Winter 1995 Edition No 2

NSW Association of Agriculture Teachers

Bulletin of the NSW Association of Agriculture Teachers

B.A.T.



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Bulletin of the NSW Assn. of Ag. Teachers

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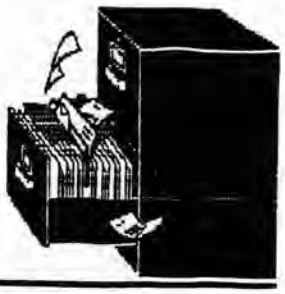
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Some thoughts from The Editor



Earlier in the year I spent a rewarding few hours with Mr Martin Novak and his team at the Dorroughby Field Studies Centre near Lismore. "The bottom line" is present day terminology, and the bottom line of my experience on that day is found in this quote from the Sydney Morning Herald:-

> ***"The concept of land stewardship is currently being promoted by several government and non government agencies..... It puts emphasis on the responsibility of land holders and users to ensure that the soil and other natural resources are managed for future generations and not over exploited for short term gain."***
>
> ***Sydney Morning Herald 4/3/89***

THERE ARE SOME ALARMING STATISTICS:

- **2.5 metric tons of salt a minute flow down parts of the Murray River.**
- **8 million metric tons of top soil are lost from the fertile Darling Downs of Queensland in a year.**
- **Of the 5 million square kms. used in Agriculture and pasture lands around 2.7 square kms. are either affected by, or in danger of wind erosion, water erosion or salinity.**

I was impressed with presentation on the day and I hope the item which evolved from the excursion is a useful resource for members. Measures that offer long term sustainability need promotion, increased recognition and must be part of our class room practice. I thank the authors for a valuable resource.

> ***"Rational and responsible farming means using every hectare according to its capacity and protecting it according to its needs."***
>
> ***Think Trees, Grow Trees, M. Butz, Canberra Page 61.***

<u>ON ANOTHER NOTE</u>:

There are around 360 schools in NSW with some involvement in teaching Agriculture. It is pleasing to record that BAAT now finds its way into about 180 of them. On a personal note, many thanks to those who have offered encouragement and support to myself and the Association Executive in our endeavours. A sincere thank you also, to all those who contributed items.

John Musgrave, Editor BAAT.

THE PRESIDENT WRITES

PRESIDENT'S REPORT

G 'DAY

No doubt this second BAAT Edition for 1995 will be a winner for your own resource plus the students. Congratulations to John Musgrave (Editor) and his supporters for a job well done.

USE FOR THE SCHOOL FARM

Some of our school farms are ideally located near cities, major rural towns or tourist bus routes.

The variation of animal and plant enterprises, even alternative farming practices that their farms can offer, provide an excellent source of educational interest for adults as well as preschoolers. Our school is at present negotiating with the local craft shop to organise tourist trip events. Students will provide lamb on the spit plus a tour of the farm enterprises.

Imagine the benefits to students of showing our city folk and tourists what agriculture is about in our schools. The educational package can involve a series of hands on activities with the emphasis on basic farming practices and safety while carrying out some of the routine jobs common on farms. Maybe there is a possibility of raising income to further develop enterprises.

PROJECTS FOR 9/10 AG & METAL

Students are in the process of building portable seating stands for an outside classroom. At Woodenbong this involved a visit to local engineering works for discussions. What came out was a four tiered stand which fits into the three point linkage. It seats approximately 30. Four of them are going to be made, each being sponsored by a town group. (Rodeo, Show, Football etc). They can also be hired for $30.00 each. Advantage is freedom to set up where you want to and the ease of moving around, maximum efficiency of use and income for the farm.

HORSE PLAY

A group of North Coast Ag Teachers attended a Horse play Train the Trainer programme on June 13th. By attending this programme your school receives a kit to the value of $250 free. Congratulations to the organisers Gloucester Farm Safe Group (91 High Street Taree, 2430) for an excellent day. Justified to year 5/6 and in some cases 7/8. See last BAAT (page 78) for course dates in your area. Some of the basic education techniques are very handy.

MEMBERSHIP

One of my roles as President is to increase membership of our professional organisation. At present out of 360 schools teaching Ag, we have a membership of between 180-200. If you have a school near you, could you please check that they have joined? This membership enables them to receive BAAT which is a great resource for their Ag. Library and also to be part of a body of teachers who are promoting Agriculture as a viable career option, (See Warwick Moore's article Autumn BAAT '95).

RURAL INDUSTRIES TRAINING

Congratulations to Jenni Wilkins (Board of Studies) and Ken Raison (Dept of School Education) for their efforts in training teachers in Rural Industries.

Organisation and venues were excellent. This is an essential subject choice for students. Enabling them to achieve an industry recognised credential and will lead to expanding career and training pathways. I hope your name is in for the next round of training.

TREASURE HUNT

Does anyone have ideas/designs for treasure hunts which could be used in Year 7 and 8 Agriculture or Primary classes?

NSW TRIAL AG. PAPER

put out by Independent Trial Examiners.

Free Call 008 812 795

FARM SAFE PACKAGE

At present Sister Jan Mills - Casino (Farm Safety Group), Kerry Argent and myself are in the process of putting together a package "Farm Safe" for schools. This project has been sponsored largely by John Deer Ltd and the Department of Business and Regional Development and is under the guidance of the Board of Studies NSW, schools UFP Programme, Australia Agricultural Health Unit and Rural Training Council.

It has been recognised that in 1982/84, 224 adults and 34 children died as a result of farm related infers. We as Ag. teachers need to stress throughout our programme safety issues to our students. **This project needs your support.**
We would like to introduce Ag Safety into all areas of teaching (Maths, English, PEPD Health, Economics etc) Eg: Maths - Ag. safety related information can be graphed, English - Debate topic.

A small information sheet will be sent to some schools for use. The committee is assembling ideas/class lessons to place in this package. The package will involve areas for secondary as well as primary students.

PLEASE SUPPORT THIS PROJECT AND RETURN ARTICLES TO:

Stewart Grimmett
Woodenbong Central School
Unumgar Street
WOODENBONG NSW 2476

EDUCATIONAL VENUE

I guess one of the great attractions for the Farm Save Course came from the venue of Loosie and Norton Gill's ***WATERLOO STATION*** (068 898 314). It is situated on the Bogan River near Dandaloo - Albert (famous Rabbit Trap Hotel - Dubbo Trangie). Facilities are excellent for Agriculture related subject (Rural Industries).

Shearers quarters and kitchen are available at approximately $20/day/student including full mess with around 20 students at a time. The station contains a wide range of enterprises and most of all Loosie and Norton who are keen educators for our young Australians.

I recommend this excursion as 10/10 and value for money.

YOUR FEEDER SCHOOLS
A TASTE OF AGRICULTURE

This is very easy in a central school situation, however, this is also achievable in other areas. Benefits far outweigh the problems.

At the inaugural Design and Technology Conference in Sydney, Craig Grover spoke of the Inverell High initiative. A number of central schools can benefit by staff allocation by swopping teachers - secondary into primary and vice versa in subjects like music and art. The use of the Ag. farm can again be very useful. This will foster interest in this subject.

There are a couple of books put out by Central West Farm Sale Group that could be a good starting point. (Ronnie Hazelton 063 637 706).

CONFERENCE COMING UP

See inserts in BAAT for information on Qld Conference in September and Australian Agriculture Conference in January. Both are worthwhile attending.

STATE CONTEST

Make sure you are able to involve your students in State Year 9/10 Agriculture Tests organised by Gary and Michael at University of Western Sydney Hawkesbury. In conjunction with Sydney branch of NSW Ag. Teachers Association. If you haven't already, perhaps you can get in contact with them.

TAS CONSULTANT

Does your TAS consultant know who you are? (Autumn BAAT for Consultant List in your region). Try to use them to your advantage. Maybe they can help organise a meeting between Ag. teachers within your region.

Jim White - TAS Consultant for the North West, is doing a super job for Aggies. At present they are getting information together to help first year out teachers in farm organisation. I also spoke to Jim about developing short sessions for Ag. Teachers when relieving teachers are brought in.

In many cases it is difficult to get an Ag. trained teacher. Maybe a meeting arranged for Ag. assistants to visit other Ag. plots could help foster further interest.

If you have any suggestions, please send to John Musgrave for publication in next BAAT.

(Closing date for contributions for next BAAT - 1st November 1995).

SPONSORSHIP

Sponsorship of prizes for Ag. students in different fields certainly encourages students.

At present Northern Rivers Limousin Society sponsors $100 annually towards our school farm of which $50 goes to the student who has prepared the best steer for Casino Beef Week.

==========

JENNI WILKINS

What did we ever do before Jenni moved into the Board of Studies?

She has certainly lifted the professional outlook on our subject. She is a great asset and scout for us. The organisation and time she has put into NSW Technology K-12 Conference is a credit to her devotion to Agricultural Teachers.

On behalf of our members Jenni, congratulations on a job well done.

NINTH BIENNIAL CONFERENCE OF THE NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS

This conference will be held at:
The Victorian College of Agriculture and Horticulture, Dookie Campus, Dookie College, Vic.

DATES:
January 14th - 17th 1996.

.....

Delegates would be expected to arrive on Sunday 14th January 1996 between 12 noon and 7pm. for a B.B.Q. and welcome.

Monday 15th Jan. would probably be devoted to guest speakers on the theme "Vocational Education".

Tuesday 16th Jan. has been planned as a Wine Industry day with hands-on practicals at the college, followed by a bus trip to local wineries and an evening meal at one of the Wineries.

Wednesday 17th - yet to be planned. Conference closes at 2pm.

Costs are still unconfirmed but my best estimate is:

- **$175 - 3 day accommodation meals etc.($56/day)**
- **$60 - Winery day (wine, meal, transport)**
- **$75 - Registration for 3 days.**

Single day only (no accommodation) would be approximately $14 meals and $25 registration assuming it is not the Wine Industry day.

All accommodation is at the College which is a 2500 Ha. Agricultural property between Shepparton and Benalla.

More details can be obtained from Neville Winch:
Phone 058 339 200
Fax 058 339 204

.....

Stewart Grimmett
President

GOING ORGANIC

by Peter Giblin - Byron Bay High School

Byron Bay High School and Mullumbimby High School were approached late last term by a local company who wished to sponsor them to go Organic in their Agriculture Courses.

The idea originated from Santos Trading (a local firm who retails health foods and organic produce in three towns on the Northern Rivers Area). Manager Howard Wilkinson , after seeing a "Gardening Australia" episode about a Tasmanian High School which has been Organic for a number of years with excellent results.

After initial meetings the local NASAA Certification Officer - Bryan Peterson - took soil samples from both plots and sent them for analysis, to the Peanut Company of Australia at Kingaroy Qld. The samples were tested for residues of herbicide and pesticide. We have both been tested clear of any residues so we have an excellent start for applying for level B certification.

The next step was involving the students. A draft programme on organic farming has been written and sent off to Howard, Bryan and Ron Bryant at Mullumbumby High School for comment and revision. The programme involves students collecting background data about the school farm, soil types, position of paddocks, rainfall distribution from our records. The students will then draw a scale diagram of the Ag. plot and develop a farm plan. We will look back over our records to see what we have been doing in the past and how we may do it organically in the future. They will also grow and market a crop through Santos.

Santos has offered to purchase our produce at market prices once we are certified Level B conversion. We have been producing a variety of produce for many years and marketing has been difficult and "hotch potch". (You know, sell to staff, canteen, local stores, parents etc). Although our farm is small like most Ag. farms, we produce a variety of produce, vegetables, fruit, honey, eggs etc., therefore to have one wholesaler to take all our produce should be great.

To gain Level B certification we have to submit our records, methods and Farm Plan to the NASAA correctly and satisfy them that we have not used any prohibited inputs in the past twelve months.

Certification is a statement of method, not a declaration of inferred crop or product quality based on a number of years that a grower has been employing organic methods, or by the substances which may or may not be used. Furthermore, organic growing is not simply the removal of prohibited inputs nor their replacement with organic inputs. It is a complete system which addresses the various needs of the farm ecosystem and all its components. Soil is the basis of all Agriculture and organic production systems concentrate on correct soil management and nutrition as a first step. *(NASAA Standards for Organic Agriculture Production, 1993)* .

The Standards for Organic Production make interesting reading and are worth purchasing. The address is:

Stringy bark Farm
Tschampions Road
MACCLESFIELD Vic 3782
Phone (059) 683 040

Going Organic is not for everyone but for us it is relevant to our local community and, after many years of truly trying, we finally have a sponsor to assist us financially and improve our profile and creditability in our community. If you would like further information or details write, phone or fax:

Byron Bay High School
Broken Head Road
BYRON BAY 2481
Phone (066) 858 188
Fax (066) 858 119

(More information on Organic Farming in next Issue).

FARM FORESTRY IN WHOLE FARM PLANNING

ALTERNATIVE AGRICULTURAL SYSTEMS

FARM FORESTRY: A NEW APPROACH

INTRODUCTION:

- DFSC (Dorroughby Field Studies Centre) Farm Forestry Project has developed a range of Farm Forestry oriented programmes for school groups from K-12 and an Introductory Course in Farm Forestry aimed at landholders and Labour Market Programme participants. The Centre makes use of a number of cabinet timber woodlots and regeneration plantings in the local area to demonstrate the potential of ecologically appropriate plantings and the integration of woodlots into whole property planning.

TOPICS COVERED IN PROGRAMMES INCLUDE:

- Introduction to Forest ecology
- History of the Big Scrub rainforests
- Climate and soils on the north coast
- Wildlife and Bio-diversity
- Farm Planning; Multiple uses of farm trees
- Rainforest species selection
- Eucalypts
- Designing plantings for maximum returns
- Farm nurseries
- Site preparation and planting techniques
- Fire management and silviculture
- Woodlot maintenance
- Legislation and its impact
- Tax and financial issues
- Milling and marketing

OUTCOMES:

1. Appreciating the importance of ecological systems and their role in sustainable land management
2. Understanding principles relating Farm Forestry to total catchment management, landcare and sustainable farming and using this understanding in planning sustainable farm systems
3. Understanding the rationale behind a number of different woodlot designs and their implications for future maintenance requirements, timber quality and harvesting.
4. Recognising the importance of unit cost of tree plantings and how to reduce costs to landholders.
5. Understanding the growth habits of a number of cabinet timber species, their site requirements and how this affects woodlot design.
6. Understanding the role of planning, planting, fertilising, mulching and weed control in woodlot establishment.
7. Recognising the commercial potential of various species, their end uses, milling and marketing,
8. Understanding the importance of planting the right tree in the place for the right reasons.

FARM FORESTRY IN WHOLE FARM PLANNING AND ALTERNATIVE AGRICULTURAL SYSTEMS:

Farm forestry enterprises can be seen either as an enterprise in their own right or as an adjunct to existing or planned agricultural enterprise. They can, if properly planned and managed provide,

- an important resource in the management of land degradation (erosion control, streambank stabilisation, lowering of the water table and dryland salinity prevention);
- an element in Integrated Pest Management providing predator habitat and biodiversity;
- a source of much needed farm income from otherwise unproductive land;
- a wildlife habitat;
- on farm timber needs (fencing, shed, house and yard building timbers);
- shade, windbreaks and shelter for stock and crops;
- enhanced real estate values;
- a resource for the promotion of tourism and farm stay accommodation;

- filter strips to prevent chemical and fertiliser runoff and pollution of creeks and rivers;
- biomass fuels (firewood and alcohol;
- bush foods and byproducts such as honey and essential oils;
- an improved micro-climate for the house site; and
- a superannuation scheme for the growers and future resource for their children.

RISKS:
Any investment in a Farm Forestry project is a long term venture based around natural systems and as with any long term agricultural venture is subject to certain inherent risks:

- physical risks such as drought, fire, other acts of God, insect infestation and disease;
- changes in technology;
- both real and nominal movements in prices and costs;
- changes in government legislation or the interpretation of it which may impact on the profitability of the project;
- the ability of the manager to effectively maintain the planting and manage the silvicultural needs of a woodlot;
- the collapse of world markets for the product being produced and
- other normal and usual risks attaching to any long term project.

SUGGESTED AREAS OF RESEARCH:
Little research has been undertaken in NSW on the growing of Rainforest cabinet timbers and subsequently there has been no significant selection of seed stocks for desirable timber properties, little is known about the long term effects of various stocking rates (number of trees per hectare) and there is much debate about the value of planting different species. Because of the unique capacity of the Northern Rivers region to produce these high value timbers it is felt that this is a particularly suitable area for research projects and DFSC would welcome enquiries from teachers and students interested in working in this area. Some possible topics include:

- researching past uses of fast growing species which are no longer utilised for timber;
- trials of low cost establishment techniques (planting from small tube stock direct seeding, planting direct from germination trays);
- comparisons of the effects of various site preparation techniques on early phase establishment;
- leguminous and other ground covers;
- weed control and its effects on growth rates and establishment costs; and
- comparison of growth rates of cabinet timber plantings with natural regeneration.

LEGISLATION:
There are a number of pieces of legislation which impact on Farm Forestry in a variety of ways and which should be considered in the planning of Farm Forestry ventures;

LOCAL GOVERNMENT REGULATIONS:
These vary considerably form Shire to Shire and may require the preparation of Development Applications for woodlots (eg. Byron Shire), or may prohibit the felling of trees without a permit (either throughout the Shire or within specified zones) or may restrict Forestry to specified zones.

STATE GOVERNMENT LEGISLATION:
The Forestry Act, 1916
The Bushfires Act, 1992
The National Parks and Wildlife Act, 1979
The Clean Waters Act.
The Environmental Protection Act

The (proposed) Tree Plantations (Rights of Harvest) Act would introduce a certification scheme along with management and logging regulations controlled by CALM and guarantee the right of harvest to any plantation owner who complied with these controls without the need for Fauna Impact Statements, Environmental Impact Statements, etc. and negate any Local Government regulations which may restrict harvest.

CONTACT:
Martin Novak
Dorroughby Field Studies Centre Farm Forestry Project
Mullumbimby Road
DORROUGHBY via
LISMORE NSW 2480
Ph (066 895 161
Fax (066) 895 042

557 Rockvale Road
Armidale NSW 2350

June 1995

Mr John Musgrave
Editor of B.A.A.T

Responses to the questionnaire to schools relating to the administration of Agriculture as a school subject have now been processed. The unenviable task of putting them together for degree requirements is now in hand. I would like to release the combined answers but until the research has been duly processed that is not possible. However there are a few things about which I can generalise. Viz. Ag. numbers and communication.

There has been shown a strong desire, by the vast majority of respondent schools, to maintain Agriculture as a subject. In a proportion of the schools there has been an increased number of students electing the course. Generally this is said to be as a result of the commitment of the Agriculture teachers. Principals and communities appreciate the extra effort.

A common problem appears to be that whilst the "Aggies" are busy doing the seemingly impossible task of "shoulder to the wheel, nose to the grindstone and ear to the ground" there may be a lack of communication with others. Some Principals are not fully informed of the good things Agriculture is doing for the school. With Career Advisers and administrators outside the school there is a definite lack of communication.

The matter of cost of the subject shows great variation. Remember that there are many funds still available to schools. Of particular interest are the first two paragraphs on page thirty in the Parliamentary Report of the Department of School Education for 1991 (No. 66 printed May 1992)

> *"Prior to 1991 the Department provided schools with specific cash grants tied to particular purposes. In the main introduction of school-based budgeting has led to the amalgamation of these grants into a single payment which schools are permitted to apply for general expenditure purposes.*
> *The Department also provides a number of specialised grants for Agriculture..... and funding for the supply of major item [sic] of equipment for schools, including tractors,"*

This second paragraph may help solve the question of "what happens when it has to be replaced?" Branches of the Ag. Teachers may be able to obtain details from their Regional Area Office.

It is apparent that Agriculture as a subject is still regarded highly as a general educational subject, in personal development, and for appreciation of the flow-on value of primary production with associated industry employment. Awareness of the environment and economy is of value to all students.

We should maintain a positive attitude and give publicity to the good aspects of Agriculture as a subject.

Norm Thomas

Norm Thomas

1994 saw the first Minister's Young Designers Awards (MYDA) in New South Wales. This competition was sponsored by the St. George Foundation and promoted across all education systems in the State by the Board of Studies and Professional Teacher Associations, North Coast

STATE WINNER - MINISTER'S YOUNG DESIGNERS AWARDS

On Friday night, 25th November 1994, at a ceremony in Sydney, it was announced that Grafton High School student Ben Marriott was selected as the winner of the individual section of the Minister's Young Designers Awards.

State Winner
Individual Section
First Place
Ben Marriott
Grafton High School
Agriculture

CONGRATULATIONS to all these winners and especially to Ben for his fine effort in winning a major State prize.

To enhance the project Ben was able to photograph the feeder using a Quick Take Camera and printed it through a computer and colour printer. Ben was presented with a Certificate and $500 from the St. George Foundation. All schools should encourage their students to enter. The product does not have to be excellent as it is the Design Folio and Product which is important.

The awards encourage students to look at the world, investigate projects, systems and environments and to design their own solutions. Ben's Chicken Feeder was selected from over 5000 D.& T.entries and 100 Finalists. The project was completed in the Agriculture Context area, under the guidance of teacher Ivan McLennan. The feeder was constructed from recycled products and enabled the chickens to be fed with little wastage of food.

If you would like to know more about the 1995 MYDA and how you can involve your students, please contact :

Ms Ann Bailie
TAS Consultant
WOLLUMBIN E.R.C.
Murwillumbah
Phone (066) 725 966
Fax (066) 725 192

Chris Timmins - Head Teacher TAS
Grafton High School.

SOME FAMOUS WORDS FOR AGRICULTURALISTS TO PONDER

Get out of your discipline.
Look around.
Get into the institutional Politics or GET DONE!

QUEENSLAND AGRICULTURE TEACHERS' ASSOCIATION INC

PRESENTS

2nd Biennial State Conference

"EDUCATING FOR FUTURE HORIZONS"

Monday 25 - Thursday 28 September 1995
at
The Kooralbyn Hotel Resort

The Queensland Agriculture Teachers Assn Inc invites you to attend their 2nd Biennial Conference at South East Queensland . This event follows on from our first successful Conference held in Cairns in 1993. We are planning a comprehensive program that should be finalised and published by early May 1995. The program for the Conference will be sent to all interested participants, which would include not only members, but also other Agricultural Educators and those in the many allied areas of Agriculture. On behalf of the Q.A.T.A. inc. I urge you to commit yourself to attend this Conference and offer input into the future education of our young people through Agriculture.

The first State Conference of the Q.A.T.A. followed the theme of Technology and focused on the move in Education towards a National Curriculum and the role that Secondary Agriculture played within this framework. This 2nd Conference will revisit some of these issues plus many more as we look towards the future and the changing face of Agricultural Education. Some of the major issues that need to be addressed are:-

* Where are we headed? - the future of Agriculture Education in Queensland and across Australia.
* What is the viewpoint of Education Personnel, community, students and other interested parties eg. Agribusiness sector.
* Convergence of Vocational and General Education.
* Effective teaching and learning within Agricultural Education. How are our programs going to change?

These issues will be addressed by Keynote speakers, workshops and open forum discussions, which will give you a chance to air your views. There will also be the opportunity to view Trade displays related to many facets of Agriculture.

FEE STRUCTURE:

Q.A.T.A. Member $500 Non Member $520

Please Note: the total Conference package is for a three day period. Book in time would occur from 11pm Monday 25th Sept and check out time would occur on Thursday morning 28th Sept 1995. The Conference would conclude with lunch on the Thursday.

FURTHER INFORMATION:

CONFERENCE CONVENOR: John Martin (Charlie) Atherton High School Ph Work 070912688 or 07913001: Home 070912074: Fax 07091313847

ORGANISING COMMITTEE:

Paul Dillon	Phone 074823722 or 0180611768
Paul Christensen	Phone 078640288 or 15139907
Chris Larkin	Phone 075312402
Mandy Lindsay	Phone 070912688

HERBS TO GROW - TEACHERS GUIDE

by W. Ellis, I. O'Connell, A Baillie - 1993

DESIGN AND TECHNOLOGY 7 - 10

Unit Synopsis/Overview

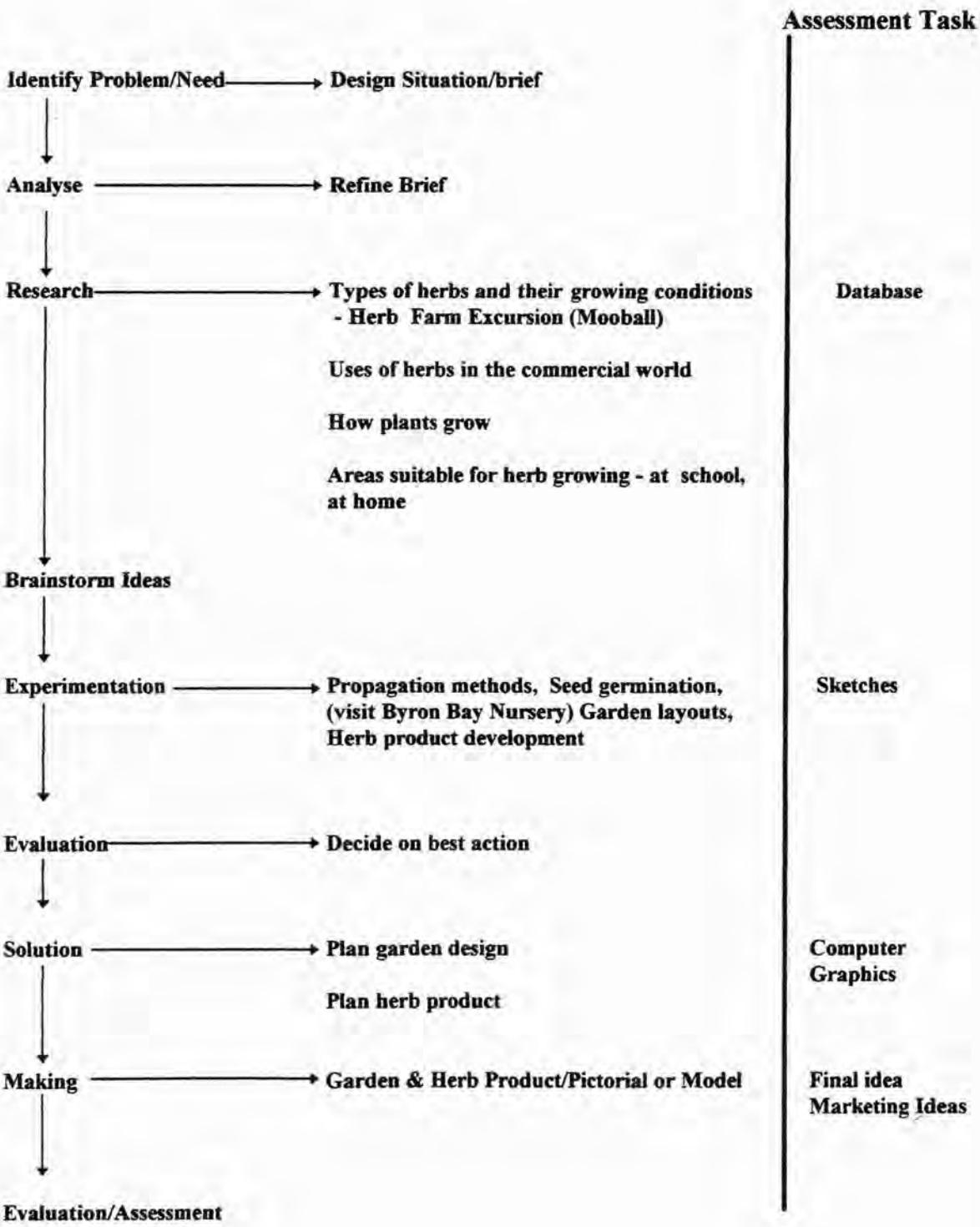
UNIT TITLE	HERBS TO GROW
PRESCRIBED CONTEXT	**AGRICULTURE**
Design Situation	Today a more natural diet and more natural methods of flavouring are being demanded by many people in our artificial, over-processed world of food. Herbs with their traditional history of culinary, cosmetic and medicinal uses have become very popular and interest is rising as is their commercial viability.
Design Brief	As herbs have the potential to make a monetary profit, design and propagate a herb garden and find a way of turning these herbs into a marketable product
PRESCRIBED DIMENSIONS	
RESOURCES	
People	Nursery staff, Science staff, Chefs, Herbalists, Food Technology staff, friends, family, local herb growers
Materials	School Farm, seeds, plants, fertiliser, potting mix, pots, packages, labels
Tools	Garden tools, watering system, microwave oven, computer
Energy	Human, solar, electrical, fossil
Time	10 weeks (8 cycles) 4 periods per cycle
Skills	Research, propagation, sowing, maintenance and nurture of herbs, computer-database, teamwork, using garden tools, making a product, marketing.
Finance	$5 approximately. For seeds, tubs, pots, soil, fertiliser, fresh herbs, oils etc (per student)
Information	Reference books on Herbs - growth needs, types, uses eg. Cosmetic, culinary, medicinal: seed packets, nursery staff, herb growers, gardening books and magazines etc.
DOMAINS	
Personal	Personal satisfaction from growing herbs successfully, leisure activities, gift giving
Commercial	Preservation, processing and packaging techniques, Nursery/Herb Growers procedures and marketing
Global	Companion planting and organic gardening techniques to address the issue of chemicals used in food production use of herbs as insect repellents and cooking in ethnic cultures.

HUMAN IMPACT	
Cultural Issues	Comparison of use of herbs by Aboriginal and European cultures (native/wild herbs).
Environmental Sustainability	Sustainable agriculture, importance of water conservation, alternatives to use of chemicals.
Historical Issues	Traditional role of herbs in food preservation and cooking. Herb culture of early monasteries - role in food medicine, cosmetics.
Motivation	Individual and group achievements and satisfaction in producing a herb garden and product to take home or to give as a gift.
Quality	A significant harvest in terms of quality and quality depends on the care taken and also the herbs used. A good quality herbal product/idea has commercial viability.
Computer Usage	Database, Word Processing (report), Graphics (garden design/layout).
Assessment	Design Folios, database, sketches, computer generated garden layout, marketing strategies, final product/report (see Assessment sheet).





OVERVIEW AND FLOWCHART - A TEACHER'S GUIDE



PANTRY PUZZLE!

RESEARCH THE TYPES OF HERBS USED BY YOUR FAMILY AND FRIENDS AND PUT THE INFORMATION IN THE TABLE BELOW.

A HERBS	B USE	C FRESH	D DRIED
1.			
2.			
3.			
4.			
5.			

HERBS

Herbs are versatile and have many uses today. You have established a herb farm and have an abundance of herbs which can't be sold, as the "fresh herb" market is saturated. You would like to devise a way that they can be utilised and hopefully increase the profit margin of your business.

1. Research possible ways to use these herbs.
2. Develop and produce a product to be marketed
3. Design a package/label ensuring it has the information required by law. You may wish to develop this package or label on the computer.
4. Test and evaluate the product (by the people you think will use it)
5. Analyse and modify if necessary
6. Present to the class as the salesperson to market your product.
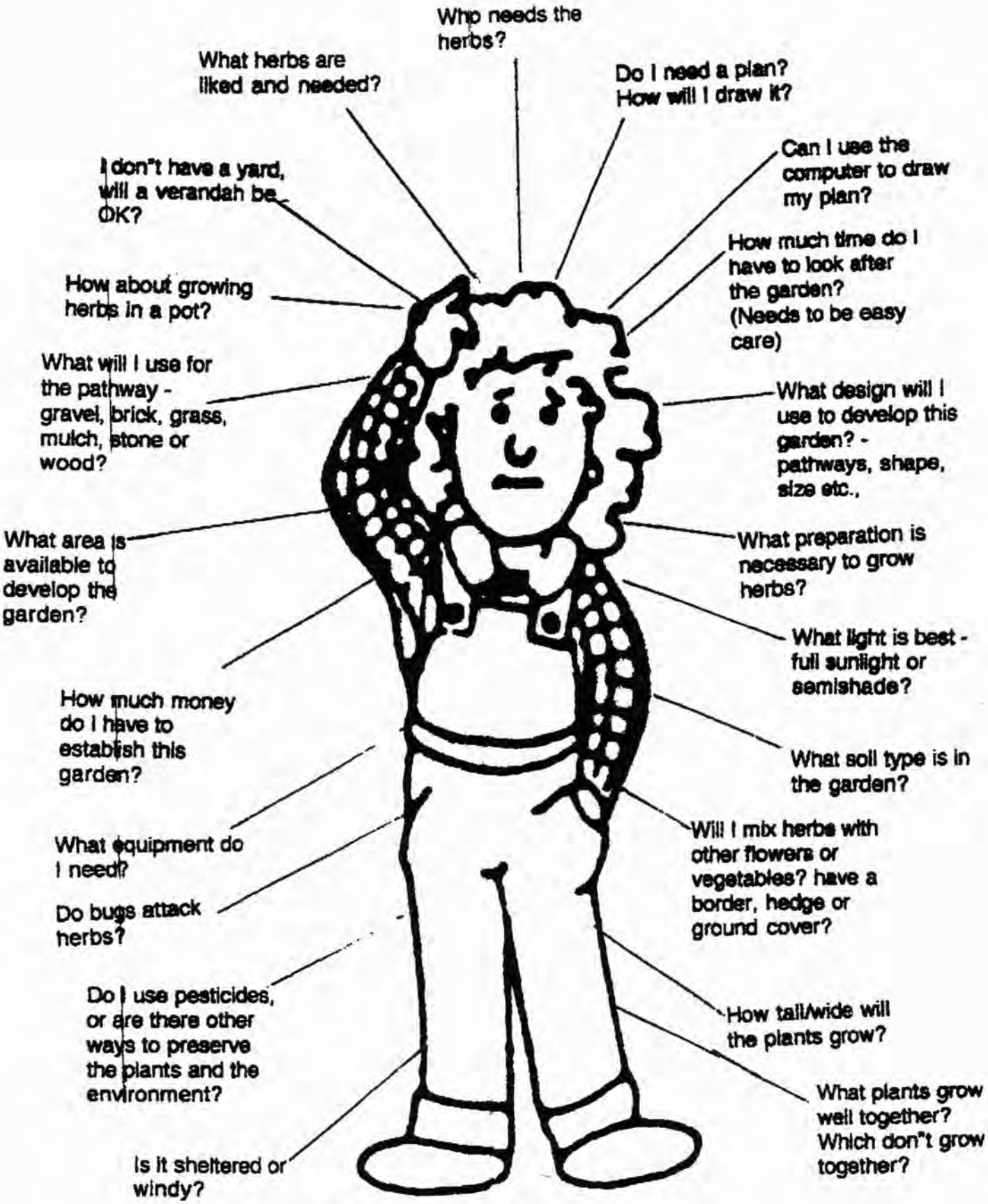
HERBS TO TRY:

- **Sweet Marjoram**
- **Basil**
- **Fennel**
- **Chives**
- **Rosemary**
- **Thyme**
- **Mint**
- **Oregano**
- **Coriander**
- **Lemongrass**
- **Tarragon**





Bayleaves


Who needs the herbs?
What herbs are liked and needed?
Do I need a plan? How will I draw it?
I don't have a yard, will a verandah be OK?
Can I use the computer to draw my plan?
How much time do I have to look after the garden? (Needs to be easy care)
How about growing herbs in a pot?
What will I use for the pathway - gravel, brick, grass, mulch, stone or wood?
What design will I use to develop this garden? - pathways, shape, size etc.,
What area is available to develop the garden?
What preparation is necessary to grow herbs?
What light is best - full sunlight or semishade?
How much money do I have to establish this garden?
What soil type is in the garden?
What equipment do I need?
Will I mix herbs with other flowers or vegetables? have a border, hedge or ground cover?
Do bugs attack herbs?
Do I use pesticides, or are there other ways to preserve the plants and the environment?
How tall/wide will the plants grow?
What plants grow well together? Which don't grow together?
Is it sheltered or windy?
What else do I need to find out about growing herbs?

THE SIXTH CONFERENCE OF THE AUSTRALASIAN COUNCIL ON TREE AND NUT CROPS

11th - 15th September 1995 at Lismore NSW

THEME:

Successful Horticulture for the Future:

- Marketing
- Innovation
- Integration and Sustainability

Visitors to the conference in Lismore may learn about growing chestnuts in Turkey, pine nuts in New Zealand and the forest nut crops of Russia. They will also be able it inspect more than 300 trees planted near Alstonville as a gene bank for native and exotic species with tree crop potential. (Additional info.: ACOTANC-95, PO Box 7091, Lismore Heights NSW 2480. Ph (066)243211 Fax (066) 241007.

CIBA - AG AMBASSADORS

Dr Brian Gunn
Ms Catherine Defina

Phone (02) 688 0444
Fax (02) 688 0555

See Autumn Issue of BAAT for more details.

A MESSAGE FROM
Ms ANGELA PARKER

SUPERVISOR/AGRICULTURE HSC MARKING

If you have any concerns/suggestions about HSC Agriculture marking Angela would like to hear from you at:

PO Box 357
ROUND CORNER NSW 2158
Phone (02) 651 4810



Items for final 1995 Edition of BAAT

must reach the Editor by 1st November 1995.

BAAT is only as good as the contributions received. Please don't rely on "THEM" to send items. It's your resource....
At this point it is a little disappointing that not one member (beyond the Executive) has indicated a willingness to tell of "AGRICULTURE AT MY SCHOOL". How about it?

USEFUL REFERENCE

FARM PRODUCT STUDY

Stephen Dean recommends the following text on the Beef Industry - ideal for Farm Product Study on Beef for HSC. Cost is $65.

AUSTRALIAN BEEF - ORDER FORM

Forward to: MORESCOPE PUBLISHING PTY. LTD.
PO BOX 93
CAMBERWELL VIC 3124
Telephone (03) 882 99222 Facsimile: (03) 882 9239

NAME .....

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Phone No ..... Contact .....

No of Books ..... @ $65.00 = Total $ .....

Please enclose a cheque or Money Order No

and allow 21 days for delivery.

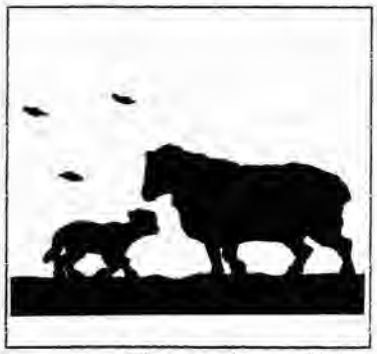
SHEEP BEHAVIOUR HAS DISEASE LINK

A University of Queensland Gatton College study may have found a way farmers can determine disease resistance in their sheep simply by watching them. The study, headed by Animal Production Department lecturer Mr Mark Hohenhaus and supported by Professors Colin Dobson and Peter Outteridge, has found preliminary evidence suggesting that the level of a particular white blood cell (eosinophil), and indicator of resistance to parasitic worms in sheep, may be linked to their behaviour.

If further testing confirms the result, farmers will have a reliable alternative method for checking for disease resistance which could save the Australia sheep industry millions of dollars a year in drenching costs.

Supported by a $12,375 grant from the University, the research suggests sheep which appear more at ease and relaxed in a confined situation may possess higher levels of white blood cells and therefore, higher resistance to worms. Mr Hohenhaus observed the way small groups of sheep behaved during a simple test known as the Arena Test, originally developed by Dr Lloyd Fell from the New South Wales Agriculture Dept.

The test involves enclosing a small flock of eight sheep at one end of a 39 square-metre pen and introducing a group of four sheep to the other end. A person stands between the two groups and the test involves watching the introduced sheep to see whether they will risk getting close to the person in order to follow their natural instinct to flock and therefore, join up with the larger group of sheep. "The experimental sheep must weigh up their urge to rejoin the others with their natural fear of human beings," Mr Hohenhaus said.



The study, which drew the small groups from an overall 250 ewes, found no difference in behaviour between sheep with other varying factors such as faecal egg count or antibody titres (formed in response to the presence of the parasite) even after the test was repeated on five occasions over a six-week period.

"However, during each test on all five occasions, sheep with high numbers of white blood cells showed vastly different behaviour to those with low numbers of white blood cells. The sheep with high white blood cells were prepared to go much closer to the person, tended to stay together and travel less distance around the pen. This suggested they were less nervous and not as eager to escape the situation. Even though more testing is required, these preliminary results suggest that disease-resistant sheep (those with high white blood cell numbers) may be more at ease with their environments and less stressed. It has already been suggested that there are links between the state of the immune system in sheep and their nervous and endocrine systems as well as behaviour and this study tends to back this up," Mr Hohenhaus said.

He also said the Arena Test would prove an easy and cost effective way by which farmers could assess worm resistance, possibly related to white blood cell levels, in their flocks. "At present, if a farmer wants to measure white blood cell levels in his flock, he or she must pay a vet to take blood samples and then send them off to a laboratory for analysis. This can prove very expensive in the longterm," Mr Hohenhaus said.

Once parasite resistance was established from the Arena Test, farmers could breed from those sheep and genetically improve the disease resistance of their animals. Mr Hohenhaus said, "If the genetic resistance of sheep could be exploited to provide an alternative method of control, it could also result in savings in the area of drenching - currently the most popular way of dealing with parasitic worms in sheep. Drenching costs the Australian sheep industry in the vicinity of $52 million annually."

(University News, The University of Queensland, Number 402, March 22, 1995. Page 5)

AGRICULTURE
at
CASINO HIGH SCHOOL

PERIOD ALLOCATION

Year 7 Design and Technology	13 weeks x 4 periods
Year 8 Agriculture	20 weeks x 4 periods with 50% Practical
Year 9 Agriculture	5 periods x 40 weeks with 40% Practical
Year 10 Agriculture	5 periods x 40 weeks with 40% Practical

PROGRAM

The School Agriculture programmes are organised around a theme to fit into the period structure of the school or major study area.

Year 8



Is an introductory course and as such covers:

1. Breeds and terminology of livestock; cattle; cattle, sheep, poultry, pigs and horses.
2. Soils seeds and plant propagation.
3. Tractor operation.

Year 9

The major areas of study involve cattle, pigs, soybeans and peas. Such topics as bones and muscles, digestion, soil structure and plant physiology are covered under these major context areas.

Year 10

The major areas of study involve poultry, sheep, pastures and maize. Such topics as fodder conservation, diseases and parasites, landcare and irrigation are covered under these major context areas.

Year 11 & 12

The Preliminary and H.S.C. course are provided at the 2 Unit Level with provision for 3 Unit using the major enterprises of Beef Cattle and Soybean cropping.

The strength of Casino High School's Agriculture Program lies in its diversification. The student population of 800 is drawn from a wide range of farming and urban communities which is reflected in the wide range of project areas on the school farm. Despite the restricted area of 4 hectares, light sandy podsolic soil and being bounded by 26 'State Housing Residences' livestock enterprises including cattle, poultry, pigs and sheep are maintained on a year round basis and along side an intensive program involving improved pasture, soybeans, maize and peas.

Probably the schools most public agricultural pursuits are competing in the Hoof and Hook Competitions for both Beef and Pigmeat.

In addition to the steers prepared for the Hoof and Hook Competition in Beef Week a small Red Poll herd is run to provide learning and training in Cattle Management and Handling, Artificial Breeding and Electronic Weighing for growth rate.



An intensive animal shed houses four breeding sows and a flock of 70 egg laying hens:

* The pig enterprise is teaching students how to produce lean pork in the diet conscious 1990's. Students weigh their growing pigs weekly and follow them through the slaughter process.

* The poultry enterprise has artificial lighting to maintain egg production throughout the year supplying two local businesses with its product.



To help feed the livestock, the school farm grows maize, peas, soybeans and a variety of pasture species to provide grain, hay and silage and strip grazing. Students have recently finished direct drilling oats into soybean stubble for winter feed using a direct drill machine constructed on the school farm from a variety of components.



A recently completed multipurpose shed is now being used for plant propagation and machinery storage as well as demonstrations with livestock not that the rainfall interferes with outdoor work much of late. An underground irrigation system with removable risers which are relatively vandal proof has significantly improved production and timeliness of operations to fit in with the school calender and agriculture program.



YEAR 7

DESIGN & TECHNOLOGY

As part of Design & Technology at Casino High School the Year 7 students work on a unit of Agriculture.

The aim of this unit is to encourage interest in Agriculture and to demonstrate its relevance in our present (and future) lives. The unit is run separately to the Elective Agriculture course offered in years 8 - 10.

Students are asked to design and make a product that will successfully grow four healthy plants without soil.

Many students quickly realise that HYDROPONICS provides the answer; but that is only just the beginning:-

What is Hydroponics*?!!*

What is growing media*?!!*

What is nutrient solution*?!!*

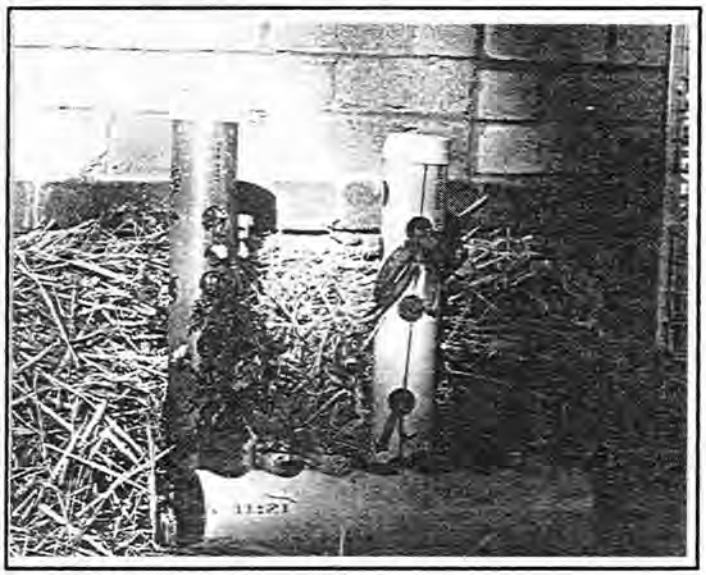
What is a hydroponic system (and which one should we make)*?!!*

What materials should we use*?!!*

What plants do we use*?!!*

All these questions (and more) must be answered before the 'Design Brief' can be satisfied.

The students have shown a great deal of imagination and ingenuity in the way that they have solved the problem; with terrific examples of '**hydrotubes**', '**flood and drain**' units, '**gravity drip**' units, '**wick**' units and even some '**water culture**' units - to name a few.



There is also a very wide range of plants grown in the units. Many different kinds of vegetables, such as lettuce, carrot, cabbage and broccoli, and also tomatoes (especially **Tiny Tims** *!!!*) and strawberries flourish in the hydroponic units. There are many students who prefer to grow marigolds, nasturtiums, pansies, ferns, and many more ornamentals too numerous to mention.

To complete the unit each group presents a "**Burkes Backyard**" video segment that demonstrates their knowledge of hydroponics and explains their design process.

The students are encouraged to take their systems home at the end of the topic to continue their interest in growing plants the Hydroponic way.

Janice Cherry - Year 8

YEAR 8 TRACTOR DRIVING

Year 8 students at Casino High, have lots of fun learning to drive the tractor and learning how to use the machinery correctly.

Driving the tractor for some of us was a pretty interesting experience. For many it was no problem but for others it took a lot of practice and hard work to pass the test and gain our licence. Some students found the witches hats easy targets for driving over but our teacher was never impressed. After he had carefully marked out the course and tested it for himself he was not very pleased. For some, tractor driving was taken light heartedly, but most of us knew that if we wanted to succeed in agriculture we had to be serious. However we still found time to enjoy the experience.



After most students passed, we then moved on to the machinery and equipment, our first task was to put on a slasher having received some advice from the teacher. We finally 'got it on', but we had taken so long that 1 period had passed and it was now time to go to our next class. As a follow up course for tractors, we then were able to cultivate a paddock and plant our first crop which was to be peas. Most of us found that driving in a straight line was hard, and our rows were very crooked but we all learned from our mistakes so we now know some people need much more practice on the tractors.

Cristie Hollis - Year 9

The Year 9 students at Casino High School have been preparing a litter of pigs over the last few months to enter in the 1995 Primex Expo Competition.

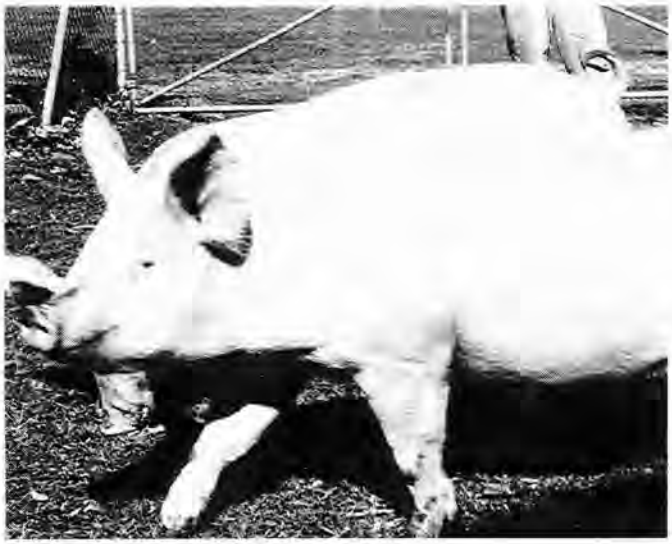
When we first started, the piglets had only just been born. We began by cutting their tails and teeth and also giving them an iron injection.

For the many weeks to come the class were to learn the basics of pig terminology, which as harder than you would expect as some of us couldn't tell the difference between a boar and a sow.

Each week the group would weigh the pigs to monitor the progress they were making.

After a few weeks we took the piglets from their mother and placed them into the weaner cages. Judging by the squeals heard coming from the shed we knew that they weren't very pleased about it.

The first time we weighed them we would put two or three piglets into a garbage can and hang it up on the scales. But, after a short time they had grown too big to fit into the bin so out came the big scales. This was indeed a challenge for us because none of the pigs wanted to get on the scales.



Due to their growth the pigs had to come out from the weaner cages and into a pen of their own.

When the Primex Expo finally arrived we weighed the pigs and chose the best 3 from our litter and one from another litter to go into the competition.

Two of our class members went down to the agriculture plot before school and helped load the pigs onto the truck before it headed off to Primex.

After the judging of the Pig Hoof & Hook Competition had been completed our pigs finished 2% behind the winning entries drawn from large commercial herds.

They then made their final journey to the meatworks where they would be killed and sold for their pork. We had a pork Barbecue to celebrate but were assured the meat was not from our pigs.

Joe Leven - Year 11

A major event took place this year in the participation by Casino High School in Beef Week. Three steers were purchased by the school from a local feed lot. Students of the school took part in the process of breaking the steers in to lead. The steers at that time were at the beginning of a 60 day feed period.

After a number of weeks of being dragged through a smelly brown substance in the yard the steers began to quieten. The steers, which consisted of two Santa and one Hereford/Angus cross were relatively good tempered animals and once broken became placid and easy animals to handle0.



Time was fast approaching Beef Week but we decided to make good use of the steers, entering them in both Bonalbo and Grafton Shows. They faired well at Bonalbo taking home 2 ribbons in the steer class. Grafton Show also proved a success in bringing home a ribbon for 2nd prize in the heavy weight class.

Beef Week was upon us in no time, we as students had put many hours work and time into the preparation of the steers. We arrived in the main street of Casino with the steers early Saturday morning along with many other steers. Two steers being entered in Junior light weight and another in the Junior medium weight.

Although not gaining any ribbons on hoof we once again showed the quality of these steers on the hook, coming away from the meatworks happy with the finished product which had produced 2 highly commended certificates gained by the two Santa Cross animals.

As this project drew to an end we realised the satisfaction and experience we had gained in this project. Producing high quality grain fed steers is something which Casino High School Agriculture students take part in and find to be a rewarding experience.

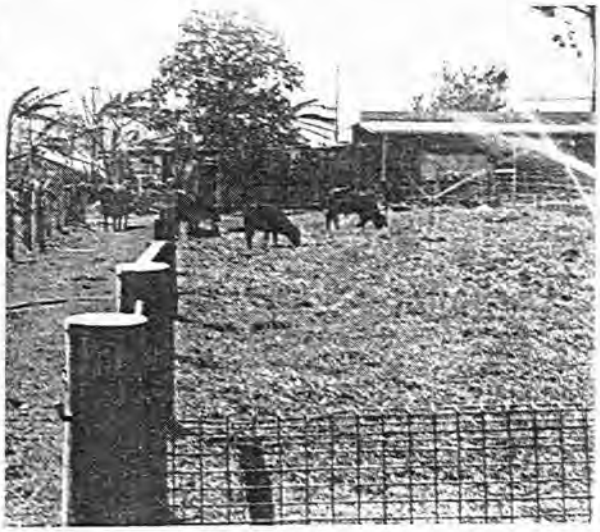


Roslyn Smith

As part of our assessment, Year 11 recently started on the establishment of a compulsory Biometric Pasture Trial. The idea was to plan 3 species of clover and 3 species of ryegrass, using methods of replication and randomisation, in such a way that it was easily controlled. In the end we divided the paddock up into 18 equal plots for planting.

Due to the nature of the soil being fairly acidic, the clover seeds were coated in lime to neutralise the pH level. These lime-coated seeds were only spread over half of each plot, with the untreated seed on the other half. The lime-coating of the seeds is considered to result in better germination although as yet we are still endeavouring to draw conclusions as to whether this has occurred.

We used a variety of fertilisers and when necessary, irrigation. In a few weeks a flourishing crop of knee-high farmer's friends was evident. Nevertheless, we overcame this problem when they were sprayed with a herbicide called, Broadstrike, which selectively killed Broad-leafed plants but not the clover and ryegrass. A few soya bean and maize plants, volunteers from previous crops, came up but didn't worry us too much as they were grazed with the pasture by the cattle.



When we felt that our pasture had reached a grazing stage, we collected a sample from each of the 18 plots and attempted to determine the dry matter content. This was done simply by taking a random metre square cutting and weighing each, drying them in an oven then weighing again. By doing this, we can now work out the relative yield/hectare.



SUSTAINABLE AGRICULTURE

Macarthur Girl's High School Projects No 8 and 9

These two interesting Projects appear easily modified to suit a wide variety of situations.

AGRICULTURAL PROJECT NO 8 - Part 1:

Agricultural production has traditionally cleared a great deal of native plants to make room for introduced plants and animals. As a result many areas are now suffering from land degradation. Soil erosion due to wind and water, soil salinity through raising the natural water table and water pollution due to runoff are issues forcing farmers to re-assess the farming techniques they use. There has been a radical change in attitudes and processes are underway to address the issues of land degradation.

DESIGN BRIEF:

Your team is to assess the land use on Macarthur Farm in terms of its long term effect on the environment and the future sustainability of the farm. You will then put in place strategies to address any problems you find. You are to look for:

* Soil erosion
* Areas overgrown with introduced weeds
* Evidence of nutrient runoff toward Parramatta River
* Evidence of poor soil management
* Inefficient irrigation practises

ASSESSMENT - THEORY

1. Define sustainable agriculture
2. Describe the importance of sustainably managing:
   * soil
   * water
   * animal resources associated with agricultural production
   * plant
3. Describe types of soil degradation:
   * erosion
   * salinity
   * structural breakdown
4. Define the term "noxious" weed
5. Provide examples and reasons why specific weeds are classified as noxious.
6. Describe management practises which are beneficial to sustainable land and water management.
7. Describe practises which are detrimental to sustainable land and water management.

ASSESSMENT - PRACTICAL:

8. Identify areas of the school where soil degradation may be taking place
9. Identify the causes of this soil degradation
10. Propose and carry out appropriate management practices to halt this soil degradation.
11. Collect and identify examples of noxious weeds which have invaded the school.
12. Identify the presence of feral animals which may be affecting farm production or the natural environment.
13. Propose appropriate control measures to eradicate or minimise the effect of these pests on farm production and the natural environment.

PART 2

DESIGN SITUATION
As a result of agricultural and land management practices used in Australia for the last 200 years, there has been substantial land and water degradation.

DESIGN BRIEF
Research and produce a cropping system using alternative agricultural practices, which maintain or enhance the agricultural environment of the school.

DESIGN PARAMETERS
Research causes of land and water degradation. Key terms include:

* Cultivation
* Erosion
* Soil acidification
* blue green algal blooms
* Fertilisers
* Dry land and irrigation salinity
* Clear felling

Research alternative soil management methods. Key terms include:

* Minimum tillage
* Organic
* Integrated pest management
* Green belts
* No dig
* Green manure
* Contouring/Keyline
* Diversification

Design and implement a sustainable cropping system that avoids the use of potential causes of soil and water degradation.

AGRICULTURAL PROJECT NO 9

ASSESSMENT CRITERIA - THEORY
At the end of this Project you will be expected to submit a record of your research and design work. This can take the form of a written, oral, video or computer presentation. You will need to:

1. Compare and contrast land management practices used by Aboriginal and European, and Asian Australians.
2. Identify aspects of ALL these land management systems which have led to land and water degradation.
3. Compare and contrast agricultural land uses (both plant and animal) in terms of their use of resources and sustainability .
4. Describe historical and current practices which improve land management.
5. Prepare arguments to defend AND promote a particular agricultural systems from the perspective of productivity, resource use and sustainability.
6. Present designs for an agricultural system. The class will evaluate this design based on its sustainability.

ASSESSMENT CRITERIA - PRACTICAL

7. Describe all the processes you undertake in the making and managing of your sustainable system.
8. Record the growth of your plants.
9. Describe the impact of your system on the environment
10. Write an evaluation of your system in terms of its productivity and environmental impact.

JUNIOR SCHOOL FARM PRACTICAL ROTATIONS

ON DISK

Dear Ag. Teacher

Have you ever experienced -

Trying to carry out meaningful prac work outside, with 25 or more pupils around you?

The frustration of regularly seeing your more motivated pupils disadvantaged in prac lessons by a few recalcitrant pupils?

Wondering if there is a better way to utilise equipment, resources and the Farm Assistant on the school farm to enable more meaningful learning experiences for your pupils?

WELL THERE IS AN AVAILABLE STRATEGY TO HELP YOU OVERCOME ALL THIS, and save you many hours of work !!!!!

The concept consists of three main parts.

1/ **Practical Instructions** for seven one period Practicals rotated between seven groups. These are clearly set out on a A4 cardboard sheet . The Table of instructions also allows for pupils to give feedback on their own competency, enjoyment and a teachers initial as to a mastery assessment.

YEAR 10 AGRICULTURE PRACTICAL SKILLS 1995 TERMS 1 **Name.....**

PRACTICAL SKILL DESCRIPTION and INSTRUCTIONS *** indicates a skill sheet available** Complete your Farm Diary Questions for these activities, glued into the back of your book, after each activity.	**mastered or attem'ed, &research**	**proficiency high, medium, low**
1/ PROPAGATING BY GROUND LAYING * __/__/95 a/ Pull up a section of Kikuyu grass and transplant into the bare section of ground inbetween the Ag shed and sheep yards. Ensure the transplant is well watered in . One per person. b/ Follow the instructions as per the layering. Cover with soil to hold down the layering. Borrow a grafting knife for this, ensure it's return.		
2/ LOCATING / IDENTIFYING MAIN PARTS OF A TRACTOR * ___/ __/95 a/ Match the letters of the tractor parts and controls onto your skill sheet. b/ After the test get the answer sheet and mark your paper. Over 80% correct means mastered c/ Drive and reverse tractor.		
3/ TREE CARE / TRANSPLANTING __/__/95 a/ Prepare potting mix as per instructions. Well drained, usually 60:40 sand: peat moss mix. b/ Fill tubes to the top then thoroughly dip into water and refill the sunken section of tube again. c/Pric out seedling and transplant into well soaked tubes. d/ Tidy up all materials and place back into the Green house. Make sure Tree seedling go into the Green House for watering.		
4/ LOCATING AND DRAWING SLUGS AND SNAILS __/ /95 a/ Seek out and locate slugs and snails in tall wet, shaded vegetation or under plant pots and trays. b/ Draw specimens then place into a plastic bag that will be tied and left in the sun. c/ Research their destructive habits from references that can be found.		
5/ CONSTRUCTING AND WORKING A COMPOST HEAP * ___/ __/95 a/ In your farm diary list all the inputs, processes and outputs that will occur in makin b/ Record the outside air temper and the temperature 20cm down into the com c/ See the teacher and ask f s to watering, adding material or t d/ *RESEARCH* : Des mpost bins **6/ DRAW MA * S __/ /95**		

In th

2/ **Group Rotations / Organisation.** This is a table clearly set out to show the pupils in each of the seven groups, the seven practicals and the progressive prac / group allocation for that day. Generally speaking this seven week rotation will be adequate for one term.
Practicals during the rest of term may well involve the more usual trial work, general demonstrations etc

YEAR 10 PRACTICAL ROTATION TERM 1 1995

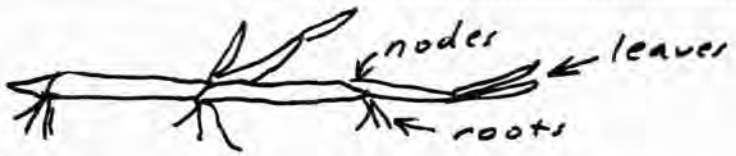
DATE / Week	1/ Propagating by ground laying	2/ locating / identifying main parts of a tractor	3/ Tree Care transplanting	4/ locating and drawing slugs and snails	5/ constructing and working a compost heap	6/ draw male and female flowers	7/ Herb Garden maintence
	A	B	C	D	E	F	G
	G	A	B	C	D	E	F
	F	G	A	B	C	D	E
	E	F	G	A	B	C	D
	D	E	F	G	A	B	C
	C	D	E	F	G	A	B
	B	C	D	E	F	G	A
GROUP MEMBERS	GROUP A Leah Pauley Rebec O'Conn Nathan Apps Glen Torpy	GROUP B Shanon Brown Dustin Bourke Alison Smith Leicha Brown	GROUP C Simon Calway Ali Dib Tracey Cumins Erica Pye	GROUP D Bradley Clarke Graham Smithe Yvette Myhill Sam Andrews	GROUP E Kent Woods Nathan Thomp Jy Summerf Tim Forde	GROUP F David Hall Jo Williams Jason Ryan Scott Eldridge	GROUP G Tim McCaffery Matt Hoarder Guy Waugh Danny Milne

3/ **Farm Diary Write Ups**. For each of the seven practicals a strip of three questions or instructions Diary instructions are glued into the back of pupil's book, with an appropriate space left for pupil response.
This is an important part of the practical exercise where pupils at the end of their prac have to put their own thought and research into how and why things have happened. I have only recently started trialing this Diary approach but am very pleased with how effective it is in providing clear direction to all pupils, regardless of ability.

- an example below of diary questions and pupil response to those questions

1/ PROPAGATING BY GROUND LAYING * __/__/95
a/ Draw the cutting of Kikuyu. Label the nodes, roots, leaves. (1/4 pg)
b/ Carefully observe existing kikuyu in the new section and on the lawn and describe where the new roots will arise from.
c/ Outline all the practises that would needed to be carried out to ensure that Kikuyu was to be successfully established.

(1/2 page)



b/ roots ~~node~~ will come from the nodes

c/ - soil well dug up
- adding fertilize to soil
- plant in warmer months
- firm soil around roots
- water in well.

A **Kit box** containing all relevant texts, instruments etc are provided to help both pupils and staff with resources.

Some of the concepts above may not be unique, but having the **Practical Instructions** and the **Group Rotations** set out on a well presented computerised table templates makes your School Farm practical experiences much more organised, enjoyable and rewarding.

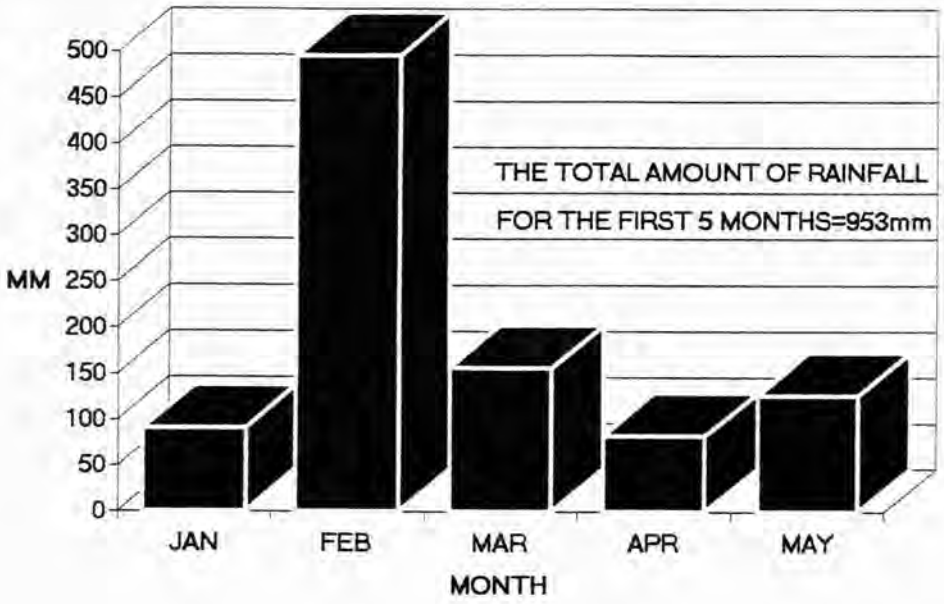
Once on a computerised template, modifications and changes may be easily made for future rotations. The concept above allows a teacher to build onto and improve the practical experiences that are unique for that school farm. Even though I have only started with the above concept eighteen months ago with computers the many hours that have gone into developing this package have greatly answered the three questions set above.

The above concept is available for Sale on a Mac 3.5" written in Micro soft Word 5 or IBM disc written in Word Perfect. Plese indicate your type of disc required
The disc at minimum will contain-
* Copy of a blank template for Practical Instructions and Group Rotations
* Five previously used Prac rotations used at Young Technology High School.
* A List of Diary questions
Send $15 payable to Peter Napier, Young Technology High School, YOUNG 2594.

Thankyou to those schools who ordered a copy of our Year 10 School Certificate Assessable Items booklet as advertised in the last edition of BAAT and who returned the questionnaire. Late questionnaires still gladly received.

RAINFALL - Foothills of McPherson Range - 20 minutes north of Lismore .

Where is the Drought?



All words in this list are associated with **Year 7 Agriculture**. The words are placed backwards, forwards, diagonally, up and down. The included words are listed below the word searches.

FARMER
MACARTHUR
KIDMAN
MERINO
SUNSHINE
SQUATTER
PARRAMATTA
RUSE
TREES
FARRER
COVE
MACHINERY
ELIZABETH
BLUE
WHEAT
MORT
RUST
SOILS
DROUGHT
WILLIAM
SHEARER
JUMP
MARSDEN
REFRIGERATION
GOLD

N V W Q X D G G Z N B Y W Z K T V
F T D V R V A B C M R L W R V X X
J A Q H F M Z T X L M U U H K J R
F A R M E R E T T A U Q S E E R T
W X Z R J N S V C A G D L E Y A S
S V I S E Q I H O S M I F C Y H T
C N T B L R I H E C Z A Q D F X M
O M O R T N M M S A S B R U S T V
T R F Z E A Y L B N R O G R J M R
L F P R I G I E T G U E F T A C G
P P Y L P O T N G G O S R C F P V
G H L M S H E M H H C L A B Z Y N
N I U L P D R T X J J R D Q S B R
W J F N S Y C W Z K T S N G P B Y
T C D R F Z Y X C H K I D M A N Y
T S A M L N Y T U N F P W J B L N
C M N O I T A R E G I R F E R S G



Bon (Bart) Bartholomew was an Ag. Teacher for 38 years, teaching Agriculture almost exclusively. He taught at Richmond District Rural School, Bega High, Murwillumbah High and Tweed River High. Murwillumbah High was selected as the pioneer school in NSW for introduction of Form Masters and Bart was one of these, along with John Clunne, Ken Hill and Ivan Eichorn. In 1975 he was appointed as the first Ag. Adviser to the North Coast. Early on he was a Senior Assistant and retired as a special Master. He retired at the end of 1985 and since then has been a District Governor of Lions, helping to establish Queensland's First Eye Bank. He also helped to establish the Open Learning Centre at Murwillumbah and is on the committee administering the Doug Moran Art Prize, the world's richest portrait prize. He is an active Lions member, painter, deep sea, beach and estuary Fisherman, punter and home brewer.

His wife Lorna is a teacher and his son Wayne, won the World's Surfing Championship

(Continued from Autumn BAAT page 45. Read on.)

EX-SERVICEMEN CHANGE ARMIDALE

by Don Bartholomew

Some of us walked out of A.T.C. just 19 years of age. We were posted to schools where the agricultural course didn't exist or was in its second year of existence. Regardless of age we walked into schools which perhaps didn't have an Ag. Syllabus, certainly no text books, equipment or school farm. Worst of all, there was nobody to turn to. If Science Masters existed they could often be of little help with Agriculture teaching - particularly material.

So urgent letters were sent home, hoping that Mum hadn't burnt my Con Smiles's Ag Notes from 1942, or Stan Cook's Entomology Notes.
Everything was sent by post.

Alan Sutherland, sitting in the warm beam of an Armidale sun entering his lab, told us that A.T.C. agriculture graduates were highly prized. We didn't understand then but we were soon to find out why. Armidale graduates had initiative! If their mother had burnt the Hurlstone Ag. Notes the Boys Union helped out.

Where did Speed McGilchrist or Taffy Williams or Stan Priestly come from? Contact them. "Send all notes!" Ag. Teachers could smell a new text book soon to be printed. Find someone who knows the printer and get the early printing - even chapters will help.
What depth do we teach to? Get off Ag papers (Intermediate and Leaving Certificate). Teach exactly to that level but not below. That gives us another idea. Questions come in cycles. Graph them out. Yes writing point came in 1941, 43 and 46. What year is this? Don't tell your class you are tipping but give a little extra on certain topics. They emerge from the exam room saying, "Isn't it a fluke that our trial paper was so close. I wonder if HE knows?" Above all, don't let other schools get hold of these.
As experience and maturity unfold, drink with the examiner or better still, drink one removed from someone who drinks with the examiner! Be liberal with cartons! Establish an Armidale and Sydney connection.

I taught for many years at Murwillumbah High, teaching agriculture exclusively. In 1949 the top students were going to Maths I and II, French, Latin, Physics and Chemistry and anything else that couldn't remotely be used after school life. Coming from the south Coast, I could pick which part of the Tweed Valley my pupils were coming from, generally the far end. But I was learning to teach. I was surrounded by high quality, inspired teachers. We would discuss a poor lesson and next day do it again - and again if necessary. We gave our lunch times and often nights to students needing and deserving help - no thought of fees.

Slowly I developed as a teacher and the Leaving Certificate "A's" and Honours started to flow. Our boss, Russ Goode was of the old school, tough but fair, and saw that this was bringing some reflected glory to the school. He was so highly thought of that he was shortly to be offered Head mastership of Sydney Boys High. Russ called me into the office, (clandestine affairs section) and asked me what I thought I could do with a class of 3B boys. I told him I was aware of Scholarships available to Hawkesbury granted on the results of the Intermediate and that I would coach for these. I got my 3B boys and they cleaned up on the Scholarships.

Agriculture was established as a prestige subject. Ultimately we went to four years, and 9 classes with 30 or so students in Years 11 and 12. Later, Peter Wachtel topped the HSC I agriculture and we broke the state border down with students attending and topping Gatton.

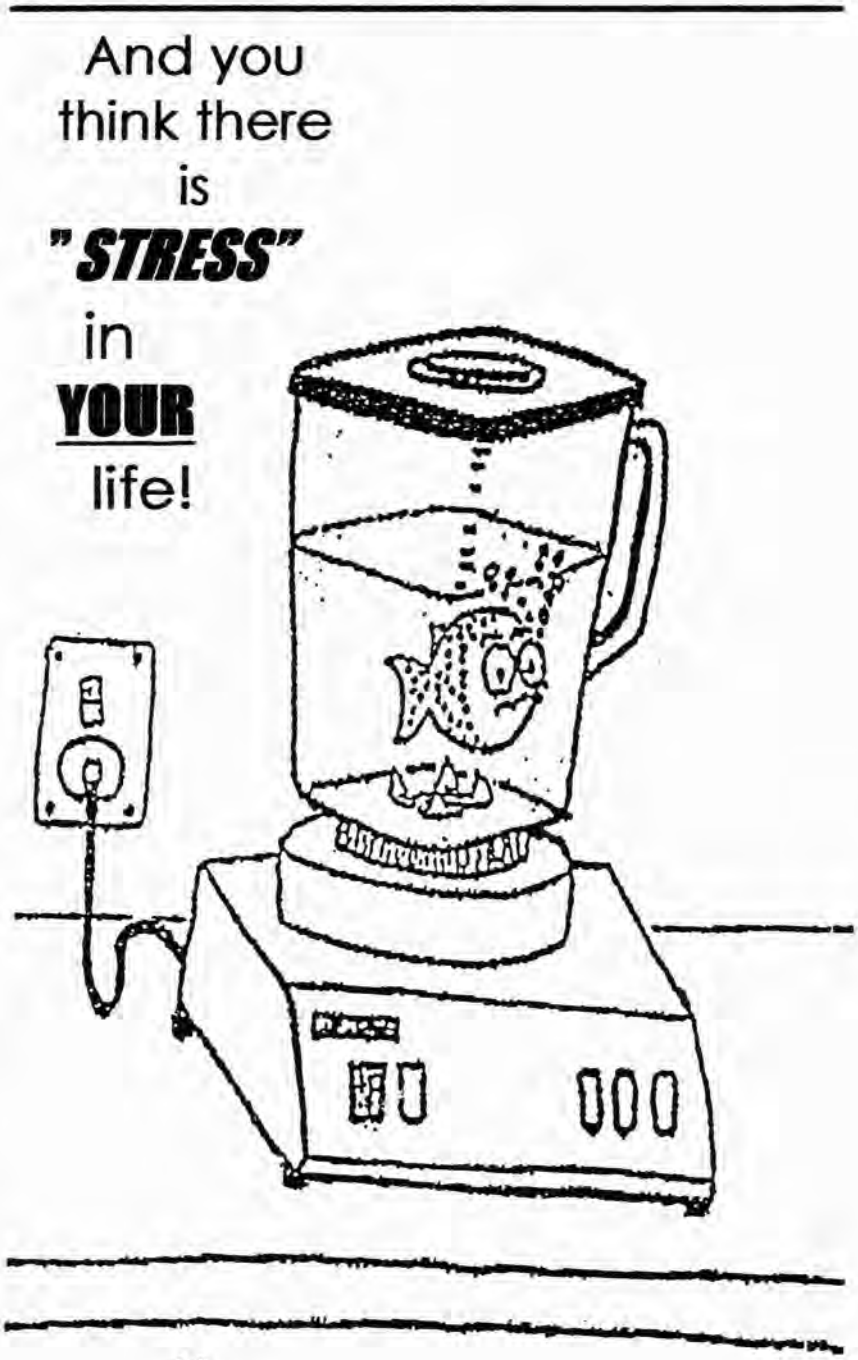
Norm Thomas, my 19 year old graduate twin of 1948, born on the same day and teaching Ag. at Armidale High, achieved the same honour, teaching 1st and 2nd in the state in the same year. By this time Norm and I had established an annual Ag. Excursion exchange between Armidale and Murwillumbah. I also took excursions to Goondiwindi, New Zealand, the Brisbane Exhibition and all points of the Tweed. Boys and girls were going home and influencing their parents. One Dad phoned me and told me he had a crying son at home who wanted to plant Rye grass and Red

Clover. I suggested that the lad be given an acre or so as a trial. Five years later the lad contacted me and said his Dad had handed the entire management of the farm over to him. We often meet and chuckle over the transition. I can think of dozens of similar influences.

In 1975 I was appointed the first Agriculture Adviser to the North Coast with an area from Tweed to Wingham, west to Woodenbong. I formed the North Coast Agriculture Teachers' Association. Again, I had no training as an adviser but I quickly spread the best ideas I was seeing throughout the Coast. I have referred to the isolation of Agriculture teachers. With the introduction of new courses in soil, animals, biometry and economics, Ag. Teachers needed help and urgently. I was given the absolute freedom to invite lecturers from wherever I needed them and organised seminars where they would speak. I could book a private plane to fly Doctors, Professors and Lecturers from Orange or Armidale and land them at Lismore or Coff's Harbour, all without reference to a higher authority. We introduced "How I do It" sessions using successful teachers. We surveyed the teachers and determined their needs. We took political action, improving the lot of Farm Assistants. We used the RED scheme to improve school farms. We were active and even after the money ran out, we continued to meet annually, at our own expense. I was given tremendous help by my cousin Dr. Ian Parbary, always the first lecturer to be invited.

So my teaching life came to an end. I was proud to be a teacher but more so to be an Ag. Teacher. This is my 10th year of retirement. I still visit school once a week or so to meet with my teacher friends. We fish and barbecue together but bar school talk. I'm too far removed nowadays. I am in regular contact with hundreds of ex-students. They stay with me and I stay with them. I speak at their reunions, recalling their school days. I go through my class rolls prior to school holidays, trying to recall the names when I suddenly run into them. I go to their weddings, their parties, head wetting's, buck's parties and sometimes their funerals. They are part of my life and they continue to make me part of theirs.

Teaching has been my life. I'm still enjoying it!



THE ALLELOPATHIC ALTERNATIVE

THE "ENVIRONMENTALLY FRIENDLY" WAY TO CONTROL WILD OATS

by **Narelle Morse** (Supplied by Stephen Dean, Carinya Christian School, Tamworth).

"Pesticide tunnel vision" is an unfortunate phrase! But, like it or not, it aptly describes the way many farmers approach the control of unwanted weeds and insidious invertebrates. In fact, during "agriculture's chemical age" these compounds were widely promoted as both simple and cost effective. In hindsight, they have proved to be neither and the case of wild oats is a prime example.

Wheat growers in the cereal belt of NSW rank this weed as one of their worst enemies. In any normal year it can cost close to $4 million in lost production. At the same time between $5 and $10 million is spent on herbicides to control its voracity. Add those figures together and you are looking at a very large sum! The bad news is that the wild oats haven't gone away. This year they will be back with a vengeance!

However, Dr. Christine Jones of the Botany Department UNE has some welcome tidings as regards a way of limiting the constraints imposed by this weed that doesn't cost a fortune and is easy to implement. It's a straight forward crop rotation programme.

Her recent research has shown that rotating wheat with sorghum can not only save an enormous capital outlay on chemicals, it can actually increase returns from cropping systems.

She explained that one of the reasons for the massive expenditure on herbicides had to do with the pattern of emergence of the insidious Avena species.

"Because it's a weed it has an inbuilt survival mechanism in its seed dormancy. And, in simple English what that means is that not all wild oats seedlings germinate at the one time. They come up in dribs and drabs over a period of six months so it's impossible to kill them all with one cultivation or one spraying. These operations have to be carried out regularly. And, so the costs add up."

Quite paradoxically, Christine's research has shown that growing wheat as a monoculture actually stimulates the wild oats.

"It's the stubble and the exudates from the Triticum root residue that are responsible," she explained. "These apparently inoffensive minute compounds actually enhance the growth of wild oats and after five years of continuous monocropping the weed can be out of control."

However, adopting the simple procedure of growing sorghum in that paddock over the summer has the reverse effect on the oats.

"What it does is to delay its emergence until the late winter. It even reduces the number of seedlings that do appear and as they come up together they can be controlled in the one operation."

Farmers will now be asking what previously unexplained effect does the sorghum stubble have on the wild oats?

In a word - it's allelopathic! Sure, you won't find it in most dictionaries, its hard to spell and even harder to pronounce. But, in the future as growers opt for more environmentally friendly integrated pest management programmes, allelopathy will assume greater significance.

So what is allelopathy?

Allelopathy is the production of a chemical by one plant species that naturally inhibits the growth of another. In her research, Christine Jones has found that the compounds that effuse from the stubble of the mature sorghum crop substantially delay the germination of the weed.

In the trials that she conducted, instead of appearing continuously throughout the autumn and the winter as they normally would, the first wild oats emerged as late as August. All germinating plants were easily controlled with a single ploughing which acted as part of the pre-sowing operations for the next crop.

Commenting on the many disadvantages of the continuous cropping of any cereal in the one paddock with only a fallow in between, Dr. Jones pointed out that the wild oats that emerged early in the fallow had the potential to produce thousands of seeds and these seeds would go on to create problems for producers in the following years.

"Regardless of whether the fallow was cultivated or received no tillage, hundreds of healthy wild oats appeared, all contributing to the seed bank in the soil," she said. "Adopting the approach that not disturbing the country was going to help reduce the seed bank had no foundation. The seeds are very resilient. Unfortunately they have very long shelf life. However, rotating the wheat with sorghum does have an effect on their use-by date. In fact, after two successive crops, there were very few remaining wild oats seeds and, if they did germinate, they were too weak to get to the surface. They exhausted their nutrient supply in their attempts to emerge. Consequently, they no longer posed a threat to the crop."

Dr. Jones also made the point that it was feasible that several summer grain legume crops commercially available in Australia might also prove to be phytotoxic to wild oats.

One worth considering is mung beans and research into sustainable legume-based rotation strategies is continuing. Such systems will lead to improved soil structure as well as a significant decline in the importance of woody weeds, in her view.

As might be expected there is now increasing interest in responses to the mode of action in allelochemicals. More of these compounds are being identified and used. They enjoy public approval because they are "natural", despite the general lack of knowledge about them. They are branded 'biological control' and the public's perception of this is favourable. The approach has much appeal where a wide variety of cereals, oil seeds and fibre producing crops are concerned. No doubt as research results come to hand they will attract much interest.

Murrumbidgee College of Agriculture
YANCO NSW 2703
Phone: (069) 530211
Fax: (069) 530268

28 June 1995

NEWS RELEASE

A FRIENDLY START TO YOUR AGRICULTURAL CAREER

Murrumbidgee College of Agriculture is run by NSW Agriculture and located at Yanco in the heart of the Riverina district of South West New South Wales. Courses are opened to school leavers from years 10 and 12, job seekers and mature age students who wish to upgrade existing skills, look for new career or to keep in touch with industry standards.

Students complete a one year Certificate in an Agriculture course which can be followed by an Advanced Certificate course specialising in either livestock and crop production, irrigation farming, production horticulture or pastoral property management.

The Certificate in Agriculture aims to produce competent farm operators, while the Advanced Certificates raise practical farm skills, technical knowledge and management ability to a level that will lead to a farm management position.

Students participate in a practical skills program which covers areas such as managing stock, fencing, handling pesticides, cultivating techniques, driving and servicing farm machinery and vahicles.

Tanya Marion of Cootamundra NSW, recently graduated from College and is now studying at Charles Sturt University in Wagga Wagga for a Bachelor of Applied Science in Agriculture. Through her studies at College Tanya generated 32 credit points towards her current course. This shortened the length of her course by half a year.

"The College has given me a great back-drop for my current studies. When lecturers talk about agronomy I can easily relate to it because areas of it were covered in the Advanced Certificate at College," commented Tanya.

Although Tanya did not complete her Higher School Certificate, her two years at College have enabled her to enter University. Tanya has entered as a mature-age student, despite being only 19, under special admission consideration.

Tanya hopes to become an Agriculture consultant when she finishes her degree and highly recommends the College's facilities and agriculture courses

As part of the course students have the opportunity to gain additional qualifications by becoming registered as a professional woolclasser, obtaining a welding certificate, a class three or class five driver's licence, or by completing the St John's Ambulance First Aid Certificate.

Graduates of the College can be found working on farms, in stock and station agencies, rural service industries and as field assistants.

Information Days for 1996 student enrolments are planned for Friday 29th September and 6th October. Bookings can be made by contacting the Principal's Secretary by phone (069) 530 299 or Fax (069) 530268.

To contact the Editor of this article: Melinda Gambrill, Development Officer, Ph (069) 530308



Pictured are Tanya Marion with her parents Colin and Lorraine Marion of Cootamundra

HORSE PLAY

No Helmet, No Boots, NO WAY!

SAFETY EDUCATION PROGRAMME FOR CHILDREN

Developed & Compiled by

CAMILLA PILGRIM, BAVA
Project Officer
Gloucester Community Health



RESOURCE MATERIAL

(ie. Children's Information Book, Teacher's Manual, "Say Neigh to Horseplay" - Video, Horseplay T-Shirts, Badges, Computer Game etc)

AVAILABLE FROM:

Gloucester Farmsafe
Horse Related Injury Project
PO Box 33
GLOUCESTER NSW 2422

OR

Beth Fuller
"The Parsonage"
31 Albert Street
TAREE NSW 2340

BOARD OF STUDIES
NEW SOUTH WALES

35-51 Mitchell Street
North Sydney 2060

PO Box 460
North Sydney 2059
NSW Australia

Fax: (02) 955 3557
Tel: (02) 925 8111

AGRICULTURAL RESEARCH BY HIGH SCHOOL STUDENTS

Copies of the NSW Association of Agriculture Teachers (NSWAAT) Occasional Publication *Agricultural Research by High School Students Volume 2.* Edited by Sally Bannerman and published in 1988 are still available from the Joint Council of Nsw Professional Teachers Associations. Please note that *Volume 1* is now out of print.

This publication is a selection of eight 3 Unit Agriculture research reports from the 1987 Higher School Certificate. The nature of the syllabus at that time meant that all the student research projects used scientific, quantitative research methodologies. The current 3 Unit Agriculture syllabus permits a wide range of research methodologies including qualitative and quantitative techniques, however, this publication is still a useful guide for students and teachers.

To obtain your copy send a cheque, for $12.00 (which includes postage) made payable to *The NSWATT*, to the following postal address:

NSWAAT
C/- The Joint Council of NSW Professional Teachers Assn
PO Box 577
LEICHARDT NSW 2040

AGRICULTURE 7-10 SYLLABUS

The NSW Board of Studies is seeking expressions of interest from experienced teachers and tertiary educators to be members of the Project Team that will rewrite the Agriculture 7-10 Syllabus.

If you are interested look out for *Board Bulletin Volume 4 No 6* in which the procedures for submission of an expression of interest and an application form will be published.

This could be your opportunity to participate in an important aspect of Agricultural education in this State. I encourage you to submit an expression of interest.

Call me at the Board (02 925 8165) if you would like to discuss your submission.

Jenni Wilkins
Curriculum Officer
NSW Board of Studies

BRIGHT STARS FOR NEW HORIZONS

Attracting the Best Students to Agri-industry

The Sheraton Hotel, Melbourne
13th - 14th November 1995

There has never been a greater imperative to attract bright students to agri-industry. Continued low enrolment in courses is hitting providers of agricultural education, current students and employers. Recent statistics show a decline in the number of farm operators who have tertiary qualifications.

'Bright Stars for New Horizons' will address these issues and motivate those involved to collectively promote agri-industry to prospective students.

BE INVOLVED IN THE PLANNING AND IMPLEMENTATION OF THIS NATIONAL EFFORT WITH DIRECT BENEFITS FOR YOUR ORGANISATION.

Work together to

- attract students' attention to your course and improve the overall image of careers in agriculture
- work with the careers counsellors and agricultural teachers networks
- work with industry to develop courses that deliver
- keep students in courses and organise a smooth transition into the workforce
- maintain the culture of lifelong learning *and much more*

Who should attend the Conference

- General Managers
- Employers
- Human Resource Managers
- Deans of agriculture-related faculties
- Heads of agriculture-related schools
- Principals of agriculture-related colleges
- Principals of TAFE
- University and TAFE publicists
- School, TAFE and University careers counsellors
- Farming Organisations
- Agriculture teachers
- Members of Education Committees
- Student bodies
- Private sector education providers
- Academic registrars
- Government employees

Time spent in attendance at Bright Stars for New Horizons is eligible towards CPAg status.

CPAg™

This conference is an initiative of the Australian Institute of Agricultural Science.

Monday, 13 November 1995
Reaching for the Sky

8.30 am **Registration**

9.30 am **Welcome and Introduction**
The introduction will provide a brief overview of the current status of participation in agriculture-related courses or subjects in schools, TAFEs, Universities, Colleges and open learning

10.00 am **Attracting Students' Attention - the Value of Image**
* *What attracts school students to careers*
* *What attracts school leavers to TAFE, College or university courses*
* *Effective promotion for courses in agriculture*
* *How to work with the careers counsellors network*
* *How can we improve students perceptions of agriculture*

10.40 am **Developing and Packaging the Product**
* *Working with industry to develop courses*
* *Customer focus in course development*
* *Co-operative course delivery*
* *Making courses attractive to students*

11.20 am **MORNING TEA**

11.40 am **Sowing the Seeds**
* *Including agriculture in school subjects*
* *Creating an awareness of the importance of agriculture*
* *Using the agriculture teachers network*

12.20 pm **Adjusting the Product to Meet Market Needs**
* *Reviewing existing higher education courses*
* *Anticipating future needs*
* *Merging TAFE and higher education*
* *Establishing an effective advisory system*
* *Managing change in the university system*

1.00 pm **LUNCH**

2.00 pm **After Sales Service**
* *Keeping students in courses*
* *Organising a smooth transition into the workforce*
* *Maintaining the desire to learn*

2.40 pm **Maintaining Customer Loyalty**
* *Students as advocates for the course*
* *Using professional associations to promote lifelong learning*
* *Establishing effective alumni associations*
* *Industry's role in promoting learning*

3.20 pm **AFTERNOON TEA**

3.40 pm **Case Study**

4.00 pm **Case Study**

Monday, 13 November 1995 - Programme continued...

4.20 pm **Case Study - The University of Tasmania**
* *Using scholarships to attract students with high TER scores*
* *Establishing joint ventures with industry*

4.40 pm **Case Study**

5.00 pm **CONFERENCE ADJOURNS**

7.00 pm **CONFERENCE DINNER**
* *The relevance of the Karpin Report 'Enterprising Nation' to agri-industry*

Tuesday, 14th November 1995
Popularity Pays

9.00 am **Giving Credit Where it is Due**
* *Recognition of prior learning*
* *Credit transfer between TAFE and universities*
* *Credit transfer between universities*
* *Co-ordination of disjointed courses and start up of under-resourced courses*

9.40 am **Learning in Perspective - Lifelong Learning**
* *Producing lifelong learners from the education system*

10.00 am **How We Achieve a Concerted Effort to Improve the Popularity of Courses - Syndicate Session**
* *How do we make courses at all levels more popular*
* *How can we work together to improve the image of agriculture*
* *How can we effectively pool resources to mutual benefit*
* *What measures do we use to gauge success*
* *How individual institutions can more effectively attract bright students*

11.00 am **MORNING TEA**

11.20 am **Syndicate Reports**

12.00 pm **Plenary Session on Increasing Participation**
* *Developing an action plan to increase participation*

12.30 pm **LUNCH**

1.30 pm **Open Learning in Agri-industry**
* *The political push for lifelong learning*
* *The place of lifelong learning in agriculture*
* *Working with government to improve skills and knowledge in agriculture*

2.10 pm **Actions and Milestones to Increase Popularity of Courses**
Syndicate Session
* *Planning in education sector groups to take action to increase participation*
* *Establishing milestones and reporting systems to assess progress*

3.00 pm **AFTERNOON TEA**

3.30 pm **Allocation of Tasks and Adoption of Milestones**
Plenary Session
* *Finalising and accepting the industry-wide plan to promote courses which will increase participation*

4.00 pm **CONFERENCE CLOSE**

Display Competition

Educational institutions offering agriculture-related courses will be invited to set up their promotional displays used at open days and other events. A panel (consisting of students, careers counsellors and marketers) will judge the displays from a marketing perspective, and provide constructive feedback so that improvements can be made for the 1996 recruitment campaign. An award for the best display will be made as a result of the judging.

Forum Registration

The full conference registration fee is likely to be $350 for AIAS members and $395 for non-members. Non-members who attend the conference will be provided with free associate or full membership of the Institute (for the remainder of 1995). Early bird discounts will apply before the 23rd October 1995.

The registration fee for delegates attending both days includes the conference dinner, conference proceedings, a folder/satchel on the day and morning and afternoon teas and lunches.

Accommodation

A number of hotels close to the conference venue (including the venue, The Sheraton Hotel Melbourne) are listed below. All rates quoted apply to singe, twin and double rooms, per room, per night.

The Sheraton Hotel Melbourne
(03) 9650 0000
(RACV rating - 3.5)
$85/room/night

The Windsor
(03) 9653 0653
(RACV rating - 5)
$145/room/night

Novotel Melbourne on Collins
(03) 9650 5800
(RACV rating - 4)
$140/room/night

The Regent Melbourne
(03) 9653 0000
(RACV rating - 5)
$215/room/night

All hotels are in or near the CBD and within a short walking distance from the venue.

Want to know more?

If you wish to be kept in touch with conference developments call our conference organiser, Martine Elliott CPAg on (03) 9662 1077. We will put you on our conference mailing list and forward a registration form and final program as soon as they become available.

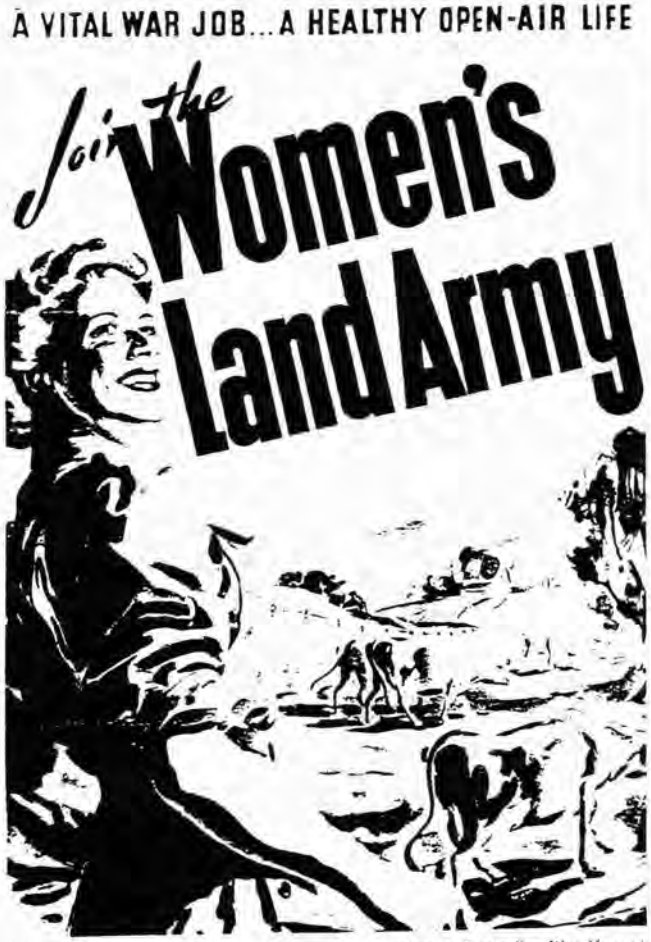
Australian Institute of Agricultural Science
1st Floor
91 Rathdowne St
Carlton Victoria 3053
Tel: (03) 9662 1077
Fax: (03) 9662 2727

SUPPORTING PROFESSIONAL AGRICULTURE

Bright Starts for New Horizons is another results-oriented conference organised by the Australian Institute of Agricultural Science

AUSTRALIA REMEMBERS... THE LAND ARMY

"Girls with Grit" by Jean Scott - Memories of the Australian Women's Land Army - is well worth reading. It explains how farming continued successfully during World War II, with the help of mostly inexperienced women volunteers, whose tenacity and determination helped them support the war effort.



Women's Land Army recruitment poster. Artist unknown. [*Australian War Memorial* 11062]

In February 1942 the Prime Minister announced that a Land Army was officially considered necessary and that its formation would proceed with the Department of Manpower as its governing body.

Qualifications for Membership would be open to women who were British subjects and between the ages of eighteen and fifty. Those sixteen to eighteen who had parents' or guardian's permission would also be considered but all would have to have the approval of Manpower. Recruits would be classed as permanent members, and casual or seasonal workers. Members could resign in the case of illness or death of a relative. A member could be discharged for misconduct, inefficiency or unsuitability. Teamwork amongst the groups would be encouraged. A minimum rate of pay was established at $2 ($4) plus keep per week of 48 hours. Household tasks were not to be included in the duties but exceptions would be considered by mutual agreement for those billeted with the farmer's family.

On the farms and in the dairies,
On the outback station runs.
Those girls with grit are needed,
Just as much as men with guns.

Those girls with grit were the young women of the Land Army whose work freed men from the country to go off to war. In this book, Jean Scott has gathered memories, photographs and material from a wide variety of sources from all over Australia to let these `girls' tell their story.

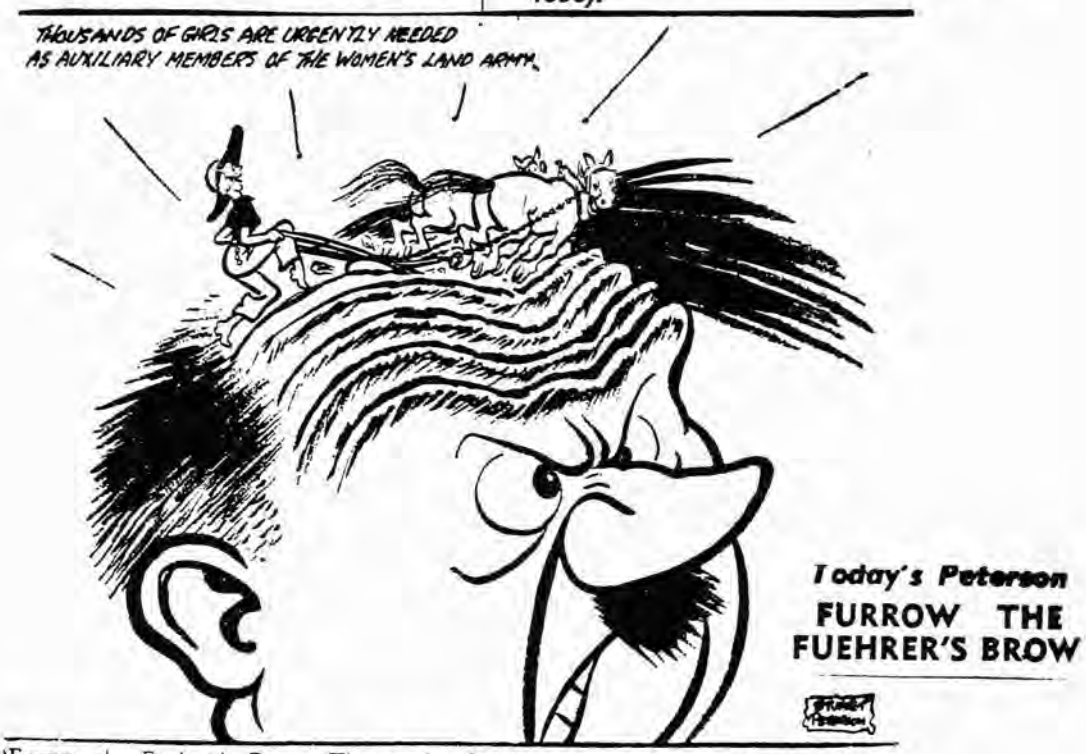
The patriotism one observer saw as `tattooed on their backs' carried them through remarkable feats of endurance. Their sheer physical strength allowed them to do work which gradually won the respect of sceptical farmers; their youth and fortitude allowed them to make an important, though perhaps relatively unremembered, contribution to the war effort.

Above all, their friendships sustained them through loneliness and hardship -a version of the mateship of their brothers at war. At a time when there were few material possessions and little entertainment ready to had, these young women drew from their own resources (including, very often, a resilient sense of humour) a life of fulfilment and inner satisfaction.

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Jean Scott was a Land Army girl. She says of her own experience: `The four years I spent as a member of that bunch changed my outlook on life...I found comradeship that has spanned these continuing years and is unique, as I know others will confirm.'

After the war, she edited Roundabout, the journal of the Land Army veterans. She began researching the history of the Land Army in 1967, but the enthusiasm she met with from other Land Army veterans was matched by the indifference and lack of co-operation from senior officers and departmental officials, caused in part by the 30 year secrecy provisions. She persisted and after her retirement in 1982 the book finally `came to life'.
(From "Girls with Grit", Allen & Unwin, 1995).



'Furrow the Fuehrer's Brow—Thousands of girls are urgently needed as auxiliary members of the Women's Land Army.' Cartoon by Peterson. [*Australian Consolidated Press*]

Soil Sense

Soils information for north coast farmers

Acid sulphate soils

Acid sulphate soils occur when soil containing iron sulphide (pyrite) is exposed to air. In the presence of oxygen, microbes convert the iron sulphide to sulphuric acid. The acid releases aluminium into the soil solution, and the toxic combination of acid and aluminium can kill vegetation and most soil and water life forms.

Origins

Pyritic soils were formed thousands of years ago when grey clays containing sulphur and iron were deposited by rising sea levels in mangroves and estuaries. Bacteria converted the sulphate in the sea water to iron sulphide.

These sulphide soils have generally remained beneath the water table, covered by a protective layer of water and organic matter. Known as potential acid sulphate soils, they are found along many tidal estuaries in the world, and only cause problems when the protective layer of water is drained away.

Drainage

When potential acid sulphate soils are drained and exposed to air they release sulphuric acid and aluminium into the soil solution. The acid and aluminium are washed into waterways by heavy rains, affecting fish and other acquatic life. This is a particular problem after droughts, when the water table has dropped and the rains wash substantial quantities of sulphuric acid and aluminium into waterways. Massive fish kills can result.

Scientists also believe that wetland drainage schemes along the coast constantly release enough sulphuric acid and aluminium from exposed pyritic soils to affect the aquatic food chain, fish populations, and the health of fish. A possible link between the fish disease red spot and acid/aluminium discharge is currently being investigated.

Developers of coastal subdivisions on drained land need to take particular care on their sites because disturbance of subsoil during development can expose the pyrite soils and prevent any establishment of gardens or lawns. Little will grow in an actual acid sulphate soil where acidity can be as low as pH2.7($CaCl_2$).

North coast locations

On the north coast of NSW, agricultural expansion and population pressure have led to widespread draining of coastal wetlands. The floodplains of the lower Tweed, Brunswick, Richmond, Clarence, Bellingen, Nambucca, Macleay, Hastings and Manning rivers and many coastal flats all have potential acid sulphate soils. The CSIRO estimates that the soils of coastal areas in the Tweed Valley alone may contain 500,000 tonnes of pyrite, representing a potential 500,000 tonnes of sulphuric acid.

Signs of acid sulphate soil

- yellow mottles of jarosite, a complex sulphate mineral, along soil cracks and decayed plant root channels which have been exposed to air

- pH of 4.0($CaCl_2$) or less
- poor plant growth when dry

Signs of potential acid sulphate soil

- a strong 'sulphide' odour
- presence of mud that contains organic matter
- dark grey mud
- high soil salinity
- dominance of mangroves, reeds, rushes and other swamp tolerant vegetation such as she oaks and paper bark trees
- red soil mottles in a dark-grey estuarine clay indicating intermittent poor drainage

Testing for acid sulphate soil

- Collect samples of soil and measure pH immediately.
- Store samples (moisten if dry) in sealed, thin-walled plastic bags.
- Remeasure soil pH at intervals (if necessary up to three months). If the pH value has dropped by half a unit or more and is less than pH4.0($CaCl_2$) then the sample is potential acid sulphate soil.

A yellow sheen (from the jarosite) may develop on the surface of samples if they are potential acid sulphate soils.

If you have potential or active acid sulphate soil

- Leave the soil undisturbed if possible.
- Ensure the bottom level of surface drains designed to remove floodwater is ABOVE the dry season watertable.
- In building developments, use the soil only in the lower layers of fill, and cover it as quickly as possible, preferably the same day. You will need to add topsoil to establish vegetation, the depth depending on the type of plants you want to grow.
- Get advice if you plan to build on the soil, as sulphuric acid can attack pipes and foundations.

Produced by Rebecca Lines-Kelly, soils media oficer, Wollongbar Agricultural Institute, for CaLM and NSWA, north coast region, under the National Soil Conservation Program, October 1992.

Soil Sense leaflet 7/92. Agdex 550.



Potential acid sulphate soils do not harm the environment because they are protected from air by water.



When potential acid sulphate soils are drained and exposed to air they become actual acid sulphate soils. The soil reacts with air to release sulphuric acid and aluminium on the surface of the drains and soil. When it rains, the acid and aluminium are washed along the drainage system and into the estuary, affecting acquatic life.

Information available for schools

Soil Sense leaflets
1 Why worry about acidity
2 Don't let nitrogen acidify your soil
3 What is soil pH?
4 How to interpret your soil test
5 Which liming material is best?
6 North coast soil types
7 Acid sulphate soils
8 Plant nutrients in the soil
9 Check your soil structure
10 Why phosphorus is important
11 Making clay easier to work
12 How to recognise and treat landslips
13 Spring tappers for landslip areas
14 Fertilisers and the environment
15 Soil management advice
16 How cultivation affects soil
17 Cation exchange capacity
18 How earthworms canhelp your soil
19 Soil organic matter
20 Protect your soil from compaction

Soil poster
How to read your soil (500 x 700 mm)

Available from
Wollongbar Agricultural Institute
Bruxner Highway
Wollongbar 2477
Phone: (066) 240 200

Acid sulphate soils information
There will be a range of acid sulphate soils material available later in the year from acid sulphate soils information officer Rebecca Lines-Kelly.

Soil Sense book
Soil Sense: soil management for NSW north coast farmers
208 pages. Includes seven farmer case studies and a 90 page A-Z of soil science information written for farmer use.
$15 plus $5 postage and handling. Send $20 cheque to:
Book Sales
Wollongbar Agricultural Institute
Bruxner Highway
Wollongbar 2477



Information Packs for senior secondary students from CSIRO

THESE INFORMATION PACKS ARE SPECIALLY WRITTEN FOR BUSY STUDENTS WHO NEED THE KEY POINTS ON AN ISSUE AND ENOUGH DATA AND EXAMPLES TO COMPLETE AN ASSIGNMENT THOROUGHLY BUT QUICKLY. EACH INFORMATION PACK HAS A DETAILED OVERVIEW OF THE TOPIC, A NUMBER OF RELATED ARTICLES, A LIST OF FURTHER READINGS AND 20 QUESTIONS. EACH INFORMATION PACK CONTAINS A GREAT DEAL OF INFORMATION, PLUS A SUMMARY TO MAKE SURE THAT THE READER HAS GRASPED ALL THE MAIN POINTS OF THE TOPIC.

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☞ TO ORDER YOUR CSIRO INFORMATION PACKS

PHONE: Have your credit card details ready and call 02 413 7528, Monday to Friday 9 am - 5 pm. FAX your credit card details and order to 02 413 7635 (24 hours a day) or MAIL your cheque and order to: **CSIRO INFORMATION, PO Box 218, Lindfield, NSW 2070 Australia.** * Student Information Packs are also available from any of CSIRO's Information Network offices. Check the Telecom *White Pages* for an address near you.

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The cost is $18.00 per Information Pack and includes post and handling.

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EXOTIC DISEASE
TRAINING RESOURCES

AUSTRALIAN FARMERS AND VETS are in the front line of Australia's defences against exotic animal diseases. Yet farmers are not aware of many of the disease threats, nor of the precautions that can be taken to help minimise the chances of a disease becoming established. A range of training and awareness resources are now available to help educate farmers, vets and others about exotic disease. Three series of videos are available - covering rural awareness, vet training and training for control workers.



EXOTIC DISEASE - think the worst , first is the theme of the rural awareness series of five videos. The programs inform farmers, and others working with animals, of the need to be aware of the possible signs of exotic diseases and to call a vet if they see anything unusual with their animals. They discuss the consequences of an outbreak and the need for fast and effective control measures. The programs are —

EXOTIC DISEASE - think the worst, first highlights the threat of exotic animal disease to Australia. The message is clear and uncompromising: everyone working with animals should be aware of the threat of disease and should call their vet if they see unusual or suspicious signs in their animals. (Duration 5'37")

EXOTIC DISEASE - the nation's nightmare demonstrates the signs of foot-and-mouth disease in cattle, sheep and pigs. Dr Gardner Murray, Australia's Chief Veterinary Officer warns of the consequences should a case be missed. (Duration 6'01")

EXOTIC DISEASE - to market, to market explores the consequences of sending diseased stock to market, not just to the stock owner but also to the nation. (Duration 5'30")

EXOTIC DISEASE - stop the spread outlines the steps involved in an exotic disease control campaign: quarantine; slaughter and disposal of stock; property disinfection; compensation and restocking and the need for the full understanding and cooperation of farmers. (Duration 6'51")

EXOTIC DISEASE - vital signs will help farmers to recognise the possible signs of exotic diseases including: foot-and-mouth disease, screw worm fly, African & classical swine fever, bluetongue, avian influenza and Newcastle disease. (Duration 8'31")

A Pigs Tale – why swill feeding is banned

is an awareness video about the dangers of swill feeding. It clearly explains what you can, and can't feed to pigs. A Pig's Tale is only available separately. (Duration 6' 12")

1. You can borrow these videos

Contact your nearest government vet, Countrylink on (008) 026 222 or CSIRO National Information Service in your capital city. Copies of these programs are held by many Commonwealth and State Department of Primary Industry/Agriculture offices around the country. Many agricultural colleges and State Farmers Federations also have copies they may lend you.

2. Or you can buy them

All the programs produced by AAHL may be purchased (our prices reflect the cost of duplication, postage and packaging and do not include production costs)

Rural Awareness Videos: EXOTIC DISEASE - the series

Boxed set of five programs	$50
Compile tape (all five programs on one tape)	$20
Show tape (All five programs repeated on a 3 hour tape)	$28
A Pig's Tale	**$20**

See price list Aug '94.

All programs are available in international formats ie. NTSC and SECAM (add $15 per tape)

For further information

These programs have been produced by CSIRO Australian Animal Health Laboratory for EXANDIS, the Exotic Animal Disease Preparedness Consultative Council.

For further information about the project, or for sales, contact the Communications Unit at AAHL on (052) 27 5426, fax (052) 27 5555.

Price list and order form (August 1994)

EXOTIC DISEASE - the series

Five rural awareness programs aimed at farmers and others working with animals. Available as a set or individually.

EXOTIC DISEASE - the series (boxed set with one copy of each program)	sets @ $85= $
OR individual titles	
EXOTIC DISEASE - think the worst, first	copies @ $28 = $
EXOTIC DISEASE - the nation's nightmare	copies @ $28 = $
EXOTIC DISEASE - to market, to market	copies @ $28 = $
EXOTIC DISEASE - stop the spread	copies @ $28 = $
EXOTIC DISEASE - vital signs	copies @ $28 = $
OR compile tapes	
EXOTIC DISEASE - the series (compile tape - all five programs on one tape)	copies @ $35 = $
EXOTIC DISEASE -show tape (3 hour long repeating compile)	copies @ $45 = $

Recognising Exotic Livestock Diseases

A series of ten programs intended to alert veterinarians and other animal health professionals to the threat of and instruct on the signs of exotic disease. This series is supplied in a blue folder with support notes. An optional slide set showing details of clinical and post mortem signs is also available for some programs.

1. On Alert for Bluetongue	kits @ $45 = $
2. Two of a Kind - **avian influenza and Newcastle disease**	kits @ $45 = $
3. A Tale of Transmission - **scrapie and BSE**	kits @ $45 = $
4. A Strange Kind of Madness	kits @ $45 = $
5. Capripox **(sheep pox, goat pox and lumpy skin disease)**	kits @ $45 = $
6. Hypothetical – **Rift Valley fever**	kits @ $45 = $
7. Screw worm fly	kits @ $45 = $
8. Exotic diseases of pigs	kits @ $45 = $
9. Out of Africa - rinderpest & other erosive diseases	kits @ $45 = $
10. FMD - The Front Line	kits @ $45 = $

Slide sets

On Alert for Bluetongue (48 slides)	sets @ $70 = $
Two of a Kind - **avian influenza and Newcastle disease** (47 slides)	sets @ $70 = $
Screw worm fly (32 slides)	sets @ $50 = $
Capripox **(sheep pox, goat pox and lumpy skin disease)** (35 slides)	sets @ $50 = $
Exotic diseases of pigs (56 slides)	sets @ $70 = $
Erosive diseases of ruminants (rinderpest, PPR etc) (50 slides)	sets @ $70 = $
Foot-and mouth disease and other vesicular diseases (72 slides)	sets @ $90 = $
Individual slides are available for $2 each - minimum order $10 Please attach a list of slide numbers required. (A list is available)	sets @ $2 = $

OUTBREAK CONFIRMED!

Five programs detailing the procedures for controlling an exotic disease outbreak.

OUTBREAK CONFIRMED (boxed set with one copy of each program)	copies @ $85 = $
OR individual titles	
1. Stamping it out - an introduction to disease control	copies @ $28= $
2. First things first - slaughter and disposal of sheep, cattle and horses	copies @ $28 = $
3. First things first - slaughter and disposal of pigs	copies @ $28 = $
4. First things first - slaughter and disposal of poultry	copies @ $28 = $
5. Cleaning it up - decontamination of property and equipment	copies @ $28 = $
OR compile tapes	
OUTBREAK CONFIRMED (compile tape - all five programs on one tape)	copies @ $35 = $

A Pig's Tale - why swill feeding is banned

A six minute video in which Lois (the pig) explains why swill feeding is banned.	copies @$28 = $

International formats

Some other countries use different television systems which are incompatible with the PAL system used in Australia. All programs are available in NTSC and SECAM formats for $15 extra per tape.

AAHL can advise on the appropriate format.	copies @ $20 = $

10% DISCOUNT on all orders over $100.00. 20% DISCOUNT on all orders over $500.00

Note: details and prices may change without notice. *TOTAL COST =*

Postage paid within Australia. International orders,transport costs via Economy Air will be passed on.

Please fax or post your order to: Communications Group, CSIRO AAHL
PO Bag 24 Geelong VIC 3220, Australia, ph (052) 27 5426 fax (052) 27 5555.

REFERENCES SUITABLE FOR SCHOOL USE

Publications are available from C.A.L.M. Regional Offices or Julian Prior, PO Box 199a, Armidale NSW 2350.

TITLE Learning to Care for Our Environment (41 page booklet).
AUTHOR Editors: Steve Malcolm, Peter Murray, Barry Hughes.
PUBLISHER: Victorian Environmental Education Council
DESCRIPTION: Background on Victoria's Environmental Education Strategy for Primary and Secondary teachers

TITLE Make your farm grow with trees (9 small booklets).
AUTHOR: McMillan Campus, Victoria College of Agriculture and Horticulture, Warragul, Victoria
PUBLISHER: As above.
DESCRIPTION: A Trees on Farms Home Study Program, Murrumbidgeee College of Agriculture, Yanco NSW 9 books - Introduction + 8 Units.

Unit 1 Farm Productivity and Trees
Unit 2 Soil, Site Selection and Site Preparation
Unit 3 Planting Techniques, Raising Seedlings and Regeneration.
Unit 4 Selection of Species, Layout and Design, Growing Assistance.
Unit 5 Early Maintenance
Unit 6 Management and Protection
Unit 7 Measurements, Yields Utilisation and Marketing of Timber
Unit 8 Financial & Legal Aspects

TITLE: Save the Soil Slide Kit (folder, 116 slides + notes)
AUTHOR: Department of Conservation and Land Management - Julie Andrew, Tamworth District Office, Penny Maggs, Tamworth Area Office.
PUBLISHER: As Above
DESCRIPTION: Designed for use in extension education. Divided into sections:

1. Introduction
2. Water Erosion
3. Wind Erosion
4. Dryland Salinity
5. Tree Decline
6. Erosion Control
7. Soil Structure Decline
8. Land Management

DORROUGHBY FIELD STUDIES CENTRE

NSW Dept of School Education

ENJOY - EXPLORE - LEARN

Available for schools, tertiary institutions, community and special interest groups with a range of support staff available.

LOCATION:
On the Mullumbimby Road, 25 kms north of Lismore, and 28 mks south West of Mullumbimby. Ph 895286 Fax 895042. Centre Fees and "Extras" lists available upon request.

CATERING FOR

- Field studies activities
- Programs highlighting environmental awareness stream watch, land care, farm forestry and total catchment management principles
- Conferences

ON SITE FACILITIES

- 2 Dormitories, each containing 20 bunks, with attached staff bedrooms and showers
- Bathroom and laundry
- Outdoor cooking and eating areas
- Art and craft equipment
- Lecture/display/audio-visual room
- Environmental library reading room
- Rainforest arboretum
- Bush tucker gardens
- Sub-tropical fruit orchard
- Native nursery
- Book shop
- Campfire

OFF SITE LOCATIONS

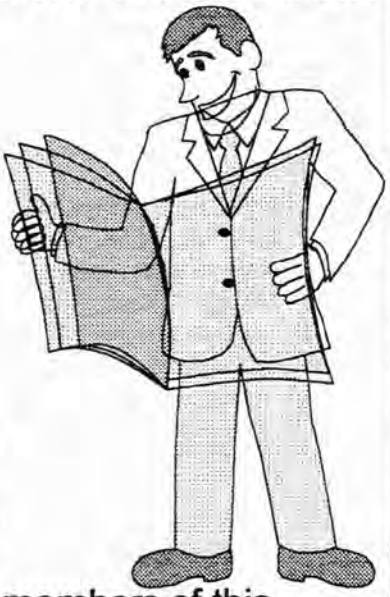
- Network of forest walking tracks
- Mr. Warning caldera
- Rocky Creek Dam
- Rural nut, dairy, small crop farmlands
- Big Scrub rainforest remnants
- National Parks and State forests
- Farm forestry demonstration sites
- Rainforest regeneration sites
- Ecotourism venture
- Nth Coast towns and regional centres
- Ecologically sustainable farms and communities

MEMBERS BUY AND SWAP SHOP

TELL AND SELL!

Discussion at a recent meeting indicates BAAT may have a role in making Teachers aware of materials, animals, seed, plants etc. which could be useful to others. In a few minutes our group had done business with:

- A Honey Extractor
- Bee Equipment
- Some Ducks
- Fertile Eggs
- A few Sheep



Very often Teachers don't know where to go or who to ask before starting a new project, so I'm running a page where we can sell, swap or help with a problem. To facilitate this venture I am printing the name, school address and phone number of members of this Association which may be a source of reference in the future. (Please check YOUR details carefully as these also serve as our Address Labels).

You may make contact directly with the School or if you want to reach a wider group, write or Fax BAAT (066 252137). If you wish to use this service, please provide ALL THE DETAILS/DESCRIPTION you can, and if the item is for sale, don't forget the price.

Mr Ron de Cleene
57 Jamison Rd
KINGSWOOD NSW 2747
Nil Nil

Mr Kathy de Jony
78 Terrace Road
RICHMOND NSW 2754
Nil Nil

Ms Pru Kesby
"Montrose" Orange Grove Rd
GUNNEDAH NSW 2380
Nil Nil

Mr Nicholas Staines
Albion Park High School
Church Street
ALBION PARK NSW 2527
042 571 744 Nil

Mr Peter Shaddock
Albury High School
Kiewa Street
ALBURY NSW 2640
060 213 488 060 413 782 Fax

Mr Lloyd Cleaver
All Saints College
Ophir Road
BATHURST NSW 2795
Nil Nil

Mrs Jayne Hoffman
Alstonville High School
640 Tregeagle Road
TREGEAGLE NSW 2480
066 285 222 Nil

Ms Joan Stead
Ardlethan Central School
Mithul Street
ARDLETHAN NSW 2665
069 782 046 069 782 202 Fax

Mr James White
Armidale ERC
PO Box 96
ARMIDALE NSW 2350
067 729 311 067 728 143 Fax

Mr A.J. Thomas
Armidale High School
PO Box 830
ARMIDALE NSW 2350
067 727 466 Nil

Mr Richard White
Balranald Central School
We Street
BALRANALD NSW 2715
050 201 103 Nil

Mr David Morgan
Barker College
91 Pacific Highway
HORNSBY NSW 2077
02 847 8399 02 476 364 Fax

Mr Peter Leffan
Barraba Central School
West Street
BARRABA NSW 2347
067 821 104 067 821 231 Fax

Ms Deb York
Barraba Central School
West Street
BARRABA NSW 2347
067 821 104 067 821 231 Fax

Ms Tracey George
Bathurst High School
Hope Street
BATHURST NSW 2795
063 313 755 063 322 302 Fax

Ms Sarah Nicholls
Batlow Technology School
PO Box 207
BATLOW NSW 2370
069 491 208 069 491 666 Fax

Ms Simone Neville
Berkeley Vale Com.High School
17 Warwick Ave
MANNERING PARK NSW 2259
043 881 899 043 885 539 Fax

Mr Daryl Finch
Billabong High School
Munro Street
CULCAIRN NSW 2660
060 298 377 060 298 833 Fax

Ms Donna Parker
Billabong High School
Munro Street
CULCAIRN NSW 2660
060 298 377 060 298 833 Fax

Mr Stephen Tickett
Billabong High School
Munro Street
CULCAIRN NSW 2660
060 298 377 060 298 833 Fax

Mr Philip Lyne
Bingara Central School
10 Hill Street
BINGARA NSW 2404
067 241 606 067 241 927 Fax

Ms Jenni Wilkins
Board of Studies
61a Hill Street
LEICHARDT NSW 2040
02 925 8165 02 955 3557 Fax

Mr Peter Osterloh
Bomaderry HighSchool
Cambewara Road
BOMADERRY NSW 2540
044 210 699 044 232 732 Fax

Mr Peter Robertson
Bombala High School
Bright Street
BOMBALA NSW 2632
064 583 358 064 583 866 Fax

Ms Tracey Watson
Bossley Park High School
1 Martine Avenue
CAMDEN NSW 2570
02 823 1033 Nil

Ms Kerri Argent
Bowraville Central School
High Street
BOWRAVILLE NSW 2449
065 647 162 Nil

Mr Peter Murdock
Braidwood Central School
Wilson Street
BRAIDWOOD NSW 2622
048 422 249 048 422 501 Fax

Mr Peter Giblin
Byron Bay High School
Broken Head Rd
BYRON BAY NSW 2481
066 858 188 066 858 119 Fax

The Teacher of Agriculture
Camden High School
John Street
CAMDEN NSW 2570
046 559 191 Nil

Mr Rowland Clark
Canberra Grammar School
Manaro Crescent
RED HILL ACT 2603
062 951 833 062 952 923 Fax

Mr Owen McLaughlan
Canowindra High School
C/- Browns Avenue
CANOWINDRA NSW 2804
063 441305 063 441 085 Fax

Mr Geoffrey Clerke
Caroline Chisholm High School
PO Box 124
PENRITH NSW 2750
047 331 204 047 331 054 Fax

Mr David Kent
Chevalier College
Moss Vale Rd
BOWRAL NSW 2576
048 611 488 048 621 499 Fax

Mrs Sue Brown
Coolah Central
Binnia Street
COOLAH NSW 2843
063 771 101 063 771 004 Fax

Mrs Jacqueline McIntosh
Crookwell High School
"Duntroon"
LAGGAN NSW 2583
048 373 213 048 321 966 Fax

Ms Robyn Roberts
Duval High School
Crest Road
ARMIDALE NSW 2350
067 721 266 Nil

Ms Nicolet Westerhof
Elizabeth Macarthur High
PO Box 120
NARELLAN NSW 2567
046 461 899 Nil

Mr Bob Guest
Farrer Ag High School
1 Calala Lane
VIA TAMWORTH NSW 2340
067 679 211 067 679 451 Fax

Ms Sherryl Thornthwaite
Galston High School
Galston Rd
GALSTON NSW 2159
651 2199 651 1054

Mr John Lee
Glen Innes High School
Edward Street
GLEN INNES NSW 2370
067 321 322 Nil

Mr Stephen Dean
Carinya Christian School
25 Boronia Drive
CALALA - TAMWORTH NSW 2340
067 620 970 Nil

Mr Ian Marriott
Casino High School
Queensland Road
CASINO NSW 2470
066 623 077 Nil

Mr Geoff O'Connor
Chevalier College
Moss Vale Rd
BOWRAL NSW 2576
048 611 488 048 621 499 Fax

Mr Terry McGoldrick
Coonabarabran High School
PO Box 3
COONABARABRAN NSW 2357
068 421 099 068 422 267 Fax

Mr Graeme McIntosh
Dubbo Christian School
PO Box 1216
DUBBO NSW 2830
068 820 044 Nil

Mr Tim Bradley
Eden High School
Barclay Street
EDEN NSW 2551
064 961 541 064 962 144 Fax

Mr G. Spence
Erna High School
The Entrance Road
ERINA NSW 2250
043 677 353 Nil

Ms Robyn O'Leary
Finley High School
Tocumwal Street
FINLEY NSW 2713
058 831 344 Nil

Mr Paul Udy
Galston High School
Glaston Rd
GALSTON NSW 2159
651 2199 651 1054

Mr Grant Jackson
Gosford High School
Racecourse Road
GOSFORD NSW 2250
043 252 048 043 233 175 Fax

Mr Francis Mackay
Caroline Chisholm Catholic High
PO Box 124
PENRITH NSW 2750
047 331 204 047 331 054 Fax

Mr Mark Searles
Catherine McAuley College
Victoria Street
GRAFTON NSW 2460
066 431 434 066 432 137 Fax

Mr Peter Jones
Colo High School
Bells Line Of Road
RICHMOND NORTH NSW 2754
045 712 011 Nil

Mr Paul Kerr
Cranebrook High School
PO Box 36
CRANEBROOK NSW 2749
047 290 777 047 291 384 Fax

Ms Natalie Martin
Dubbo South High
Boundary Road
DUBBO NSW 2830
068 823 744 Nil

Mr David Buckey
Elderslie High School
Hilder Street
NARELLAN NSW 2567
046 581 110 Nil

Mr Darren Craig
Erskine Park High School
Swallow Drive
ERSKINE PARK NSW 2759
02 834 3536 Nil

Mr L. Fletcher
Freshwater High School
Harbord Rd
HARBORD NSW 2096
029 052 634 905 2677

Ms Tracey Garrett
Girraween High School
Gilba Road
GIRRAWEEN NSW 2145
636 7293 Nil

Mr Steven Polostie
Goulburn High School
Goldsmith Street
GOULBURN NSW 2580
048 214 022 048 221 437 Fax

Mr Iven McLennan
Grafton High School
PO Box 458
GRAFTON NSW 2460
066 423 355 066 423 184 Fax

Mr Stuart McDonald
Hurlstone Ag. High School
Roy Watts Road
GLENFIELD NSW 2167
605 1611 Nil

Ms Caroline Clatworthy
Ingleburn High School
Oxford Road
INGLEBURN NSW 2565
02 605 6165 02 829 2812 Fax

Mr Lisle Brown
James Ruse Ag. High School
Fleton Road
CARLINGFORD NSW 2118
071 7126 Nil

Ms Gail Roberts
James Ruse Ag. High School
Felton Road
CARLINGFORD NSW 2118
071 7126 Nil

Mr Peter Annetts
John Paul II Snr School
50 Breakfast Rd
MARAYONG NSW 2148
671 4422 Nil

Mr Jim Hartley
Kadina High School
Kadina Street
GOONELLABAH NSW 2480
066 243 133 066 243 137 Fax

Mr Ian Hatherly
Kinross Woloroi School
Locked Bag No 4
ORANGE NSW 2800
063 621 166 063 638 860 Fax

Mr Bob Tourle
Kyogle High School
PO Box 104
KYOGLE NSW 2474
066 321 300 Nil

Ms Gayle Malcolm
Leumeah Tech High School
Junction Road
LEUMEAH NSW 2560
046 257 755 046 285 015 Fax

Mr Dale Chadwilk
Gundagai High School
Hanley Street
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069 441 233 069 442 180 Fax

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Hurlstone Ag. High School
Roy Watts Road
GLENFIELD NSW 2167
605 1611 Nil

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Irrawang High School
Mt Hall Road
RAYMOND TERRACE NSW 2324
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Mr Rick Kemp
James Ruse Ag. High School
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CARLINGFORD NSW 2118
071 7126 Nil

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Junee High School
52 Pinaroo Drive
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Kadina Street
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066 243 133 066 243 137 Fax

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Knox Grammar School
Pacific Highway
WAHROONGA NSW 2076
487 0122 487 0199

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LAKE ILLAWARRA NSW 2528
042 963 844 Nil

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Chamberlain Road
LISAROW NSW 2250
043 284 599 Nil

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FREEMANS REACH NSW 2756
045 796 800 Nil

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605 1611 Nil

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071 7126 Nil

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COFFS HARBOUR NSW 2450
Nil Nil

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Kingscliffe High School
Oxford Street
KINGSCLIFFE NSW 2487
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Ziegler Avenue
WAGGA WAGGA NSW 2650
069 225 155 Nil

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Mallee & Myrtle Sts
LEETON NSW 2705
069 532 122 Nil

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Halliday Street
LOCKHART NSW 2656
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INVERELL NSW 2360
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James Ruse Drive
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026 303 139 026 302738 Fax

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ILLAWONG NSW 2234
543 7000 Nil

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MORUYA NSW 2537
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Barclay Road
NORTH ROCKS NSW 2151
Nil Nil

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Princess Highway
NAROOMA NSW 2546
Nil Nil

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046 462 244 046 471 261Fax

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MACKSVILLE NSW 2447
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MANILLA NSW 2346
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MUSWELLBROOK NSW 2333
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PARRAMATTA NSW 2150
6831866 Nil

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543 7000 Nil

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Lot 9 Valley View Dr
YELGUM NSW 2483
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TAMWORTH NSW 2340
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MONA VALE NSW 2103
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Lalor Road
QUAKERS HILL NSW 2763
Nil Nil

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Lake Street
NORTH LISMORE NSW 2480
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Nil Nil

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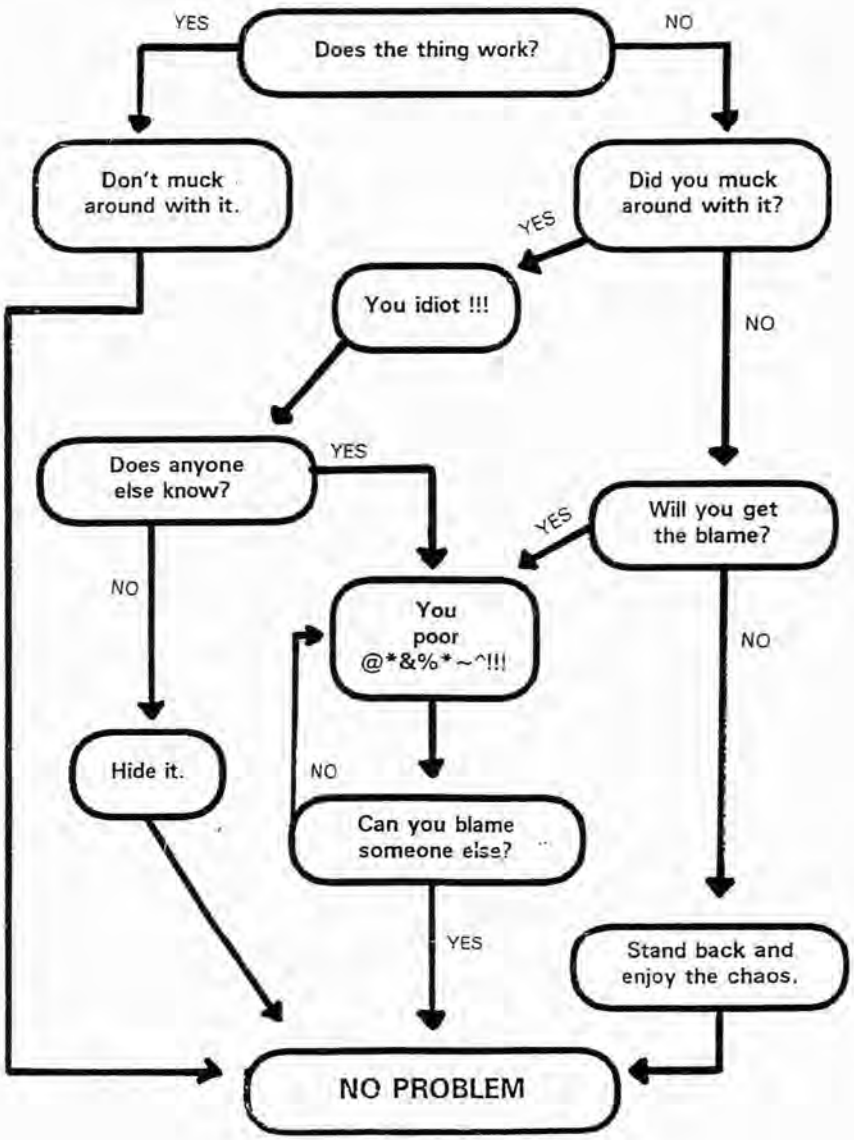
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