1992 - HSC
Sample Answers.

"B.A.A.T."

BULLETIN OF THE N.S.W. ASSOCIATION OF AGRICULTURE TEACHERS

AUTUMN 1993



PRESIDENT'S REPORT

Hello, and welcome to this edition of B.A.A.T.
Lots of things seem to have happened since the last B.A.A.T. Some of the events that have taken place are as follows:

* The syllabus committee has been working continuously on the development of the 2/3/Unit Syllabus, with specimen examination papers expected to be available soon, as should be the 3 Unit content.

* The Board of Studies have made available statistical information about numbers of candidates sitting for the H.S.C. subjects from 1989 to 1993. Part of this will be published elsewhere in this edition. The Syllabus committee have requested the Board of Studies to research student satisfaction with all courses, particularly Agriculture. The results of this should be interesting.

* I have written a number of letters, to support the retention of funding for the C.S.I.R.O. on behalf of the Association, with some of the replies published later in the bulletin.

* Mrs Vivienne Sinderberry has advised that the N.S.W. Farmers Association have again offered sponsorship for our Biennial conference. This seems to demonstrate a strengthening of our relationship with the N.S.W. Farmers. The Lennox Head conference seems to be shaping up well and this sponsorship should help ensure its success. (Please refer to the conference flier and notify the
organisers as soon as possible in order to assist with their organisation)

* After negotiating with the A.B.C. they have indicated they are happy to allow anyone to use material from "Landline" in their teaching. I will continue to pursue the idea of getting past programs on tape and made available for sale. (see the copy of letter elsewhere in this edition from Kerry Loneragan)

* The Joint Council of N.S.W. Professional Teachers Associations have invited Agriculture Teachers to become involved in Regional Committees in each D.S.E. Region, to determine and monitor the development of regionally based professional development activities in the areas of Profiles, Vocational Education and English K-6. (Stuart Hemmings has been appointed to the North West Region N.P.D.P committee, after his nomination was successful)

* Bob McClung, Federal President of the Institute of Technology education has obtained some funding and is proposing to organise and present workshops at Canberra, Lismore, Orange, Tamworth and Wagga relating to the implementation of National Profiles. If these are relevant to you, as no doubt they should be, I am sure information will be available in the near future.

* Emma Downey, a journalist with "The Land" has contacted me recently. She has been given the brief to write articles relevant to readers under 25 years of age. If you have anything happening in your area that you would like publicised, you might contact Emma with the details. Emma can be contacted via Fax on 045 704650. This may be an extra avenue of publicity for our subject area.

I hope you find something of interest and value in this latest edition of B.A.A.T.

Best Wishes,
John Lee
President N.S.W.A.A.T.

600 CORONATION DRIVE TOOWONG 4066 TELEPHONE (07) 377 5222

AUSTRALIAN BROADCASTING CORPORATION

Brisbane Office

JOHN LEE
GLEN INNES HIGH SCHOOL
EDWARD STREET
GLEN INNES NSW 2370

Thursday March 17, 1994

Dear John

I'm pleased to advise there is no problem with teachers taping and using segments from LANDLINE in a classroom situation.

The ABC has a broad agreement with teaching institutions covering most of its in-house production. The usual restrictions apply -

1 - it is to be used solely as a teaching aid

2 - the material cannot be used for any commercial purpose

The onus in on the user to tape the programme each Sunday at noon. When Parliament is not sitting LANDLINE is replaying at 1400 Monday.

There is some difficulty with past programmes. Officially I cannot help but if there is anything special you are interested in, I may be able to do something.

Thank you for your interest and good luck.

Yours faithfully

POSTAL ADDRESS GPO Box 9994 BRISBANE QLD 4001 FAX
Television & Radio Studios, News and 612 Coronation Drive Toowong

PARLIAMENT OF AUSTRALIA · THE SENATE

SENATOR STEPHEN LOOSLEY
A.L.P. SENATOR FOR NEW SOUTH WALES

11th Level
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56-70 Philip Street
Sydney, NSW 2000
Telephone: (02) 241 2765
Facsimile: (02) 247 3505

26 July 1994
4525

Mr John Lee
President
NSW Association of Agriculture Teachrs
Glen Innes High School
Edward Strete
GLEN INNES, 2370.

Dear Mr Lee

Thank you for your letter dated 14 July in relation to the CSIRO.

Your remarks concerning the CSIRO's contribution to the educational programme in the fields of science and agriculture have been noted carefully.

In my capacity as the ALP Duty Senator for New England, I have taken the liberty of writing to the Minister for Industry, Technology and Regional Development, asking that further consideration be given to the matter.

As soon as a reply has been received from the Minister's Office, I will contact you.

Yours sincerely,

Stephen Loosley
ALP SENATOR FOR NSW

PARLIAMENT OF AUSTRALIA
HOUSE OF REPRESENTATIVES

RT HON. IAN SINCLAIR, M.P.
MEMBER FOR NEW ENGLAND

IS:ST

Mr John Lee
President
NSW Association of Agricultural Teachers
Glen Innes High School
Edward Street
GLEN INNES NSW 2370

19 JUL 1994

Dear Mr Lee

My thanks for your letter of 14 July regarding the CSIRO cutbacks. Your concern I totally endorse.

While the Government claims it is encouraging Australia to be a clever country the $20 million cut in the CSIRO budget shows it is not prepared to back its rhetoric with adequate funding. To suggest the survival of agricultural research is possible only with the sale of 10 of the 27 CSIRO properties appears appallingly bad management.

In New England, the proposal to sell the Arding and Longford research stations and reduce staff by 50 per cent ignores the contribution made from these facilities over the years. While Arding is similar to Chiswick and could be leased or even sold, Longford is entirely different in soil type and agronomically is needed to complement other research.

While occasional changes in priorities to projects and in the use of capital are essential from time to time, the present cuts ignore the capacity of CSIRO to eliminate at best one of its three layers of administration and to assess the relative merit of disposing of other assets such as its Prospect laboratories.

With drought, high interest rates and the commodity price collapse of recent years farmers are unable to meet any shortfall in CSIRO rural research funding but it is essential that the basic scientific work undertaken by CSIRO is maintained.

To ensure the issues are assessed properly the Federal Coalition has successfully moved a motion calling for the Senate Standing Committee on Industry, Science, Technology, Transport, Communications and Infra-Structure to examine the adequacy and appropriateness of the operations, funding and resourcing of rural research by the CSIRO.

A copy of your letter has been sent to the committee for its attention.

Best wishes,

Yours sincerely

Ian Sinclair

IAN SINCLAIR

PARLIAMENT HOUSE CANBERRA 2600
TEL. (06) 277 4064 FAX: (06) 277 4972

119 JESSIE STREET, ARMIDALE, N.S.W. 2350
TEL. (067) 72 7688 FAX. (067) 72 7575

NSW Farmers

NSW Farmers' Association A.C.N. 000 004 651
1 Bligh Street, Sydney, NSW 2000 Telephone: (02) 251 1700
Postal Address:
GPO Box 1068, Sydney, NSW 2001 Facsimile: (02) 221 6913

25 July 1994

Mr John Lee
NSW Association of Agriculture Teachers
Glen Innes High School
Edward Street
GLEN INNES NSW 2370

Dear Mr Lee,

Re: CSIRO Budget Cuts

Thank you for your letter concerning the above matter. As you would be aware, the NSW Farmers' Association has been actively lobbying on this matter since its inception, and we are continuing to do so, both independently, but also through affiliated bodies such as the Wool Council of Australia.

NSW Farmers' has forwarded a comprehensive submission to the Senate inquiry in regard to this matter.

I have enclosed copies of several statements that the Association has released in relation to the issue for your information. Judging by the large volume of correspondence we have received, this is clearly a matter that our members believe requires close attention.

Yours faithfully,

M J Keogh
Executive Officer - Wool

encl.

Lower wool prices in recent years have reduced the amount of tax collected for R&D and reserves have been drawn down to maintain support for the research effort during this time. In the last three years, some $45 million has been drawn from reserves to supplement lower revenues. Now that the wool market outlook is improving and prices are recovering there will be additional funds available to AWRAP for R&D expenditure through both industry contributions and the matching Commonwealth component.

AWRAP has established new procedures for examining the projects that it supports to ensure that R&D expenditure is carefully targeted. In addition, AWRAP announced recently that its activities will be integrated with the International Wool Secretariat to form a more powerful and customer focussed international wool marketing and research and promotion organisation.

With changes in its funding arrangements and research priorities, CSIRO has developed proposals to relocate certain activities and sell some existing sites to accommodate these changes in the most cost effective way. At the same time, CSIRO intends that most of the staff cuts will be in administrative areas and only a very few research scientist positions will be abolished.

CSIRO is undertaking an extensive consultation process on the proposed changes. As part of this process, the Wool Council of Australia recently announced that it has obtained assurances from CSIRO that there will be full consultation with industry and woolgrowers about the restructuring. Where woolgrowers have ownership in the facilities being sold, funds will be utilised in the interests of wool research. Completion of key research being undertaken at Ryde will not be delayed and disruption to other research will be minimal. Animal health and genetic research will be closely studied to ensure that the work will continue and only those stations that are not required will be sold. Animal health and genetics research will not be put at risk by the possible sale of research stations at Arding, Longford, Yalanbee and Parkville.

The changes at CSIRO must be seen against the Government's strong overall commitment to rural research and development to ensure that our rural industries stay at the forefront of international competitiveness. These changes, together with those at AWRAP/IWS, will ensure that there is a sustainable long-term research and development effort which will bring maximum benefits to woolgrowers from the funds available.

Yours sincerely

Jack Lake
Senior Adviser

Office of the
Minister for Primary Industries
and Energy

Senator the Hon. Bob Collins
Senator for the Northern Territory

Mr John Lee
President
NSW Association of Agriculture Teachers
Glen Innes High School
Edward Street
GLEN INNES NSW 2370

28 JUL 1994

Dear Mr Lee

Senator Collins has asked me to thank you for your letter of 14 July 1994 concerning the proposed changes to CSIRO research facilities, and to respond to you on his behalf.

The Government strongly supports the role that CSIRO plays in assisting Australian rural producers to retain their world competitiveness and recognises that CSIRO is at the forefront in many areas of scientific research.

The Government reaffirmed its support when it announced in the White Paper on Employment and Growth that the base level funding for science agencies will increase by an average of $34 million per year for the coming and future triennium funding periods. This means that direct Commonwealth funding to the science agencies for the 1994-95 to 1997-98 triennium will exceed $1.5 billion.

In another initiative, the Government will also make available $60 million over the next eight years to establish major new national research facilities to ensure that Australian researchers have access to the latest facilities and equipment to undertake their work.

Expenditure on agricultural research and development by the Commonwealth and State Governments and industry in 1993/94 is estimated to total between $730 -$760 million. Of this amount, the Commonwealth will contribute $405 million to R&D activities through a number of avenues, including universities, R&D Corporations, Co-operative Research Centres and CSIRO. A further $200-230 million is being spent by State Departments of Agriculture, while industry is estimated to be contributing $100 million to the R&D Corporations and $25 million to private laboratories, field trials and contracted research.

Contributions by the Commonwealth Government to the agricultural R&D Corporations have grown from $39m in 1984/85 to $126.6m in 1993/94.

Wool promotion and research and development is now the responsibility of the newly created Australian Wool Research and Promotion Organisation (AWRAP). AWRAP obtains its funds from a wool tax of 3.5% for promotion and 0.5% for R&D. The Government matches the R&D component on a dollar for dollar basis. In 1993/94, AWRAP expects to spend some $40.8 million on R&D for the wool industry.

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AGRICULTURE STUDIES SYLLABUS COMMITTEE REPORT

The 3 Unit (additional) syllabus is now complete and should be in your hands in the very near future. It is at the printers at the moment.

Our priorities fro the rest of this year are:-

- The Support Documents for the 2/3 Unit Syllabus and the 3 Unit (additional) syllabus.
- The Specimen Papers for the 2/3 Unit Syllabus and the 3 Unit (additional) syllabus. Work is well underway on these and the final review of these will be done at our next meeting on 24th August.
- The 7 - 10 Syllabus. Work started on this 2 years ago but had to be put aside until the senior syllabi were complete for the Pathways initiatives.

Help is wanted. We would like the support documents to be useful and not just more words that sound like they have the right jargon. We are asking for your input. Just as your input to the Syllabus through the questionaries has been most helpful in producing something that works, your ideas will again be appreciated for the support document. We would like to hear from you. Please tell us:

- What you would like to find in the support documents.
- Things that you have already tried with the new syllabus that have worked. Programs, practicals, farm case study ideas, references etc.
- Problem areas that help is needed with eg. parts of the syllabus that need explanation.

Here's your chance to contribute don't let it pass. Send your ideas to

Jenni Wilkins
Agriculture Curriculum Officer
Board of Studies
PO. Box 460
North Sydney 2059

Officially the Syllabus committee has been dissolved but we are continuing on to finish the work that was started. A committee of some kind will exist in the future the nature and function of which is not at all clear at the moment. I guess we will read about it in the Herald.

Thanks in anticipation for your support on the Support Documents.
Lisle Brown - Chairperson Agricultural Studies Syllabus Committee
16/8/94

NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS

Dear Colleagues,

Here it is! At last!!

Your copy of the Proceedings of the Eighth Biennial Conference of the National Association of Agricultural Educators is enclosed.

The conference, *Technology Education for a Sustainable Future in Agriculture* , was a resounding success. Feedback from the evaluation sheets suggests that participants were very pleased with the range and quality of speakers and activities and greatly valued the opportunity to liaise with colleagues from interstate. In the words of one delegate: "The conference was a great buzz! It helped me recharge. Such a great opportunity to find out what is going on in Agricultural Education. Thanks!"

I suggest that we can maintain the conference "buzz" by communicating through a brief occasional newsletter. Your contributions would be most appreciated. Send your articles, ideas and gossip to your State contact on the NAAE executive (see the back of this letter for details). Encourage colleagues in your State Agriculture Teachers' Association to do likewise. I hope the executive can collate and publish our first newsletter sometime in September or October 1994.

Thank you for making our eighth biennial conference such a success, I look forward to seeing you again in Victoria in 1996!

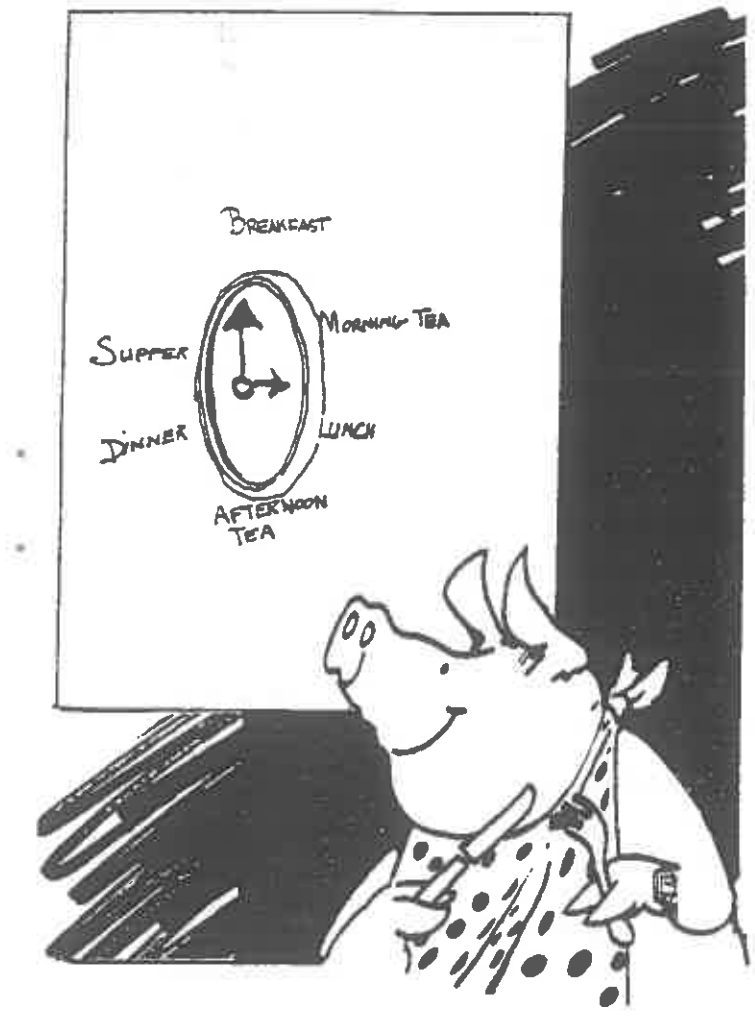
Yours sincerely

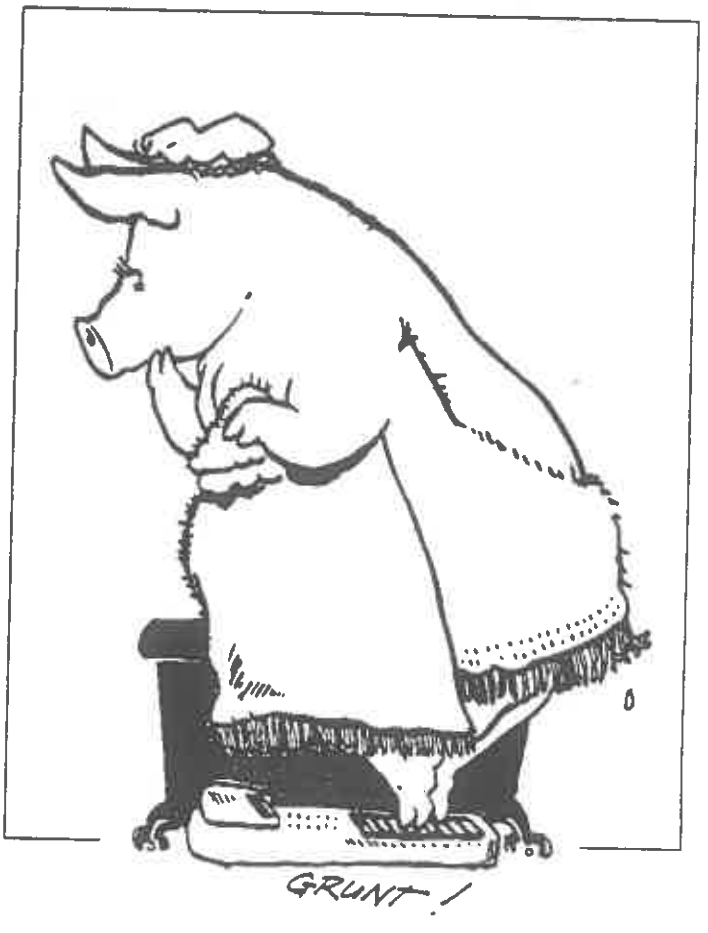
Jenni Wilkins
President NAAE
14/7/1994

* ONE PAPER FROM THE PROCEEDINGS HAS BEEN INCLUDED IN THIS ISSUE. #10 WILL GET YOU A FULL COPY, AVAILABLE FROM JENNI !!

NAAE EXECUTIVE 1994-95.

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Our greatest mistake?

Jared M. Diamond, writing in *Discover* magazine (May 1987) put it most starkly: 'The worst mistake in the history of the human race,' he railed, 'in many ways a catastrophe from which we have never recovered.'

And what was this historic blunder? Why, agriculture! 'With agriculture came gross social and sexual inequality, the disease and despotism, that curse our existence.'

Jared Diamond is professor of physiology at the University of California Medical School, Los Angeles. And he's not the only scientist to see agriculture as a blight.

Without agriculture, humans had lives that were by no means as nasty, brutish, and short as legend would have it. There was, in many places, a rich variety of foods. By taking what was available, or even using slash-and-burn techniques, the natural environment was little affected and could recover quickly from people's exploitation. There was less dependence on fixed territories and therefore less inclination to defend definite borders. Warfare, accordingly, was minimal. As people moved about in small bands, the tasks had to be shared: there was less rigid division of labour between men and women. But when monocultures, such as rice, wheat, and potatoes, were favoured, there was social stratification, populations increased, ground was cleared more and more for fields, and life became precarious. If the single crop failed, the people were in terrible trouble. Pests, which were once low in numbers in wild circumstances, became superabundant as their potential

victims (our crops) became almost unlimited in supply.

People also became less healthy. Professor Diamond cites a report by Dr George Armelagos, of the University of Massachusetts, who compared human skeletal remains from the United States of America before and after the advent of intensive maize farming at around 1150 AD. He concluded that life expectancy decreased from twenty-six to nineteen years and that most of these people had died as a result of malnutrition and hard labour.

One can perhaps forgive our ancient ancestors for such alleged foolishness. After all, how were they to know? It was an experiment. They were trying to feed themselves more efficiently. Did they realise that the penalties could be so severe?

Our own misuse of agriculture, on the other hand, is not forgivable. We are not attempting to provide for the world's starving people. There is, in fact, a vast oversupply of things to eat. The European Economic Community last year produced an excess of agricultural products worth US$10.8 billion! It was either stored or dumped. The cost of running the EEC's refrigerators to store the oversupply of dairy produce before it is thrown down old mineshafts comes to US$63 000 *per hour!*

Subsidies to the farmers of Europe, the United States of America, and Japan are creating a monstrous imbalance in the food supply. Farmers in poor countries are unable to get a fair price for their wares, and there is a need to grow cash crops, rather than food crops, to service foreign debts. The economies of those countries are in tatters. Meanwhile, where short-term profit can be gained, new fields are being created by smashing down forests. This land may last a few seasons before erosion, salination, leaching, or breakdown of soil structure makes it useless.

In Australia, we have wrecked vast regions by poor farming methods. No less a figure than Malcolm Fraser, once prime minister of Australia and himself a grazier, told me that misuse of the land is the single most important threat to this nation's environment. Sir Mark Oliphant, one of our greatest scientists, has said the same. I have been to parts of Australia that once supported strong stands of vegetation and, within them, huge

varieties of fauna. Now the land is as flat and hard as a city car park.

And still too many of our farmers won't learn. 'Warwick reckons he's farmed here for fifty years,' I was told in northern New South Wales. 'But he hasn't. He's just farmed one year, fifty times!' Even after three or four years of drought, Warwick will hang on, in case there's one good year. But these hard times can lead to greater pressure on the land in a vain attempt to make economic returns.

Now a combination of droughts and economic disaster have finally removed many families from the properties that can no longer pay. Perhaps we should take this historical accident, brought about by the crash in commodity prices, to think again about our own agricultural practice. Such scientists as Dr Dean Graetz of the Commonwealth Scientific and Industrial Research Organisation have pleaded for that. Over the past two hundred years, there has been a holocaust spreading across the Australian landscape.

Salt is poisoning areas where once the water was sweet. Salinity is increased by clearing trees and also by intensive irrigation. The water table rises as a consequence, bringing up salt deposited millions of years ago.

Clearing combined with cultivation also removes plants that bind the soil. This can then be washed or blown away. Remember that awful cloud of dust that covered the whole of the Melbourne sky earlier this decade? That was once topsoil. And as a substantial proportion of Australia has a very thin layer of topsoil, we can't afford to lose it through poor farm management.

In Australia, we are particularly vulnerable. And so too are our neighbours in the tropics – in Africa and in the Amazon – where clearing continues apace. While we *know* the causes of various forms of land degradation and have a good understanding of the means of preventing them, the missing factor is the *will* to implement the appropriate management methods. If we are not to indulge in humanity's second greatest mistake, the destruction must stop. After all, it is not for food. It is for something much more ephemeral and tawdry: money.

From Australian Natural History, vol. 22 no. 7, Summer 1987/88.

BITS AND PIECES

CATCHMENT WISE PRACS...
I have included another classroom prac from the Catchment Wise booklet *"Information for Teacher and Student Activities"* . Contact C.A.L.M. Fax 02 228 6140 for more info

FARMSAFE FOR SCHOOLS...
This organisation has a lot to offer our students in terms of safe farm practices including a large amount of information on tractor safety and horse safety. The group publishes a newsletter regularly and perhaps you may wish to be placed on their mailing list. I have included a copy of one of the later newsletters in this issue. The groups Annual Report is also worthwhile reading, if you can get a copy. Contact Farmsafe at P.O. Box 138, MOREE 2400.

MARKETING IN AGRICULTURE...
Teachers are still raising concerns about the marketing of agricultural products, value-adding issues and the product study in the H.S.C. course.
The time for professional reading **must** be found! *Australiian Farm Journal* is a starting point, however, the industry is the best source. Get yourself on a mailing list for any industry body you are concerned with.
Check out the National Farmers Federation *Australian Agricultural Yearbook* and in the back is a HUGE list of Industry contacts and organisations.
I also recommend that it is a very worthwhile exercise to have the school library subscribe to the *Australian Commodities Forecasts and Issues* (formerly Resources Quarterly) published by the Australian Bureau of Agricultural and Resource Economics.This has up to date figures and covers most major commodities, employment figures etc and makes a good resource for skills in interpreting tables etc. (ABARE GPO Box 1563, Canberra 2601)
The CD Rom *Ag-Round* has now been updated and although some find it difficult to use, it is an essential component of any information resource, particularly with 3 Unit Agriculture Students.

HYDROPONICS IN THE CLASSROOM...
There was a great deal of interest in the hydroponics kit advertised in the last issue. Unfortunately there was no address from which to order. After numerous enquires to Stephen Dean (who belonged to the fax number scribbled on the flier) and myself, I have reproduced the flier and order form in this issue.

VIDEO RESOURCES....
I have included a catalogue of agricultural video resources in this issue. Whilst a number are quite expensive, there are certainly some very worthwhile additions to your video library.

RURAL WOMEN'S NETWORK....
In the latter pert of this edition of B.A.A.T. you will find a couple of articles that have been reproduced from the newsletter of this group. It contains some very good information and is presented a form of language very suitable for students of Agriculture. Why not send off the subscription form and get on the mailing list. Yet another way for teachers to keep up to date with current issues!! (I think it's also free, which makes it a double bonus)

VACCINES AND VACCINATION...

The Agricultural Chemical and Pharmaceutical companies are another good source of information. In the "market yourself " age of chemical companies and corporations in general, many produce a regular newsletter. I have included the latest "AUSVAC" newsletter and "C.S.L." flier with some good general information on vaccines. Items like these can make the study of these more "scientific" a little more relevant and interesting for students. Again, try to get yourself on the mailing lists.

LIVESTOCK BREEDS GAME...

Thanks to Graeme Harris for allowing the publication of a simple board type game that I can personally guarantee works well with junior students and helps with a topic that 99% of schools probably do in some form or another. The kids seem interested and will discover the numerous variations that can be made with the game. Graeme has allowed this to be copied by ag teachers (however, you will have to cut out your own cards) but reserves the right to claim a small % when it becomes an international best selling board game!!??

COMPUTER SOFTWARE APPLICATIONS....

Someone has sent me some fliers for "Borrowmore" and "Diagnosis for Crop Protection". I have not hears of these and if anyone has any comments after using these, could they please let me know. Once again, we need to draw on all the experience you guys have out there!!

One package that we do use here and students find some use for is "Herbiguide". It is basically a huge database of plant herbicides and rates as well as plant pictures and details of common weeds in most crops. It may be worth a look at a demo disk.

FARMING FOR THE FUTURE...

Most of you are probably well aware that the theme of the Department of Agriculture at present is as the title describes. With sustainability a focus of the new senior syllabus and brought more to the forefront in the junior syllabus some useful publications have been produced which can be of help. I have included a list of contacts that are specifically responsible as contacts for this theme. They may be of use to you for some more information.

A.B.C. WEDNESDAY 11.30 am SERIES.

The A.B.C. has sent some information to our secretary re its programming in the education arena. Unfortunately by the time we receive and then I get around to producing the B.A.A.T. the information becomes a little too old. Your library however should be able to keep an eye out if they are told to. I do know that on November 30th there will be a documentary on "Flatworms". Maybe you'd like to tackle this slippery subject.

SUTHERLAND AWARD...

Last year an issue mentioned the clarification of the criteria for the Sutherland award so as nominations can be made prior to the next A.G.M. The award is presented to teachers who have made outstanding contributions to Agricultural Education. Please give this some consideration and forward any nominations with a short supporting statement to John Lee at Glen Innes High School. Another reminder will appear in the next issue that will be published at the end of 1994. (the Late Ian Parberry was presented the award at the last Biennial Conference...see Baat Autumn 1993 for details.)

THE AUSVAC NEWSLETTER

VOLUME 27 – AUTUMN 1994

THE AUSVAC NEWSLETTER IS PUBLISHED QUARTERLY AS A SERVICE TO OUR FRIENDS.

CONTENTS THIS ISSUE:

- HOW VACCINES WORK
- NATURE OF VACCINES
- TEN WAYS TO GET THE BEST OUT OF YOUR VACCINE PROGRAM

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HOW VACCINES WORK

When a pig or any animal is infected with a virus or bacteria its immune system responds. If the response is successful the animal recovers and retains an immunological memory. If it ever meets that particular disease again the immune system forces are mobilised very quickly to neutralise the invading bugs.

The immune system responds to certain parts or products of the viruses or bacteria. These products or parts are called antigens. The immune system recognises some of these antigens and starts a series of cell reactions at the microscopic level which protect the pig.

With E coli the important parts are pili, or the little hairs on the outside of the bacteria, which enable them to attach themselves to the intestine. The important products are poisons produced by bacteria which disrupt essential fluid balance in the intestine.

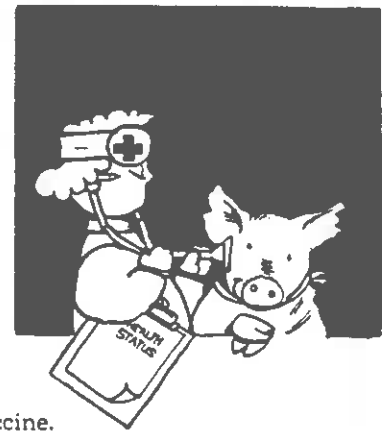
Vaccines work by including antigens from the viruses and bacteria in a form which won't hurt the animal but which trick it into thinking it's been infected. The animal makes the same immune response as it would to a disease attack. If given regular booster doses of vaccines it is then protected against the disease.

The theory is fairly simple but applying it can be tough. For example, E coli is one of the best studied bacteria but it's only been in the last 15 years that vaccines have been available to protect pigs against it. Pleuropneumonia has been a problem for over 20 years but only in the last year or two have effective experimental vaccines started to become available.

One good way to prevent infection of the respiratory system is by aerosol vaccine delivery. There's plenty of research about on this but the technology against diseases like pleuropneumonia has yet to be successful in pigs on farms. Some vaccines against Aujeszky's disease (not present in Australia) have been developed using this approach.

At the end of the day the most important thing is that the vaccine company produces antigens which are protective and can be assembled into vaccines which work on farms.

In this newsletter we pull together the main factors which determine vaccine program success. We start with what we put in our vaccines, where to put the vaccine in the pig and end up with how the pig's immune system responds to all of this. We look at factors like storage, vaccine components, the age of the pig at vaccination, other diseases occurring at the same time as vaccination and the immune response which is going on inside the pig, as well as our vaccine program development.



NATURE OF VACCINES

On each E coli serotype the pig's immune system recognises about 100 antigens, i.e about 100 different 'keys'. Perhaps only one of these keys will provide protection in a vaccine.

In a killed vaccine the killing process may change the (E coli) antigens so that the immune cells no longer recognise them. However, by using advances in technology, in most killed vaccines the useful antigens can still be recognised by the immune system.

Live vaccines stimulate an excellent immune response. They work best against micro-organisms, such as salmonella and some viruses, which live inside cells. The "Strain 19" vaccine against brucellosis is a good example of a successful live vaccine. So is AUTOvac, AusVac's live E coli vaccine against post weaning E coli scours. In 'live' vaccines all the antigens are intact but there is always a risk they may revert to the pathogenic state and cause disease. Because of this it's important that the vaccines are prepared in a laboratory where the antigen components are well understood.

Killed vaccines are easier to transport, store and they're safer than live vaccines.

TEN WAYS TO GET THE BEST OUT OF YOUR VACCINE PROGRAM

1. Store vaccines in the fridge (at 4-8 deg C) not the freezer.
2. Follow the recommended program exactly.
3. Use a 1 1/2 inch needle and
4. Inject the vaccine into the muscle.
5. Keep vaccination gear clean by
6. Sterilising the syringe after use and
7. Keeping it in disinfectant between use.
8. Keep equipment clean during vaccination.
9. Replace needles frequently.
10. Mix the vaccine pack well - shake it frequently during use so that the vaccine components don't settle out.

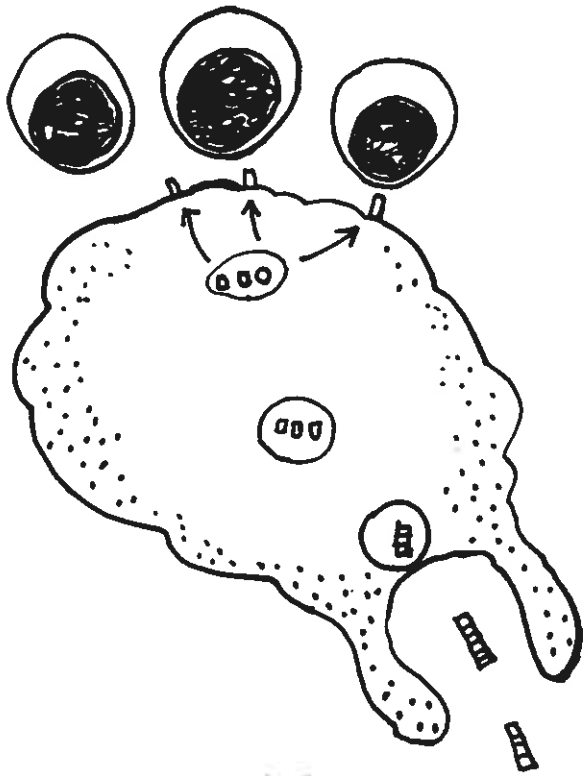
THE IMMUNE RESPONSE

ALL THESE FACTORS
BY UNDERSTANDING

MACROPHAGES BREAK DOWN ORGANISMS

An immune response starts when an immune system cell (a macrophage or white blood corpuscle) surrounds, eats and breaks down an organism. Some of the antigens from the foreign organism end up on the surface of the macrophage where they are recognised by other immune system cells (lymphocytes: another type of white blood corpuscle); the lymphocytes can then make antibodies to the disease antigens.

In the same way, after an injection of a vaccine, part or all of the components are carried to the lymph nodes (immune system glands). Macrophages living in lymph glands surround the vaccine, digest it and finish up with the antigens presented on their surfaces for later antibody production by lymphocytes.



LYMPHOCYTES: KEY IMMUNE SYSTEM CELLS

Lymphocytes continuously patrol the lymph glands on their journey through the animal's blood system on the look out for foreign invaders. For every lymphocyte in the blood stream there are, at any one time, about 5 others passing through the lymph glands.

Pigs' blood contains about 10 million lymphocytes per millilitre. (They're very small!) Of these only about 2 million can make antibodies. They are called B cells. These two million B cells must be able to recognise about a million different antigens. These B cells are very choosy. Roughly, only about 2 cells out of each 2 million can recognise specific antigens on the surface of the particular macrophage which engulfed a vaccine or a foreign organism.

LYMPHOCYTE NUMBERS INCREASE

When a patrolling lymphocyte recognises its special antigen it divides. Other lymphocytes called "T" cells assist the process. (T cells are the ones which the AIDS virus infects.)

The B cells divide many times so that finally there are perhaps 2000 B cells/ml which can recognise the special antigen the next time the animal is exposed. These '2000 special cells' produce antibodies for about 14 days.

(Antibodies are proteins which can neutralise foreign antigens such as those carried by bacteria and viruses). Then the B cells go quiet. However, if they contact the same antigen months (or even years) later as a vaccine booster injection or a disease agent, the '2000 cell' group expands again and produces a very much magnified immune response. The level of antibodies produced is enough to neutralise the disease process in its very early stages.

BOOSTER SHOTS STIMULATE CELLS TO INCREASE NUMBERS AND PRODUCE ANTIBODIES

Expanding the numbers of B and T cells which can act against an antigen is the basis of the first vaccine dose and booster shots.

The first begins the process and increases the number of immune system cells which can start an immune response.

The second challenge, or booster shot, further magnifies the number of cells and provides good levels of antibodies.

TIMING

The ideal time period between the first and booster vaccine doses is about 8 weeks. Traditional recommendations have been for shots about one month apart. Really, the first dose can be given at any time. The timing of any booster shot should be related to the anticipated danger period.

For example, if you have problems with Erysipelas in growing pigs as they are moved into the finishing house, the best time to vaccinate them is about two weeks before they are moved.

For parvovirus the danger period is for gilts in the first 50 days of pregnancy so they need their shots about two weeks ahead of breeding.

For E coli infection the aim is to protect the little pigs by stimulating the sow to produce colostrum with lots of E coli antibodies. So you must give the E coli shots about 14 days before colostrum starts to be made. Since colostrum production starts about 10 days before farrowing the booster is given about 3 weeks before farrowing.

Parvovirus and E coli vaccines are perhaps the most critical from a timing perspective. The other vaccines can, to some extent, be fitted into a convenient schedule. Hence it makes sense to give AusVac's new combined E coli, leptospirosis and erysipelas vaccine ECOvacLE, as a booster shot, each pregnancy, about 3 weeks before farrowing. You get the timing precisely right with the ECOvac bit and there's still plenty of protection from the other components to allow some flexibility in timing.

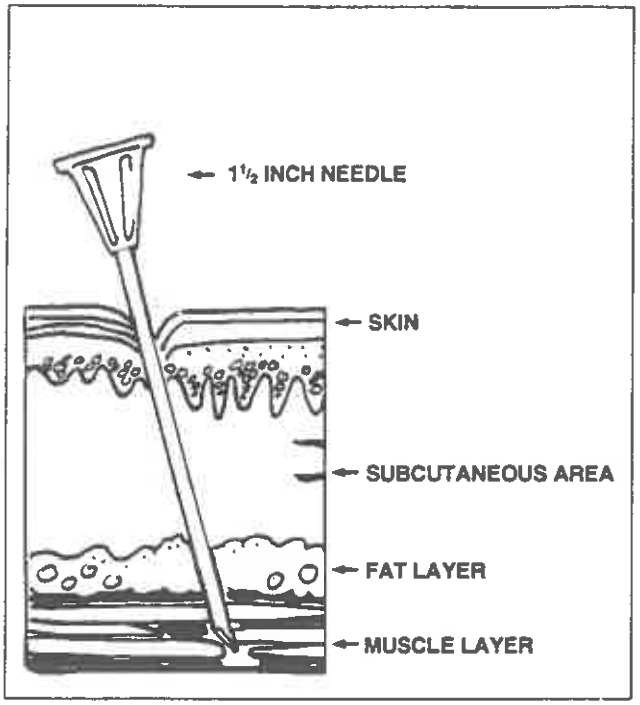
WHERE TO INJECT

The best place to inject is deep into the muscle of the neck using a 1.5 inch 18 gauge needle. Thinner needles break. Bigger ones let vaccine leak out of the hole they make.

We prefer injecting into the muscle because the blood supply is better there than just under the skin and there's a better chance of starting an effective immune response.

In sheep, cattle, and other animals, injecting under the skin works. In pigs it's hard to judge where skin stops and fat starts. The blood supply to fat is very poor so vaccines put into fat won't work as well.

In our trials with parvovirus vaccine we vaccinated pigs with a 1/2 inch 18 gauge needle. We got good results but we were very careful with placement of the vaccine. We made sure it went under the skin. On farms we think it's safer just to use a long needle and go into the muscle.



COMBINATION VACCINES WORK

One of the reasons combination vaccines have been slow to get off the ground has been a concern that the immune system could not cope with the combined challenge; that the immune response to one component of the vaccine could suppress the response to another.

It's different with the pig vaccines. All the antigenic components are quite different. Our development research demonstrates that when E coli, lepto and erysipelas antigens are included with parvovirus antigens the immune response is enhanced. In fact, when all four (E coli, parvo, lepto and erysipelas) are included, the response is better than when just three are included. With three (lepto, ery, parvo) the response is better than when just two components are included, and so on.

The combinations stimulate a better immune response because the bacterial components contain substances (lipopolysaccharides or LPS) in their cell walls which directly enhance the immune response. In brief_"__direct contact with LPS makes macrophages and lymphocytes work better.

VACCINE COMPONENTS

Vaccines are more than just bugs in a brew. Vaccines are made of the antigen (usually a killed bacteria or virus together with some cell proteins), some adjuvants (to make them work better), and some preservatives (to make sure that they don't go off).

ADJUVANTS.

Adjuvants enhance the specific immune response to antigens by:

- presenting the antigenic components to the immune cells in the best way; for example, in the form of particles which can be easily gobbled up by macrophages; and
- making the antigens very attractive to specific immune cells.

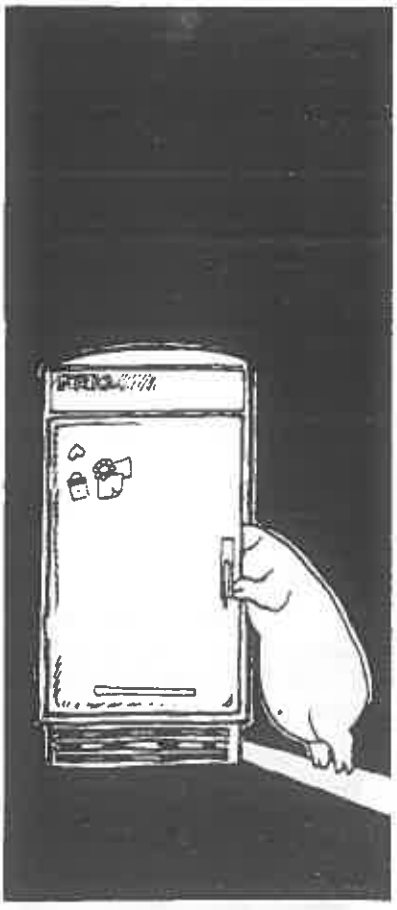
PRESERVATIVES

Preservatives are added to multi-dose pharmaceutical preparations to prevent growth of micro-organisms which may be introduced during multiple use. Injectibles have to pass a preservative test where the finished product is inoculated with bacteria. Attempts are then made to reisolate the bugs after 14 days. AusVac is confident that, under normal conditions and sensible care, you can use our multi-use products and return the unused portion to the fridge for use on another day. We do think it's important to sterilise syringes between use and to keep them in a disinfectant solution. Poor vaccination technique and dirty equipment can lead to abscesses at the injection site.

STORAGE

Vaccine antigens are quite fragile and they can be easily disrupted if they are not stored according to the manufacturer's directions. Freezing is really bad news but a couple of days at the post_office isn't going to do much damage. Freezing breaks down the vaccine and can make it toxic. Store AusVac vaccines in the fridge at 4-8 degrees C; not the freezer. If you store your beer in the vaccine fridge and like it really ice cold get another fridge for your beer.

Otherwise you'll wreck the vaccine – if it freezes, throw it out!



Vaccination Technique for Pigs.

Vaccination is a procedure conducted by pig farmers on pigs of all ages. The technique used is important to ensure there is an effective response, no ill-effect and minimal carcass damage.

The vaccination technique will depend upon the age and size of the pig, type of vaccine and the route of administration.

Vaccine is generally administered in the neck because the carcass in this area is of lesser value. For young pigs the skin fold layer in the neck is relatively thin. An 18 gauge 15mm ($^1/_2$ inch) needle is large enough to penetrate the skin and reach the subcutaneous layer. This skin in the neck can be pinched up (see Figure 1) and the needle then slipped under the skin. An intramuscular injection could be administered by injection perpendicular to the surface of the skin. A $^3/_4$ inch needle would penetrate into the muscle layer in a weaner type pig. Adult pigs have a much thicker fat layer at the base of the neck and a longer needle is needed to reach either the subcutaneous or muscle layer.

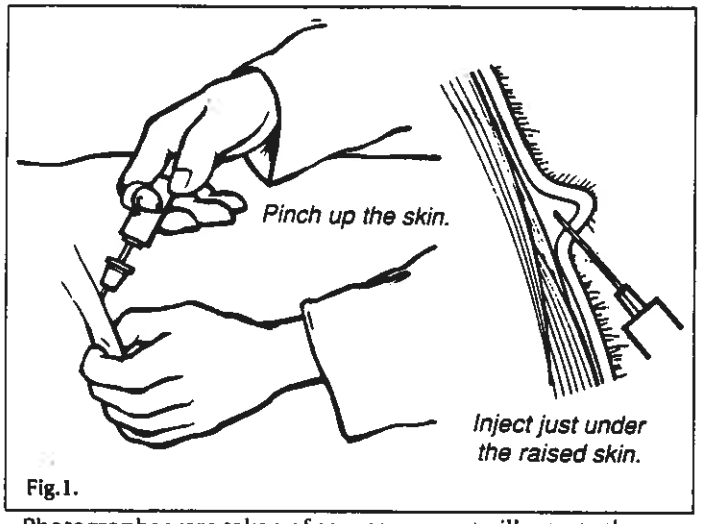


Fig.1.

Photographs were taken of sow carcasses to illustrate the depth of fat in the neck. Photograph 1 shows the thin fat layer directly at the base of the ear. At approximately 5cm below the base of the ear the fat layer is approximately 1cm thick.It is often difficult to vaccinate sows in this region while they are moving their head and neck. Photograph 2 shows the fat depth at a site only a further 10cm further down the neck. At this site that fat layer is substantially thicker and a longer needle is required. The recommended needle for breeding sows and boars is 16 gauge 35mm ($1^1/_2$ inches.) A needle of this length will penetrate the fat layer when directed perpendicular to the skin surface. The vaccine is then deposited either subcutaneously or intramuscularly. if the vaccine is administered into the fatty tissue by a short needle, there will be a less effective immune response and not optimal protection.

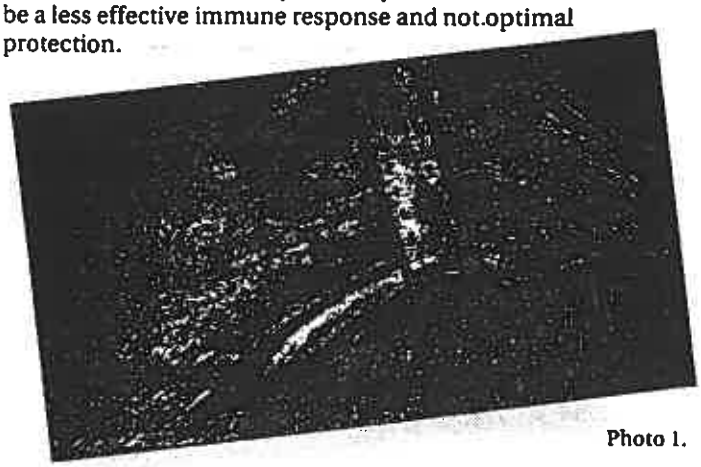


Photo 1.

Lepto for Pigs, Eryvac, Lepto Eryvac and Percine Parvac vaccines should all be given subcutaneously.

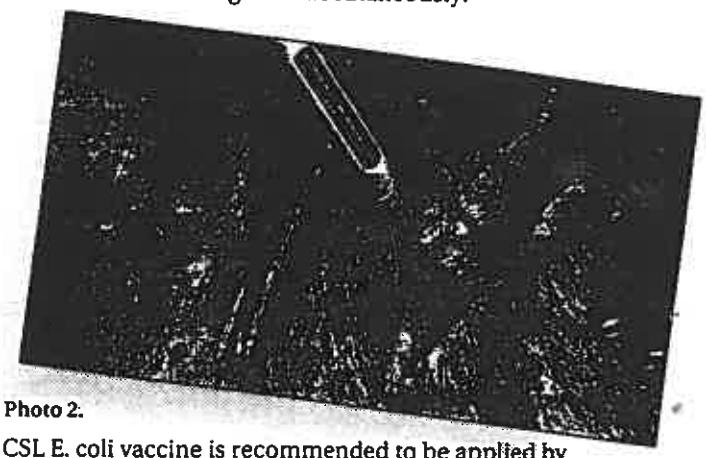


Photo 2.

CSL E. coli vaccine is recommended to be applied by intramuscular injection and it is essential it is given with a $1^1/_2$ inch needle.

Use only sharp needles. Needles should be changed regularly because a blunt needle causes considerable pain to the sow when injected and is an unnecessary additional stress. The sow will also be shy of further injections. Blunt needles also cause more tissue damage and increase the risk of infection. We recommend a new needle after every 5 or 6 injections. These needles can be supplied cheaply from your veterinarian.

The vaccination gun must also be sterile. Stainless steel guns should be dismantled and sterilised before use. Sterilization can be achieved by placing in boiling water for 10 minutes. Sterile disposable CSL autovaccinators are designed for use on a single day only since they are difficult to resterilise. Frequently check that your vaccinator gun is adjusted to and giving the correct dose.

Before use, check the expiry date of the vaccine to be administered, keep it cool and out of direct sunlight. Follow the instructions on storage, included with the pack, very carefully. Try to avoid dusty or wet conditions during vaccinating.

Vaccination is an important part of farm health management. Care is required to ensure the vaccine is correctly applied to guarantee protection against disease.

If you are unsure about your vaccination programme or technique, contact CSL Veterinary Division at the number below and ask for a representative to call.

Experience that counts, vaccines that work.

CSL Veterinary

ACN 051 588 348
45 Poplar Road, Parkville Vic 3052 Australia
Ph: (03) 389 1782 Fax: (03) 389 1646 Telex AA 32789

REDUCING THE RISK OF PESTICIDE EXPOSURE

by Louise Faulkner, Research Officer, Australian Agriculture Health Unit



There are hundreds of pesticides registered for use in agriculture in Australia, and pesticides are in common use in most agricultural industries. Farm chemical users face the constant risk of pesticide exposure, as do farm workers, and to some extent farm families. It is important for all farm chemical users to be made aware of this risk, and more importantly, to be made aware of the methods of ***reducing the risk***.

How does exposure occur?

Pesticide exposure may occur during a variety of farm activities, as the result of an accident or when the correct protective clothing and equipment is not worn on the job. Human pesticide exposure may occur in three situations:

1. Occupational exposure:
Agricultural workers at risk in this group include mixers, loaders, applicators, pilots, flagmen, orchardists, cotton chippers, bug checkers, harvesters, processors and vegetable growers.

2. Ingestion of concentrated pesticide:
Whether accidental (usually children) or intentional (usually adults) the ingestion of concentrated pesticide products is the major cause of pesticide related morbidity and mortality.

3. The general community:
Spray drift, contamination of water supplies and ingestion of contaminated foodstuffs may be classed as non-occupational exposure. Levels of exposure in this group are minimal unless misuse or carelessness in pesticide usage occurs.

Chemical exposure and absorption can occur in one of three ways:

1. Dermal or via the skin:
Dermal exposure, or via the skin, is the most common route of pesticide exposure. Dermal exposure can occur as the result of a splash or spill. Absorption through the skin is increased with perspiration, and increased if the skin surface is broken (through cuts, scratches). Different areas of the body also have different absorption rates. For example, the forehead absorbs pesticides 4.2 times the rate of absorption of the forearm; the groin area absorbs pesticides 11.8 times the forearm rate. It is easy to see why this type of exposure is the most common — the simple act of wiping sweat from your forehead whilst spraying can result in significant pesticide exposure.

2. Inhalation:
Exposure can occur through the breathing in of vapours, dusts or spray particles. Once inhaled, the pesticide may be absorbed through the mucous membranes of the nose, throat, mouth or respiratory passages.

3. Ingestion:
The swallowing or ingesting of a pesticide.

When is exposure most likely to occur?

1. Dermal
Dermal pesticide exposure is most likely to occur during the mixing and application of pesticides, when the user is in direct contact with the chemical (especially during mixing, when handling the concentrate). Skin exposure may occur through a splash or spill. During the disposal of chemicals (triple rinsing etc.), the user is also at risk. Exposure via the skin can occur easily, and may not be noticed until symptoms appear.

2. Inhalation
Exposure via inhalation can occur when mixing pesticides that are dusts, when misting, or when spraying chemical at a fine droplet size. Inhalation presents the greatest hazard when mixing or spraying in confined spaces, during fumigation, or when conditions are windy.

3. Ingestion:
Pesticides should never be stored in anything other than their original containers. Storing pesticides in food or drink containers is not only illegal, it is highly irresponsible; accidental ingestion of toxic chemicals by children has occurred through a mistaken belief that what was in the bottle in the shed was a soft drink and not a potentially harmful pesticide.

Using the mouth for siphoning chemical hoses or clearing blocked spray nozzles will also increase the risk of accidental ingestion and must be avoided.



How to reduce the risk

To lessen the risk of pesticide exposure, it makes sense to try and avoid high risk situations such as those described above. An increased awareness of safety, and adoption of a few simple, safe working practices can greatly reduce the exposure risk.

Read the Label

The pesticide label contains information that the chemical user *needs to know*. Information on the label includes directions for use, and general instructions on equipment usage, cleaning, mixing instructions, safety directions and first aid. The user can ascertain from the label what protective gear and equipment is needed for the job, as well as specific precautions to take with the pesticide (from the hazard warning statement).

Material Safety Data Sheets (MSDS) are available for every chemical on the market. These should be available from the chemical retailer/distributor/reseller, or can be obtained from the chemical company. The MSDS contains information to supplement that given on the pesticide label. Some of the information on the MSDS relates to protective clothing, potential adverse health effects of the pesticide should the user become exposed, and first aid advice. A file of MSDS relating to all pesticides stored on farm is a useful tool, and a worthwhile safe practice.

Wear the correct protective clothing

As designated on the label. If protective clothing is not specifically mentioned on the label, it is still important to reduce the risk of contact and exposure to the pesticide. The minimum protective clothing consists of a long-sleeved shirt, long pants or overalls, gloves, boots impervious to liquids, and a washable hat — this minimum protective clothing acts as a barrier between the chemical user and the chemical.

Practice good hygiene

After handling or being in contact with pesticides, it's important to wash before eating, smoking or going to the toilet. If a splash or spill has occurred on the body, the area should be washed thoroughly. The same applies to contaminated clothing — the clothing should not be allowed to dry on the body, as subsequent skin contact and perspiration will increase the risk of exposure via the skin (ie the contaminated clothing should be removed.)

At the end of the day, all clothing worn whilst using pesticides should be washed in a separate load to the family clothing, as the last load. Again, this lessens the risk of dermal exposure to the user. Gear such as rubber gloves, rubber boots and aprons should be washed inside and outside, with soap and/or detergent.

Adopt safer practices where possible

Exposure to pesticides can occur at any time the user is in contact with the chemical. This includes transport, handling, disposal, storage and application. While the risk of exposure is greatest during handling and application, safety precautions should be taken when in ANY of the aforementioned situations.

Some tips to remember:

- Regular maintenance and cleaning of all equipment involved in pesticide use is essential. This not only reduces the risk of exposure, but improves the performance of the equipment being used. Spraying equipment should be calibrated, to minimise spray drift and chemical wastage.
- Chemicals should never be carried in the passenger compartment of a vehicle, and this includes the boot of a car.
- The problem of disposal of excess pesticides can be lessened by purchasing only the amount of chemical that is needed for the job. When disposing of containers, each should be triple-rinsed; a safe method involves puncturing the container, placing the spray nozzle through the puncture. This not only completely rinses the container, but renders it useless for further storage (pesticides should be kept in their original containers).
- It is desirable to keep all farm chemicals stored and locked in a separate area, away from children, pets and living areas. The storage area should be dry, well-ventilated and well maintained. Safe practices involve

taking an inventory of products and regular checks of shelf-life.

How to measure the risk

Tests for pesticide exposure act as a good indicator of the adequacy of safe practices employed by a chemical user. Agricultural workers and those who handle chemicals should have regular pesticide screening tests to check for possible exposure.

The most common pesticide test is a ***cholinesterase test***. Cholinesterase tests (measuring exposure to organophosphates or carbamates) are available in many rural areas of NSW, while tests for most chemicals are available through State Government laboratories. Cholinesterase tests measure the level of an enzyme (cholinesterase) in human blood; exposure to organophosphates and carbamates can depress or lower the individual's normal level. It is advisable that a normal or 'baseline' cholinesterase level be obtained from the pesticide user, before chemicals are being used. Subsequent tests can then measure the degree of depression of the enzyme, its variation from the 'baseline' level, which will indicate if pesticide exposure has occurred.

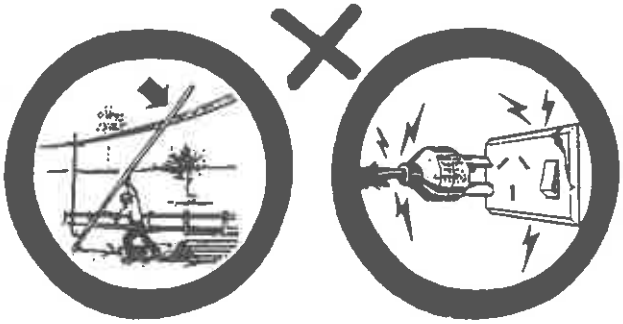
Further information

The Australian Agricultural Health Unit holds pesticide and human health information, and is currently developing home study kits for rural doctors and health workers in this area (PO Box 138, MOREE 2400, ph (067) 52 9222 fax (067) 52 4025). A newsletter for health workers containing information on current issues in pesticides and health is also available from the Unit. The Farm Safety network can be accessed for information, as can relevant State Government bodies. The National Farm Chemical Users Training Program, available in all states, aims to assist chemical users in understanding the correct use of chemicals on the farm, including health and safety aspects (contact your local Department of Agriculture or TAFE for further information).

While research into alternative methods of pest control continues, pesticides and farm chemicals remain the most widely used control methods in agriculture today. It is then vitally important that farmers be made aware of ways in which to "reduce the risk" of pesticide exposure, to protect their most precious commodity — their health.

Australian Agricultural Health Unit — March 1994.

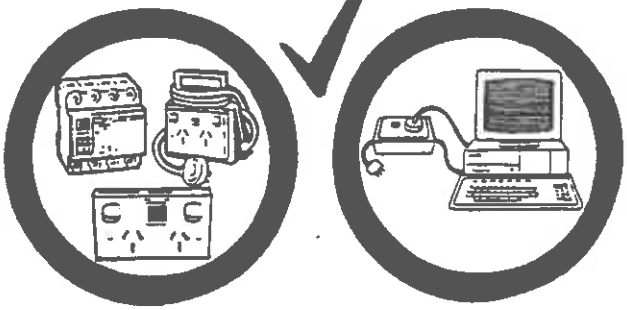
THINK SAFE WITH ELECTRICITY



LOOK UP • TAKE CARE

BEWARE OF OVERHEAD WIRES

MAINTAIN SWITCHES AND LEADS



KEEP SAFE • BE SMART

INSTALL SAFETY SWITCHES

INSTALL SURGE-PROTECTION DEVICES

FOR FREE INFORMATION ON ALL ASPECTS OF THE SAFE, EFFICIENT AND ECONOMICAL USE OF ELECTRICITY ON THE FARM CONTACT ONE OF OUR CUSTOMER ADVISORY OFFICERS

North Queensland Electricity Board
P.O. Box 1090, Townsville, Qld. 4810
21 Stokes Street, Townsville
Phone (077) 27 6211

South West Queensland Electricity Board
P.O. Box 483, Dalby, Qld. 4405
30 Marble Street, Dalby
Phone (076) 69 0111

Far North Queensland Electricity Board
P.O. Box 358, Cairns, Qld. 4870
109 Lake Street, Cairns
Phone (070) 50 2777

Wide Bay-Burnett Electricity Board
P.O. Box 163, Maryborough, Qld. 4650
97-99 Adelaide Street, Maryborough
Phone (071) 21 9511

Capricornia Electricity
P.O. Box 308, Rockhampton, Qld. 4700
Cnr. Alma & Fitzroy Streets, Rockhampton
Phone 008 015 015

Mackay Electricity Board
P.O. Box 259, Mackay, Qld. 4740
Cnr. Gordon & Gregory Streets, Mackay
Phone (079) 51 2800

Isn't It Nice they really care!

FARMING FOR THE FUTURE - LIST OF PROGRAM CONTACTS

NSW AGRICULTURE/ CONSERVATION AND LAND MANAGEMENT

FARMING FOR THE FUTURE

CALM
DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

NSW Agriculture

In conjunction with National Parks and Wildlife Service National Landcare Program NSW Farmers

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- Trevor May, Project Officer, Dubbo
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- Bruce Thompson, Co-ordinator, Property
  Tel: (02) 228-6529; Fax: (02) 228-6537
- Richard Stephens, Project Officer, Sydney
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- Tim Burfitt, Regional Program Co-ordinator, Maitland
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- John Read, Regional Program Co-ordinator, Orange
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- Carolyn Carlos, Economist, Goulburn
  Tel: (048) 230-653; Fax: (048) 219-413
- Noel Flavel, Economist, Tamworth
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- Todd Duffy, Farm Business Management Co-ordinator, Dubbo, Tel: (068) 811-212; Fax: (068) 811-368
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(e) Education Officer

- David George, Education Officer, Dubbo
  Tel: (068) 811-211; Fax: (068) 811-368

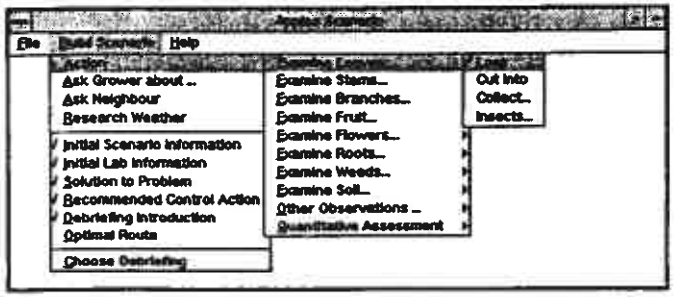
DIAGNOSIS for Crop Protection™ Windows Version 2.0 - Information Sheet

Diagnosis for Crop Protection is a multimedia software package that teaches the process of diagnosing crop problems. The user is presented with a problem scenario and must interrogate the program to diagnose the situation. Information is presented in the form of a text window, and optional graphics and video. By looking at different plant parts, the growing environment, and by asking a variety of questions, the user gradually accumulates knowledge about the problem and makes a diagnosis. Feedback consisting of the correct answer, the key points that should have been observed, and the points that an experienced extension agent or crop consultant would typically make to diagnose the problem are given once a final diagnosis is entered by the student. A points score and accumulated costs are also shown. This feedback can be saved to disk for later perusal by lecturers or tutors.

A Scenario Builder complements Diagnosis, allowing the creation of many different scenarios for the same crop, and for a variety of crops. The user decides on a crop problem, and enters textual information and selects relevant images and video clips.

1. Scenario Builder

Below is the main menu for the Scenario Builder for Diagnosis. It is here that all information is entered to create a scenario.



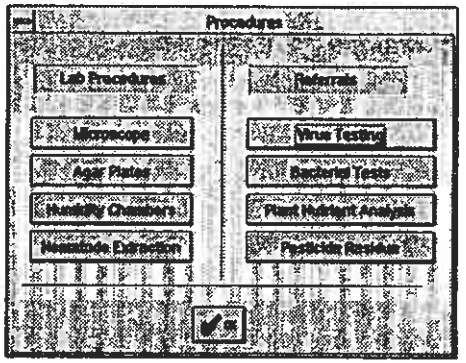
The key submenu is the **Action** menu, shown above. Each plant part has actions associated with it. **Look** will give an overview of the part, **Cut Into** will describe what is seen when the part is cut into, **Collect** will have a number of Laboratory procedures associated and **Insects** has information on insects associated with the plant part. For every menu item, text is entered, and images (BMP, RLE, GIF formats) and video clips (AVI format) can be selected.

Other menu choices include **Ask Grower**, detailing the grower's response about a variety of things such as fertilisers, weather, land use, pesticides, and their own ideas about the problem. Once entered, all information can be saved as a scenario file.

2. Diagnosis for Windows

Diagnosis for Windows reads a file written by the Scenario Builder, and presents the information to the user. Menus similar to the Builder are used. Only menu items which have information associated with them (entered in the Builder) are shown. Plant parts, weeds and soil can be looked at, cut into, collected, and examined for insects. Points are allocated for each menu item used, and a total is given at the conclusion. Collected items can be taken into the laboratory for further analysis by a variety of procedures.

Below is the Laboratory Procedures dialog box for collected leaves



Selecting a procedure will display the results of testing. In this way the user gradually gathers information about the problem. Short video clips and images can complement textual information.

Diagnosis has a comprehensive feedback system. If permitted by the scenario creator, the user may view the solution, recommended action, general debriefing comments, total cost and points accrued. Other feedback notes are also supplied. All user information can be saved to a file, to be marked later .

Availability & Cost

The Diagnosis for Windows package comes compete with Diagnosis, the Scenario Builder and several sample scenarios which uses text, images and in some scenarios video clips. Lecturers can use the Builder to construct their own scenarios. It is anticipated that a scenario library will be developed to allow users to swap and adapt different scenarios. New scenarios for a wide range of horticultural and field crops are currently being developed at the Centre.

Diagnosis for Windows will be on sale by the end of February 1994. A similar Macintosh version and a MS-DOS version (more limited in it's capabilities) will also be available. Costs are given below.

	MS-DOS	Macintosh	Windows
$AUSTRALIAN	$65	$130	$185
$NEW ZEALAND	$75	$155	$220
$US (for all countries outside Australia and New Zealand)	$40	$85	$120

For more information contact the

Software Applications Officer
CRC for Tropical Pest Management
University of Queensland, St Lucia 4072 Australia.
Tel 61-(0)7-365 1851 Fax 61-(0)7-365 1855

Diagnosis for Crop Protection has been developed through a joint venture between Massey University, New Zealand and the Cooperative Research Centre for Tropical Pest Management.

DIAGNOSIS FOR CROP PROTECTION™ ORDER FORM

Please send all orders to,

The Software Applications Officer,
Centre for Tropical Pest Management,
Gehrmann Laboratories,
University of Queensland,
Brisbane, Qld 4072
AUSTRALIA

Prices and systems requirements shown on reverse

Where payment is made by cheque, credit card or bank draft.

* If paying by cheque please make out to "the CRC for Tropical Pest Management" ☐ Cheque or Bank Draft Enclosed

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Cardholder's name (Please print): _____ Signature: _____

* Purchase orders - Bonafide Company or Institute purchase orders will be accepted at our discretion. An invoice will be included with goods supplied. Payment must be made within 30 days of receipt of this invoice.

I wish to order:

_____ copies of Diagnosis for Windows 2.0 at $ _____ per copy Cost $ _____

_____ copies of Diagnosis (Macintosh Version 1.0) at $ _____ per copy Cost $ _____

_____ copies of Diagnosis (MS-DOS Version 1.1) at $_____ per copy Cost $ _____

A 5 / 10 copy Secondary Education Pack - Windows / Macintosh / MS-DOS Version (circle pack size and version desired) Available only to secondary schools Cost - $ _____

Add Postage and Handling $ 10.00

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Price List

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$US (for all countries outside Australia and New Zealand)	$40	$85	$120

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5 copies $A 500/$NZ 600
10 copies $A 750/$NZ 900

Systems Requirements

Windows Version: IBM compatible computer running Windows 3.1. To install Diagnosis and the Scenario Builder requires approximately 1 Megabyte of hard disk space. To load the program and the sample scenario requires approximately 6 Megabytes of disk space. To include sound with video clips a soundcard must be installed in your computer.

Macintosh Version: The minimum recommended hardware is a Macintosh LC2 with 512 KB VRAM and a monitor capable of showing 16 bit colour, although video clips may run slowly on these machines. Installation requires the common shareware archive application "Compact-pro" which is available from any "Shareware" distributor. In order to use the scenario builder, the "Hypercard Developer's Toolkit" (available from any Macintosh software dealer) must be installed. Diagnosis will run the supplied scenarios using "Hypercard Player" shipped with current Macintosh computers. Approximately 6 Megabytes of disk space will be required to load the program.

Dos Version: An IBM compatible computer with at least 640 K of memory. A SVGA graphics card and monitor will be required to view images in the supplied scenarios.

DIAGNOSIS for Crop Protection™ has been developed through a joint venture between Massey University and the Cooperative Research Centre for Tropical Pest Management.

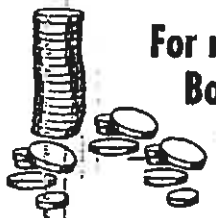
Windows Version 2.0 has been developed jointly between Massey University, New Zealand and the Cooperative Research Centre for Tropical Pest Management.
Macintosh Version 1.0 and MS-DOS Version 1.1 were developed by Massey University, New Zealand and distributed by the Cooperative Research Centre for Tropical Pest Management.

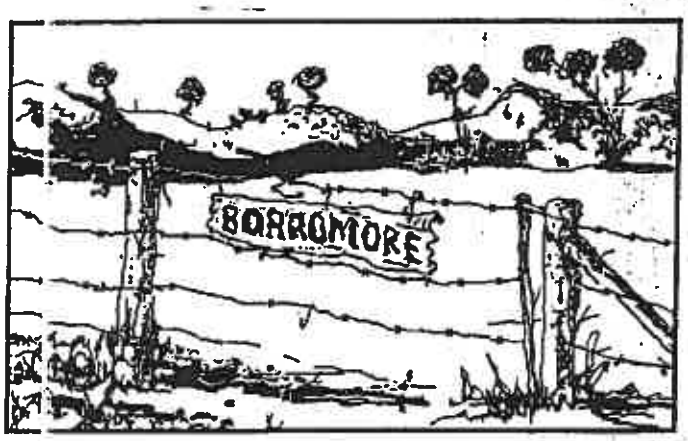
Borromore

Pastoral Company

Award Winner!

For novices and experts alike, Borromore puts you in the agricultural "hot-seat"!





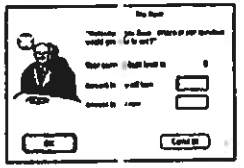
- Simulate the operation of a real life farming enterprise with this dynamic, interactive reproduction of rural Australia.
- City dwellers will rapidly identify with the issues faced by those on the land and come to an appreciation of the traumas and challenges unique to farm life.
- Country players can use the simulation to broaden their understanding of the dynamics of farm management.
- Borromore will bring all Australians to a greater appreciation of our rural heritage. Highly recommended.

In Brief:

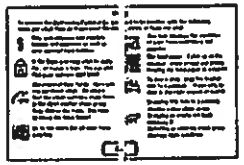
- Real life simulation
- Suitable for students aged 11 to adult
- Mouse driven, graphical screen allows computer users of any level to run the simulation
- Users spend minimum time learning how to run the software and maximum time using it
- Can be customised to simulate a particular local area, or to reflect current agricultural trends and events (eg. fluctuating interest rates)
- Includes action planners, livestock inventory, gross margins, cashflow and assets and liabilities
- Up to 4 people can participate in one simulation, with individual economic and climatic data kept for each player
- Available enterprises include wheat, barley, oats, sheep and cattle - these may be farmed singly or simultaneously
- Comprehensive manual with informative worksheets
- Includes a news source as an integral component, containing market and weather information, as well as items which affect the agricultural sector.

...e ever had to borrow more to make ... enterprise work, then you will identify with this dynamic new package from Diversely Digital.

Real Life Simulation



Borromore simulates a real life dryland farming enterprise and allows students to try their management skills on a property and see the results of their decisions. Borromore can also be customised to simulate a particular local area if required, or to reflect current agricultural trends and events such as fluctuating interest rates. Record keeping, vital to any farming enterprise, is also taught through the simulation. Action planners, livestock inventory, gross margins, cashflow and assets and liabilities are features included in Borromore, and together with the manual, Borromore teaches users how to use these important documents and how to complete them.

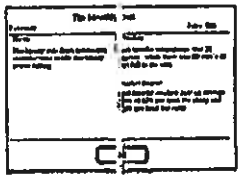


The Package

Borromore is supplied with a binder style manual containing step by step instructions on how to use Borromore, plus informative work sheets for class use with the simulation. The package is available in single user, 10 pack and site licence formats to cater for the varied requirements of different schools. It is suitable for upper primary students, right through to lower tertiary agriculture students.



Award Winner



Trust the judges from the Royal Easter Show Farm Software Competition. Awarded a third placing in 1992 and 1993, the judges liked Borromore and you will too.

Yes! Please send me a copy of Borromore

Available on 14 Day Approval

MAC	Single	$95.00
MAC	Lab 10	$190.00
MAC	Site Licence	$249.00
Windows 3.5	Single	$95.00
Windows 3.5	Lab 10	$190.00
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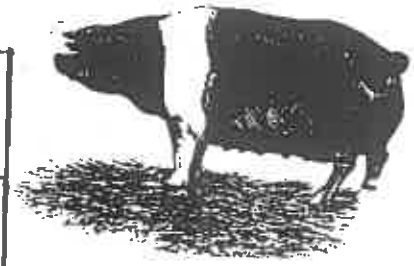
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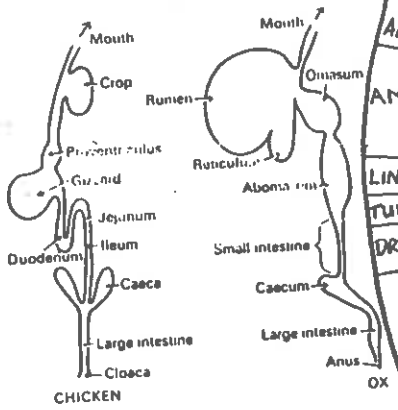


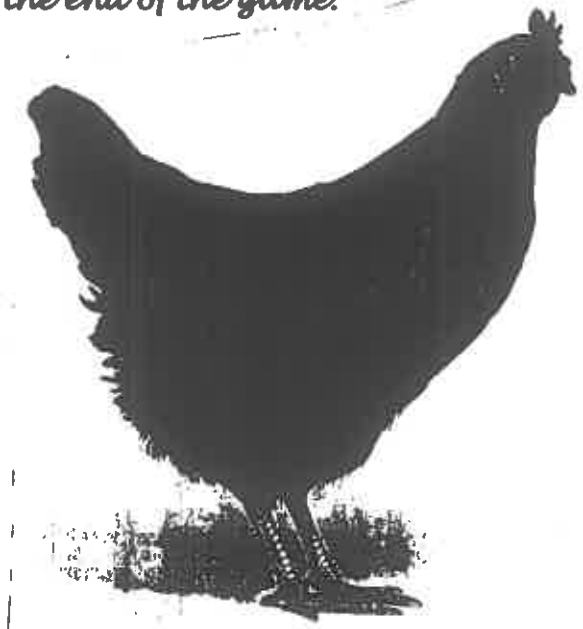
The Breed Game:

Instructions: Each player is to collect one card from the pack. Familiarise yourself with the characteristics of the breed shown on your car Each person is asked about their animal starting from the centre and working out. If a correct answer is given then another is asked the same person. If the answer is "No" then the next player takes a turn.

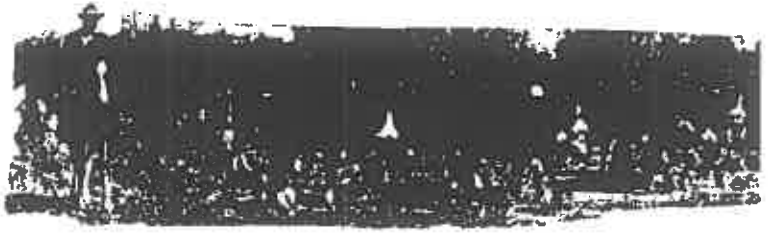
The winner is the person who collects the most cards by the end of the game.











© C. HARRIS 1994

GUERNSEY	AYRESHIRE	FRIESIAN
ILLAWARRA	JERSEY	CHAROLAIS
GLEB VEIH	CHIANINA	SIMMENTAL
LIMOUSIN	RED POLL	SHORTHORN
ANGUS	HEREFORD	ZEBU
SAHIWAL	BRAHMAN	SANTA GETRUDIS
SINDI	AFRICANDER	A.M.Z AUSTRALIAN
LINCOLN	TUKIDALE	DRYSDALE

MERINO	CORRIEDALE	POLWARTH
COMEBACK	GROMARK	CROSS BRED SHEEP
BORDER LEICESTER	SUFFOLK	ROMNEY MARSH
WHITE SUFFOLK	HYBRID MEAT CHICKENS	GAME BIRDS
RHODE ISLAND REDS	WHITE LEGHORN	AUSTRALORP
HYBRID PIG BREEDS	WESSEX SADDLEBACK	TAMWORTH
LARGE WHITE	BERKSHIRE	DUROC
LANDRACE		

ACTIVITY 12

What do trees do?

▶ Aim

To show how plants transport water.

To hypothesise what role this plays in a catchment area.

Part A

▶ You will need

- Fresh celery stalk with leaves
- Red or blue food dye
- Container to hold water
- Sharp knife

▶ What to do

1. Cut about 2 cm off the bottom of the celery.
2. Add dye to the water until it is dark red (or blue).
3. Place the celery in the jar and leave for 24 hours (see Figure 10).
4. After 24 hours, remove the celery and cut off the bottom 2 cm.

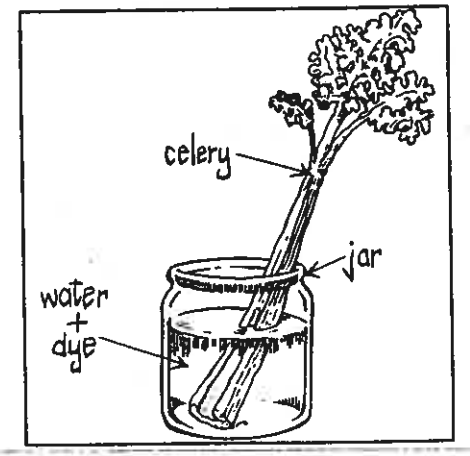


Figure 10

▶ Questions

1. What do you see?
2. Cut again another 6 cm higher. What do you see here?
3. Scrape the edge of the celery stalk. What has happened to the dye?
4. What does this tell you about how water moves through a plant?

Part B

▶ You will need

- Plastic bag (such as large freezer bag)
- Twist tie or string

▶ What to do

1. Find a tree with low branches, or a shrub - you need to be able to reach a small branch.
2. Place your bag over a branch containing at least six leaves.
3. Close the opening by tying around the branch with twist ties or string (see Figure 11).
4. Leave for 24 hours.
5. Examine the bag without removing it.

▶ Questions

1. What do you see in the bag?
2. Note other observations (if any).
3. Explain your observations (think back to Part A).

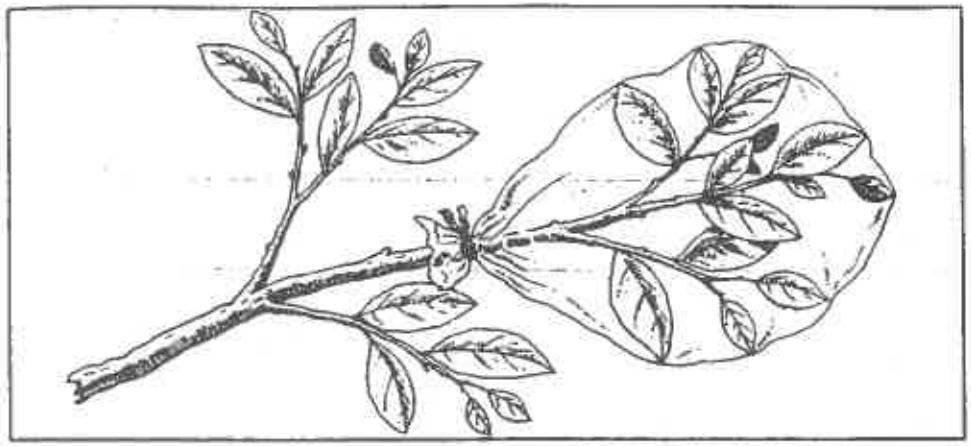


Figure 11

▶ Extra questions

1. When trees are cleared and replaced with grasses or crops, would you expect more or less soil water to be used? Explain your answer.

2. Trees have deep roots compared with grasses and crops (see Figure 12). Do you think trees or crops would more easily survive a drought? Explain why.

3. If trees were cut down, what might happen to the watertable?

4. What other changes might occur in the catchment basin if many trees were cut down? Explain your answer.

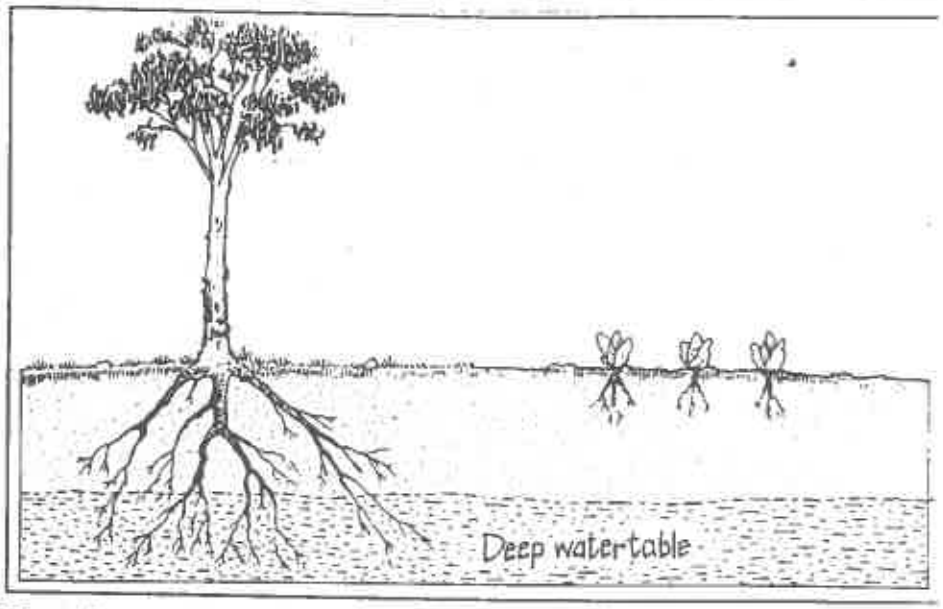


Figure 12

BITTER HARVEST

Farming and its hidden dangers
The tragic stories of four farmers

... on video



ONLY **$20** POST PAID

Every 23 days someone, somewhere in NSW dies as a result of a rural accident. The 4 farmers featured in "Bitter Harvest" are lucky. They lived to tell their story and warn others of the hazards.

"Bitter Harvest" will be of interest to anyone involved in farm work and of particular interest to farmer organisations.

POST HOLE DIGGER ACCIDENT



Mr Lionel Grady, Orange

...and consequently I lost my leg.

I was working with a post-hole drill when I struck a piece of netting wire which had been washed in by the floods. The wire pulled me into the auger *and consequently I lost my leg.* I was using an old-1950s tractor with the post-hole drill attached to the front and driven by a belt pulley. But it's still risky standing in the vicinity of augurs because you don't know what's under the ground.

Mr Grady now works for the Department of Agriculture.

ORDER FORM

Send to: WorkCover Authority,
Corporate Marketing & Communications
Locked Bag 10, Clarence Street, Sydney 2001

Name: _____

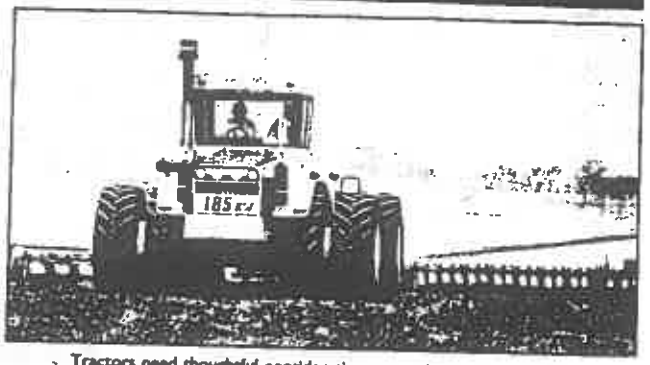
Orgarusation: _____

Address: _____

_____ Postcode: _____

Please send me _____ copy/ copies of "Bitter Harvest"

My cheque for $ _____ made payable to WorkCover Authority is enclosed



Tractors need thoughtful consideration every time they are used.

Accident stats not as they seem

Although the agricultural workforce is falling, 416,000 people or 4.5per cent of the Australian workforce is involved in either full or part-time work on the land.

Of those only 150,000 are wage earners with the remainder members of family partnerships, owner-operators or unpaid family helpers.

Because of this, workers' compensation statistics (which only relate to employees) greatly underestimate the agricultural workplace injury and sickness rate.

Worksafe Australia estimates the occupational injury rate in agricultural, forestry and hunting to be 47 per 1000 workers compared with only 32 per 1000 in other occupations while NSW workers' compensation data suggest this costs around $400 million annually.

There are numerous factors, environmental, psychological, biological and technological which influence the health and wellbeing of the agricultural workforce and although traumatic injury is the most obvious, it is not necessarily the most common.

Occupational illness produced by exposure to noxious chemicals and biological agents probably contribte more significantly to lost productivity.

This includes a wide variety of conditions from contact dermatitis through occupational cancer to the more tragic suicide of a depressed worker subjected to extreme pressures.

There are a lot of issues contributing to the "less than ideal" management of occupational health and safety on the farm and these include: • Lack of skills to perform effect hazard identification/risk management and lack of available or affordable resources to provide appropriate advice.

• On-the-job training is being performed by poorly trained advisers with much of the information being passed from one generation to the next, perpetuating outdated practices.

•The conservative nature of the rural workforce often results in a reluctance to accept new techniques.

•Unskilled or semi-skilled seasonal work allows no continuity of employment and limited opportunity to develop skills or update knowledge.

•Family members, often women and children, assisting with tasks they are not physically suited to perform.

•The inability to afford up-to-date or well maintained equipment or expert technical advice.

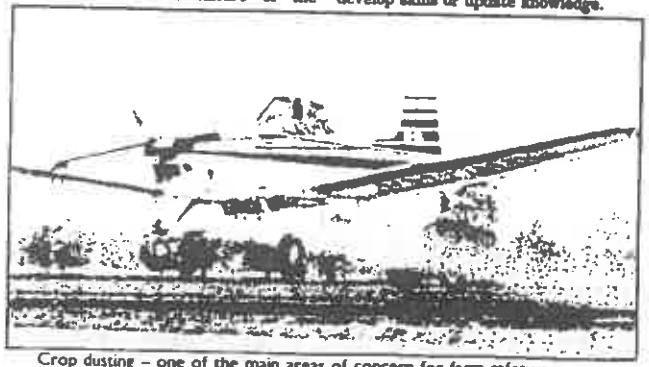
•Financial constraints limiting the employment of additional labor which results in long working hours, no holidays, low incomes and psychological stress.

•The stress being increased by outside factors such as low commodity prices, the weather or high interest rates.

Many of these factors are insurmountable for the individual farmer or agricultural worker.

Farmers must therefore encourage their industry organisations to lobby for or provide innovative occupational health and safety services for their members, something other workers have come to expect as part of their employment.

A strong lead in providing expert technical advice, particularly in the area of occupational health and safety, should be near the top of the list.



Crop dusting – one of the main areas of concern for farm safety groups.

Tractors the No.1 killer

Tractor accidents have killed or injured more people than any other piece of rural machinery.

The main cause is from the tractor rolling or tipping over, and surprisingly more than half have occured on flat, or slightly sloping ground.

Nearly nine out of 10 people killed on farms die as a result of having an accident on a tractor. One in every four is a child under the age of 16, nearly three out of every four deaths are caused by the tractor overturning and a further one in five die from falling off a tractor.

Rollover protection is required by law to be fitted to most tractors. Without this protection, drivers and passengers stand little chance of escaping without being seriously injured or killed.

It is generally against the law to carry a passenger on a tractor – unless a proper seat and footrests are provided.

General safety precautions are:
- •Read the operating instructions.
- •Keep all guards in place.
- •Keep children away.
- •Wear close fitting clothing.
- •Ensure you are properly trained to drive.
- •If tired, rest. Tired drivers have more accidents.
- •Adjust the seat for comfort.
- •Always ride on the seat.
- •Before starting, check that the tractor is in neutral and the brake is on.
- •Us self starter only from the driver's seat.
- •Never dismount from a moving tractor.
- •Service and maintain the tractor regularly.
- •Stop the engine before working on the tractor.
- •Always hitch to the tractor as low as possible, using the drawbar or the manufacturer's mounting points.
- •When pulling, pull from the front of the tractor if possible.
- •Avoid using the tractor across steep ground.

Further information can be obtained form the Workcover Authority in the form of a book entitled Guide to the Safe Use of Tractors, and Tamworth Farmsafe Action Group, (067)683200.

Survey to create regional data base

Plans are underway to start a survey of farm accidents in the north-west to help health experts target dangerous areas.

The Tamworth Farmsafe Action Group and the Tamworth Base Hospital's emergency department will join forces to develop an accurate data base for this region.

The information will help health authorities and the farmsafe group determine where the most accidents are occuring and at what areas education programs should be targeted.

TFSAG has been operational now for more than a year and publicity officer Patsy Bourke said it was time to start collecting more detailed information.

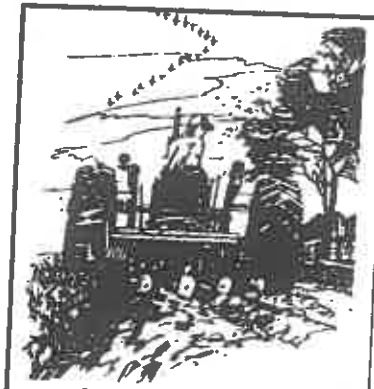
During the next three years Farmsafe will concentrate on horse safety, noise induced hearing loss and tractor safety.

There will also be a commitment to a closer liaison with local schools to provide farm safety information to a new generation of landholders. Special presentations are planned for students in Years 5 and 6.

TFSAG was set up to assist with safety education and to help distribute information about the dangers that existed on farms.

It also organised safety field days, workshops and information sessions for health workers, farmers and rural workers.

Patsy said one of the most important roles of the group was to liaise between the Tamworth community, farmer groups and government and non government organisations dealing with rural health.



For all rural and general insurance contact

Farming Is A Tough Job

And you need a "tough" insurance program to safeguard the results of your planning and hard work.

Protect against financial loss with a comprehensive insurance package tailored to your needs.

Barry Wheeler at Northwest Insurance Agencies can make insurance easy for you and with 25 years experience in the industry Barry knows how important the right insurance policy is to you the farmer.

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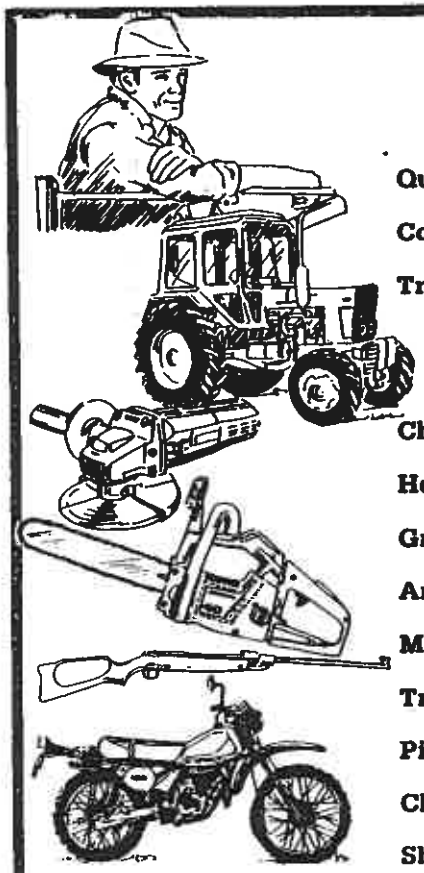
A.C.N. 002278480

WHAT FARM NOISES ARE HARMFUL TO HEARING?

When operating farm implements, if you have to raise your voice to be heard, your hearing is at risk of damage.

LOOK FOR THE NOISE LEVEL INFORMATION ON NEW MACHINERY

The louder the noise, the more rapidly your hearing can be damaged. Noise levels higher than 85 dB (A) can cause permanent hearing loss.



SOME TYPICAL FARM NOISE LEVELS dB (A) AT OPERATING DISTANCE		MAXIMUM EXPOSURE TIME BEFORE DAMAGE OCCURS
Quiet countryside	30-35	No limit
Conversation	60-70	No limit
Tractor - idling	75-80	No limit
- working (with cab) (no radio)	75-85	No limit
Chainsaw - idling	80-90	8 hours
Header	85-95	2.5 hours
Grain Auger	85-95	2.5 hours
Angle Grinder	85-95	2.5 hours
Motor Cycle	90-95	2.5 hours
Tractor - working (with cab)	95-100	2 hours
Pig shed at feeding time	95-105	48 minutes
Chainsaw - cutting	105-120	30 seconds
Shotgun	140 +	Instantaneous damage

REDUCE EXPOSURE TO NOISE

REDUCE NOISE AT ITS SOURCE BY:

- Purchasing quieter machinery and equipment. Noise levels vary between brands and models.
- Modifying equipment to reduce noise.
- Keeping machinery well maintained.

REDUCE EXPOSURE TO LOUD NOISE.

Keep people away from noisy machinery by:

- Lining walls and ceilings with sound absorbing materials.
- Placing walls or acoustic screens between machines and people.
- Limiting the amount of time workers spend in a noisy environment.
- Using personal hearing protection when it is not possible to reduce noise at source.

RESOURCES

BOOK REVIEW:

"SAFETY & HEALTH FOR PRODUCTION AGRICULTURE" by Dennis J. Murphy Publisher American Society of Agricultural Engineers. Australian Distributors - Australian Agricultural Health Unit, Moree (N.S.W.).

This book provides an excellent and detailed coverage of farm safety in the U.S.A. especially useful for workers in the farm safety area from around the world.

Dennis Murphy is Professor of Agricultural and Biological Engineering at Penn State University and visited Australia in 1991 as a guest of the Farmsafe Network to give a series of workshops on Tractor safety.

The U.S. farm has many similarities with its Australian counterpart with young children and older people often part of the workforce in capital rich and income poor families. The variety and serious nature of hazards on U.S. Farms and the predominant feeling by farmers of acceptance of high levels of injury ring true for our local farm scene.

The book provides a useful technical approach to the common injuries sustained by farm families. The safety hierarchy described in the book of:- eliminate hazard or risk; apply safeguarding technology; use of warning signs; train and instruct; prescribe personal protection adopts the approach developed in the general safety community using the three E's - Education, Engineering and Enforcement. Strategies for a variety of common farm risk are developed and discussed.

A very useful book for anyone interested in safety on farms. It was interesting to note also that Dennis suffers from a problem that injury preventers in Australia face when he dedicates the book to "friends who have yet to figure out just what I do for a living".

Highly recommended!!!

VIDEOS:

"IS IT A ZOONOSES DOCTOR?"

VHS 33 minutes.

Produced by Tasmanian R.I.T.B.

The video covers 27 zoonoses which occur regularly in temperate Australia. These various conditions are not well understood by the medical profession and can be misdiagnosed. The video provides an overview of all common zoonotic conditions and is an ideal education tool for undergraduate, medical, veterinarian and nursing students, as well as farmers, health workers, upper secondary school students and farm safety action groups.

Distribution: Tasmanian Rural Industry Training Board Inc.

Phone: (003) 31 6377

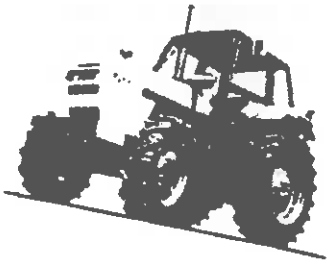
Cost: $35.00.

"BITTER HARVEST - (farming and its hidden dangers; the tragic stories of four farmers)"

VHS 21 minutes. Produced by the Workcover Authority of N.S.W.

Every 23 days someone, somewhere in N.S.W. dies as a result of a rural accident. The four farmers on this video are lucky; they lived to tell their story and warn others of the hazards.

Distribution: Workcover Authority of N.S.W. Phone: (02) 370 5000.



PAMPHLETS:

"KIDS TAKE CARE ON FARMS"

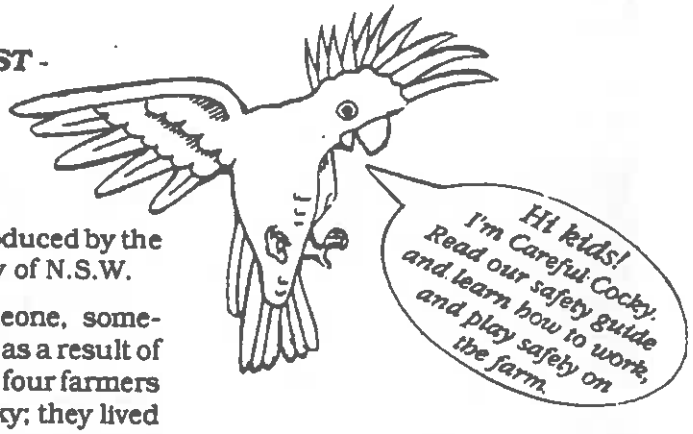
Produced by N.S.W. Agriculture.

This information/activity booklet is endorsed by the N.S.W. Farmsafe Committee; targeted at both farm children and parents. It addresses some key farm safety issues relevant to child safety on farms.

The colourful design and illustrations will make this resource attractive to children and adults alike. The activities contained within the pamphlet will assist the child to develop a clearer understanding of dangers on farms.

Highly recommended.

Copies distributed by: N.S.W. Agriculture, Phone: (063) 91 3433



STOP PRESS

Contact your State Farmsafe Committee or State Farmers Association to obtain details concerning the ag. chemicals users training courses, and help promote this worthy activity.

DISTRIBUTION OF SOWS BY STATE AND SIZE

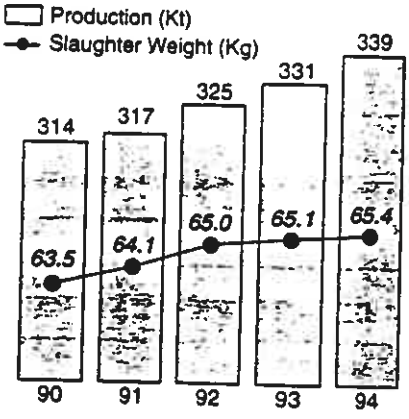
SOWS	1-49	50-200	200-1000	1000	Total
NSW					
Herds	1,275	286	59	6	**1,626**
Sows	15,183	25,139	20,548	38,261	**99,131**
QLD					
Herds	583	249	50	9	**891**
Sows	7,873	22,907	16,726	19,141	**66,647**
SA					
Herds	570	245	19	5	**839**
Sows	9,889	21,018	5,573	11,789	**48,269**
WA					
Herds	444	193	19	4	**660**
Sows	7,410	16,021	6,699	6,355	**36,485**
VIC					
Herds	363	173	48	8	**592**
Sows	5,509	16,186	16,975	19,634	**58,304**
TAS					
Herds	99	23	3	1	**126**
Sows	1,405	2,094	1,676	1,000	**6,175**
NT					
Herds	6	0	1	0	**7**
Sows	63	0	310	0	**373**
TOTAL					
Herds	**3,340**	**1,169**	**199**	**33**	**4,741**
Sows	**47,332**	**10,3365**	**68,507**	**96,180**	**315,384**

ALPHABET SOUP

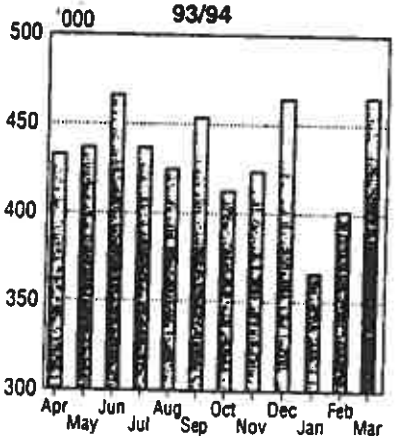
That's how the joint stand at the Toowoomba Porkfest was described. APC, PRDC and PCA combined to give a united industry organisation display.



Pigmeat Production & Average Slaughter Weight Year Ending March



Monthly Pigmeat Slaughterings



MAY 1994
A.P.C. Update.

1994 VIDEO CATALOGUE

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AG SCIENCE

Aquaculture

NEW!

Changing Tides -

Salmon farming started in Norway when the Government wanted to save the small fishing towns. This video takes a look at commercial salmon farming. Its impact on the market and its impact on the environment.

20 mins EM60010 $85/$135*

Growing Freshwater Crayfish

This video looks into the culture of the Australian species of. Cherax. You will have the unique experience of seeing four of Australia's most advanced crayfish farms, plus three small farms in South Australia. Topics include: anatomy, breeding, pond construction, water requirements, problems and remedies, aquatic vegetation control, feeding, predation and harvesting.

60 mins MAGFC $85.00

Aquaculture in Japan

Aquaculture - the breeding and propagation of marine life is a viable resource-conserving industry. This program surveys various techniques of aquaculture used in Japan and highlights the substantial progress this approach is making in helping to solve the world's diminishing food supplies.

Level: Sr. High/TAFE/Uni

20 mins EM905008 $85/$135*

From Ship to the Shore

A video aimed at the fish RETAILER, with tips on what to look for when buying fish and fit out a shop.

Produced by Agmedia, Australia

11 mins AGFS $60.00

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Practical Organic Gardening with Peter Cundall

This video, produced by ABC Television teaches you how to get started with an organic garden by looking at the balance of the soil, compost making and pest and disease control the safe way. Also looked at is the organic vegetable garden, organic fruit growing and the growing of organic ornamentals.

Produced by ABC, Australia

60 mins NDPOG $45.00

The Permaculture Concept with Bill Mollison

Bill Mollison believes that the single most destructive force on the planet is modern agriculture. It is destroying our soils, poisoning our water and producing toxic food. Instead he has proposed a designed system of agriculture that uses the engineering principles of nature itself. These permaculture systems can be applied to the city as well as the country, and can work in any sort of climate. Once matured, one of his systems can provide most of the food for any household.

Produced by ABC, Australia

50 mins RO13241 $35.00

Permaculture - the Mandala Garden with Robyn Francis

Shows a step-by-step guide to backyard permaculture. This gardening technique will suit any soil or climate, and can even be constructed on top of concrete. In less than four hours a vigorous lawn is turned into a ready-to-plant landscaped garden. Recycled newspaper is used for mulch, whilst vegetables, herbs and flowers are companion planted.

Produced by Mandala Productions, Australia

59 mins MPMG $55.00

Managing Soil Structure

This video shows how farmers can recognise problems on their farms and how they can alter their management systems in order to improve soil structure and farm profitability.

Produced by Agmedia, Australia

28 mins 1990 AGMSS $55.00

Soil Care

A project of the Department of Agriculture, Conservation and Environment. A closer look at the activities of soil care farmers looking after their most valuable asset, soil, while still productively growing crops.

Produced by Agmedia, Australia

9 mins AGSO $39.95

Salt in the South

A look at the salinity in Victoria and how farmers "attack" this problem by planting certain trees to reduce the salt problem and try to improve the pastures.

Produced by Agmedia, Australia

23 mins AGSIS $55.00

NEW!

Worms at Work

Do you want to know how to turn your food scraps and garden refuse into great new soil four times faster than composting? This video will show you how to breed earthworms simply, the ideal conditions for worms, the best varieties to use and where to get them. Also what worms will eat and how to feed them.

Produced in Australia, 1992

30 mins MAWOAW $49.95

Soil and Decomposition

This video examines how leaves decompose naturally and how we can copy and even speed up this process in a fermentation tank. It explains the working of the micro-organisms and development of bacteria, the function of ammonia and how it is formed into nitrogen which can be formed to nutrients for plants.

16 mins FOSD $89.00

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NEW!

Hydroponic Gardening
Now everyone can discover how easy and exciting it is to grow plants hydroponically. This simple step-by-step video teaches you the basics of hydroponic cultivation - nutrients, pH control, growing media, hydroponic systems and artificial lighting. Also a practical guide to transplanting and cloning.
Produced in Australia
40 mins MAHG $55.00

Guide to Growing Orchids
This video introduces the art of orchid growing and handles all aspects of this fine art.
Produced by Debco, Australia
20 mins MAORG $59.95

Garden Australia
Hosted by Graham and Sandra Ross, this video is a collection of helpful and practical hints for the home gardener. Items include:
- The Vegetable Garden
- The Flower Garden
- Australian Natives

Produced by ABC, Australia
60 mins RO12890 $35.00

Better Gardening
Presented by Topline Broadhurst, this program is for people wishing to start their garden from the beginning. It covers soils, tools, sowing, weeding, fertilising, shrubs and trees, wind protection and ground cover. A great deal of care has been taken to ensure the demonstrations are clear and well explained.
53 mins PABG $53.95

Guide to Houseplants
This informative video presented by Jane Edmanson and produced by ABC Television handles the following topics:
- Plant Selection
- Maintenance
- Trouble Shooting
- Propagation
- Unusual Plants
- Terrariums
- Holiday Care
- Plantscaping
- Popular Flowering Plants
- Popular Foliage Plants

Produced by ABC, Australia
60 mins NDGH $45.00

The Art of Bonsai
A complete guide to creating and caring for an informal upright bonsai. Topics covered are:
- an overview of Bonsai styles
- selecting a suitable tree
- bonsai tools
- soil mixtures
- root pruning
- wiring techniques

55 mins DIN543 $55.00

Bonsai for the Beginner
This video features well known demonstrator, Georgina Kretschmar. Georgina takes you carefully through the basic steps to get you started in this extremely popular and rewarding "living art form".
58 mins DV806111 $45.00

Bonsai - the Cultivation of Miniature Trees
Discover the fascinating art of training and growing living dwarf trees in containers, demonstrated by Ted Poynton.
50 mins S47 $62.95

The Garden Designers
A collection of wonderful creative ideas for gardeners presented through the eyes of top international garden designers. This informative video illustrates clearly the step-by-step construction of a number of garden features including:
- laying paving
- constructing walls
- steps and terracing
- small garden pools
- providing shade
- creating patio gardens

53 mins DV806012 $35.00

Down to Earth
A complete guide to : treating clay soil, planting out, making compost, pH, potting mixes, earthworms, hydroponics, pot plant care, watering basics, watering systems, lawns, soil born diseases and fertilisers.
Produced by CSIRO, Australia
57 mins CSDTE $45.00

Photosynthesis
Exciting 3-D computer animation shows the dynamic process of photosynthesis at the molecular level. Examines the absorption of light by plants, and follows the energy pathways to the production of carbohydrates and other organic materials. Also follows the Calvin cycle as it functions in carbon 3 and carbon 4 plants, and the remarkable fluid transport system that delivers water and nutrients throughout the plant structure. Teachers guide available.
60 mins EMTV081 $60.00

Energy Flow
Central to the concept of the energy flow in the world of living things is the process of photosynthesis, without which life could not exist. This program also deals with energy flow in organisms and within a cell, the role of energy flow in our agricultural system and energy flow in the biosphere. Teacher's guide available
60 mins EMTV049 $60.00

Essential Fire
Fire is the generative force that has been essential in the development of Australia's unique flora. Botanist, Ian Telford reveals the resilience and ingenious adaptability of eucalypts after fire, when dormant buds protected by thick bark shoot out and seeds cracked open by heat, germinate. Even from the most severe destruction of fire, new life emerges on this continent.
Produced by SBS, Australia
30 mins SBUSS03 $50.00

Skin of the Earth
Forestry, agriculture and mining have exacted a heavy toll on the once rich South West region of Western Australia. The natural resources are being bled dry and the habitats and ecosystems of many species of plants and animals are being destroyed. Options for conserving and repairing the environment are explored. Interviews with farmers, farmers opinions and feelings.
Produced by SBS, Australia
Level: Grade 11-12+
SBSK $45.00

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Farm Management

Drought Feeding
This video was compiled from a series of films highlighting the feeding methods for sheep and cattle employed by leading farmers in Victoria and a Research Officer from the Department of Agriculture in Bendigo.
Produced by Agmedia, Australia
30 mins 1987 AGDF $55.00

Organics - Food for Thought
This video involves a range of people in the organic industry. We see farmers who have been producing their goods organically for more than 20 years and some who are presently converting to organics. We look at the potential of organics as well as the problems.
Produced by Agmedia, Australia
24 mins 1990 AGO $55.00

Hay Packaging and Handling Systems
Shows the preparation of the hay crop and the main systems if handling hay: conventional bales, big rectangular bales, big round bales, medium round bales and others.
Produced by Agmedia, Australia
31 mins 1980 AGHP $55.00

Silage Making
Silage is a moist conserved fodder, reserved by acids naturally produced when crop material is stored in the absence of air. The video introduces the essentials of good silage and the mechanical systems of making and storing silage.
Produced by Agmedia, Australia
22 mins 1981 AGSM $39.95

Tractor Driving
This video deals with the basics of tractor driving. It aims to familiarise the viewer with a new tractor - the general maintenance, starting, driving and stopping. The video does not deal with the handling of the tractor.
Produced by Agmedia, Australia
15 mins 1978 AGTD $39.95

The Agrarian Revolution
This video shows the vast improvements in farm machinery from 250 years ago. A closer look at the Norfolk 4-course rotation and the introduction of root crops and selective breeding.
Produced by Agmedia, Australia
Level: Jr. High
23 mins EM60050 $85/$95*

Blast it
This video deals with the use of explosives in agriculture. It covers a wide range of activities from the removal of stump trees, ring barking, rock breaking and log splitting to blasting large holes. It shows the types of explosives used, and the accessories needed.
Produced by Agmedia, Australia
25 mins 1977 AGBI $39.95

Better Than Rain
A valuable resource is water and in the last couple of years we have become more aware of this. We take a closer look at how advanced techniques allows recycled water to be used for irrigation.
Produced by Agmedia, Australia
10 mins AGBR $39.95

Butchering

Farm Butchering Beef
Visual details on how to correctively remove each section of the beast and carve for the best result. Also the rolling of sirloin.
Produced by Adele Video, Australia
50 mins ADFB $75.00

Close to the Bone
Demonstrates the complete procedure of cutting up a beef carcase. Each step is carefully analysed and related to consumer needs.
Produced by Agmedia, Australia
31 mins 1976 AGCB $35.00

Butchering and Dressing Lamb
Visual details on how to correctly remove each section of lamb and carve for the best result.
Produced by Adele Video, Australia
50 mins ADBDL $75.00

Crops and Export

Auscats
The major problem for export of produce is the transport time. This video introduces and Australian invention, "AUSCATS", which allows, through a gas separation system to control the atmosphere, so that produce stays fresh longer.
Produced by Agmedia, Australia
10 mins AGAU $39.95

Certain Seeds - Potato Growing
How can a farmer achieve an even crop, high yield and healthy potatoes. This video is an introduction to the pathogen program. We follow the procedures for the growth of foundation and certified seeds for potatoes.
Produced by Agmedia, Australia
30 mins AGCS $39.95

Asparagus
This short video shows the growing, harvesting and packing of asparagus in Victoria.
Produced by Agmedia, Australia
7 mins AGAS $39.95

Grape Phylloxera
An introduction to this illness of the grapevine which kills the roots of the vine. How we can diagnose the illness and how grafted vines can be an answer to the problem.
Produced by Agmedia, Australia
13 mins AGGP $35.00

Carnivorous Plants
Here is a dramatic film about nature's exceptions - plants that devour animals.
Produced by National Geographics
12 mins NG014 $45.00

Careers

Careers in Agriculture
This video describes some of the numerous careers available in agriculture, from economist, vet, and typist.
Produced by Agmedia, Australia
15 mins 1990 AGCA $39.95

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AGENCIES

Horse Breeding - Part 1, Mating Preparation

Correct teasing procedures are essential to determine the correct time of mating. This video shows some 22 different teasing procedures and illustrates various mare and stallion behavioural patterns.

Produced in Australia
60 mins EQ1 $65.00

Horse Breeding - Part 2, Mating Management

This video shows various mating systems and discusses in detail the management strategies to be used when mating mares and stallions.

Produced in Australia
60 mins EQ2 $65.00

Horse Breeding - Part 3, Foaling Management

Foaling management consists of appropriate film from the actual foaling of three mares, from the start of first stage labour to the actual expulsion of the foal, and mothering up.

Produced in Australia
60 mins EQ3 $65.00

Horse Breeding - Part 4, Breeding Problems

Various problems can occur with both mare and foal in the few hours after foaling and this video provides some vivid examples of some of those problems.

Produced in Australia
60 mins EQ4 $65.00

Set of 4 videos - $240.00

Broodmares At Stud -

"A Better Understanding"

This video takes an in-depth look at stud procedures to see what happens to your mare at stud. Have a better understanding of the procedures used to get your mare in foal, such as teasing, swabbing, serving and pregnancy testing.

Produced in Australia
35 mins ADBS $75.00

Buying A Horse and Stable Management

With Virginia Leng

If you've ever thought about owning a horse, this video can help. Points covered include where to go, what to look for, how to check out a horse, the role of the vet, transport required bringing the horse home. Also looks at everyday routines, how you can be a good housemaster and problems encountered in stable management - stable design, heat, light, ventilation, feeding, bedding, first aid, grooming, clipping and field management.

90 mins PV2196 $45.00

General Schooling, Jumping and Cross

With Virginia Leng

Ginny starts by giving a comprehensive guide to the tack and riding apparel she recommends for exercising and competition, and the correct fitting of important items such as the lunging cavesson and brushing boots. Also gives a step by step guide to the basic education of the young horse and rider including lunging, rider's position, flatwork, trotting poles and canter work.

90 mins PV2197 $45.00

Your First Horse

Horse care is for all new horse owners, and those who are in the market looking for the perfect horse for their child. Covers all aspects of selecting, care and safety, and gives sound advice in horse husbandry.

Produced by Agmedia, Australia
29 mins AGYFH $45.00

Owning A Pony

This video takes an honest look at the pleasures of owning a pony, yet the pitfalls which can occur when buying or looking after one. A wealth of information for the future pony owner including equipment, feeding, mucking out, grooming, cleaning tack and tacking up and much more.

Produced in 1990
30 mins P939823 $30.00

Heavy Horses in the Country

A nostalgic return to a time when work was hard but done at a more leisurely pace. In addition to a close look at four of the major breeds, it gives an overview of the role of heavy horse in agriculture. It also provides a rare opportunity to see first-hand how heavy horses went about their rural tasks from muck-spreading to harvesting and moving timber

40 mins PAHH $53.95

Australian Equestrian Series

Introduction to Horse Riding
60 mins IM1 $45.00

Basic Dressage (Flatwork)
60 mins IM2 $45.00

Elementary/medium Level Dressage
60 mins IM3 $45.00

Basic Preparation & Presentation of the Show Hack
60 mins IM4 $45.00

Advanced Dressage by Peter Weston
60 mins IM5 $45.00

Elementary Shoeing
60 mins IM6 $45.00

Horsebreaking Made Easy
60 mins IM7 $45.00

Eventing with Jocelyn Sander
45 mins IMH8 $45.00

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AG SCIENCE

Cattle

Rural Ways - Handling of Cattle

An extensive 5 part video about how to handle cattle for show and sale.
Part 1: Equipment and Uses: Equipment used in cattle handling, how to make a halter; splicing a rope; different types of knots and their uses.
Part 2: A Quiet and Effective Method: Moving cattle from paddock to yard, use of nose-grip, teaching to lead.
Part 3: Further Handling and Alternative Methods: Quieting and grooming, using donkey in bull training, tying and lead of bull.
Part 4: Spit and Polish: Washing and coat care, grooming, nose ringing, tattooing.
Part 5: Final Training and Show Day: Leading, use of show cane, manoeuvres and working in harmony, facing the judge.
Total length 179 mins
SANRW **$175.00**

Beef and Dairy Insemination Program

Covers quarantine procedures, methods of collecting semen, laboratory procedures, microscopic activity of semen and thoming of semen to an actual farm insemination
Produced by Adele Video, Australia
25 mins **ADBDI** **$75.00**

Maize - Fodder for the Future

This video illustrates how maize can be used to it's full potential as a basic feed. By using maize the feed energy can be doubled, thus increasing the production of milk. More milk, more profit and that's what the game is all about.
Produced by Agmedia, Australia
24 mins **AGM** **$39.95**

Goats

Introduction to Angora Goats

Looks at complete management of angora goats, including the buying, goat fanng, wool selling etc.
Produced by Adele Video, Australia
30 mins **ADIAG** **$65.00**

Sheep

Sheep - Handle with Care

This 3 part video looks at all aspects of sheep management among which:
Part 1: mustenng, mouthing, teeth trimming, drenches and foot care, fencing and catching.
Part 2: crutching vaccination, lamb marking and drafting.
Part 3: Shearing, branding, clipping and jetting.
20 mins **ME491** **$55.00**

Why Did Those Lambs Die

Deals with the death of lambs exposed to extreme weather conditions. A veterinary surgeon shows simple post mortem techniques which farmers can use to find why and when lambs died.
Produced by Agmedia, Australia
9 mins **1975** **AGWD** **$39.95**

Bugle Sheep Yards

An introduction of the working of bugle sheep yards - an improved method of building a sheepyard, more effective and "friendly" to the sheep. Helpful hints on installation and materials to use.
Produced by Agmedia, Australia
14 mins **AGBS** **$55.00**

Elite Lamb for Producers

An introduction to the higher profits of elite lamb for the domestic and export market. Because of the higher yield of the carcass, the producer will receive a bonus. This video explains the importance for both producer and wholesaler.
Produced by Agmedia, Australia
12 mins **AGEL** **$39.95**

Training the Working Sheepdog

Training the dog in many varied conditions. Points such as obedience, basic dog instruction, pup selection & terminology and graphically illustrated are explained.
Produced by Adele Videos, Australia
55 mins **ADTWS** **$59.95**

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Pigs

Pig Stock Persons Training Video

Produced as a training course for stock persons entering the field of pig production. Series of eight titles on one tape:
Part 1: Human behaviour, handling facilities, oestrus detection, mating.
Part 2: Injecting pigs, snaring pigs, the new-born piglet, disease of weaners.
Produced by Agmedia, Australia
80 mins **1989** **AGPST** **$75.00**

Chickens

Chick Embryology

Chick embryo development resembles early stages of all higher animals Through a "window" cut in an eggshell we can follow the growth and see how the embryo develops ready to hatch after 21 days.
Produced by National Geographics
12 mins **NG016** **$55.00**

Bees

Life Cycle of A Honey Bee

This video looks at the life of bee. we see a "worker" being born, her role in the hive, repairing the comb; tend larvae and guard the hive. We see how bees communicate the location of food and how bees begin a colony.
Produced by National Geographics
12 mins **NG068** **$55.00**

Varroa Jacobsoni

Stunning videography shows the life cycle of the varoa. A parasite able to destroy a bee colony. This video is a must for anybody studying bees, as it gives incredible close ups of bees and their habitat.
Produced by Agmedia, Australia
16 mins **AGVJ** **$55.00**

Homeostasis

Explores the internal systems of balance and regulation in animals. Computer-animated sequences illustrate how the body deals with stress, copes with changing conditions such as high and low temperatures, and how the shortage (or excess) of fluids is adjusted and regulated. Teacher's Guide available.
60 mins **EMTV073** **$60.00**

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Integrated Pest Management

Takes a brief look at the research being conducted into pest management through biological techniques. This video looks at the three primary functions through which pest management can be controlled: biological, cultural and chemical.
Produced by Agmedia, Australia
10 mins 1990 AGIPM $39.95

Dirty Harry

An instructional film on the proper use of chemicals in the growing of market crops. This video focuses on the antics of Harry, who always knew better about spraying his crops until he found out there were alternatives. The video also shows the method of calibrating boom sprays with emphasis on safety measures.
Produced by Agmedia, Australia
21 mins 1982 AGDH $39.95

48 Hours to Live - Locust Control

This video introduces Australia's most feared plague, locust. From their breeding ground in the Channel country, we follow the life cycle, habitat and circumstances causing migration.
Produced by Agmedia, Australia
25 mins AG48 $55.00

Beat the Bite

Takes a candid look at the life cycle of mosquitoes including the effects of mosquito-borne diseases such as Ross River virus. The video discusses how an outbreak of these diseases can effect the community and the steps the government and individuals are taking to reduce mosquito populations.
Produced by Agmedia, Australia
24 mins 1990 AGBB $39.95

NEW 1993

Take All and All That Rot

An excellent guide to identification and control of five major soil diseases in cereal crops. The video teaches to recognise Take-All, Rhizoctonia, Fusarium Crown Rot, LLN and Common Root Rot.
Produced in Australia 1993 by Kondinin
30 mins MATA $65.00

Insects: Reproduction and Metamorphoses

This superbly photographed program documents the life cycles of the diving beetle, swallow-tail butterfly, fruit-fly, locust and dragonfly. Also explored are their changing food requirements and common habitats.
20 mins 1992 EM60795 $85/$135*

Foot and Mouth Disease - The Constant Threat

Shows the distribution of mouth disease, the nature, methods of spreading and precautions taken in Australia to prevent the disease gaining entrance.
Produced by Agmedia, Australia
20 mins 1974 AGFMD $36.00

Hydatids - A Cycle to Break

A hydatid is a tapeworm transmitted by its eggs through a cycle of contacts involving sheep, dogs and human beings. If not carefully treated it can cause serious illness and occasionally death. In this video the prevention is shown and discussed.
Produced by Agmedia, Australia
16 mins 1983 AGH $39.95

Footrot - the Facts

This video aims to increase the understanding of footrot among all those who work with sheep: graziers, stock handlers, transporters, etc. It gives the facts about the disease and graphically illustrates the many other causes of lameness in sheep, which could be confused with footrot.
Produced by Agmedia, Australia
16 mins 1991 AGF $55.00

Insects Harmful to Man

Certain groups of insects are detrimental to the health, livestock, crops, buildings and/or food of human beings. This program examines the tsetse fly, beetles, termites and many other insects that affect our lives.
Level: Grade 8-10
16 mins EM60024 $85/$135*

Insects Helpful to Man

Bees and silkworms have for centuries provided humanity with much prized material goods. In this program methods of honey and silk production are shown, illustrating at the same time the behaviour of bees as pollinators, activity within the hive, and the life cycle of the silk moth.
Level: Grade 8-10
18 mins EM60024 $85/$135*

The Biology of Flatworms

This video is about planarians, flukes and tapeworms and their life cycles.
13 mins FOBF $89.00

The Biology of Arthropods

This video is about the armoured creatures with jointed legs that make up the most successful phylum in the animal kingdom, including: millipedes, centipedes, spiders, crustaceans and insects.
16 mins FOBAR $89.00

Ants: Hunters and Gardeners

10 mins NG007 $45.00

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The Country Web **is a free newsletter published by the NSW Rural Women's Network (RWN) on behalf of all women in rural NSW.**

The Country Web's **major objective is to provide a communication avenue for rural women, enabling them to share ideas, issues, inspiration, information, experiences & opportunities.**

If you would like to contribute please contact the Rural Women's Network.

RURAL WOMEN'S NETWORK

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The Rural Women's Network (RWN) is a project of NSW Agriculture. The views expressed in this publication are those of contributors and not necessarily the RWN or NSW Agriculture.



Trees on Farms

by Dhyan Blore, Trees on Farms Coordinator, NSW Agriculture

During the last 200 years of European settlement and landuse in NSW we have lost 50% of our original tree cover. The most extensive losses have occurred in the Central Tablelands and Western Slopes areas of NSW where many areas have only 10% of the original tree cover.

The implications of widespread tree loss were not fully comprehended at the time but it is now evident that tree decline can be linked with soil erosion, dryland salinity, habitat destruction and species loss, declining water quality and loss of agricultural productivity.

Loss of tree cover is only part of the overall scenario - most notable in much of rural NSW is the loss of **understorey**, i.e. the tall and medium shrubs and grasses which are so crucial for food and shelter of native wildlife and protection of local plant species.

It is not simply a matter of retaining and planting trees but also of replicating the original species mixes of trees, shrubs and grasses which were once common across NSW.

The Parks and Reserves System of NSW cannot effectively represent all the habitat types for the State, so the focus on vegetation management on agricultural land becomes all the more important.

For most areas of rural NSW the techniques for effective tree retention and establishment are well known, though recommendations for site preparation, species selection and aftercare will vary for each area.

For people living on farms or elsewhere in rural NSW there are many ways to help reduce tree decline.

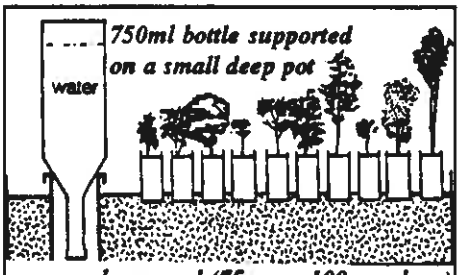
Rural Landholders — some low-cost options for tree retention and/or tree establishment

- Prepare a Whole Farm Plan — which can include the longer term 'vision' for tree retention and planting. Break down the longer term objectives into one year and five year plans.
- Fence out remnant vegetation areas using secondhand fencing materials.
- Familiarise yourself with your local species and observe their flowering and seeding times. Find out if there are any threatened plant or animal species in your district and what can be done to protect them.



Regeneration around one tree — remember to use secondhand fencing materials to cut down your costs

- Collect your own tree and shrub seed. This is a relatively easy task, does not need fancy equipment, and can provide an enjoyable pastime for all the family.
- Grow your own tree and shrub seedlings. Grow your seedlings using capillary beds. (see diagram below)



Capillary beds make watering easier

- Investigate the suitability of direct-seeding of trees and shrubs for your area.
- Join a community group such as Landcare — community groups are more likely to gain funding support than individual landholders.

Rural town and city dwellers — What you can do to help tree retention and establishment in rural NSW

If you live in a country town or city there are many ways in which you can help address tree decline such as: —

- Join Greening Australia NSW Inc. This is a community based organisation which promotes and supports the development of self-help projects by community groups and individuals aimed at reducing tree decline
- Start a community nursery
- Participate in local Landcare & Trees on Farms group activities. Volunteers are always needed
- Help raise the awareness in your local area of the need for planned vegetation management

Contact List

District Offices of NSW Agriculture can provide copies of free FARM TREE brochures. Titles include: -

- *Why you need Trees on your Farm.*
- *Establishment Techniques for Farm Trees.*
- *Farm Planning for Tree Establishment.*
- *Tree Planting for Gully Erosion Control.*
- *Designing Windbreaks for Farms.*
- *Insect Pests of Farm Trees.*

Trees on Farms **Training Workshops** will be available through the ***Farming for the Future Program.*** Contact your local office of NSW Agriculture or Conservation and Land Management for more details.

- **For information on seed collecting, local species, community projects and direct seeding contact *Greening Australia NSW Inc.* For rural contacts ☎(02) 5500720 (Head Office)**
- **Contact Head Office for regional *Landcare* contacts ☎(02) 2286407**
- **For information on direct seeding, vegetation clearance on protected lands, and revegetation for mitigation of land degradation contact your local office of *Conservation and Land Management* or the Head Office GPO BOX 39 Sydney NSW 2001 ☎(02) 2286111**
- **For *Trees on Farms* and/or *Soils and their Management* Home Study Units contact CB Alexander Agricultural College, Tocal, Paterson, NSW 2421 ☎(008) 025 520**

(Diagrams from *Trees for Farms* by Greg Siepen)

Organic Farming

by Michael Burlace, Organic Farming Officer, NSW Agriculture

This article covers the basics and some terms regarding organic farming. At the end are some contacts which can give you further advice and assistance. The next issue of *The Country Web* will have an article on some of the more practical aspects of organics.

What is organic farming?

Consumers and organic farmers understand organic agriculture to be *sustainable farming which does not use artificial chemicals.*

This means artificial chemicals such as herbicides, insecticides, fungicides, animal drenches, superphosphate and urea are not used on an organic farm.

No **artificial chemicals are used** to prepare the soil, grow the crop, produce anything on which it feeds nor to store or market the produce and animals range as freely as possible.

But there's more: Modern organic farming is also expected, particularly by consumers, to be *sustainable.*



Organic has many meanings

Like many other words in English, organic has multiple meanings. Some of them are almost opposite to others. Three main meanings for organic are along the lines of:

- an organic chemical or substance: one containing carbon, such as alcohol, most herbicides and petroleum. Obviously many of the substances covered by this meaning are at odds with our definition of organic farming above;
- something which came from a living organism, such as manure, sawdust or rock phosphate; and
- produced or managed without the addition of artificial chemicals. (This is what we are talking about here.)

Who keeps organic farmers honest?

Anyone who cheats by using chemicals while pretending to be farming organically is likely to be caught. Neighbours notice what is happening or the certifier finds out through tests on produce or random checks on farmers.

Organic certifiers do regular inspections and the farmer must keep suitable records and report any variance from agreed practices to the certifier. The farmer generally enters into a contract with the certifier.

Certified products from 5% of farms are tested at random each year. Testing is also done where there is any concern.



Must it be organic to be sold as such?

Yes! It is illegal to sell non-organic produce as organic. In NSW this comes under the Health Department. Under the Food Act, all food sold must be what it is claimed to be on the label. If there is a problem, the Health Department's local Food Inspector (not your council health inspector) is the person to contact.

This does not mean that the food must be certified, although that may happen in future. However, the retailer, wholesaler and farmer may be called upon to prove that it is in fact organic.

Is organic farming a threat to other farmers?

No, most organic and conventional farms coexist happily. Some conventional farmers believe that having an organic farm nearby means more problems with weeds, insects and diseases. There is no evidence that this is true — good organic farmers, like good conventional farmers, don't let weeds and other pests run rampant.

Some farmers fear that organic farming is spreading and that conventional farmers will be forced to change the way they farm. Again, there is no indication that this is the case.

Why does NSW Agriculture support organics?

NSW Agriculture promotes sustainable agriculture, one aspect of which is minimising pesticide use. The department supports a wide range of farming activities from organics through conventional farming to hydroponics.

NSW Agriculture sees organics as offering benefits for some farmers. Demand is strong for organic produce and farmers want information on organic farming. Organic methods offer some farmers the best way to manage their farms and can offer savings in input costs and an improvement in returns.

NSW Agriculture does not promote conventional over organic farming or vice versa. Rather, it aims to help all farmers to farm better.

At NSW Agriculture we encourage all farmers to farm sustainably, so we urge organic farmers to be sustainable too.



Do organic farmers get around the law?

No, being organic does not override the farmer's need to obey such laws as the Pesticides Act and to tail tag cattle and control noxious weeds.

For example, organic apple growers in a codling moth area or organic farmers in a plague locust area who do not satisfactorily control these pests may be required to spray with an artificial insecticide, thus destroying the farm's organic status.

All cattle farmers in the tick area must control ticks and the only satisfactory method for any particular farmer may be to use an artificial chemical.

Also, organic farmers must comply with all regulations on produce, such as on fruit grading.



Why farm organically?

People farm organically for many reasons. Four major ones are economics, the potential for value-adding, beliefs and lifestyle.

• ***Economics*** •

Demand is strong for organic produce. Most organic farmers need fewer inputs from outside the farm, thus saving money. Prices are often higher for organic produce, so profits may be satisfactory even if yields are lower.

• ***Value-adding potential*** •

There has been much talk about adding value to farm produce. Organics make it easy enough for many people to add some value to their produce at the farmer level. This is often done fairly cheaply with good returns compared to the same exercise in conventional farming. Adding value can add flexibility and spread the

Design & Technology 7–11

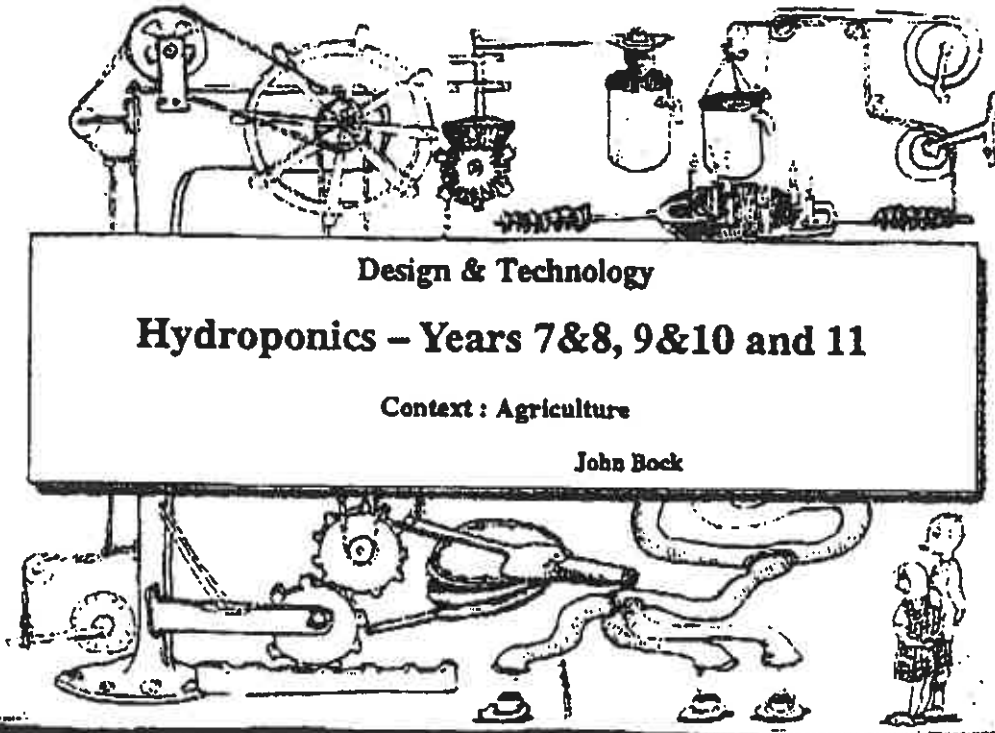
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Who is this for?

This resource has been written primarily for teachers who have had no formal training in the teaching of Agriculture.

Experienced teachers will also find the course content helpful for their own programmes.

Extensive teachers' notes provide explanations and step-by-step instructions, together with an extensive programme of class Experiments and Design Briefs.

Reproducible masters include:

- Student notes
- Design Briefs and Experiments

How long is the course?

The course has been designed for the maximum length of 13 weeks for 6 contexts in Years 7&8 and 20 weeks for 4 contexts in Years 9&10.

Suggestions are given for shorter courses when more contexts are addressed.

What about Assessment?

Students can be assessed in many different ways depending on the policies of individual schools and departments.

This resource covers marks based, profile and descriptive reporting techniques, with 25 separate criteria for assessment.

Furthermore, these criteria are organised for you in two ways:

- as a series of continua for the development of an individual student profile
- as items for the development of a total class overview.

What about Computers?

It is suggested that students use a Word Processor to present their Experiment Reports and Design Folios.

Two of the Experiments require graphs of results to be produced by using the chart facility in a Spread Sheet programme.

Course Content

Briefs 4 and 5 are suitable for introducing Year 11 students to control systems.

Experiments and Design Briefs

Experiment 1: Capillary Action

Experiment 2: Media Moisture Retention

Design Brief 1 Growing System

Design Brief 2 Grow Your Own Garnishes

Design Brief 3 Advertising Poster

Design Brief 4 Moisture Sensor

Design Brief 5 Automatic Control System

Experiment 3: The Effect of Light Intensity

Experiment 4: The Effect of Nutrient Concentration

Experiment 5: The Effect of pH Variation

Experiment 6: Plant Nutrient Consumption

SUSTAINING SECONDARY AGRICULTURE IN THE 1990'S AND BEYOND

BY DR ROD FRANCIS

In addressing this topic there are four questions we need to pose and attempt to find some kind of answers to if we are to sustain secondary agriculture in the coming decade.

1. What are/will be the purposes of agricultural education in secondary schools?

   eg. we can take a range of purposes such as:

   a discipline view
   a skills development view
   vocational view
   general education view

2. Where does agricultural education fit in the context of present KLA pigeon holes?

   Science?
   Technology?
   Human Society and Environment?

3. What should be the content and style of units of secondary agriculture?

4. How should agricultural education be taught?

This brief talk will canvass some of the issues these questions raise and hopefully get us on the road to some answers.

In trying to draw some answers to these questions I will begin by drawing on the NSW history and experience - a unique explosion of secondary agricultural education in the 1970's - 80's - phenomena not experienced in the other states.

In the 1950's and 60's agricultural education in NSW schools was the preserve of rural schools and the four agricultural high schools. Numbers were relatively static and the syllabus was a disciplined based document ie a combination of a content list, organised around the logic of the scientific form of the agriculture discipline. There were designated practical activities relating to doing agriculture - but the level of its importance was reflected in the assessment procedures which relegated it (despite in many cases considerable time allocation) to a minor part of the marks. Essentially the subject was academically based and focussed on its role as a University entrance course. Its purpose was clearly defined, its content was science based, outcomes were University entrance and its purpose was as general education.

Even in the junior high school the syllabus was content driven and the content based exams provided most of the weighting in final reports.

During the 1970's as the education debate moved towards school based curriculum development, the rhetoric embraced a more child centred approach and money from both State and Commonwealth governments was plentiful; a school led revolution occurred in secondary education. Schools redefined their own purpose for secondary agriculture. The syllabus didn't change but what was taught and the purpose of the programs became varied and the number of students doing agriculture grew exponentially. The diversity occurred as the focus varied from vocational to theoretical and content varied as did the style of the units. The 1983 junior syllabus grew out of this diversity and was designed to maintain the variety and the school based focus.

The senior syllabus was more defined but in the early 1980's it was reshape to take into account the changing nature of agriculture and a different way of perceiving the context of agriculture (a systems approach), but still it was a course which was focussed on general education as its principal purpose.

The rapid growth in the mid 70's to mid 80's where student numbers jumped over 300%, reaching a maximum of over 40,000 students exposed to agriculture and 300 out of about 1000 schools offering it as a subject. Is there an explanation for this growth? We can look to three key factors:

1. the tremendous diversity of offerings and money to allow their expression

2. growth of the subject in the urban fringes of Sydney and other coastal areas - the loss of fringe agricultural land brought with it a sense of hanging onto the rural feeling while the land was quickly being covered with houses.

3. the greening of politics and the environmental education movement in the school curriculum was able to find expression under the banner of school agriculture - it became the basis of alot of `doing' environmental education and captured a lot of this audience in NSW schools.

Sitting on the sheep's education back in the mid 1980's looked a great sight - a sight created by teachers with energy and creativity, available resources and in some cases some good market research about student needs. Practical work became more a part of the teaching but still in many cases the teaching approach in the classroom was traditional.

The late 80's and the 90's have produced a different climate and a number of factors are operating which have the potential to decrease agricultural education in schools. We can identify at least four key factors:

(i) Economic and social pressures, the politics of economic rationalism and unemployment.

Economic pressures have led to some key expressions of change

* vocational education

* technology education as a generic general eduction area. In NSW as in the UK, USA and Canada, technology has not been part of general education. Rather it has been technology specific and often vocationally and manually orientated. The world wide movement since the mid 80's has been to include technology education as an element of general education. Incidentally this brings it in line with NSW Agricultural education of the last 20 years.

(ii) New Subjects

Subjects such as computing, legal studies, business studies, industry studies and a whole range of JSST courses provide an increasingly wider smorgasbord for students. As a result many traditional subjects are suffering when you look at the HSC numbers in the last few years eg. geography, history, others have shown no growth while total numbers doing the HSC have increased in Agriculture.

(iii) Reduced resources

As schools are increasingly squeezed for resources expensive subjects like Agriculture can be seen as expendable by principals being constantly put under budgetary pressure.

(iv) Teachers unwilling to move with the changes in the hope that they will go away - their jobs are more likely to go than the changes.

The present plans surrounding agricultural education in NSW include:

* a new junior and senior syllabus
* agriculture as a context in Design and Technology
* agricultural industries such as sheep and wool within the umbrella of industry studies
* horticulture as a possible new course within schools

At the National level we have the Technology Profiles which are supposed to incorporate agriculture. While this has been done better than the first drafts, it still falls far short of the outcomes we would hope for in any reasonable agriculture course.

I believe we need to sell the role of agriculture better in the context of technology education, but we also need to recognise the role and impact of science in agriculture and the human side of agriculture. In fact if you carefully analyse the Science and HSIE national profiles we can play a significant role in achieving many of the outcomes.

If marketing is about looking for opportunity and gathering a selling point, I believe we are one of the few subjects in schools/that has a true multifaceted base that can enable development of the generic outcomes of schooling outlined by such reports as the Finn and Meyer reports.

The problems as I see them are:

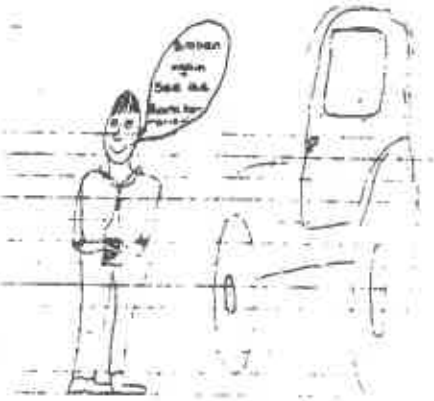
1. If we link agriculture with vocational education - we by definition will wither as the market for this area reduces. While individual schools should if the need arises develop school based vocational courses and/or units, it is not the place for state wide syllabus development.

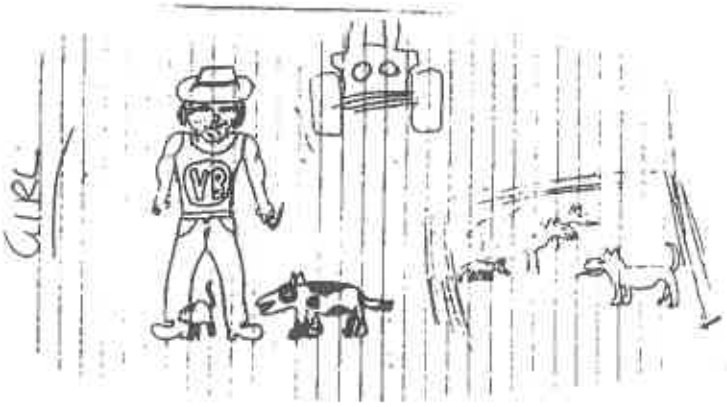
2. If agriculture is in the general education basket it is in direct competition with existing and new more trendy subjects.

3. Community perceptions will continue to hold back growth of agriculture in schools. A recent report on urban peoples view of agriculture and particularly farmers indicated that farmers were seen as a slow, anti-conservation, anti green group who spend their time exploiting the land. Some of my own research asked children in an urban rural school and and a small rural school to draw a farmer (a technique found useful for determining peoples ideas). The children were all from classes who could potentially elect agriculture as a subject. Draw your own conclusions.

SEE ATTACHED DRAWINGS!

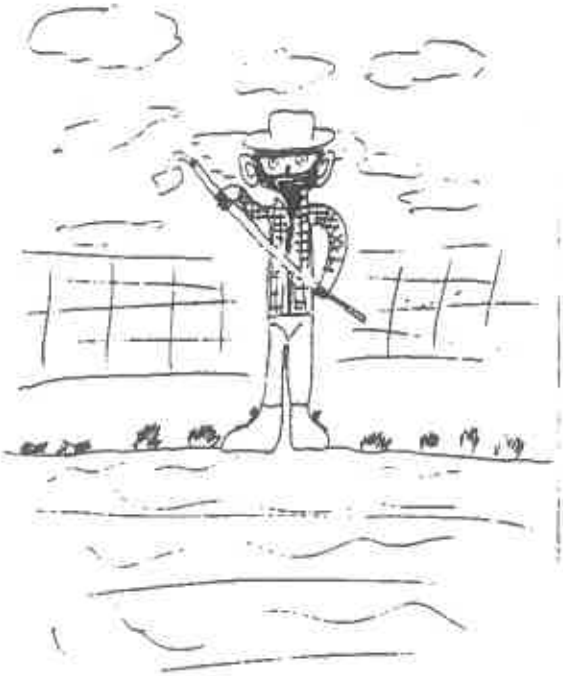
My Impressions of a farmer











What is the way forward?

1. Define a direction.

More than in the past each individual school agriculture teacher needs to be more strongly market orientated. We need to re-orientate the excellent marketing of the late 70's and early 80's to meet the needs of the 90's. Marketing has two aspects.

- selling an existing product better
- finding out what the market wants and tailoring the product to the need

To do this programs will need to have a school by school key focus. The state syllabi don't have a single focus - the syllabi outline key ideas and minimum competencies. There is significant room for individuality within a school. Unfortunately we have tended to get into a situation where we teach agriculture like we have sold agricultural products - ie produce some wool and someone will buy it - Australian agriculture is beginning to recognise this problem. Can we recognise it in our own teaching and programs?

If the focus is to have a vocational flavour, make it the best vocational course available - What are the jobs? What are the skills? How can local industry be involved? If it is general education, sell the virtues of agriculture to humanity, Australia, the environment; ensure best teaching practice is employed.

In the early 1980's Peter Fensham wrote an article entitled Heads, Hearts and Hands which described changes in emphasis in science education. We in agriculture with our close ties to science could be described in the same way. Fensham called the science of the 1950's and 60's as heads science (content and concept driven). In the 1970's Fensham coined the word hearts to describe a science which focused on attitudes, social issues with an emphasis on process. The 80's he claimed should be based around hands, ie kids, doing things and developing skills in the consistent with technology education and good learning we need to develop a new definition and direction. To take on board the competency movement and the metacognitive literature on what makes effective learners I propose we think about the notion of:

THOUGHT IN ACTION

This phrase I believe captures the essence of where we should be moving as an approach to teaching and learning in agriculture.

2. Embrace an Agribusiness Approach

Take an agribusiness view of the enterprise based units you develop. This involves giving the production a context of markets, consumer demand and the business of production. Traditional production orientated units only add to the existing problems facing a agriculture and the perceptions community has of the courses as only for farmers.

3. Technology in Education

Involve a high-tech approach incorporating computers in their various forms (as managers, simulators, monitors), emphasise biotechnology, make a point of technological innovation. While there is no necessity (nor the resources) for curriculum to mirror the world outside in every respect, the curriculum needs to be informed by knowledge of the nature of agriculture, how it is currently practised and the technical and scientific knowledge which underpins it. There is a need to be right on top of our changing discipline - professional reading in our discipline. The Holmes report from the US indicated that most often effective teachers were also those who had good up to date knowledge of their discipline.

If we are to rectify the community perception of agriculture/farmers we are the front line troops to do something about it.

There is a sense I get from some people when I suggest these ideas that we leave the slow learners behind. What we need to do is use the techniques for teaching to slow learners, not to make agriculture a slow subject!

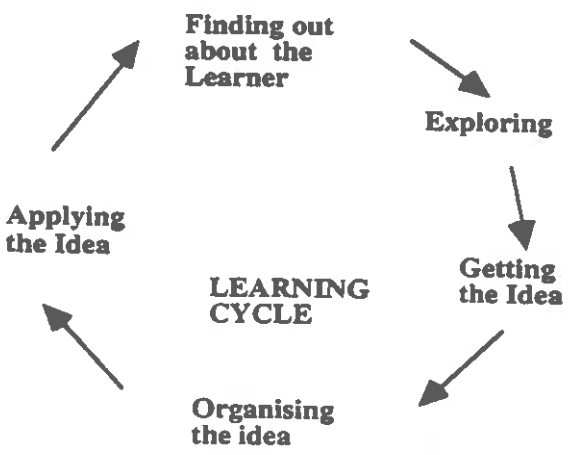
4. How we teach

This brings me to the key point - HOW we teach. I will begin this section with a key statement - effective teaching is that teaching which produces students who feel successful and have good self esteem. It is this which will be the measure of subject sustainability on a school by school basis. We, as a professional group, need to be on top of best practice, achieved by people with a commitment to personal development through reading and professional development.

I see lots of classrooms, listen to teachers, engage in discussion with trainee teachers and still the overwhelming view of teaching is the "inform verify practice" model, often expressed as give them the theory first, then they can do something. "Give" in this context is a euphemism for teacher dominated sessions of writing from text books, printed notes, blackboard notes or dictation. This approach does not lead to "thought in action".

As agriculture is a hybrid subject between science and technology, we should be able to draw on elements of best practice from each area.

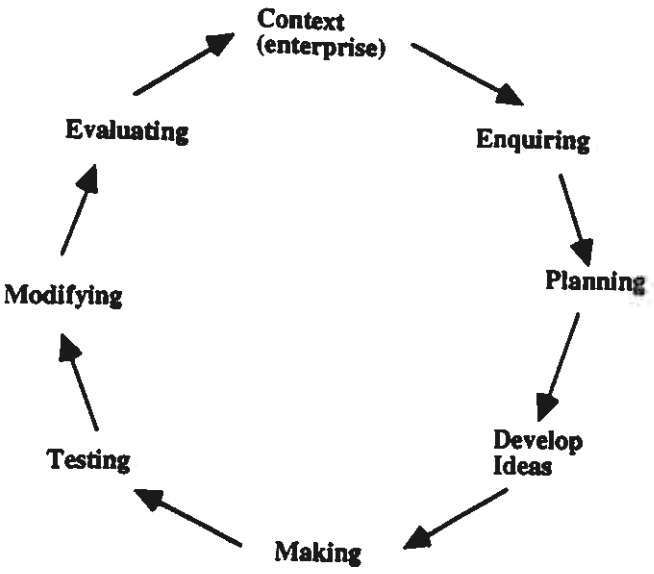
In science education, variations on the following model have been shown to be effective



Secondary .

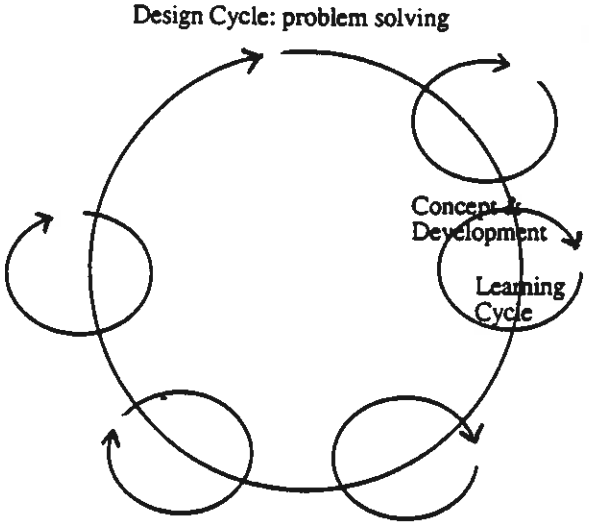
This module is built on students engaging in hands on exploration and drawing out the conept from the experiences, followed by the use and application of the concept. There is considerable and mounting evidence for the effectiveness of this kind of model in science.

For technological competence - ie the doing of agriculture from a design or problem solving approach we can draw on the design cycle as the basis for effective teaching.



This approach can be used as the basis of setting up an enterprise through activities associated with planning, managing, harvesting and marketing products. We need to acknowledge this effective technology approach and embrace it in the context of the KLA.

In agriculture we need to develop our own model. I am suggesting a melting of these two approaches to develop effective agriculture teaching.



This model develops concepts as they arise out of the experiences gained progressively in the context of a technology design brief. It is my belief that a model like this can produce:

- competent students
- successful students
- higher order thinking
- a subject which can be adapted to vocational needs and general education

They will have these characteristics because they will have:

- good concept knowledge
- good procedural knowledge
- good problem solving skills

In essence a student who can put **thought in action.**

SCHOOL FEATURE FOR THIS ISSUE....

SCHOOL: COONABARABRAN HIGH SCHOOL

LOCATION: COONABARABRAN - GATEWAY TO THE WARRUMBUNGLES

REGION: NORTH WEST

CLUSTER: WARRUMBUNGLES

SCHOOL POPULATION: 390

AGRICULTURE IS TAUGHT YEARS 7 - 12

Agriculture at Coonabarabran High School has produced some outstanding results over the past three years. It has undergone a resurgence in popularity within the school which has largely occurred through the involvement of the Coonabarabran community. This article is designed to give you an overview of Agriculture in the school.



The immediate aims of the Agriculture Department at Coonabarabran High School are:

1. to establish an area for the handling of sheep and for the preparation of a sheep show team.
2. To continue to establish the school's orchard and vineyard.
3. To continue to build Agriculture resources in the school library.
4. To continue to build the school's cattle herd and sheep stud so that agriculture in the school will have a regular 'additional' income to improve the existing facilities at the school.
5. To continue to provide experiences involving Steer Competitions, Junior Parading Competitions, Junior Judging Competitions, the exhibiting of livestock and the school's Agricultural Expo which all serve to give the students essential skills in this subject.

The school farm consists of an area of approximately 8 ha and has the following distinguishing areas and features:

1. on site classroom - "Bundella".
2. Large plastic house and smaller shade house.
3. Orchard and vineyard.
4. Student plot area.
5. Aviary.
6. Bee hives (2).
7. Piggery.
8. Poultry shed.
9. Animal handling complex.
10. Farm storage sheds.
11. Small pine forest.
12. Permanent pasture plots.

These are the units of work offered in the junior school. These units are constantly up for revision, with two new units of work, one focusing on keeping birds (Budgerigars) and another in design and fabrication, being written at the present time.

LATEST DEVELOPMENTS

An aviary was built in Term 1. The reason for the aviary was to enable students to be able to breed birds. Budgerigars were selected because students can easily carry out experiments involving colour selection and the birds can be out of the nest in 5 weeks, so results can be seen in the short term. In addition, there is little work involved in show preparation and all birds can be transported on the back seat of a car. Our first major success was in taking out the Champion award at the Narrabri Bird Show. This was the easiest piece of showing imaginable. A parent transported the birds by car and the only preparation was catching the birds to place them in show cages. Beats cattle!

This term students will be involved in building sheep yeards at the school. A metal cut-off wheel and welder will be purchased at this year's Gunnedah Ag Quip and a drafting race. Year 10 students, as a unit of work, will design and build the yards. The school Agriculture Assistant will be used to make sure the building progresses at a steady rate. It will be completed in Term 4.

BEST FEATURES

The best features of agriculture at this school are:

1. A focus for agriculture; that is being good at parading and successfully showing steers.
2. Skills based agriculture. Units of work are designed to be hands-on - this means that something is always happening in the farm and we have to continually plan to reflect as many facets of agriculture as we can.
3. The school cattle herd. This brings in additional money which is used to put structures on the school farm and to buy additional equipment.

JUNIOR AGRICULTURE PROGRAM

UNIT/TIME ALLOCATION

YEAR 7

TIME: 1 Semester - 20 weeks
PROJECT: Poultry, Vege Production

1. Introduction to Agriculture - 2 weeks
2. Vegetable Production/Plots and Gardens (ongoing) - 4 weeks
3. Livestock Types - 4 weeks
4. Poultry - 4 weeks
5. Farm Equipment - 4 weeks (Bullfinch operation)
6. Using the Library - 2 weeks

YEAR 8

TIME: 1 Semester - 20 weeks
PROJECT: Apiculture, Vine Production

1. Plant Propagation - 4 weeks
2. Apiculture - 4 weeks
3. Machinery (Tractor Driving) - 4 weeks
4. Vine Production - 4 weeks
5. Handling animals - 4 weeks

YEAR 9

TIME: 1 Year - 40 weeks
PROJECT: Sheep, Orchard

1. Sheep - 6 weeks
2. Winter Cereals - 4 weeks (ongoing)
3. Soils - 5 weeks
4. Farm Skills - 5 weeks
5. Orchards - 5 weeks
6. Steer Raising - 5 weeks
7. Legumes - 5 weeks
8. Weeds and Weed Control - 5 weeks

- Weed collection
- Library Research assignment

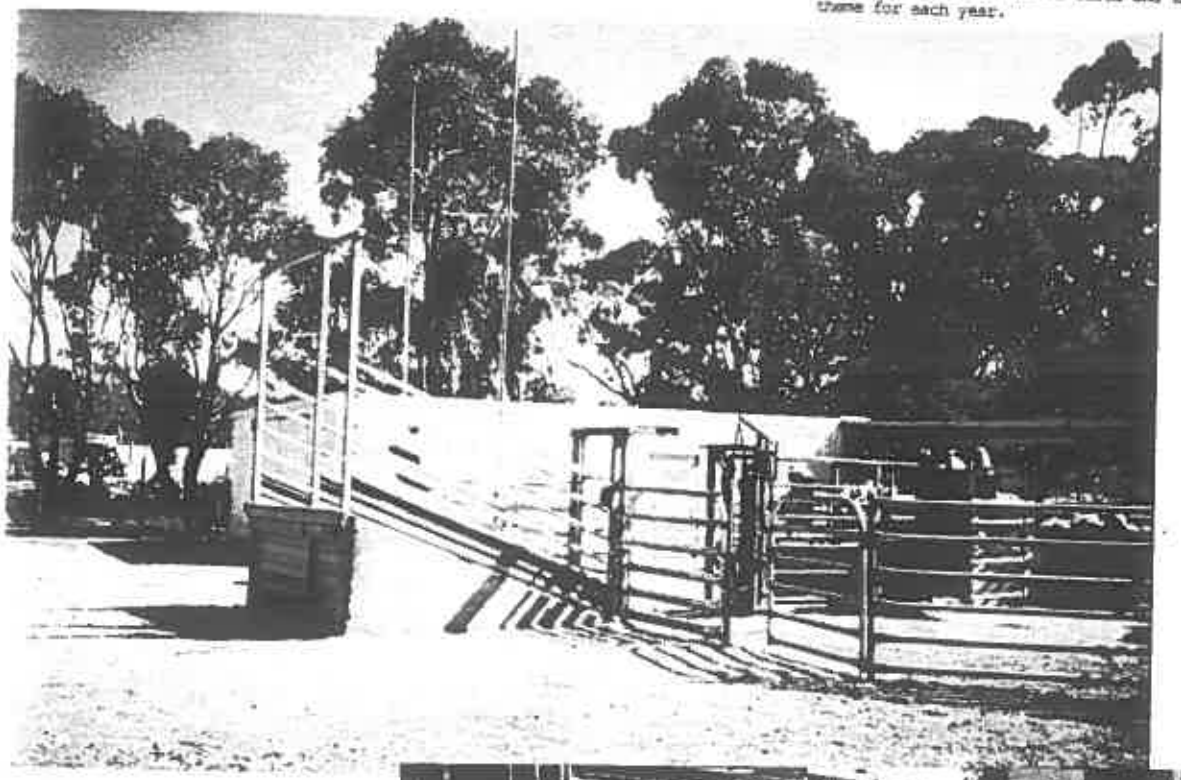
YEAR 10

TIME: 1 Year - 40 weeks
PROJECT: Cattle/Steers, Tree Nursery

1. Cattle - 6 weeks
2. Pastures - 4 weeks
3. Soil Conservation - 5 weeks
4. Pigs - 5 weeks
5. Hydroponics - 5 weeks
6. Breeding of Animals, Genetics - 5 weeks
7. Trees on Farms - 5 weeks
8. Aquaculture - 5 weeks

- Pasture Collection
- Raising Poddy Calves

Junior programs are skills based and include a project which becomes a major theme for each year.





BUSINESS LINKS WITH A LOCAL CATTLE STUD

Steven Lill, the owner of Chadwick Downs, was approached to provide support for an Animal Handling Facility for the school. Steven was offered a business arrangement which would see the school break in, prepare and show his Stud Braford cattle. Steven on his part would provide a complex for the school which would be used to work the cattle. As a result of this initiative an Animal Handling complex was built with the help of the community. The complex cost an estimated $30,000 and will be paid back over a 5-year term. The first year of this agreement has past and Agriculture in this school is the winner. The results obtained by this school, as a result of students working with this facility, testify to its contribution to Agriculture.



LINKS WITH OTHER LOCAL SCHOOLS

These are an important part of the community. They have assisted by supporting the concept of the Agriculture Expo, by allowing students to attend these days. Agriculture teachers from these schools are encouraged to be a part of the planning for these days and are asked to provide a school exhibit for the Fair. St. Lawrence's Central School, a local Catholic School, has a greater involvement than the others. In the area of Agriculture the schools have close ties and during the last two years have run common excursions to the Dubbo National Steer Show and to the Sydney Royal. St. Lawrence's and Coonabarabran High School share agricultural resources and provide good competition for each other in steer shows and judging and parading competitions.

NORTH WEST SCHOOL AGRICULTURAL EXPO

The concept of the Ag Expo started in 1990 with a day organised to allow students to practise hands-on agriculture. A series of skills were arranged and students, through the day, were able to master a number of skills. Over the past few years this original concept has changed to a day which features hands-on agriculture and a range of demonstrations and talks which are based on the senior syllabus. A range of speakers/demonstrators, which includes three veterinarians, covers, on this day, a large section of the senior syllabus.

In addition to this, the day features a horse-riding competition which attracts a huge following from schools as far away as Walgett and Armidale. Other popular events, staged on the day, are a cattle judging competition and a parading competition.

Schools are invited to attend this day and are placed into numbered groups which, through the course of the day, see a cross-section of the agricultural presentations available. A group's size equals the number of students that a mini-bus (18 approx.) can hold. This makes the groups manageable and bench seats give a captive audience, which those, presenting a segment, appreciate.

This has proven to be a successful formula and the competitions add to the day.



LINKS WITH LOCAL CATTLE BREEDERS



Local cattle breeders have assisted the school by allowing the school to select steers from their herds for Steer Competitions. At present, five local breeders have helped in this way. The school will take steers in two ways. Firstly, as an outright donation where the school pays for the cost of feeding the steer but then obtains all the proceeds from the sale of the steer. Secondly, the school will go into a 2/3:1/3 arrangement with the owner of the steer whereby the school pays the cost of feeding the steer and gets 2/3 of the money received from the sale of the steer. The owner is also asked to pay the entry fee into a Steer Show. The school provides the transport.

With a 2/3:1/3 deal the Agriculture department will make a small profit from the sale of the steer. This can be used to help develop the school farm. A 50:50 arrangement should be carefully thought through because with the high price of feed, it is easy to lose money.

CATTLE PARADING AND STEER EXHIBITION



These two activities have become a focus for agriculture at this school. The school cattle team is firmly established and consists of no more than 15 students selected for their ability to work with cattle and to parade. A lot of time is spent training students to lead all types of animals. Generally this activity is carried out during the lunch-time break but in forms 1 and 4, a student elective "Showstock" operates on a sports afternoon and a lot of time is devoted to animal breaking in, preparation and training students to lead. The school has had a lot of success with its steers and with its junior paraders. This has contributed much in attracting students to agriculture and to their perception of being competitive in shows.

Our policy has been to select a type of steer which will be competitive at shows. Muscle and finish are the name of the game so we select steers that will score highly with muscling and we also hope to provide the finish by selecting a steer with the ability to fatten. Our greatest success has come with the Limousin/Shorthorn cross but we have also done well with straight Limousin and Angus.

Cattle are generally taken on a deal basis. A 2/3:1/3 ratio at sale with the school providing the feed, gives a small margin. Breeders have donated animals outright but this is more the exception than the rule.



Support from the community of Coonabarabran has come from these sources:

1. the Agricultural Committee of the Coonabarabran High School.
2. The Coonabarabran Rotary Club.
3. The Coonabarabran Show Society.
4. K.J. Bird & Son, Rural Merchandisers of Coonabarabran.
5. Coonabarabran Horse and Rider Club and the Coonabarabran Pony Club.
6. Many of the business houses of Coonabarabran, including Government bodies which were involved in the school's "Agriculture Expo" and assisted in instructing children in an aspect of Agriculture.
7. Local stud breeders, including Steven Lill, David Connell, Barry Gould and Max Dench.
8. Veterinarians Alex Parsons, John McKenna and Frank Nottle.
9. Local cattle breeders.
10. Other local High Schools, including Binnaway Central School, Baradine Central School and St. Lawrence's Central School.

THE ROLE OF THE AGRICULTURAL COMMITTEE at Coonabarabran High School



The 14 person Agricultural Committee which includes the school's 2 Agriculture teachers, has the role of:

1. Supporting Agriculture in the school.
2. Assisting Agriculture in the school.

The Agricultural Committee provides advice to the Agriculture teachers and manages the school's cattle herd which includes providing the transport if animals have to be moved to and from properties. The Agricultural Committee was responsible for selecting the breeding stock which started the herd. As a part of its duties, the Agricultural Committee manages the herd by monitoring the animals throughout the year, by selecting replacement heifers from the herd, by placing these heifers on the properties of parents and friends of the school and finally arranging a bull to join with these heifers.

The Agricultural Committee organises a property to run the school's Suffolk sheep when there is a shortage of feed at the school.

It also organises school working bees to improve the physical structures on the school farm.

Finally, the Agricultural Committee is involved in staging the Agricultural Expo.

1991 - H.S.C. results. Our students in the top 2% of the state.

1991 - Coonabarabran Beef Improvement Association's Carcase Competition. Winning steer Light Weight section and Reserve Champion steer of the competition.

1991 - Dubbo National Steer Show. Reserve Champion Middleweight steer in Hoof and Hook sections of the competition.

1991 - Staging of the first Agricultural Expo.

1991 - Winner National Taste Test Competition.

1992 - Royal Easter Show. Provided the Lead Steer for the Simmental breeds. Stan Hill entry.

1992 - Champion Steer - Coonabarabran Beef Improvement Association's Carcase Competitions.

1992 - Provided the winner of the Royal Easter Show's Junior Paraders competition.

1992 - R.E.S. Best Maintained Team ribbon - Braford section.

1992 - Provided finalists in parading competitions at Tamworth, Dunedoo and Coonabarabran. Provided Champion Parader and first 6 places at the Coonabarabran Show.

1992 - Provided a State finalist for Meat Sheep judging R.E.S.

1992 - Championship ribbons won at Coonabarabran and Baradine shows with the school's Suffolk sheep.

1992 - Establishment of the school's cattle herd, Suffolk stud. Building of the Animal Handling complex.

1992 - Introduction of Speech Night Awards to recognise excellence in Agriculture.

1992 - Provided finalist in R.E.S. Merino final and Meat Sheep final.

1992 - Continued upgrading of School Agriculture programs to incorporate "Projects" in all units of study and to make the subject "Skills-based" where possible.

1992 - Establishment of a Horse-Riding team.

1992 - Establishment of a school Tree Nursery.

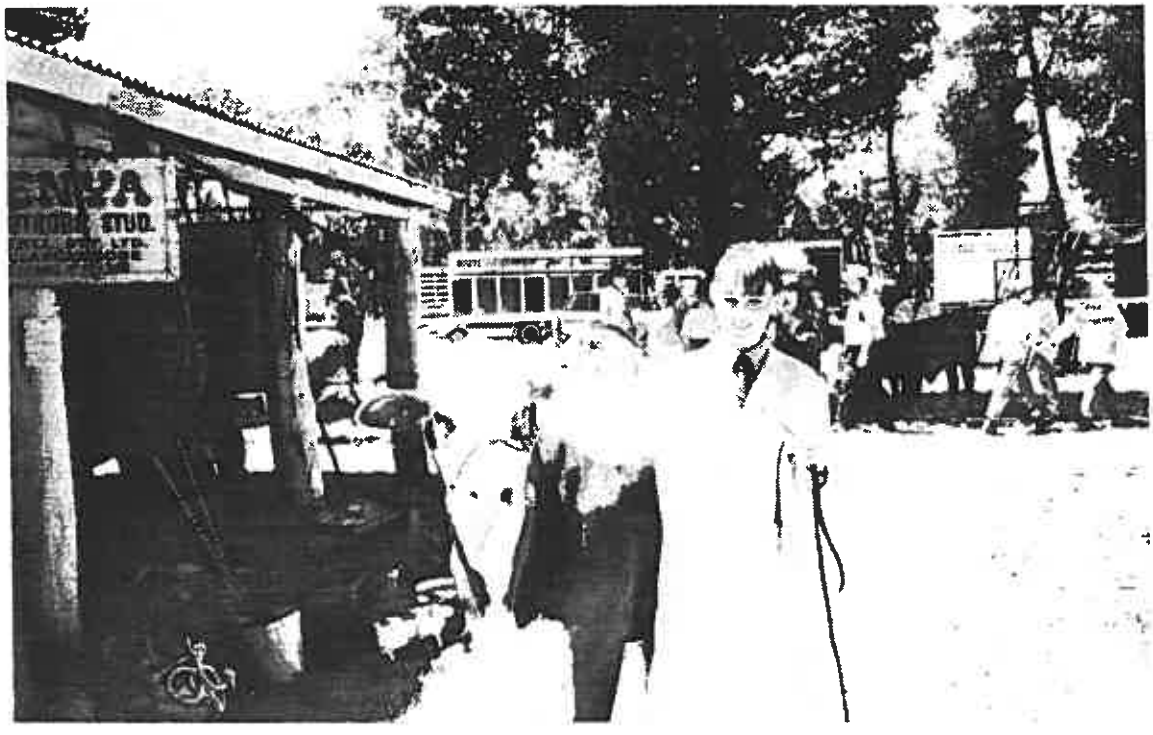
1993 - Provided the Champion Parader - Tamworth Show.
- Provided the Champion Parader - North West Schools Agricultural Expo.
- Most successful exhibitor with Braford team in Sydney R.E.S.

1993 - Champion Steer Dubbo National Steer Show.

1994 - 3rd Hoof Section Sydney R.E.S., 3rd Hook Section Sydney R.E.S.
- Students involved in exhibiting cattle at Melbourne, Sydney, Brisbane Royals.
- Provided Champion Parader, Coonabarabran. Finalist at Tamworth.

1994 - Staging of the School's 4th. N.W. School's Agricultural Expo.

1994 - Showed Champion Budgerigar at the Narrabri Bird Show.



APPLICATION FOR MEMBERSHIP TO THE N.S.W.A.A.T.

NAME: _____

SCHOOL: _____

SCHOOL ADDRESS: _____

_____

POST CODE: _____

SCHOOL PHONE: _____

SCHOOL FAX: _____

MAILING ADDRESS: leave blank if same as above.

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** Government School Non-Government School (Please Circle)

I ENCLOSE PAYMENT OF **$40.00** BEING THE SUBSCRIPTION FOR THE NEXT BI-ENNIAL PERIOD AS A FULL INDIVIDUAL MEMBER OF THE N.S.W.A.A.T.

OR

WE ENCLOSE PAYMENT OF **$60.00** BEING THE SUBSCRIPTION FOR THE NEXT BI-ENNIAL PERIOD AS A CORPORATE BODY MEMBER OF THE N.S.W.A.A.T.

OR

I ENCLOSE PAYMENT OF **$20.00** BEING THE SUBSCRIPTION FOR THE NEXT BI-ENNIAL PERIOD AS A STUDENT MEMBER OF THE N.S.W.A.A.T.

NOTE: THE BI-ENNIAL PERIOD ABOVE WILL CEASE AT THE JANUARY 1995 A.G.M. TO BE HELD AT THE NEXT BIENNIAL CONFERENCE. i.e. membership covers 2 years from 1993-1995.

Full membership from new members wishing to join in the second year of the biennium will be charged a pro-rata fee of $20.00.

PLEASE FORWARD YOUR COMPLETED FORM ABOVE **ALONG WITH YOUR FEE** TO:

JOINT COUNCIL
AGRICULTURE
P.O. BOX 577,
LEICHARDT 2040.

EVALUATION / QUESTIONNAIRE

*YOUR ASSISTANCE IN COMPLETING THIS EVALUATION AND QUESTIONNAIRE WOULD BE APPRECIATED AND WILL ASSIST IN THE PLANNING AND DEVELOPMENT OF FUTURE ISSUES.
*ANY ADDITIONAL COMMENTS ARE WELCOMED AND YOU ARE REQUESTED TO SEND ANY INFORMATION, WORKSHEETS AND RESOURCES THAT YOU FEEL WORK WELL FOR YOU AND THAT OTHERS MAY BENEFIT FROM.
*FEEL FREE TO BE ANONYMOUS IF YOU WISH.
*PLEASE RATE THIS ISSUE OF B.A.A.T. IN TERMS OF THE CONTRIBUTION YOU FEEL THE ARTICLES MAY HAVE TOWARD YOUR TEACHING, AWARENESS &/OR PROFESSIONAL DEVELOPMENT.
(placing a ***tick*** in the box next to the article is all that is required)

ARTICLE OR SECTION	VERY VALUABLE	OF SOME VALUE	VERY LITTLE VALUE
presidents report			
editors report (letters to editor in future??)			
Letters inwards			
Vaccination information			
Farmsafe information and Women's Network Articles			
Syllabus committee report			
Video catalog			
School Feature- Coonabarabran High School			
Conference paper- Rod Francis			
Order forms/fliers/general resources			
"Bits and Pieces" of information			

PLEASE LIST IN THE SPACE BELOW ANY **GENERAL COMMENTS** YOU HAVE CONCERNING **THIS ISSUE** OF B.A.A.T.

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WHAT TYPE OF INFORMATION OR CONTENT **WOULD BENEFIT YOU MOST** IN FUTURE EDITIONS OF B.A.A.T.?

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