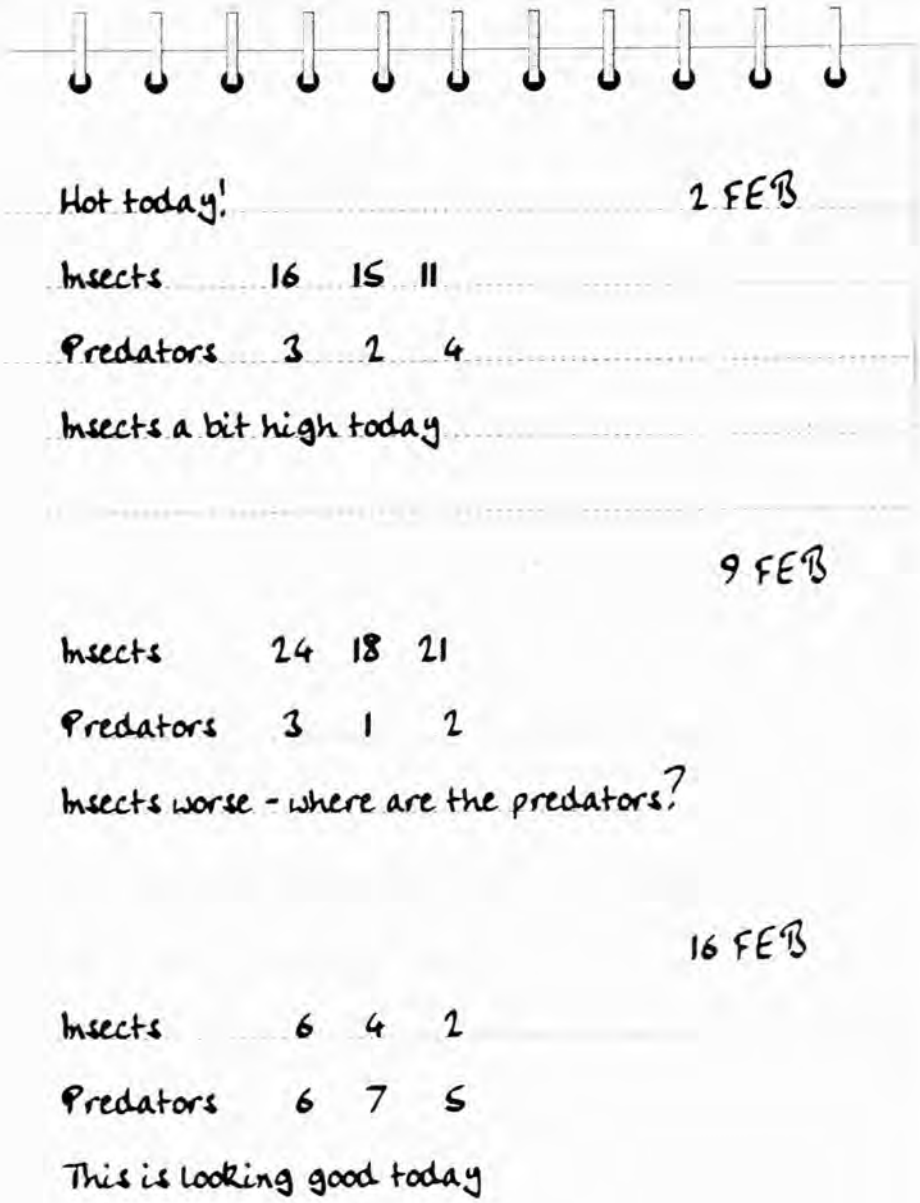


FIG. 7. A DIARY EXTRACT

QUESTION 7. (Continued)

MARKER'S USE ONLY

(i) The following question refers to Figure 7.

In order to observe the trends in the populations over time, the researcher must calculate means.

Construct a table in the space below that best represents the insect and predator data that could be calculated from the researcher's diary.

DATE	INSECT	PREDATOR	MEAN INSECTS	MEAN PREDATORS
2 FEB	16	3		
	15	2	14	3
	11	4		
9 FEB	24	3		
	18	1	21	2
	21	2		
16 FEB	6	6		
	4	7	4	6
	2	5		

(ii) Describe a possible reason for the trends shown in the data in your table.

The number of predators was low, due to low numbers of insects/food. As insect numbers rise due to climate or breeding season, the predator also increases in number.

(iii) Explain how information like this could be used in finding a method of control for an agricultural insect pest.

Determine when insect pest is reproducing. Destroy pest and offspring with influx of predator followed by a chemical control.

Question 7 continues on page 22

QUESTION 7. (Continued)

MARKER'S USE ONLY

(b) Figure 8 illustrates how the characteristics of soil quality provide a link between farming strategies and sustainable agriculture.

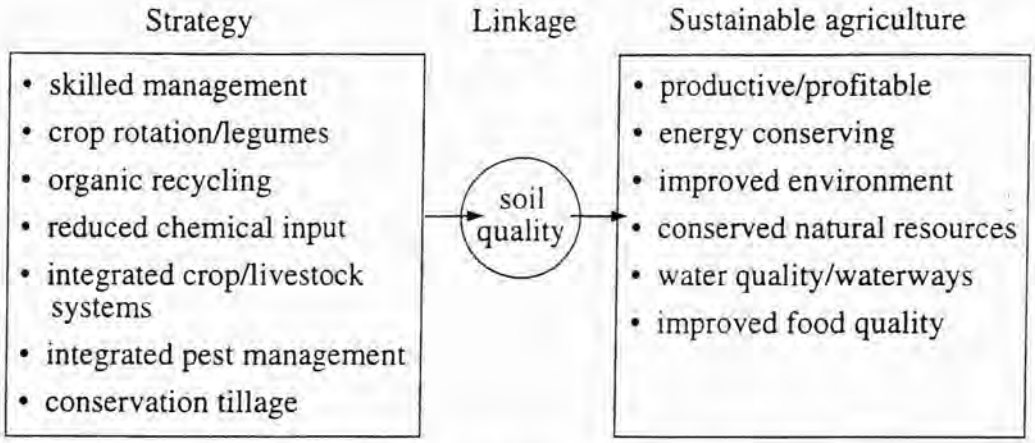


FIG. 8. FARM STRATEGIES AND SUSTAINABLE AGRICULTURE

(i) Describe how the strategy of crop rotation benefits cropping systems.

Crop rotation with cereals and legumes benefit the soil, as legumes fix nitrogen into the soil reducing fertilisers needed for the cereal crop. It also offers a disease break requiring less chemical input.

(ii) Figure 8 has soil quality as a central link in agricultural systems.

1. List THREE characteristics that can describe soil quality.

A. Structure

B. Texture

C. Water holding capacity

2. Describe a management practice that can adversely affect ONE of the characteristics listed in part (b) (ii).

Soil characteristic structure

Traditional tillage practices can lead to soil structure decline.

QUESTION 7. (Continued)

MARKER'S USE ONLY

(iii) From Figure 8, explain how soil quality affects the link between reduced chemical input and:

1. improved food quality;

High quality soils need less chemical input. Organic fertilisers can be used to grow organic food.

2. conserved natural resources.

Less chemical input due to high soil quality means less incidence of chemical runoff affecting waterways.

(iv) Describe an integrated pest management (IPM) program for a named plant production system that you have studied.

Plant production system Cabbages / Cotton / etc

Biological

Chemical

Genetic

Manual / Cultural

(v) For the IPM system you described in part (b) (iv), outline the role of skilled management in its implementation.

Knowing when to implement each control method, so that it does not cause production losses, resistance in pests, or decrease efficiency.

SAMPLE ANSWERS

1998

AGRICULTURE

2/3 UNIT (COMMON)

SECTION III

(20 Marks)

SECTION IV

(15 Marks)

Total time allowed for Sections I, II, III and IV—Three hours
(Plus 5 minutes reading time)

DIRECTIONS TO CANDIDATES

- Write your Student Number and Centre Number at the top right-hand corner of this page.
- Board-approved calculators may be used.

Section III

- Attempt ONE question.
- Answer the question in the spaces provided in this paper.
- Place a tick in the box on this page to indicate the question you have attempted in Section III.

Section IV

- Attempt ONE question.
- Answer the question in a SEPARATE Writing Booklet.
- You may ask for additional Writing Booklets if you need them.

SECTION III

(20 marks)

Attempt ONE question.

Each question is worth 20 marks.

Allow about 35 minutes for this Section.

MARKER'S USE ONLY

QUESTION 8. Plant Production

(a) (i) Outline the role of ONE plant hormone in plant growth and development.

The hormone Ethylene is used to ripen fruit eg in the banana industry. 2

(ii) Describe how this plant hormone can be used to manipulate plant production.

This hormone Ethylene is used on green fruit at the market place to bring about the process of ripening. Fruit is picked green for transport. 3

(b) (i) Distinguish between vegetative and reproductive yield in terms of plant growth and development.

Vegetative yield is the product of growth prior to the commencement of the reproductive phase, e.g. leaves and stems. The reproductive yield is the flowers, fruit or seed produced after this stage. 4

QUESTION 8. (Continued)

MARKER'S USE ONLY

(ii) For a named plant production system you have studied, answer the following questions.

Plant production system ..... Wheat .....

1. State whether vegetative or reproductive yield is the most important for economic product.

Reproductive 1

2. Explain how plant density affects the yield from the named plant production system.

With increasing density, wheat yield increases - to an optimum point, when yield starts to decrease because of competition for light, water, nutrients. 4

(c) (i) Describe the technique of tissue culture.

A small piece of meristematic tissue (eg bud) is placed in sterile agar with hormones in it under constant light and temperature condition, to grow a new plant asexually. 4

(ii) State TWO advantages of tissue culture for a plant production system.

1. Breed varieties which are disease free.

2. Rapid spread of superior genetic material. 2

Question 8 continues on page 28

QUESTION 8. (Continued)

MARKER'S USE ONLY

(d) Photosynthesis is the basis of plant growth.

Describe the process of photosynthesis.
Describe techniques farmers can use to manipulate the process of photosynthesis.

During photosynthesis energy in the form of light is absorbed by the chlorophyll in the leaf. This energy is used with carbon dioxide and water to form simple sugars.

$6CO_2 + 12H_2O$ --------(light energy chlorophyll)

------- $C_6H_{12}O_6 + 6O_2 + 6H_2O$

The process of photosynthesis is not really as simple as the formula above. There are two phases:
1. the Light Phase which is in the presence of light. Here an NADP molecule forms $NADPH_2$ from hydrogen which was split from a water molecule by the light energy. ATP is also made from ADP. BOth ADP and $NADPH_2$ are energy rich.
2. the Dark Phase occurs in the chloroplast. ADP and $NADPH_2$ combines carbon dioxide with other substances to form sugars such as glucose.

Many factors affect the rate of photosynthesis. These include temperature, light, water, mineral nutrients, the type of plant and carbon dioxide levels. Farmers can manipulate some of these in their plant production enterprises.
Light; Farmers can ensure that plants get maximum light. This can be done by using trellising systems (in viticulture and horticulture crops) that give the leaves maximum exposure to sunlight. Shade cloth is used to restrict light but as most plant production involves utilisation of the sun's energy, this would be an unusual farming practice.
Temperature. Plants are eiter C3 or C4 plants. Both have optimum temperatures, the C3 being approximately 23-25 degrees celsius and the C4 optimum in the low 30s. Farmers can use C4 to increase energy yields, eg rice instead of wheat. Greenhouse or glasshouses with heat control are often used to increase the effiency of photosynthesis.
Carbon Dioxide levels can be increased in greenhouses and if ventilation is poor, carbon dioxide can decrease with a corresponding increas in oxygen.
Water is very important to photosynthesis and plant health and irrigation is a common method to improve plant production.
Mineral nutrients are both indirectly and directly involved with photosynthesis. Phosphorus is directly involved with the process and the use of phosphatic fertiliser can improve photosynthetic efficiency. General plant health can be improved with the correct nutrient balance. Similarly a well planned disease and pest control program can also ensure that the plant is in good health and at maximum photosynthetic efficiency.

QUESTION 9. Animal Production

MARKER'S USE ONLY

(a) Rumen micro-organisms are essential to the nutrition of ruminant animals.

(i) Name TWO types of micro-organisms in the rumen.

1. fungi

2. bacteria

(ii) Describe the roles of these microbes in the digestion of ruminant feedstuffs.

Cellulose is broken down by rumen microbes and microbial fermentation occurs to produce volatile fatty acids (acetic propionic and butyric). The fatty acids are absorbed into the blood to provide the energy needs of the animal.

(b) For an animal system you have studied, answer the following questions.

Animal system .....PRIME LAMB PRODUCTION.....

(i) Describe a technique that a producer can use to manipulate growth and development.

Making ram lambs into cryptorchids is a technique used to promote growth and leaner (than wethers) carcases. The testes are pushed into the body cavity and a rubber ring around the scrotum holds them up.

Question 9 continues on page 30

QUESTION 9. (Continued)

MARKER'S USE ONLY

(ii) Explain how feedback from markets has led to a change in a specific management strategy associated with this system.

Feedback from the 'over the hooks' sale has reflected the consumers desire for large lean lamb cuts. This has led to farmers targeting this specification and growing cryorchids out to 22kg DW with fat score of 3. Also use sires selected under 'lambsplan'.

(iii) Describe a method of manipulating the genetic material of the animal system that leads to improved product quality OR quantity.

Artificial insemination of stud (prime lamb) ewes using a laparoscope allows the genetic material from rams, selected on objective measurement of fat, eye muscle growth, to produce quality flock rams. The laparoscope allows the vet to place the sperm directly through the abdominal wall into the oviduct.

Question 9 continues on page 31

QUESTION 9. (Continued)

MARKER'S USE ONLY

(c) For an animal production system you have studied, select ONE pest OR disease and describe the advantages and disadvantages of TWO control measures.

Animal production system .....

Disease/pest .....

.....

.....

.....

ANSWER

CAN BE OBTAINED BY

FAXING KAREN DAMIC

ON 02 6332 2302

BATHURST HIGH SCHOOL

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QUESTION 10. Land Management

MARKER'S USE ONLY

(a) A total catchment management (TCM) action plan is represented in Figure 9.

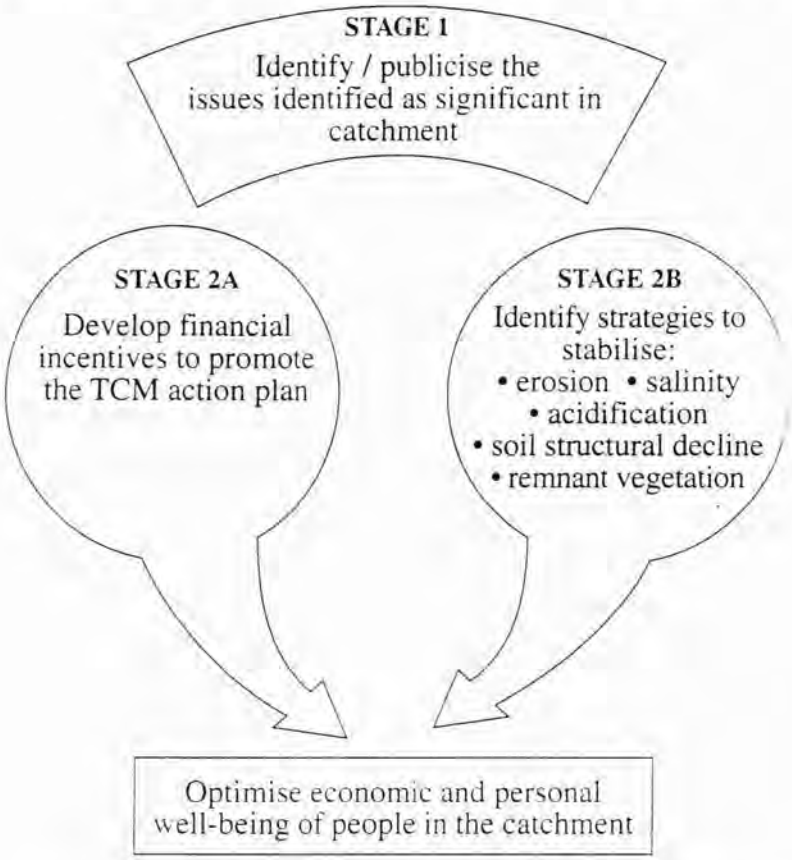


FIG. 9 A TOTAL CATCHMENT MANAGEMENT ACTION PLAN

(i) Using examples, describe the ways in which groups such as Land Care can implement Stage 1 of this action plan.

Groups will be sent to study the water quality of the catchment (such as Streamwatch), and this will be reported to the local Landcare group, which will publicise the issues that need to be addressed, such as siltation and fertiliser leaching, through pamphlets calling for action, school visits, local newspaper and radio announcements and in community meetings. 5

(ii) Describe strategies that an individual farmer could use to reduce the effect of ONE of the soil problems identified in Stage 2B of this action plan in Figure 9.

Soil Structural Decline - The farmer could reduce cultivation and use less pulverising implements such as diamond harrow. He would also aim to increase the organic matter level in the soil to enhance its nutrient levels, as well as improving aeration and drainage. 4

QUESTION 10. (Continued)

MARKER'S USE ONLY

(iii) Explain how social attitudes of farmers and the wider community might affect the implementation of the action plan.

The perception of Landcare and TCM practices as being expensive, requires skill not known, and has little short term benefit to the farmining community, has made it hard for farmers and communities to accept its benefits and implement the action plan.

4

(iv) State the major characteristics used to assess land for capability classification.

The characteristics needed include slope (at more than 10% cannot be cultivated), inherent fertility (to determine best use), need for sustainable practices (such as reduced cultivation), and topographical features (such as cliff faces or rock extrusions).

3

(v) Explain how land capability assessment of a catchment affects a total catchment management plan.

The land capability assessment can determine what is the ideal use of the land around the catchment area. An abundance of arable land might mean an emphasis on reducing runoff of fertilisers used in cropping, while an abundance of sloped grazing land might see the emphasis on tree planting to reduce erosion.

4

Question 10 continues on page 34

QUESTION 10. (Continued)

MARKER'S USE ONLY

(b) The processes of soil degradation need to be well understood to maintain agricultural productivity. For ONE soil degradation problem you have studied:

- describe the soil farming practices that may have led to the problem:
- explain how current procedures to reduce the problem affect the physical, chemical, and/or biological processes in the soil.

Four practices leading to salinity are:-

1. Removal of trees with deep root systems, used to pump water (transpiration) from deep in soil. Reduces rising water.

2. Removal of deep rooted perennial postures for cropping levels. Water table rises bringing salts to surface. Often replaced with shallow rooted plants.

3. Irrigation - too much water to drain or transpire, water table rises, bringing salts.

4. Overgrazing - as above.

PROBLEM OVERCOME BY:-

1. Planting deep rooted trees and pastures.
   pumps water (transpiration). Salts lower down, better nutrient availability.

2. Trickle/Drip irrigation reduces water table - chemical balance.

3.Planting salt tolerant plants - salts removed. Use of plants adds O.M. to soil. Grazing can remove salt, eg. salt bush grazed by lambs. Structure improved.

4. Set stocking rate (lower) allows plant leaf system to carry out transpiration - lower water table reducing salt.

20

SECTION IV

Marks

(15 marks)

Attempt ONE question.

Each question is worth 15 marks.

Allow about 30 minutes for this Section.

QUESTION 11

In any plant production system, interference is a significant process that has to be managed. Using examples:

(a) describe the significant components of interference in plant production systems; **6**

(b) explain strategies managers use to reduce negative interference factors in plant production systems. **9**

QUESTION 12

Improving the productivity of animal production systems has focused largely on improving the genetic potential of animals. Managing nutrition is now the key to future improvements.

For an animal production system you have studied:

(a) describe the key factors considered by managers to meet the nutritional requirements of the animals; 9

(b) discuss the strategies producers use to evaluate the effectiveness of their nutritional management of animals. 6

Please turn over

ANSWERS
Can be obtained by faxing
Karen Damic on
02 6332 2302 Bathurst High School

Question 12

Part (a)

1. Mark was allocated for mention of a key factor. For example the productivity of an animal.

2. Marks were allocated for describing the key factor and linking this factor back to the nutritional needs of an animal.

   For example: Cows that are producing a high volume of milk compared to those that are being maintained. Stating that the lactating cows require higher levels of protein and supplement feeding to meet the extra demands.

   Full marks were allocated to candidates who identified and described at least three key factors.

   A maximum of five (5) marks were allocated to candidates that were able to identify key factors.

Part (b)

1. Mark for clearly identifying a strategy that a farmer can use to evaluate the effectiveness of the nutritional management.

   For example:- Feed conversion ratio, weight gain.

   One (1) mark was allocated for clearly outlining how the farmer applies this strategy on his production system.

   For example:- The farmer regularly weighs his animal and records the data. By studying the data, he can determine whether the animal is gaining or losing weight. Which may then be related back to the feed ration being received. He may then make a decision to alter the ration or supplement feed.

   Full marks were then allocated to candidates who identified and described at least 3 strategies.

   A maximum of four (4) marks were allocated to students who identified 4 or more strategies without discussion.

Question 14

Part (a)

Section A was awarded a total of seven (7) marks. One (1) mark for describing the production of a product. At least two market requirements needed to be described and units given if possible. Two (2) marks were awarded per requirement. The final link between requirement and production of a product was awarded two (2) marks.

Part (b)

Section B was awarded a total of eight (8) marks. The two categories of on-farm, off-farm were awarded four (4) marks each. One (1) mark for listing a strategy. One (1) mark for describing or discussing the strategy in action. One (1) mark for linking how the strategy helps to ensure quality, be it good or bad. The final mark for each of the two components was awarded for comments made that evaluated the strategy and assessed how effective it was in achieving the desired market aim.

QUESTION 13 **Marks**

The key to success in the 1990s is to 'grow for your market' not simply 'market what you grow'.

For ONE farm product you have studied:

(a) describe the market requirements of this product; **7**

(b) assess the on-farm and off-farm strategies that are utilised to ensure quality of the product. **8**

QUESTION 14

Past practices such as intensive cultivation, improper use of fertilisers and chemicals, and continuous monoculture, can bring about a reduction in crop production.

(a) Briefly describe the effect of EACH of these on crop production. **9**

(b) Describe modern management practices that can replace those listed above to improve plant production. **6**

End of paper

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Can be obtained by:-
Faxing
KAREN DAMIC
Bathurst High School
02 6332 2302

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NSW Schools Animal Care and Ethics Committee

The Animal Research Act

Schools are required to comply with the provisions of the *Animal Research Act*. To assist teachers implement the Act and make appropriate decisions about animal use in schools, the Department produced a book in 1990 titled *Animals in Schools*. Animal welfare guidelines for teachers. Animal welfare guidelines provide advice about all aspects of using animals in schools, including:-

* the list of approved activities for which animals may be used
* activities for which written approval must be sought from the SACEC
* activities which must not be done under any circumstances
* information about the care of animals commonly found in schools

The guidelines were distributed to all schools in 1991. That book is now out of print and a revised edition is being prepared for distribution late in Term 1, 1999. All schools, government and non-government, will receive a free copy of the revised guidelines.

Additional copies will be available at a cost to schools from Educational Sales.

In secondary schools where animals are used for teaching or research purposes, the Principal must appoint a within-school Animal Welfare Liaison Officer (AWLO) who is responsible for keeping the guidelines and ensuring that all school staff are aware of its existence and purpose. In all schools, the Principal is the 'de facto' animal welfare liaison officer unless the role is delegated to an appropriate person (appropriate as defined in the guidelines).

Where teachers use animals for teaching or research purposes, it is essential that they comply with the requirements of the Act as described in the guidelines.

Students should also be given the opportunity to discuss the ethical, social, and scientific issues which are involved in the use of animals for scientific and teaching purposes.

Particular mention is made of the need to establish and maintain appropriate records relevant to the Act. At the very least, those records must include:-

- a completed Animal Research Authority to be held with the school records maintained by the Principal (details about this requirement will be provided separately to Principals later in Term 1)
- Teaching programs which describe the syllabus or other educational objectives (and related outcomes) for which specifically identified animals are being used, i.e. the justification for using the particular animals).
- A farm or department diary where records of the following may be found:-
  * animal acquisitions (the date, source, numbers of each sex and age at acquisition)
  * changes in numbers of each species (dates and means by which changes occurred)
  * interventions (planned and unplanned) that had an impact on the welfare of the animals (apart from normal housing, feeding and handling, which must be in accord with the guidelines).

The AWLO is responsible for ensuring that the last two categories of records are established and maintained in the school. They do not have to be the keepers of those records, but they do need to ensure that the keepers and users of the animals keep the records. Examples of appropriate records will be provided in later editions of Curriculum Support this year.

The SACEC will ask for these records, amongst other things, when it comes to your school on a monitoring visit. Teachers of 3 Unit Agriculture are asked to familiarise themselves with the guidelines before approving student research projects using animals. In the event that the teacher believes the project is justified and not an approved activity within the meaning of the guidelines, the research proposal must be submitted to and approved in writing by the SACEC before the project is commenced.

An application form can be found in the revised guidelines or obtained by contacting the Administrative Support Officer for the SACEC (by phone on 02 9886 7621 or by fax on 02 9886 7654). The completed application form must be forwarded to the SACEC through the schools AWLO.

Lindsay Wasson
Chair, Schools Animal Care and Ethics Committee



THE INTERNET – SURFING WITHOUT GETTING WET!

by Bruce Ward
Electronic Delivery Manager, NSW Agriculture

Ten years ago, very few people had heard of the Internet, and the World Wide Web had only just been invented. Things have moved quickly in that one brief decade, and the Internet is now becoming a major player in the information industry throughout the developed world.

In this short article I will try to explain the use of the Internet for those who have not yet become keyboard surfers.

What is the Internet?

'Internet' stands for International Network of computers. The computers share a communication standard that allows them to exchange messages and information across existing telecommunications networks. There are a range of 'Internet' services, but they fall into two basic types:

- communication services that allow people to communicate with each other (electronic mail, news groups, chat, discussion groups, etc.);
- information services that allow people to access information stored on computers all over the world 'World Wide Web'.

The remainder of this article concentrates on the World Wide Web (WWW or just 'the web' for short).

To use the Internet you have to have access to a computer that is connected to the Internet. You could connect your own computer, but it would cost thousands of dollars every month, so most people have an account with an 'Internet Service Provider' (ISP), accessing the Internet through their computer over the telephone. My account costs $36 per month and this gives me 60 hours on-line. I also pay a local phone call each time I dial up the ISP's computer.

I think all schools have an Internet connection of some sort.

Browser Basics:

A 'browser' is a computer software program that allows you to access the Web. The most popular browsers are *Netscape* and *Internet Explorer*. These are generally available for free and one or the other is included with all new computers and with 'starter kits' provided by ISP's. They work much the same, but use slightly different jargon for some functions. Figure 1. Shows a compressed screen from each with the main parts named. If you are familiar with Windows software, the drop-down menus, and toolbar, the general look of the browser screens will be familiar.

Lets work through these main parts from the top of the screen down:

Drop-down menus provide access to most of the commands and functions available to you. Both browsers have file, edit, view, go, and help, menus. For very basic browsing, you will only need a few of these drop-down commands.

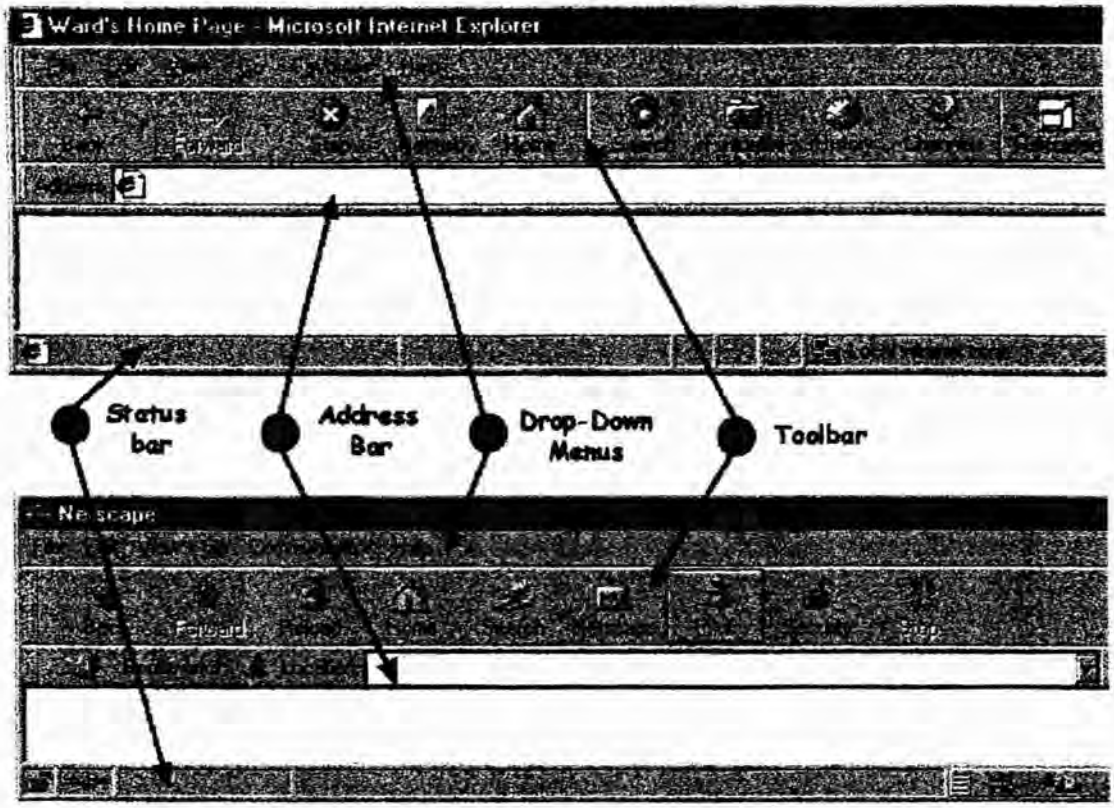


Figure 1 The basic parts of Internet Explorer (top) and Netscape (bottom). Note these pictures are made much shorter than they usually appear on screen to show all the parts in a small space.

The **Toolbar** provides access to the most commonly used functions, with pictorial icons representing each action. The words vary a bit between the two browsers, but the basic concepts are exactly the same. The most useful buttons are:

Internet Explorer	Netscape	Function
Back	Back	Go back to the last page
Forward	Forward	Go forward to the previous page in the list you have viewed—this is only applicable if you have used 'back'.
Refresh	Reload	Get a fresh copy of the page. This is useful if the page looks scrambled, or you think a more recent version should be available. Your computer and your ISP's computer both keep copies of the pages you (and other users) have accessed. These copies are used if you ask for the page later, even if it has been updated on the source computer in the meantime. This particularly relevant for 'live' information like satellite images.
Home	Home	Go directly to the 'home' page set for your computer. You can change this setting to any page you like (look the drop-down menus under 'Edit>Properties' or 'View>options' for 'options'

		or 'preferences').
Favourites	Bookmarks	This one of the most useful functions. You can store a page address and go straight back to it at any time. To store an address, choose the drop-down menu 'Favourites>add favourite' or 'Bookmark>add bookmark'. To access your stored list, choose the appropriate button on the toolbar and then choose your saved item.

The **Address Bar** is located just under the toolbar and shows the Internet address of the page currently displayed (it is blank in the pictures). You can type a new address straight into the address bar to go to a new page. Just replace what is in there with the new address, then press 'Enter'.

The **Status Bar** is at the bottom of the screen and usually shows information about links in a page. As you move around the screen with the mouse, the address or a description of each link will be displayed in this window. It is possible for programmers to design a web page that displays scrolling messages in this window, but this seems to be a trend that has fizzled out.

Navigation for new surfers

Web pages are made up of pictures, text and *hyperlinks*. These hyperlinks are the key to moving about the Web, because they link one page to another. If you try to draw the relationships and links between pages, its forms a messy tangle of lines something like a spider's web. This is where the Web gets it's popular name.

Hyperlinks can be set for a section of text, a picture or part of a picture. On many web pages, text Hyperlinks are underlined blue text, but they can be any colour and style. The best way to recognise links is to watch the cursor on the screen as you move the mouse about. It changes appearance as it moves over different parts of the page:

Cursor	Meaning
	Unlinked pictures or blank areas of the page.
	Text parts of the page (Tip: many of the fancy headings are done as pictures rather than text).
	Hyperlinks—either text or images that link to another page or resource (file, sound, picture, movie etc).

To follow a link, just click the mouse button while the hand is pointing to the option you want. Wait a few seconds (or minutes for some pages and some computers) and the new page will be displayed. Remember, things from outside Australia will take longer to transfer, and this is particularly influenced by how crowded the lines are at the time you try.

It is possible to set up different hyperlinks for different parts of a picture. In these cases make sure you click on the part of the picture that is relevant.

Finding information

With millions of websites and billions of pages, finding something you want to find can be a real challenge. In this section I will give a few tips on how to find relevant information. My suggestions are based on four main possibilities:

- know the address;
- use a directory;
- use a search program to find what you want;
- surf or just browse about;

The best way is to combine these basic strategies, but lets look at each one a bit more closely then look at a couple of combinations.

Web Addresses (also called the 'URL') can be found in books, journals, brochures, advertisements and many other places. Just type the address into the address line of your browser and press 'Enter' to open that page.

Remember that the web changes really quickly, so an address list published in a book is probably out of date before the ink dries, but it is often a good place to start. It helps to be able to read addresses, and when you get to know how they work, you can sometimes guess what an organisation's web address will be. Take for example the address of NSW Agriculture's climate publications page:

http://www.agric.nsw.gov.au/climate/publications/index.html

Parts	Meaning
http://	Optional on most browsers this indicates the 'protocol' the computer should use in sending and receiving the document. 'http' (hypertext transfer protocol) is the code for web pages, but you may also see 'ftp', 'gopher', 'mailto' and others.
www	The World Wide Web prefix attached to many websites to distinguish them from other Internet services on a particular computer.
agric.nsw.gov.au	The 'domain name' of the computer on which the website is located. This is the address used to find the website and it is often shared with E-mail and other Internet services. It can be further decoded as follows: agric - name of the organisation nsw - state gov - government au - country code for Australia Other codes that are found in the place of 'gov' are com for commercial; org for organisation; edu for education and asn for association (there are many

	more).
climate/publications/	This is the 'path' of the document on the computer. Many websites are structured in a directory 'tree' just like your computer.
index.html	The file name of the document. In this case it is the 'index' or menu file. The extension 'html' or 'htm' indicates files in the 'hypertext markup language' which are the usual web pages

These addresses are mostly case sensitive, and have to be typed in exactly right to work properly. In some cases, the published addresses have typographical errors, or have changed since publication, so don't expect them all to work.

Web Directories are operated by a number of organisations that make money by selling advertising on their pages. Website owners register their details with the directory service, where they are placed in a database, indexed by type of site. The most popular is the American giant, *Yahoo* (www.yahoo.com), but there are many others, including some devoted to particular subjects.

Search Engines are very useful for finding information on a particular subject. They consist of massive indexes constructed by 'robot' programs that constantly browse the Internet, cataloguing what they find. They are less than perfect, but a lot better than nothing!

The most popular search engines are:

Australia:

- www.altavista.yellowpages.com.au
- www.excite.com.au
- www.webwombat.com.au

United States

- www.altavista.com
- www.infoseek.com
- www.excite.com

It helps to be specific when you are searching, and think carefully about the best way of finding the information you are after. Remember you are dealing with a machine, and it can't read your mind for the context of the words you are searching for. For example, if you want to find something on 'olives' then searching for just the word 'olives' will be of little use. That is because it will pick up references such as olives in recipes. I once searched for the word 'lupin*' (words starting with 'lupin...') and not only found information about the crop lupins, but also references to wildlife management and witchcraft, both connected with the word 'lupine' or 'wolf-like'!

Try to think of the less common words that may appear in the information you seek. Scientific names are useful here. You can also search for phrases by containing the phrase in quotes, for example "lupin anthracnose" will find that

particular combination of words. Without the quotes, most search programs will find either word.

Another useful technique is to use 'boolean' logic. This combines the use of 'and', 'or' and 'not' to refine your search. Check the help pages on the search site for tips on using these features On AltaVista and Infoseek, a plus sign signifies 'and'. So a search for 'lupins + disease + control' will find documents containing all three words. You can include the quotes trick here too, such as 'control + "Lupin anthracnose"'.

My final search tip helps to search for pages in a particular group of websites. Once again, the format I am using is from AltaVista, but most have a similar function. By entering the search 'lupins + url:.edu.au' the search would be restricted to websites with '.edu.au' in the URL (web address).

Surfing the Web is a popular recreational activity for new users. All you do is follow links from page to page. In some ways it is like flicking through an Encyclopaedia, finding interesting facts that you were not really looking for. Unguided surfing may be entertaining for a short time, but is unlikely to be highly productive in finding particular information.

However, combined with the previous three techniques, surfing takes on a new importance. If you can find a website that is a good collection of links on your chosen subject, surfing the links can soon reach a wide variety of resources quickly.

Australian Agricultural Sites

There are many good Australian sites. The NSW Agriculture website has a page with links to the major Australian Government sites devoted to Agriculture and one or two major agricultural links sites. This page can be found at the following address:

www.agric.nsw.gov.au/general/agonnet.htm

The NSW Agriculture website (which I manage) has an increasing variety of information, including many of our popular publications, Agfacts and Agnotes. Our main clients are obviously our primary clients, being the commercial food and fibre industries, but there is a lot of information that would be helpful to your students.

Conclusion

The Web is a challenging and confusing place for many new users. There is little doubt that the Internet is going to play an increasing role in information storage and transfer in the future, so learning to use it is well worth the effort.

NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS

BIENNIAL 2000 CONFERENCE

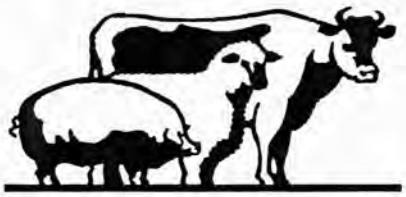
Hosted by AEAWA

Tuesday 11th January — Friday 14th January 2000

TRADEWINDS HOTEL

59 Canning Highway, East Fremantle
Western Australia

"Agriculture — An Enterprising Education:
Working for Rural Revival and Survival"



Frank Slee can be contacted on:
Ph: 08 9729 2207
Mobile: 0411 446 496
Fax: 08 9729 3364
Email: Frank.Slee@eddept.wa.edu.au
Post: PO Box 496, Harvey, WA 6220

WORKPLACE PROJECT

Attracting young people to work in our industry is an increasingly difficult task. With long hours and hard work, there is a widely held perception that young people just don't want to work in our industry - there are easier and more glamorous industries to work in.
Thankfully, some good news has been received from the National Farmers' Federation.

The NFF, with the help of Rural Skills Australia, has developed a project to increase structured workplace learning positions for those senior secondary school students who are interested in working in the rural industry. This project has been developed by Rural Skills Australia in a partnership arrangement with the Australian Student Traineeship Foundation.

The project will enable students to complement their rural course studies at school and to get a real taste of working in the rural industry.

For some time schools, in conjunction with a range of industries, have been placing senior secondary students in structured workplacements to allow them to gain skills in industry and to make their transition from school to work easier.

While there are a large number of students participating in these workplacement programs, nationally around 90,000 students during 1998, the rural industry has only 1,243 students in workplacement positions.

Apparently there is no shortage of interested students, but there is a severe shortage of farmers offering positions.

This is not an employment scheme. The student is still a school student and not an employee. The total period of workplacement does vary but is usually around 2 to 4 weeks, and there is flexibility to suit seasonal activity. The farmer has the right to determine the timing of the placements and interview the student before they commence.

There are absolutely no direct costs associated with this workplacement - there are no wages and all the costs associated with the placement, such as accident insurance, indemnity etc., are covered by the school.

Make no mistake, employers in other industries know that this is a powerful and efficient way of attracting the best students to their industry, and these young people are quickly identified for future employment. This program gives both employers and students an opportunity to look at each other on a "no commitment" basis. Even if the employer is not intending to recruit, they are providing training for the overall benefit of their industry.

Prospective primary producer "employers" don't need to worry about what they are required to do. A program is worked out between the school, employer and student prior to commencement, with guidance provided by the school's industry coordinator. All the training required by the student is commonsense and pitched at a basic level, reflecting industry standards.

We all know rural and regional Australia is experiencing a continuing reduction in the provision of services and its population base, particularly in country towns. Amongst a range of problems this presents for communities, the trend is leading to a critical decline in the availability of skilled labor, to the point where it is now adversely affecting some areas of agricultural activity.

This project won't solve the complex problem of overcoming skills shortages, but it's a start. It does support communities by advancing structured workplacements for school students in the agriculture and horticulture sectors in rural Australia, and students needs are catered for by being placed in our industry.

The interesting thing about this program is that it shapes student's attitudes as well as providing industry training and experience. Employers participating in the program are giving positive feedback about the students, indicating that they have a good work ethic and are eager to learn. While there are always a small number of bad experiences, the overwhelming view is that theses kids are keen to work.

Workplacement should not be confused with work experience. A student's industry course involves a practical component involving "hands on" workplacement by performing tasks that are part of the job. The workplacement is a mandatory component of the school course as it provides "on-the-job" training aligned to industry standards. Work experience, on the other hand, is basically an observation of the operations of the job and limited to a short period of about one week.

This workplacement program can be used to benefit our industry. It deserves our support and active participation for the sake of attracting and positively encouraging young people to work in our industry.

If you wish to obtain further information about this rural workplacement project contact the NFF / ASTF National Coordinator, Gary Clark, on (02) 62732308.

Reg Kidd Project Officer Agassest: 'ROMA'
Forbes Road,
Orange 2800.
Phone (02) 63617061
Fax (02) 63617065
Mobile 015892614.

New Outlook for Rural Industries

Draft Primary Industries Curriculum Framework

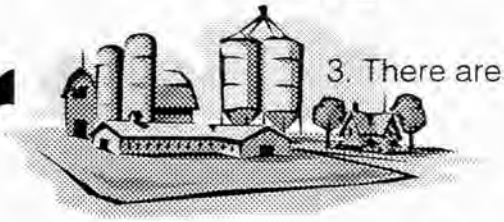
The Draft Primary Industries Curriculum Framework has been sent to schools as part of a process of consultation. Responses to the draft framework are due to the Board by May 21 1999.



Some Features of the Framework

1. The Draft Primary Industries Curriculum Framework is based on the Agriculture, Horticulture and Veterinary Nursing National Training Packages.

2. Units of Competency from these Training Packages were selected for the design of courses in the Framework. There are over 130 Units of Competency included in the Framework.



3. There are three courses provided within the Framework:
   - Primary Industries 120 Indicative Hours
   - Primary Industries 240 Indicative Hours
   - Primary Industries Extension Course

The Primary Industries 120 Indicative Hours Course consists of units of competency dealing with occupation health and safety, the use of chemicals, and an Elective unit of competency.

The Primary Industries 240 Indicative Hours Course consists of the Primary Industries 120 Indicative Hours Course and a selection of units of competency from within or between specialised industry areas called Sector Studies.

The Primary Industries Extension Course is available for students enrolled in the 240 Indicative Hours Course. Students may select additional units of competency from within or between those provided in the Sector Studies so as to provide 60 or 120 indicative hours of HSC credit.

4. The Primary Industries Curriculum Framework will replace the current Rural Industries CEC. However, within the framework there are courses available that are very similar to those provided in the Rural Industries CEC

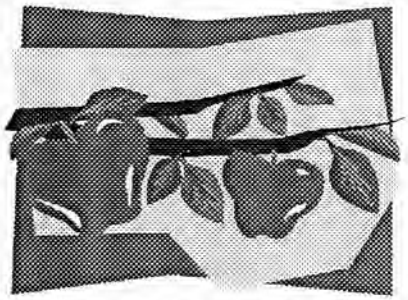


The Primary Industries 120 Indicative Hours Course consisting of competencies that refer to the farm chemical users course and occupational health and safety and an elective unit of competency is congruent in content with the 120 Hour Rural Industries Course.



continued

The Primary Industries 240 Indicative Hours Course consisting of the 120 Indicative Hours Course and Units of Competency from the Sector Studies, Rural Practice, is similar to the 240 Hour Rural Industries Course.



5. On successful completion of the courses and achievement of the relevant units of competency, students will be eligible for credit towards their HSC and the AQF Certificate I in Agriculture or Certificate I in Horticulture or partial completion of Certificate II in Animal Studies, or partial completion of Certificate II in Agriculture or partial completion of Certificate II in Horticulture.

6. The workplace requirements are similar to those of current Vocational Education Courses, except that the mandatory hours of workplacement have been reduced:

35 hours for the Primary Industries 120 Indicative Hours Course;
70 hours for the Primary Industries 240 Indicative Hours Course.

Teachers, groups of teachers, schools and relevant institutions are encouraged to participate in the consultations associated with the Draft Primary Industries Framework.

Further information may be obtained from:-
Peter Green
Senior Curriculum Officer
Office of the Board of Studies NSW
GPO Box 5300
SYDNEY NSW 2001
Telephone: 02 9367 8177
Fax: 02 9367 8474



NSW Agriculture
1998 / 1999 Gold Sponsor

COTTON AUSTRALIA

TRAINING

Workplace project targets the young

Attracting young people to work in the agriculture and horticulture industries is an increasingly difficult task. With long hours and hard work, there is a widely held perception that young people just don't want to work in our industry – there are easier and more glamorous industries to work in.

The NFF, with the help of Rural Skills Australia, has developed a project to increase structured workplace learning positions for those senior secondary school students who are interested in working in the rural industry. The project is funded by the Australian Student Traineeship Foundation.

Workplacements are not an employment scheme

Gary Clark, National Co-ordinator of the Rural Industry SILO Project (Schools-Industry Links Outreach), said: "For some time schools, in conjunction with a range of industries, have been placing senior secondary students in structured workplacements to allow them to gain industry skills and to make their transition from school to work easier." "This project is focussing on getting the message to primary producers about workplacements. This is not en employment scheme. The total period of workplacement does vary, but is usually around a total of two to four weeks, and there is flexibility to suit seasonal activity."

Liaison Officers

NSW has two Liaison Officers, located in Orange and Armidale. These positions are part-time and as such it will not be possible for them to cover all of the state. The Liaison Officers, Reg Kidd (Orange) and Peter Green (Armidale) will be raising awareness and promoting benefits of structured workplacements to primary producers in their local areas. "There are no direct costs associated with this workplacement – there are no wages and the costs associated with the placement, such as accident insurance, indemnity are covered by the school" Mr Kidd said.

Pilot programs under way

There is a Pilot Program based at Tumut High School in southern NSW. This is a rural school that is seeking to extend its options to include agriculture and horticulture. It is aiming to strengthen industry involvement in workplacement activity.

The other Pilot Program is based at Tullibigeal and Trangie Central Schools in western NSW. Teaching staff at these schools have used innovative strategies to overcome distance and accessibility problems for placements in structured workplacements and part-time traineeships.

Mr Clark said: "This program gives both employers and students an opportunity to look at each other on a no commitment basis. Employers participating in the program are giving positive feedback about the students, indicating that they have a good work ethic and are eager to learn. It deserves our support and active participation, for the sake of attracting and positively encouraging young people to work in the industry."

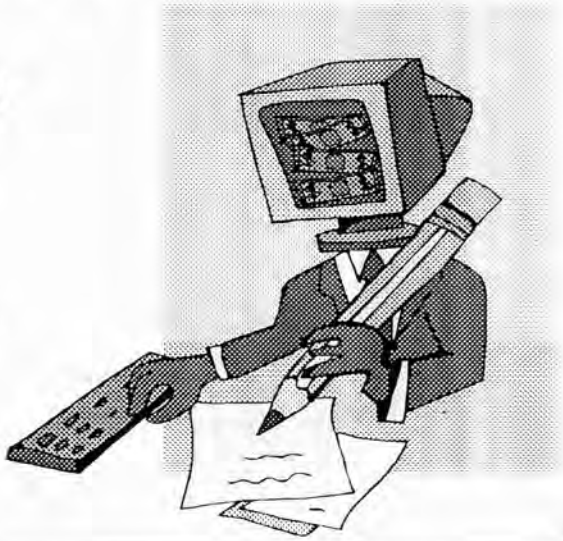
If you wish to obtain further information about this rural workplacement project, contact the National Co-ordinator, Gary Clark on 02 62732308, or email him at work at gclark.rsa@netspeed.com.au. Visit the web-site at www.rsa.farmwide.com.au/ruralsilo/

DISTANCE LEARNING MATERIALS

In recent months, the number of distance learning materials to support modules within the National Rural Skills Traineeship has increased significantly.

Should you require further information or assistance, please contact me on 1800 647798.

Kathy Luff



AGRICULTURE Offers exciting opportunities

NSW Agriculture's Colleges offer a range of courses in the food and fibre industries

- Full time residential courses
- Part time courses (traineeships and apprenticeships)
- Home Study courses

New Courses:

- National Diploma and Advanced Diploma in Rural Business Management
- Viticulture and Food Processing Certificates
- Certificate in Rural Skills (Aboriginal Communities)

Agricultural College Courses are for:

- School Leavers
- Land Holders
- People working on farms
- New entrants to agriculture
- Aboriginal communities
- Food and fibre products

NSW Agriculture



FOR FURTHER INFORMATION

Murrimbidgee College of Agriculture
Yanco NSW 2703
Ph (02) 6951 2700

C B Alexander Agricultural College Tocal
Paterson NSW 2421
Ph 1800 025520

2000 CONFERENCE

TOPICS INCLUDE:

- The Rural Training Package, its implementation, implications, where it's at, and the future possibilities of it
- Agricultural education and industry links
- Vocational educational programs in agriculture and associated industries
- Emerging agricultural enterprises
- Marketing trends for agricultural produce
- Visions and innovation in agriculture and implications for agricultural education
- Marketing of agricultural education
- Visits to innovate and niche industries

If you know of anyone who is a leader in any of these areas, and may be able to present or facilitate at the conference, please pass a contact name and number on to me. If you have any other issues from your state that are innovative or need addressing, please let me know and I will see what can be done about incorporating them in the conference.

Patrick McCann – ph 02 9816 1044 (bh) fax 02 9879 6804

COTTON AUSTRALIA

NSW Association of Agriculture Teachers Inc.

Memberships NOW DUE

Managing Farm Safety



It Makes Good Business Sense

Compared to most other major industries, agriculture ranks poorly in terms of its occupational health and safety performance. In addition to the pain, suffering and loss of well-being caused by farm accidents, individual farming enterprises and the industry as a whole are facing an increasing financial burden in the form of:-

* loss of production from delays in getting farm work done,
* payment for medical treatment,
* wages for replacement workers,
* higher workers compensation premiums,
* increasing litigation costs.

The 'Managing Farm Safety' program has been developed by Farmsafe Australia, and represents current industry 'best practice' management of farm safety hazards and risks. The program is specifically targeted at farm owners, managers, and supervisors, as well as those involved in agriculture or agricultural services for commercial, educational, or research purposes. It includes a two-day accredited on-farm training course and resource package for on-farm use, combining both theory and practice.

This is not a short course in safe work practices, rather it is aimed at providing the knowledge, practical skills, and resource tools to apply occupational health and safety risk-management principles to farm businesses in the same way that other farm business risks are being managed.

Farmsafe NSW Committee Chairman, Mal Peters, said '...this is not a code of practice, however, it will give farmers a practical, and common sense approach to controlling safety risks on their farms, it is a significant initiative by the industry and for the first time provides us with real defence against the increasing risks of prosecution and litigation, by being able to prove that we are making a reasonable and practicable attempt to manage farm safety.'

With workers compensation premium rates for agriculture in NSW, currently set at 10.36%, it really does make good business sense to improve our management of farm safety.

To date, over 200 primary producers who have participated in the 'Managing Farm Safety' program in NSW alone. Farmers who are interested in attending a course in their area should contact that State Farm Safety Training Centre on 1800 659 340. The 'Managing Farm Safety' course is FarmBis accredited so primary producers can benefit from training subsidy.

The course is aligned with the Agricultural Training Packages and the following issues are covered: Key risks to health and safety on farms; Implementing OHS 'risk management'; Legal responsibilities of relevant parties; Assessing worker safety skills; Safety induction of farm workers; Maintaining relevant safety records; Preparing the farm safety business plan.

For more details about the 'Managing Farm Safety' program and the Farmsafe NSW Committee contact:

Rachael Williams
ph: 02 6752 8214
Australian Agricultural Health Unit
PO Box 256
MOREE NSW 2400

The New Agriculture Syllabus

A one day workshop has been planned to consider the new Agriculture Syllabus.
The workshop will address some general issues related to the new HSC and then consider the Agriculture Syllabus in detail.

The workshop sessions aim to:-

- Identify differences between the existing and the new HSC syllabus.
- Identify implications of the changes for teaching practice.
- Describe new requirements for assessment and reporting.
- Discuss ideas for programming and planning.
- Identify further mechanisms for professional support and collaboration.

WORKSHOPS are planned for 11 venues across the state and it is anticipated that the following dates and venues will apply.

Hornsby	Wednesday 4th August 1999
Dubbo	Tuesday 10th August 1999
Orange	Wednesday 11th August 1999
Wagga	Friday 13th August 1999
Grafton	Tuesday 17th August 1999
Taree	Thursday 19th August 1999
Lake Macquarie	Friday 20th August 1999
Campbelltown	Tuesday 24th August 1999
Nowra	Thursday 26th August 1999
Penrith	Friday 27th August 1999
Tamworth	Tuesday 31st August 1999

Interested Teachers should nominate to attend their most convenient venue.

For more information contact Lyndall Foster CEO Technology at the Department of Education and Training on 02 9 886 7623.
Registration details will be available later in the year.

NSW Association of Agriculture Teachers Inc.

Sydney Branch

Sydney Branch Of the Association of Agriculture

Proud Organisers of the 2001 Diamond Conference – 2001: An Ag Odyssey

Your Association Needs You !!!

It's all happening down on the Farm. Your association needs your help to promote Agriculture in schools. So here is what's happening in 1999 !!!!

*** The Great Ag Competition ***
*** Junior and Senior Ag Camp ***
*** Promotions at Shows like the Royal, Castle Hill, and Penrith ***
*** Teacher Inservices ***
*** Sydney Branch Newsletter – full of news and resources ***
*** Resource Networking Days ***
*** Social Functions ***
***** and so much more *****
************ Join NOW to enjoy all the fun and benefits ************

Please remove and post with membership.

Membership Form

NSW Association of Agriculture Teachers – Sydney Branch

Name: _____

School: _____

Address: (for newsletter) _____

_____

Ph: _____ Fax: _____

Cost of Membership: $35.00 NSW Association $10.00 Sydney Branch = **Total $45.00** (Student Rate $22.50)

One copy of newsletter and BAAT sent free to each school, then only to members of the Association.

Make Cheques Payable to: NSW Association of Agriculture Teachers – Sydney Branch

Send to: Attention: Karen Heap, Treasurer. NSW Association of Agriculture Teachers – Sydney Branch

School Agriculture Networking throughout NSW

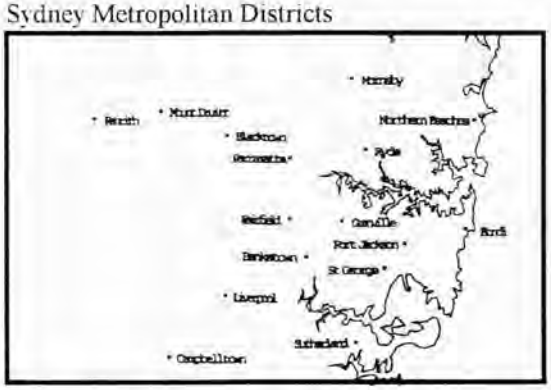
Over many years there have been successful networks of Agriculture Teachers helping each other through communication, encouragement and sharing of ideas and resources.

Please help the NSWAAT know WHO are the contact co-ordinators in our networking throughout Country NSW and in the greater Sydney area. There are 314 Schools with Agriculture in NSW!

' HELP US FILL IN THE BOUNDARIES '



Sydney Metropolitan Districts



Please Fax – *Peter Napier* – NSWAAT Secretary 63613616
Orange High School by 31st July, 1999

A: Who is prepared to be the **current district or part district contact person** with what cluster of schools? This will greatly help in distributing a prompt fax to neighbouring schools where a need arises. (eg. possibility of BOS stage 6 meetings later this year for all Ag teachers). Could our helpful co-ordinators please re-verify that they are prepared to act in a co-ordinating capacity or is there a new co-ordinator?

B: List of **schools and teachers** in your network.

C: Hopefully this up-to-date co-ordinators list can be provided in the next edition of BAAT.

314 Schools Teaching Agriculture !!

The NSW Ag Teachers Database (27 pages) will be invaluable to help in networking and possibly improve working conditions.
If not done, or changes, please fax your school details to Sheree Bourke, Menai High 02 9543 5513

Teacher & School Database – Date: Effective 20th October 1998

Apologies for any spelling mistakes or errors – some Ag teachers should become Doctors. Fax Ian Judd on 02 9543 5513 to change any errors for next years database. Thanks muchly. (No information means survey not returned – maybe next year).

Information is on Microsoft Word – if you would like a copy on disk, send a disk to:
Menai High School, Gerald Road, Illawong NSW 2234
and I will make a copy for you. Agger regards, Ian.

School	*Address*	*PCode*	*Phone*	*Fax*	*E-mail*	*Teachers*	*Experience & Expertise*	*Ag Assistant*	*Days worked*	*Teacher Allocation*	*Site of Farm (ha)*	*Enterprises*
1. Albion Park HS	Church St Albion Park	2527										
2. Albury HS	Kiewa St Albury	2640	02 60213488	02 60413782		P Shaddock	32	P Brunn	4		1.5	Sheep, poultry, vegies
3. All Saints College Bathurst	Ophir Road Bathurst	2795										
4. Alstonville	Cawley Close Alstoneville	2477	02 66285222	02 6281223		J Hoffman, T Bullock	21 21	F West	5 1/2 days	.6hrs/wk	2.5	Sheep,beef, poultry, vegies
5. Amber			02 4					S. Woodlands	3			

NSWAAT MEMBERSHIPS

Is your name on the following list?
If not, it is time to renew your membership!!!

The following people are members for 1999:

Christian	Surname	School
Ronald	Anson	Griffith High School
Michael	Ball	Mendooran Central School
Sally	Bannerman	Junior Syllabus
Chris	Barbary	Richmond River High School
John	Barnes	Green Point Christian School
Tony	Barnett	Walcha Central School
David	Blowes	Yeoval Central
Lindsay	Cartwright	Morisset High School
Anne	Clark	James Sheahan
C	Clatworthy	Macquarie Fields High School
Felicity	Cleary	Deniliquin High School
Nigel A	Cox	Singleton High School
Elena	Dagher	Bossley Park High School
Karen	Damic	Bathurst High School
Bruce	Dymock	Orange Christian School
Jemima	Finlayson	Moss Vale High School
Louise	Fletcher	Freshwater High School
Lyndall	Foster	Curriculum Suport Directorate
Ivan	Gant	Merriwa Central School
Don	Garling	Cowra High School
Milton	Gower	Macarthur Anglican College
Gary	Hansen	Nyngan High School
Ian	Hatherly	Kinross Woloroi School
Karen	Heap	Muirfield Tech High School
Ian	Heffernan	Dapto High School
Peter	Hood	Narrabri High School
Wayne	Hoy	Lyneham High School
Dawne	Hunter	Gulgong High School
Grant	Jackson	Gosford High School
Peter	Jones	Mount Druitt High School
Ian	Judd	Dorrigo High School
Rick	Kemp	JamesRuse Ag High School
Picker	Kingsley	Kelso High School
Jo	Kitchener	Marian College
Helen E	Kleinbergs	Molong Central School
Ken	Langford	Uni of Western Sydney
Judy	Lockhart	Moss Vale High School
Philip	Lyne	Kelso High School
Francis	Mackay	Caroline Chisholm Catholic High
Aravind	Maharaj	St Johns Park High School
Sally	Marsden	Finley High School
Peter	Matus	The Scots School
Ross	McGregor	Hurlstone Ag High School
Jacqueline	McIntosh	Crookwell High School
Geoff	Melville	St Stanislaus College
Christina	Mikan	Bass High School
B	Mikulski	Macksville High School
Tim	Minehan	Young Tech High School
Alan	Mitchell	Warialda High School
Warwick	Moore	Dept of Ag
Leonie	Mutch	St Ignatius College
Libby	Nankervis	Lithgow High School
Peter	Napier	Orange High School
Simone	Neville	Berkley Vale Community High School
Travis	Powell	Tocal
Neil	Puddey	Woolgoolga High School
Graham	Quintall	Pennant Hills High School
Ian	Richardson	Coffs Harbour Christian School
Peter	Robertson	Bombala High School
Paul	Robey	St Pauls College
Rod	Russell	Hurlstone Ag High School
Mark	Searles	Catherine MacAuley College
Paul	Smith	Cowra High School
Maxwell	Stewart	Bombala High School
John	Surtees	Wingham High School
Chris	Taylor	Knox Grammar High School
Allan	Thomas	Armidale High School
Sherryl	Thornthwaite	Galston High School
Paul	Udy	Galston High School
Tracey	Watson	Hurstone Ag High School
Wayne	Whale	St Paul's College
Doug	White	Manilla Central
Daryl	Williams	Temora High School
Vicki	Willmington	Bossley Park High School
Graham	Wilson	Mudgee High School
Beth	Worthy	Bega Valley Christian College
Jan	Young	Wade High School

The following are members for 1999 & 2000

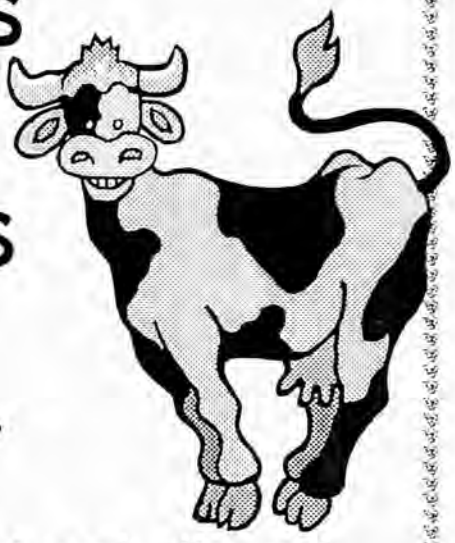
Ian	Baird	Murrumburrah High School
Catherine	Breene	Oakhill College School
Lisle	Browne	James Ruse Ag High School
Tony	Butler	Tumut High School
Megan	Chandler	Narara Valley High School
Lloyd	Cleaver	All Saints College
David	Crofts	The Scots School
Stuart	Grimmet	Woodenbong Central School
Bill	Haszard	Mount View High School
Sue	Hope	Goulburn High School
Phil	Hurst	Hawkesbury High School
Ivan	Johnson	Ulladulla High School
Pru	Kesby	St Mary's College
John	Lee	Glenn Innes High School
Colin	McEntyre	John Paul College
Jonathan	Moore	Scone Grammar School
Craig	O'Brien	Moss Vale High School
Graham	Quintall	Pennant Hills High School
Trevor J	Sewell	Moruya High School
Paul	Smith	Cowra High School
Kathy	Townsend	Holy Trinity School

Reminder..

NSWAAT Membership Fees Now DUE

Please note: If you have recently paid your membership your name may not appear on the above list.

BREWONGLE FIELD STUDIES CENTRE



AGRICULTURE EXCURSIONS

Excursions have been designed to complement
the Agriculture Syllabus and are available for:
Dairies, a Dairy Factory, Winery, and Olive Farm, Alpaca Farm,
Citrus Orchard, Koi Fish Farm, and Plant Nursery

Farm Personnel address the students at each site and worksheets are available.

The Excursions cover all aspects of farm management including:

Marketing
Decision-making
Farm location, size and layout
Impact of government policies
Interaction of the farm with the biophysical environment
Farming operations and technological change
Transportation of farm inputs and outputs
Relationship between global changes and production
Ecologically sustainable practices

The excursion sites are located in the Hawkesbury and Penrith districts.

Day and overnight excursions are available.

Cost: Excursions are free (two of the dairies charge a small fee)
Overnight at Brewongle – $2.50 per student.

Brewongle Field Studies Centre, located near Windsor is managed by the Department of Education and Training. Qualified teachers are available to assist teachers and students.

The Centre offers programs in Aboriginal Studies and Renewable Energy (displays powered by solar, wind, and hydro energy are located in the centre).

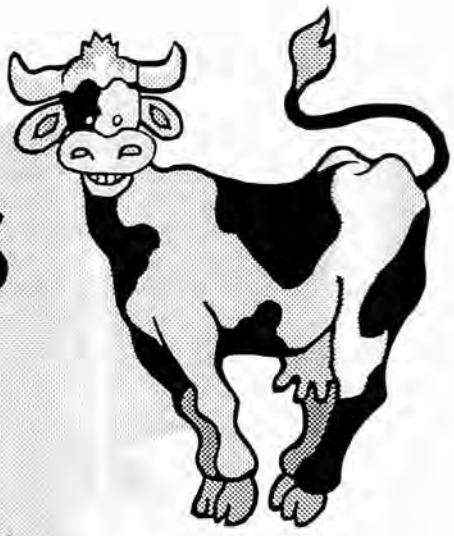
For information contact:

Teacher in Charge
BFSC (ph) 02 4579 1136

NEW SOUTH WALES
DEPARTMENT
OF EDUCATION
AND TRAINING

Courtesy Of....

BREWONGLE FIELD STUDIES CENTRE



PRODUCT STUDY

Sample Worksheet

THE DAIRY FARM AND FACTORY

The purpose of this fieldwork is to study this farm and identify the manner in which the following aspects have affected its operations.

A. Location

B. Farm size and layout

C. Interactions between dairying and the biophysical environment.

D. Farming operations and technological change:
   (i) General Management
   (ii) Herd Management
   (iii) Land Management

E. Decision-making

F. Linkages between the farm, its inputs and the milk processing industry

G. The impact of government agricultural policies.

H. Relationships between global changes and milk production at the national, regional, and local scale.

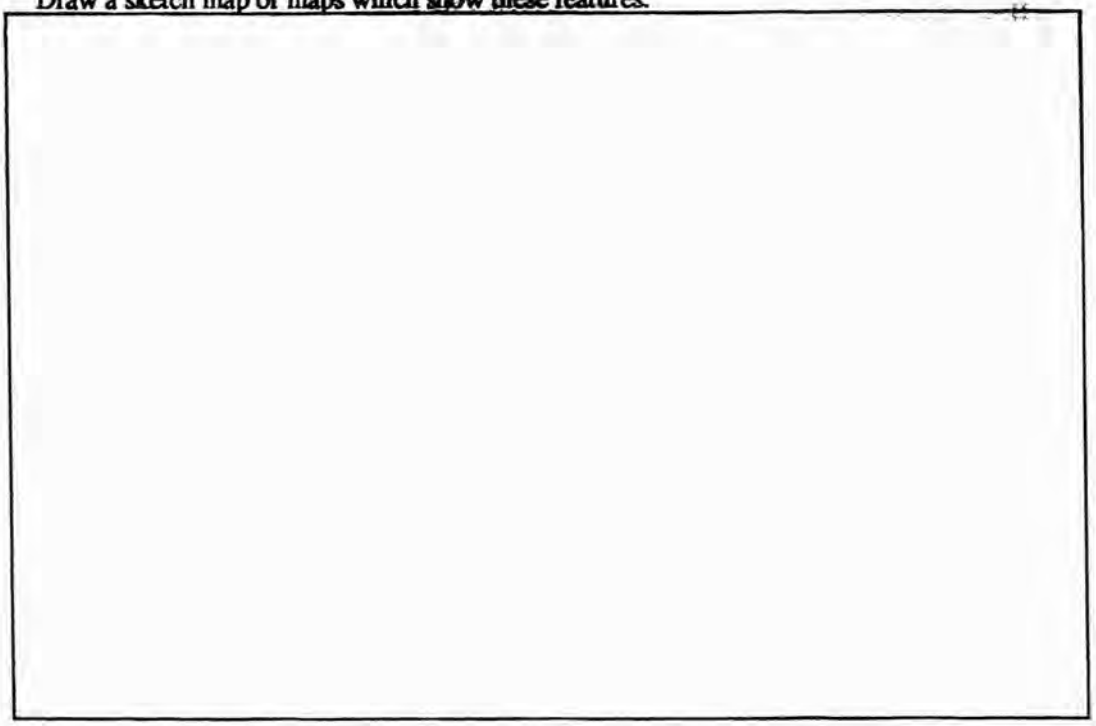
SEE ADVERTISEMENT

STUDY GUIDE:
The following questions are to be answered from your fieldwork and from your follow-up research after the farm study.

A. LOCATION

1. Locate the dairy relative to:
   * the nearest towns
   * the transport links
   * natural features such as creeks
   * the Cumberland Plain and the metropolitan area of Sydney
   * the market for its product

   Draw a sketch map or maps which show these features.



2. What are the main reasons for its location? _____

_____

_____

3. What are the advantages and disadvantages of its location? _____

_____

_____

4. How is this farm connected to other farming and business operations carried on by the owners?

_____

_____

B FARM SIZE AND LAYOUT

1. What is the present total area of the farm? _____

   Has it always been this size? _____

2. How many paddocks is the property divided into? _____

What sizes are they? _____

3. List and describe the main buildings and improvements on the property. include:

* homestead and other residences
* dairy
* feed storage areas and silos
* calf rearing area
* administration office
* machinery sheds
* feedlot
* yards and loading ramp

_____

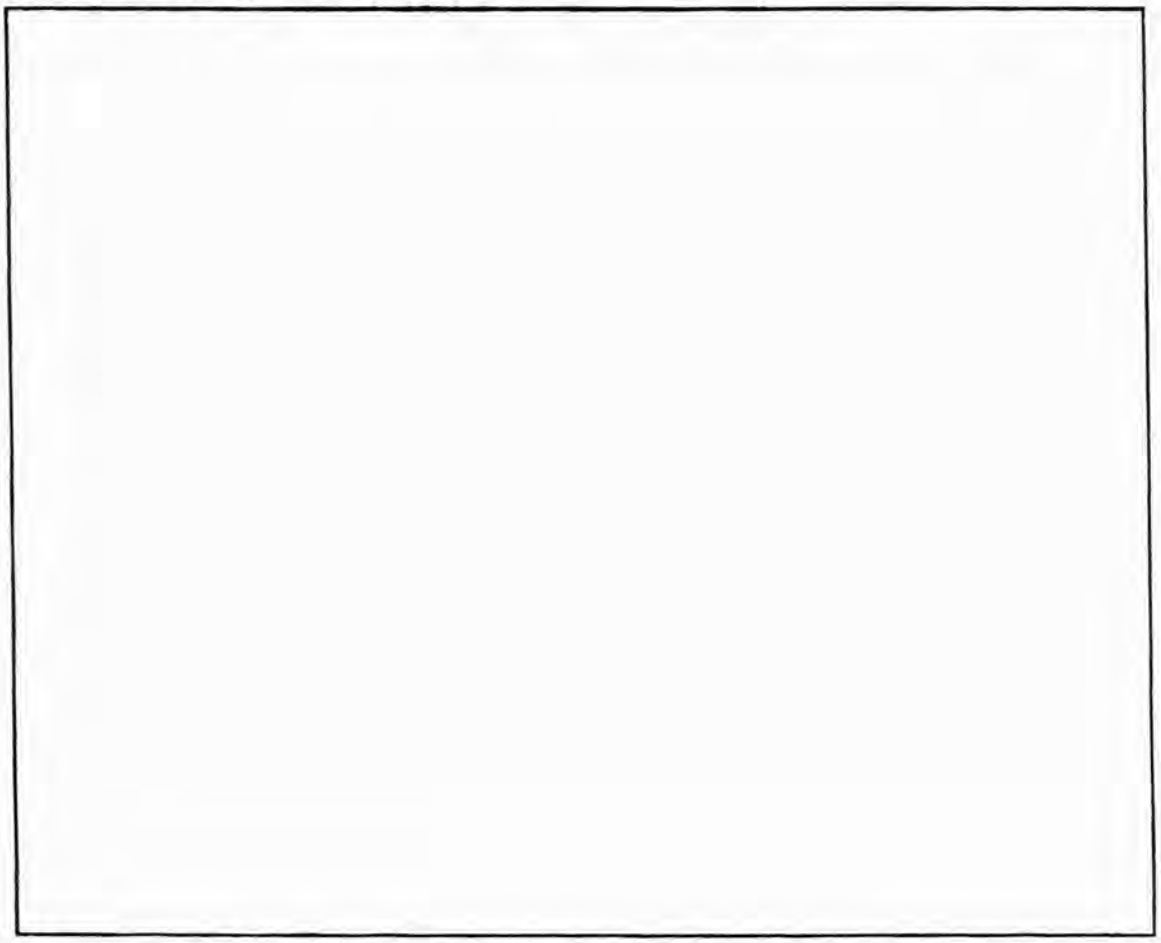
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_____

_____

_____

4. Sketch the layout of the property showing the position of the boundaries, internal fencing and paddocks, roadways and laneways, creeks and dams, and the buildings listed in 3 above.



5. Is the present layout and size appropriate to the farms present and future needs? If not, what changes would be desired? _____

_____

_____

_____

C INTERACTION BETWEEN DAIRYING AND THE BIOPHYSICAL ENVIRONMENT

1. Have the natural landforms been modified in any way? _____ If so, how and why?

_____

_____

2. Describe the yearly climate pattern (i.e. temperature and rainfall). _____

_____

_____

3. Is it necessary to take action against extremes of temperature? e.g. shade trees to prevent heat stress. _____

_____

_____

4. Is irrigation required to supplement rainfall? _____ If so, when and how?

_____

_____

5. How does the length of the growing season affect the operation of the farm? _____

_____

_____

6. What type of soils are found on the property? _____

7. Is it necessary to improve the soils? If so how? _____

_____

8.a) What is the natural vegetation of this area? _____

_____

b) How have the natural pasture grasses been modified to provide feed for the cows?

_____

9. Are there any problems of land degradation, soil erosion, salinity, water quality, flooding, etc, created by these changes to the biophysical environment? _____

_____

_____

D FARMING OPERATIONS AND TECHNOLOGICAL CHANGE

General Management

1. What is the farm workforce? _____

How is it divided between the various operations? _____

_____

_____

2. In what ways has technology changed the productivity of the workers? _____

_____

_____

3. How has the level of capital equipment and mechanisation changed since the farm was established? _____

_____

4.a) How are farm records kept? _____

_____

b) What use is made of computers? _____

_____

5. What changes in the spread of new technology are anticipated in the future?

_____

_____

E DECISION MAKING

1. a) Who is responsible for determining the overall direction of the farm? _____

_____

b) Where are these decisions made? _____

_____

2. Who makes the day-to-day decisions on the farm? _____

3. What is the major factor in determining the decisions, that are taken? _____

_____

4. How important is the availability of finance in the decision making? _____

_____

5. What are the sources of funds? _____

6. Is there a high level of debt? _____

F. LINKAGES BETWEEN THE FARM, ITS INPUTS AND THE MILK PROCESSING INDUSTRY

1. Outline the sources of the following inputs to the farm and note how they are transported, or communicated to the farm.

* livestock
* labour
* feed
* agricultural chemicals
* research finds
* machinery
* equipment
* pasture seeds
* new technology
* finance

2. a) Where is the bulk milk output processed? _____

b) How is it transported to the milk receival factory? _____

c) Draw a flow chart showing the processes involved after the milk has been delivered to the factory to when it is transported to markets.

3. Where is the major market for the milk processed from this farm? _____

4. How is the milk that is surplus disposed of? _____

5. Is there any ownership links between this farm and its suppliers, other farms and the processors, distributors and sellers of its output? _____

6. What is done with surplus cows and calves? _____

G THE IMPACT OF GOVERNMENT AGRICULTURAL POLICIES

1. How is the farm affected by the Federal Government policies administered by the Department of Primary Industry and the Australian Dairy Corporation? _____

_____

_____

2. What policies of the NSW Government and the Department of Agriculture, Rural Lands Protection Board and the Department of Land and Water Conservation affect the operation of the farm? _____

_____

_____

3. Outline the role of the NSW Dairy Corporation in controlling the production, processing, distribution and promotion of milk products. _____

_____

4. Does the Penrith Council have any regulations (e.g, Health and Building, possible land rezoning) which the farm must comply with? _____

_____

_____

H RELATIONSHIP BETWEEN GLOBAL CHANGES AND MILK PRODUCTION AT THE NATIONAL, REGIONAL AND LOCAL SCALE.

1. What major changes have taken place around the world in milk production methods in recent years? _____

_____

_____

2. How have these changes impacted on the milk industry in:
   *Australia? _____
   *New South Wales? _____
   *Sydney Metropolitan Milk Region? _____
3. Are any major changes likely before the year 2010? _____

_____

_____

Herd Management

1. What breed of cows is kept on the farm? _____ Why are they the preferred breed? _____
2. Are all cows bred on the farm or are they brought in from elsewhere? If so, from where?

_____

_____

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2. Are all cows bred on the farm or are they brought in from elsewhere? If so, from where?

_____

_____

3. What numbers of cattle are kept on the farm?

* cows in milk	_____	* heifers not in calf	_____
* dry cows	_____	* bull calves	_____
* heifers in calf	_____	* dairy bulls	_____
* heifers calves	_____	* beef bulls	_____

4. What is the daily farm routine with the herd? _____

_____

_____

5. a) What is the annual routine of herd management? _____

_____

_____

b) In what months are the following activities carried out:

* milking _____
* dehorning _____
* calving _____
* calf rearing _____
* heat observation _____
* calf weaning _____
* pregnancy diagnosis _____
* parasite control _____
* veterinary checks _____
* feeding _____
* vaccination _____

6. Is a natural breeding program used or is Artificial Insemination used? _____ Is Embryo Transfer practised? _____

7. How is the breeding program regulated? _____

_____

8. What is the daily, weekly, monthly and yearly production of milk? _____

_____

9. List the tests conducted on the milk to ensure its purity _____

_____

_____

_____

10. What happens to the milk if it fails the tests? _____

11. List the various types of equipment that are used for herd management. _____

_____

Land Management

1. What types of pasture are planted? _____

_____

2. Are new seed varieties being tested? _____

3. How is improved pasture used? _____

4. Are winter fodder crops grown? _____

5. Are grain crops grown? _____

6. a) What feed is brought to the farm? _____

b) How and where does this come from? _____

_____

7. List the machinery and equipment required for pasture improvement, grain production and land management.

_____ _____

_____ _____

_____ _____

_____ _____

8. What is the annual routine of land management? In what months are the following activities carried out:

* cultivation _____ * hay making _____
* sowing _____ * haulage _____
* spraying _____ * topdressing _____
* irrigation _____ * fencing _____
* grain harvest _____ * general maintenance _____

9. How are the following agricultural chemicals used?:

* fertilisers _____
* pesticides _____
* herbicides _____
* weedicides _____
* fungicides _____

10. Are any environmental problems created by the use of these technologies? _____

_____

_____

I. SUSTAINABILITY

1.a) What happens to the waste created by the cattle? _____

_____

_____

b) Is this an appropriate method of disposal? _____

_____

c) Suggest other ways to dispose of the waste _____

_____

2. a) Does the farm use energy derived from renewable resources? _____

b) What forms of renewable energy would be appropriate for this farm? _____

_____

c) What would be the advantages of using renewable energy? _____

_____

3. What is the impact of the dairy on the environment? _____

_____

_____

_____

4. Is there any evidence of conservation practices? _____

What are these? _____

_____

_____

_____

5. Can you suggest other conservation practices that could be implemented at the farm? _____

_____

_____

_____

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