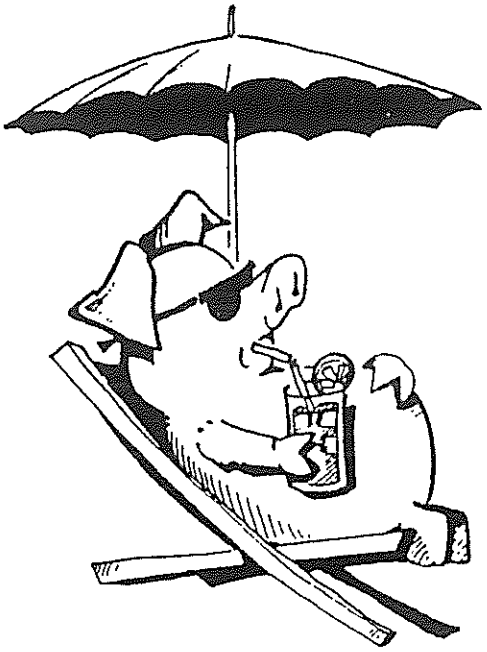
Couple of really good cattle pictures

"B.A.A.T."

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

SPRING/SUMMER 1993



HOLIDAYS AND SUMMER ARE UPON US ONCE AGAIN...

a good time to sit and ponder.....

"THE EFFECT OF HEAT ON REPRODUCTION"





PRESIDENTS REPORT.

Welcome to the third edition of B.A.A.T. for 1993.

Lots of things seem to be happening and I hope we can keep you up to date with them. I will outline some of these and hopefully they will be expanded upon in the articles elsewhere in the bulletin.

The first and probably the thing of most interest is the state of the Senior Syllabus. As of the Syllabus Committee Meeting on 26th October, the proposed 2 unit Syllabus has gained Ministerial approval and the Board of Studies has indicated that it hopes to have copies of it in all schools during November. It doesn't give us a lot of time to plan for next year but if the Board of Studies keep to their timetable it will be better than receiving the new syllabus in February 1994. The Syllabus Committee is working on a Specimen Examination Paper and Syllabus Notes and hopes to have these in schools in early 1994. The Syllabus Committee is also starting work on a new 3 unit Syllabus and hope to have it in schools by mid 1994.

Mr. Peter Austin, Editor of The Land, has contacted me with some ideas that may give our subject some wider publicity. He is keen to increase the readership of The Land in the 12 to 20 year age group. If you have anything that you consider may make a good story for The Land please contact any members of the Editorial panel in The Land and they will be keen to follow up and hopefully produce a good story.

Some of you may be aware that the Federal Government has released $60 million for "Professional Development" programs over the next three years. The National Agriculture Teachers Association is looking into ways that we may be able to tap into this money. On behalf of the NSW Agriculture Teachers I am starting to look into how we may be able to get some of these funds. If you have any ideas about how the Association may be able to use / apply for some of this money, please let me know.

The North Coast group are already working hard towards the 1995 Bi-ennial Conference. They have booked the National Fitness Camp at Lennox Head for the venue. If you have any ideas about anything that could enhance the program I am sure that George Liddell (Tweed River High) or Ian Marriot (Casino High) would like to hear from you. While on conferences, don't forget the National Conference in January in the Blue Mountains. If you want more information, contact Jenni Wilkins at Muirfield High School.

George Liddel has come up with an interesting way of making BAAT more readable by our members. He has suggested that each issue feature a particular school (his suggestion is a 3 or 4 page spread with photographs and articles about what happens at that school). George thinks that a school from each Region , in turn, should be featured, and that featured region then nominate the next Region, then the nominated Region select the school to be featured. Sounds interesting if we can get co-operation and people prepared to let everyone known what they are doing. George is so keen to see this happen that he has volunteered to write the first feature about Tweed River High for the first edition in 1994. He has also nominated the North West Region to provide the next feature. Thanks, George, we are looking forward to seeing what happens at Tweed River.

I hope everyone has a Merry Christmas and a happy and prosperous New Year

John Lee.

FROM THE EDITOR..

Welcome to the 3rd and final 1993 edition of B.A.A.T. I hope you have at least picked up some information or resource to assist your teaching and more importantly, benefit the students undertaking courses in agriculture.

A big thanks to all those people who have contributed information throughout the year particularly in this edition. Without that assistance it would be difficult to get the job done. In fact, such a large number of Design and Technology ideas have been sent that they could not all be included in this edition.

It will be a priority to produce a special Design and Technology in Agriculture booklet next year, so anything you may have from any inservice or that you have trailed please send to me. Special thanks to the producer of "McMoney Mushrooms" for sharing the idea, indeed a lot of work has been put in. (please let me know who you are?)

Far fewer evaluations were returned from the last edition compared with the first edition. Please use this as a guide for letting me know the type of articles/resources to include.

Apologies to those people who may have received edition 2 a little late last term. As a result of people contacting me, we were able to correct an error of administration at Joint Council. I hope the mailing list will be up to date for this issue and few if any problems occur.

With the year drawing to a close and promotions, transfers and appointments being made in many areas, could you please advise me, or Joint Council of any change in your school or mailing address so as you can receive the 1994 editions as they are produced.

There are a few pages of information concerning the Conference to be held in January next year where the gathering of Agriculture Teachers will this time be on a National basis.

Jenni Wilkins has put a lot of time and effort into the organisation of this "Technology in Agriculture" theme conference. It is a real opportunity to attend a high class event while so close to home, with N.S.W. hosting the event. I urge you to have a read of the program of events and mention it to any other Agriculture (or other) teachers you may come in contact with, and help make the conference a success for Jenni on behalf of all us N.S.W. Aggies.

I am aware that a number of formal and informal sessions have been held to develop programs for the new senior syllabus.

I hope that the introduction goes well next year and should you have any problems or concerns with implementing the new outcomes based syllabus, please let me know and I can have them addressed in the 1st issue next year.

Finally thanks to the office staff at Farrer for collecting the numerous faxes that roll in, to all those who have contributed and to my wife, Sue, and children who have assisted with the printing, packaging and mailing of each edition.

All the best for the festive season and summer holiday and I will again be in touch Term 1 in 1994.

Stuart Hemmings.

SYLLABUS COMMITTEE REPORT:

The new Agriculture 2/3/ Unit common syllabus was approved by the minister Virginia Chadwick on Friday 22nd October 1993. The Board of Studies is frantically printing the document and expect to have it in the mail to arrive the 2nd week of November. With any luck, you should have received the document and perhaps begun to program the course at the time you are reading this.

The syllabus is the result of a lot of hard work by the syllabus committee and we are very pleased to see it completed. We feel that it is a good syllabus and you will find it to your liking. Thank you to all those who filled out the questionnaire and returned it . Your comments were indeed helpful and resulted in the Socio-economic aspects in the syllabus being reduced. This contributed to the development of a worthwhile Syllabus for the future.

The 3 Unit syllabus has not yet been written. It is scheduled to be completed by the end of Term 2 1994 so as it can be in schools for the commencement of 3 Unit work in Term 4 1994. The current thinking is to retain the project in its current form and to reduce the number of electives to 8 with no restrictions on choice. We are starting work on it at the next syllabus committee meeting on

26th November 1993.

We are also working on a support document and a specimen examination paper.

The Junior syllabus is on hold until the senior ones are complete.

Lisle Brown
Chairman, Agricultural Studies Syllabus Committee
James Ruse Agricultural High School
27/10/93

RETIREMENT OF *DON TUNNINGLY* FROM GUNNEDAH HIGH SCHOOL

The best wishes of the N.S.W. Agriculture Teachers Association go to Don Tunningly who has retired after serving students of Agriculture for a number of years. Don has been at Gunnedah High School in the North West of N.S.W. since the mid 1970's. Prior to that, Don taught for about 10 years at Manilla Central School.

Don was well known for his dedicated work with students of lower ability and was able to use the subject of Agriculture to cater for these students so as they could gain success in an interesting area of study.

Don has been a member of the N.S.W.A.A.T. for a number of years and has attended every Biennial Conference held since the Association was formed. It is probably therefore fitting that Don was the Chairman of the organising committee for the most recent Biennial Conference hosted by North West Region held at Farrer in January 1993.

Don was in the habit of Chairing a number of meetings, particularly when issues may have been expected to drag on somewhat. You see, Don had the art of quickly reaching a decision and meetings under his jurisdiction never had wasted time involved.

On behalf of all of your colleagues, near and far, and the many students you have influenced over the many successful years of dedicated teaching we wish you the best for the future and hope to see you from time to time.

BITS AND PIECES

CHARLES MULLAVEY MEMORIAL AWARD

Elizabeth Hammond was presented with the *Charles Mullavey Memorial Shield* at her former school James Ruse Agricultural High for gaining top mark in 2 Unit Agriculture in the 1992 HSC. Elizabeth is a student at the University of Sydney studying Medicine.

The award was presented at the Annual Awards Day of James Ruse Agricultural High School on 22nd September 1993. The award is made by the NSW Association of Agriculture Teachers. It recognises the work done for agricultural education in NSW secondary schools by the late Charles Mullavey. Mr. Mullavey was an inspector of schools with special responsibility for agriculture and lives in memories of those of us who were serving in the schools then.

Mrs. Blanche Mullavey of Beecroft with their son John made the presentation of the memorial shield on behalf of her late husband and the NSW Association of Agriculture Teachers.

Elizabeth was the top girl student in NSW at the 1992 HSC. (TER 100). As well as topping 2 Unit Agriculture she was first in 2 Unit Economics and 2 Unit Modern History and third in 3 Unit English.

This is the twelfth time in thirteen years the Charles Mullavey Award has been made that it has gone to a student of James Ruse Agricultural High School.

Elizabeth also received school medals for Dux of James Ruse, English, Economics, Modern History, and Agriculture.

The Mullavey Shield is, in fact, a work of art. It consists of a copper "painting" of a team of horses pulling a plough surrounded by a wooden frame. For most of the year it has pride of place on the wall in the James Ruse Library.

Lisle Brown - Head Teacher
Agriculture
James Ruse Agricultural High School
24.9.93

HOW FAT????

Thanks to Jim Hartley from Kadina High School for the flier he sent to include in this edition on the Anal Fold Caliper. It may well be a piece of equipment that can be well put to use in hands on practical activities for students. Whilst at Farrer we seem to measure all physical characteristics, most recently including Pelvic Area internally using a Pelvirimeter, we have not used this device. Anyone who has used the device and has any comments regarding student use, pleases let me know and we can follow it up in the next edition.

ANAL FOLD CALIPER

The anal fold caliper is currently the focus of a collaborative Livestock and Meat Authority of Queensland (LMAQ)/ University of Queensland research project funded by the Meat Research Corporation.

The main objective of the project is to produce a cheap caliper for use with cattle which will predict carcass fatness and carcass muscle in live steers with an accuracy similar to that of P8 fat thickness in the carcass.

The ability to predict carcass fatness will benefit the producer, and the industry at large, by assisting in the marketing of slaughter cattle. This is an increasingly complex task as various market specifications need to be met. One such important specification is that of P8 fat thickness.

The anal fold consists of the skin and subcutaneous fat situated between the point of the ischium (tail bone) and the base of the tail. In fat cattle it has the appearance of a distinct bulge on either side of the anus.

Work with the anal fold caliper dates back to the 1970s. In previous work undertaken by Don Charles of the University of Queensland, caliper measurements were found to be well correlated with total carcass fat and total carcass muscle.

However a drawback of the early caliper was the completely subjective pressure exerted by the operator when a measurement was being taken. To overcome this problem, Ray Johnson of the University of Queensland and Col Davis of the Queensland Department of Primary Industries produced and investigated the modified Harpenden Skin Fold Caliper, used to measure body density in human beings. This caliper proved suitable for cattle work. However, the cost of the modified caliper is very high, at $700 for the caliper and $250 for modifications.

The current LMAQ project seeks to keep the predictive capabilities of the earlier calipers, whilst producing a cheaper caliper, principally by using a less elaborate gauge, the most costly component of the current modified caliper. The project is also examining the correlation between anal fold fat thickness (AFFT) and P8 fat thickness, given that the latter is now the standard industry fat measurement site rather than 10th or 12th rib as used in earlier work.

Bearing in mind that the caliper is still in the developmental stages, the equation currently used to convert an AFFT measurement into total carcass fat percentage is, AFFT/2 + 4 (approximate).

For example, an AFFT of 52 mm would equate to 30% carcass fat, ie. 52/2 + 4 = 30.

The table below illustrates the approximate relationship between anal fold fat thickness, total carcass fat %, 12th rib fat thickness and P8 fat thickness.

ANAL FOLD FAT THICKNESS (mm)	TOTAL CARCASS FAT %	12TH RIB (mm)	P8 (mm)
20	16	1	2
25	19	2	3
30	22	5	8
35	25	7	12
40	28	9	15
45	31	12	20
50	34	14	23
55	37	16	27
60	40	19	32
65	43	21	35

The caliper and the scanoprobe (Ithaco – model 731A) are about of equal accuracy. The caliper predicts carcass fat percentage with an accuracy of +/– 3.12 %, compared with +/– 3.79 % for the scanoprobe, whilst the relative errors for carcass muscle percentage are +/– 2.22% and +/– 3.44% respectively.

The caliper will not match the accuracy obtainable with Real Time Ultrasound (RTU), from which the ULTRAMAC was developed, nor with Velocity of Sound (VOS), but neither will anything else currently. RTU is the best technique in carcasses with an error of about +/- 2%, however the caliper compares favourably with an error in live cattle of +/- 3%. The caliper is a very good field guide, at a fraction of the cost. It is hoped that the newly developed caliper will retail for approximately $300, compared with $2,500 for the ULTRAMAC.

If you are interested in further details regarding the caliper contact either;

Dr Ray Johnson
University of Queensland Veterinary Farm
PO Box 125
KENMORE QLD 4069
Tel: (07) 365 5777
Fax: (07) 365 5677

OR

Mr Gavin Browne
Livestock and Meat Authority of
Queensland
PO Box 201
ROMA STREET QLD 4003
Tel: (07) 405 4800
Fax: (07) 405 4809

VIDEO RESOURCES.....

Mick Melino from St Johns College at Woodlawn has recently purchased some videos from C.S.I.R.O. which he recommends. I have attached a copy of the order form that can be used, though not a great copy, it may be of some use to you.

A few other videos that are recently released that I can recommend are as follows:

1. **COTTON:** The Australian Cotton Foundation has produced a teaching kit called Natural Threads which contains a video, worksheet and other goodies, all packaged in a cute little denim bag. A contact address is 729 Elizabeth St, Waterloo 2017. Phone 02 319 3677 or Fax 02 319 3192. I am not sure of the cost.

2. **SUGAR CANE:** Once again a teaching kit produced with booklets and teacher and student activity sheets. The video seems to capture the attention of the rowdiest class in its clever method of presentation. The kit is produced by the Australian Sugar Industry and can be used for a 2-3 week teaching unit if required. The kit can be obtained from the Sugar Board.

3. **LIVESTOCK MANAGEMENT IN DROUGHT.** A 30 minute video that has been produced by the N.S.W. Department Of Agriculture showing srtategies that can be used to prevent and overcome the effects of prolonged drought on the feeding of sheep and cattle. A good video that is well narrated by Lucy Broad and suits both junior and senior students. I have included the flier that accompanied the video elsewhere in the journal.

DESIGN AND TECHNOLOGY HAPPENINGS IN GUYRA.

A gathering of teachers took place in the New England recently to address the aspect of Design and Technology in Agriculture. The course was run by James White from Guyra Central School. From all reports the 3 day course was a success and attracted as many Home Science / Industrial Arts teachers as Agriculture teachers from near and far.
\
Jim has done a lot of good work involving Agriculture in D&T and has actually managed to increase the exposure of kids in the school to Agriculture because of the introduction of D&T.

*"Like it or not we all have to be involved in D&T for the benefit of **our** subject"*

Jim has now been invited to run the course in other regions and I will keep you posted of any developments.

I have also included a copy of the address given by Dr John Spencer at the D&T inservice, who many of you may remember gave the Sutherland presentation at the 1993 Biennial Conference. It makes interesting reading.

NATIONAL ASSOCIATION OF AGRICULTURE TEACHERS

A number of people, both teachers and industry representatives have been contacting me asking for the "who's who" of the Australiain Association. For readers benefit, I have included a list of those people below. Please note that Jenni Wilkins is the N.S.W. Rep on the committee, should you wish to raise any mattere with a national implication.

N.A.A.E. Executive

PRESIDENT: Adrian Bolton
Governor Sterling Senior High School
Ford St.
Midland 6056
W.A.
ph 09 2745299
fax 09 2502098

VICE PRESIDENT: Greg White
Marree School
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S.A.
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SECRETARY: Jenni Wilkins
Miurfield High School
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Nhill College
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PUBLICITY OFFICER: Jan Ackroyd.
Kelmscott S.H.S. Farm.
50 Third Ave.
Kelmscott. 6111.
W.A.
ph 09 390 8353
fax 09 390 4082.

STATE CONTACTS

Qld. Paul Dillon.
Gympie State High School
P.O.BOX 22
Gympie 4570.
ph 074 82372222
fax

TAS. & N.T. still working in them!!!

ALTERNATIVE AG COURSES ARE GAINING IN POPULARITY....

With the changes in the Higher School Certificate and the increasing number of "stayers-on" in the senior school , many schools are now running a number of alternative courses in the Agricultural area.

While we as teachers must be very careful to preserve the academic recognition of our 2/3 Unit Agriculture Course, there certainly is room in many situations for alternative interest/skills or vocational type courses. This is particularly true in rural areas where students may well require skills or should I say ***competencies*** to return to the farm or to seek some sort of casual or permanent work.

Recently, we have gained regional approval for a Rural Studies course in the North West that a few of us finished writing after the article in the 1st B.A.A.T. this year. At Farrer we are running courses in the following areas next year, to cater for the non-T.E.R type students as well as providing single interest units of study for T.E.R. type students

FARM MANAGEMENT
AGRICULTURAL BUSINESS MANAGEMENT
COMMERCIAL BEEF MANAGEMENT
FARM MACHINERY
RURAL WELDING
STUD BEEF MANAGEMENT
PRIME LAMB MANAGEMENT
FARM WORK SKILLS**

All of these courses are approved at Regional level and can be implemented at either Year 11 or Year 12 level.

A reminder that Alan Thomas has volunteered to create a register of these type courses and they should be sent to Alan at Armidale High School, Armidale 2350.

The Farm Work Skills course is an initiative that is not yet finalised, but involves rural industry competencies and will be developed on a pilot basis involving Murrumbidgee College of Agriculture and the Rural Training Council. It is a part work /part school type course and will allow students some advanced standing in the College courses as well as gaining industry accredited rural competencies.
Funding negotiations are still taking place and I will keep you informed of any future developments. It may well require a correspondence lobe &/or industry accreditation for teachers &/or residential components for students.
Geoff Creek (a former ag teacher many would remember and current principal of the College) is involved as is Richard McEvoy of the Rural Training Council.
Kerry Argent at Bowraville Central can discuss with you how Central Schools may benefit from such a course and Bob Guest of Farrer is the N.S.W.A.A.T. Representative on the R.T.C. Bob has supplied me with a report that appears later in this issue.

The Future of Agriculture

Design and Technology Teachers' Conference and Training Development Course — Agricultural Context — Guyra, August 13, 1993

John D Spencer

And he gave it for his opinion, that whoever could make 2 ears of corn or 2 blades of grass to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.

Jonathan Swift 17
Voyage to Brobdingnag (vii)

You don't need me to tell you that Agriculture to-day in Australia is officially held in disregard, if not contempt. There are five facets to this phenomenon and, as I list them, keep two other countries in mind — Argentina and Egypt.

1. No matter what political party or philosophy you favour, the present Federal Government has inherited a worn out, long-since negated, unfair conviction that everyone on the land, or associated with agriculture is a silvertail, a person of undeserved privilege. The State Government just takes the agricultural sector for granted.

2. Agriculture has not been earning enough since the 1950s, for the national government of any persuasion to milk it anymore, or for the media to see any controversial mileage in it.

3. The primary producer's worst enemy is his neighbour, because he is his ultimate competitor for cash flow — and every tier of the commercial world outside the farm gate knows it.

4. Governments, or even Paul Keating or John Hewson, can't control the weather and world prices — their impact upon each is about equal — and they **won't** control the money markets or lending institutions. The misery of many in the bush — the walk outs — the Law supported thrown-outs — the bankruptcy — the suicides — pose many problems, do not win votes — and the rural population and representation is now small enough to have little or no effect on election outcomes.

5. A covert, long-term campaign by the financial institutions of the country (perhaps the world) to quietly undermine any confidence there might be about a future in agriculture — thus devaluing it to such a point that it can all be gathered into a few hands at minimal cost. Don't laugh — the evidence is all round you, here and overseas! There is an old, world-wide saying which goes — *he who owns the land, owns the people and rules the country.*

Thank you for the invitation for me to join a new generation of teachers of Agriculture — and to actually address you. It is a great privilege but, quite frankly, I didn't want to, because it is years since I taught, trained or supervised my last agriculture teacher. It is over 40 years since I took up my first teaching post and I am almost completely out of touch with Curriculum.

But after Jim invited me, I went to talk to my grazing and farming friends — not the ones riding high, but those who are hurting deeply — and we just talked about the land and how it should be treated; what hopes and plans they had for theirs; what place they saw agriculture having in the life and welfare of the nation; AND why should we continue to teach agriculture in our schools ... and on and on.

Then I decided I should accept the invitation — perhaps, if for no other reason than to enliven your flagging enthusiasm!

I make no secret of the fact that I am almost fanatical about two things — and one of them is agriculture. I worked in the wool broking game before training as an agriculture teacher; I introduced Agriculture to the curriculum of two central schools and one high school in western NSW and I taught the subject for 17 years. I trained agriculture teachers for 7 years I think — and for years I researched agricultural botany, animal nutrition and the administration of agricultural high schools — with several pieces of paper to show for it and little else!

There must be a good reason for this *love affair*.

The best I can do tonight, is leave a trail of largely unanswered questions for you to worry about —not because I don't have, or there aren't any answers (just the

opposite in fact!) but because we all have to develop a capacity to see the whole picture, no matter the size of the backyard from which we are viewing it.

> *The State is like a tree. The roots are agriculture, the trunk is the population, the branches are industry, the leaves are commerce and the arts; it is from the roots that the tree draws the nourishing sap and it is to the roots that a remedy must be applied if the tree is not to perish.*
>
> **Victor Marquis de Mirabeau** *Theorie de l' Impot.* 1760

Let's take a quick glimpse backwards.

Between 1891 and 1902 the world experienced its greatest and most widespread economic depression. It 'commenced' (was observed I guess) in Argentina —, itself very interesting, as there are some very close parallels between Argentina and Australia — and it spread rapidly throughout the commercial world to Australia where, for good measure, we were working our way blindly into the biggest drought we had had — and ever have had.

What's changed?

It might be of interest to you that agriculture was a fixture in school curriculum ever since 1860, usually disguised under the heading of **object lessons.** The first non-private school to teach agriculture was the residential agricultural school WARANGESDA Aboriginal School in Narrandera.

But in 1891, in all State Schools, Agriculture was made compulsory on the written instruction of the Secretary for Public Instruction. Two text books were written specifically for the purpose! In a decade of devastating economics, collapse of world trade, wars in Southern Africa, industrial battles by the fledgling AWU and the Labor Party here, and an increasingly crippling drought — and then an EDUCATIONIST had the audacity to formally put agriculture into all the State schools!!

Vision or idiocy?

Now in this decade, say 1993 - 2003, how does it look?

- In Lesotho, everything which could (perhaps should) have happened to Australia is evident. Hardly a tree left in the country — no natural fuel, no flora for birds or insects, no natural attraction of, or cushion for rain, erosion gullies through arable and non arable country alike in which you could lose a three storey building, and two of the greatest river systems in southern Africa silted up to the point where you can walk across either of them in most places. The need is there — the knowledge and the will power is not.

- In Europe, I travelled through 7 countries, where apart from maize and grapes I saw little agriculture that was going anywhere and, apart from Switzerland, apparently no advanced livestock industries. Farms were tiny to say the least and, without exceptional subsidies, could never support their families, let alone make a living — and yet they, with the other EC countries have the greatest mountain of agricultural products in store that has ever been heard of in the history of man.

- In Britain, in our 16000 ks of travelling through Scotland, Wales and England, the great agricultural producer looked like an undisturbed park subdivided with neat fences — with the exception of Northumbia I never saw more than 1 dozen animals in any one spot. Apart from berries and a few orchards in the south and several crops of maize, I saw nothing other than hay crops. In the supermarkets, we could find little food which wasn't produced in Europe. In clothing shops, little that wasn't manufactured in Europe. While the land was in good condition everywhere, there was little evidence of an agriculture that was the backbone of the country's economy.

- In Israel I found what must be the most technologically advanced agriculture in the world. It would take too long to describe the numerous ways in which they have incorporated technology — no wonder that in the sense of food production, it is the gem of the Middle East — and have you any idea of how small the country is?

So, unless you can see what's going on under the surface, you must be asking "Well, what future is there for agriculture?"

I make no apology for appealing to history. If we don't understand how and why we got to where we are, what hope do we have of understanding the present and working intelligently towards the future?

History — ever wondered where the "slaves" came from to build the pyramids? Once, all of North Africa was peopled by free-men or yeomen. They paid taxes for their protection — and, in savage drought times, they paid the

Pharaohs for food to survive. When they ran out of money and had no produce with which to barter, they surrendered increasing amounts of their land — until the Pharaoh owned their land and gave them their livelihood. He could therefore demand of them absolute servitude — a nation of slaves who had sold themselves to him. You should see Egypt now!

History — Argentina was the Australia of the South Americas, in terms of agricultural potential. There were massive injustices of course, in terms of farm workers' pay and conditions — but there were also the five attitudes I mentioned earlier, operating at the government and urban dweller level, especially that the landholders were avaricious, dishonest silvertails. The "solution" — i.e for the Government to gain a popular majority — was to dispossess the landholders, resume the land, subdivide it and establish a new peasantry which could barely produce enough to maintain a subsistence state. The government owned the land, ruled per favour of the new occupants of the land — and watched the country slide rapidly into an economic backwater, almost forgotten by the rest of the world until the Falklands Affair.

Australian Agriculture? Your immediate community? You don't have to look far to see what potential the governments, the banks and the insurance companies have. They might not be able to realise it yet — but they will certainly determine how the land will be used and by **whom**. There is an agricultural peasantry "around the corner", unless ..... No, things AGRICULTURAL are not going to the dogs — land ownership, production by choice and ultimate power **are being taken from** the yeoman, the husbandmen of the land, together with all its resources, not the least of which is water.

You need no better illustration than the ease with which Neville Wran was able to strip mineral rights (coal as the **first** step) from legitimate owners. Was gold, copper, uranium, water next? When governments set out to "re-distribute the wealth" — when they talk equity about other peoples' money and property, watch out! The actual agenda is, in most cases, just the opposite!

Just before I left the central west of NSW some 30 years ago, I was made privy to a land-ownership map of the Region. When I couldn't find the owner's names of many of the properties I knew (mostly those from which my pupils came) I was quietly told that unless they held 51% equity or more in their property, ownership was considered to be vested in the lending institution. Over 70% of the farms of that Region had finance companies listed as the owners — and the Department of Lands

officer who gave me the information revealed that of that 70%, the vast majority of nominal/original owners had less than 25% equity! What do you think the figures are likely to be in 1993?

Primary Producers have been conned into deficit budgeting — to living and producing on continuous credit. Promised the good life with easy money, they rode on a wave for years since 1950 — even though the interest rates were high and the indirect taxes by governments, enormous, especially at every new small boom time.

* Then came the crash, for which there was no cushion. Ask the locals how many people have suicided in this district alone over the past 12 months. Who survives? Essentially, only those with full equity. **I suggest that the ominous signs constitute one of the major challenges to teachers of agriculture — teaching agricultural management and production skills, which are not based upon unrealistic or irredeemable credit.**

There is, by the way (to my knowledge anyway), only one system in the world which guaranteed that this sort of thing could not happen — unless it was by military invasion and occupation.

The history of Agricultural Education is the history of agricultural development and hence **national** development in this country. I've written half a book on the topic, so I must not ensnare you.

It was agricultural education, however, that revolutionised the education system in NSW — and Australia eventually — through the opening of the first residential agricultural high school in the Nation in 1907. That school was the experiment, the pilot scheme, of the then Director General (Peter Board) by which he could prove that an integrated education system from primary through secondary, to technical, agricultural or university education was not only desirable, but attainable — and it became a fact in 1911.

* But the feature which stands out to me — and another of the challenges I wish to make to you — is the **vision** of that first Principal, Frank McMullen, He was given an almost free hand to develop the school's entire curriculum — and he focussed it upon agriculture! He did not see it as one of a selection of disciplines, an applied science opposed to the humanities or whatever, or as the poor relation of science, but as the core of human need and experience upon which all other disciplines could be built,

given credibility and given learning appeal. His school curriculum commenced with agriculture and all other subjects were planned and taught in continuing relationship and reference to agriculture — and all the teachers had to orient their thinking and their teaching to this concept! There's a switch for you!.

He almost got away with an educational and pedagogical miracle — for 6 years anyhow — until the one University stepped in about 1913-14 and gave the innovation the kiss of death. All things might change but the University, never! So, what's new!? Killed by troglodites masquerading as intellectual giants! (The Department in which I work has been labelled "a sheltered workshop for the chronically gifted".!!)

But only whimps are intimidated by Universities! You can, if you wish, beat them at their own game.

That is part of my challenge for the future. If you can't spot it, I can't help you!

*

Now another one —

One of my parental encounters very early in my teaching career left me smarting. I used to make a point of going out to meet the parents of my pupils. I believed then, as I believe now, that if you know the parents well and they respect you, you have an ideal learning situation, where there is rarley if ever a discipline problem. On one occasion, a burly wheat 'cockie' looked my 5'6" up and own and exploded. "So you're the agriculture teacher I've heard about! Could you carry a bag of wheat across your shoulders?" Quite honestly, I replied in the affirmative — no problem in those days! "Humph! Perhaps you could — but put you on a farm and I'd reckon you'd starve!"

Loud laughter all round and acute embarrassment for yours truly, about 5 years green in the job. And I'll never know whether he was correct or not. However, my later research indicated that he had less than 25% equity in his property, so we don't need to speculate on his survival.

*

But parental opinion — and parental support — is absolutely vital for what you are on about. I am assuming that you are as 'sold' on agriculture as I am — I doubt if you would be here otherwise. I am assuming that you have not missed the significance of what I have been saying — that unless history is to repeat itself, you must stand in the breech with **your** vision, **your** imagination, **your** knowledge, **your** curiosity,

your enthusiasm, **your** conviction that agriculture is the staff of life and the foundation of the nation. In six words, **you are the future of agriculture.** Have no doubt about it.

Teachers don't get many accolades, I found! But when they do come, they can be breath-taking. The most moving accolade I have had was when, at a public farewell to me after I had accepted an invitation to go to Armidale Teachers' College (and train **agriculture** teachers of all things) the parent of one of my pupils stood up and abused me for leaving the town and district in general, and for bringing the education of his son to an untimely end!

Now, I want you to think about that father. He was willing to do almost anything for me, in the pursuit of his children's effective education — and he was willing to "strong-arm" his neighbours into co-operating with me too!

How do the parents of your pupils feel about you?

*

The final challenge: the watershed in my teaching career was to virtually stumble across this proverb — and let me pressage it by telling you that, in our staff room at the time, we had grilled pupils for morning tea, lunch, afternoon tea and in between periods! Everything that went wrong, even to the failure of the pupils to learn the most elementary facts, was without doubt the fault of the pupils. Then this confronted me — I warn you, you will hate it, but it changed my whole teaching career —

IF HE/SHE DIDN'T LEARN, I DIDN'T TEACH

My colleagues — I would not presume to tell you what to teach or how to teach it. But I can tell you this — in your community, the future of agriculture as a way of life, as a foundation for the life and economy of that community, lies in your commitment and skill as a teacher. You will have to beat systems and bureaucracies — and you will have to fight disdain, suspicion and outright opposition among your own colleagues and superordinates. If you are a Head Teacher, you have an edge to achieve the changes you need. If you aren't, you must have **knowledge, enthusiasm, curiosity, daring, credibility within school** and **credibility in the community**, especially among the **parents — the parents will be your legitimate power base**— but don't you let them down!

As I said earlier, in your patch (and who knows how far your influence will spread through your pupils!) you are the future of agriculture!

THE UMINA HIGH SCHOOL ANNUAL CALF SHOW

On Wednesday, 8th September, 1993, Umina High School conducted its third Annual Calf Show. Umina, in the Metropolitan North Region, located near Gosford and Woy Woy, has a 13 acre farm and approximately 500 students being exposed to Agriculture as a subject.

Year 10 students carry out a calf raising project which commeces in February with calf groups of 4 - 5 students pooling $10-$20 each and purchasing a calf from Maitland Saleyards. All the calves are dairy cross calves with Friesian and Murray Grey breeds prominant.

Before we had the use of a trailer students would place their calf in a feed bag with a wire collar and we would lie them on the floor of the bus for the trip home.

The students would raise their calves on milk powder, having to teach them to drink from nipples as most of them have come straight off their mothers. Solid feed would be introduced gradually. Students purchase their own feed, including milk powder, calf pellets and hay and we provide the veterinary supplies.

The calves are a major attraction for pre-school and kindergarten kids as we have many visiting our school each term.

Towards the end of term 3 the Calf Show occurs. Students aim to raise their calf so that it is in show condition for the big event. Also, students must remove their calves from the farm by the end of term 3 and this significantly reduces our stocking rate as this year we had 15 calves. The farm also runs a small Suffolk Sheep flock and two cows in calf for our "grading-up" to Murray Grey program.

This year we invited other schools in the local area to join us and both Lisarow and Berkeley Vale took up the challenge. Lisarow with just one calf which won Reserve champion and Berkeley Vale had six fine calves on show.

The Grand Champion Calf was a Murray Grey cross steer from (should I say it?) Umina. However, there was none - if any - favouritism as our panel of judges came from three different shcools.

We had a beautiful fine day, a tasty B-B-Q of beef and kangaroo sausages and a number of very happy parents and students who had all done a terrific job in preparation and presentation of young cattle. We even had a cattle buyer who bought half a dozen calves on the day!

ROB FORSBERG
WARREN EAMES
RALPH DAVIS
RON UNSWORTH
(Agriculture Staff)

REPORT ON
RURAL TRAINING COUNCIL
MEETING 11/8/93

The Rural Training Council of NSW (R.T.C.) is one of nineteen Industry Training Advisory Bodies (I.T.A.B.) recognised by the N.S.W. Government as the authorative source of advice on vocational training matters pertaining to their respective industries. The R.T.C. consists of representatives from industry (NSW Farmers), vocational training providers, (TAFE, Dept. Ag. and now secondary education through the NSWAAT), Unions (A.W.U.), Dept Education Employment and Training (DEET), the N.S.W. Dept of Industrial Relations, Employment, Training and Further Education (DIRETFE) and others.
The R.T.C. is funded by D.E.E.T. and Industry and is staffed by a full time Executive Officer (Richard McEvoy) with secretarial support from N.S.W. Farmers.

R.T.C. and other I.T.A.B.'s appear to be providing something of a "watchdog" service over training arrangements and standards. They have a major role in the development of competency standards for the rural industries, in approving competency based curricula and in ensuring cognisance is taken of The National Training Reform Agenda and iniatives such as The National Framework for the Recognition of Training.
Training providers could not normally expect to receive Government funding for their programs unless they receive the support of the R.T.C. The current role of the R.T.C. appears likely to expand in the post Carmichael era as the competency based Australian Vocational Certificate System (A.V.C.) supersedes the time based Apprenticeship system and Career Start Traineeships (C.S.T.) replace the Australian Traineeship System (A.T.S.).

Whilst the foregoing is basically background information there is of some immediate relevance to secondary education at the post compulsory level and to Farrer in particular it may be useful to retrace a little of the history of the current situation.

1. **The Finn and Meyer reports** recommended the convergence of general and vocational education at the post compulsory school age level and a target of 90% of all young people completing the equivalent of Year 12 by the year 2001 was set.

2. The report called **"The Australian Vocational Certificate Training System " (Carmichael Report)** which was released in 1992 and subsequently endorsed by the Australian Education Council. The Australian Vocational Certificate (A.V.C.) training system is a new Australian system for combining work and training. It aims to extend training to all those young people who do not at present have an opportunity to participate and to ensure that Australia has a more educated, skilled and productive workforce in an internationally competitive Australian Economy.

3. The **N.S.W. Board of Studies "Pathways"** documents and **N.S.W. Government's "Directions"** paper which expand the post-Year 10 Education and Training Pathways.
For example ;
Pathway 2 - Schools: H.S.C. with Vocational Education Accreditation - may have most relevance to us.
We will need to ensure compliance with competency standards endorsed by the RTC in order to give our courses credability in the workplace and to facilitate articulation arrangements with TAFE and Agricultural Colleges.

Pathway 3 - TAFE: H.S.C. with Vocational Education Accreditation - is another option which may suit some students.

Training Proposals

The Government's response to the Carmichael Report to date has been to provide funding to pilot some programs which have been developed under the A.V.C. guidelines. These Commonwealth funds have been used in two ways in N.S.W.

1. **Institutional Arrangements** - whereby funds have been provided at system level for development of new initiatives in Vocational Training at the post compulsory school level.
(NB. Funds for these arrangements have now been exhausted.)
Examples include -
Industry Studies - by the Board of Studies
Senior (Vocational) Colleges
Local Industry Education Network Committees
Teacher in Business Programs -
NB. I have received funding to spend 3 weeks in this program in Term 4

2. **Industry Arrangements** - which are still being encouraged. A BHP program and one involving Email are the only funded ones to date although four others await consideration.

Additionally the Rural Training Council has applied for funds to mount a feasibility study into a project called **"Agriculture - Farm Work Skills"** for senior secondary students. This proposal is for a competency based vocational pilot encompassing flexible delivery modes which could make it available to students in all geographic locations. Articulation arrangements into higher A.S.F. (Australian Standards Framework) level courses will be negotiated.
Murrumbidgee College will administer the project and develop training materials, training strategies and methodologies for the project, should funding be approved.

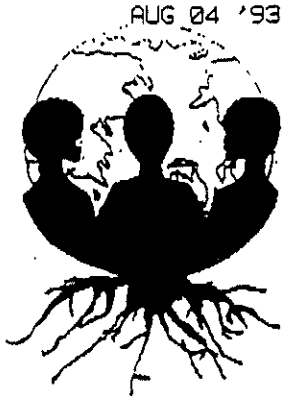
A further option, being considered in North West Region , is for a **Rural TRAC** type course which would involve students spending one day per week in on the job training in rural industry.
This proposal may be able to be integrated into the RTC proposal in some way.

R. J. (Bob) Guest
N.S.W.A.A.T. Representative
Rural Training Council

Classroom 2000, Considerations

Some factors that may be impinging on our classrooms:

- the amount of information in the world doubles every 2.5 years.
- 80% of the children in year 2 this year will enter careers that don't exist now, involving technology that hasn't yet been invented
- by the Year 2000 service jobs will form 90% of the economy.
- employees will change professions, not just jobs, 4 or 5 times during their working lifetime.
- 90% of the workforce will work for companies employing fewer than 200 people.



Around the Nation
Around the World

WOMEN IN AGRICULTURE

Australia invites you to participate in the
Inaugural
1994 INTERNATIONAL CONFERENCE
to be held at Melbourne University
on 1st to 3rd July 1994
The theme of the conference will be
" Women in Agriculture - Farming For Our Future "

The program will cover sustainable development, production, economics, environment and the role of women in each of these areas.

As a participant you and/or your organisation will hear and learn about these topics from national and international keynote speakers, workshops, panel and round-table discussions, formal and informal networking and international forums. Pre and post-conference farm tours will also be available.

This will be your opportunity to participate in an international forum addressing current concerns in agriculture by intergrating the experience, knowledge and skills of women in agriculture from around the world developing networks for future discussion, communication and action on national and international agricultural issues.

The conference is convened in recognition of the role of women in agriculture globally now and in the future.

● **To express your interest please return the portion below:-**

Name: .....

Address: .....

.....

Telephone: ..... Facsimile: .....

Area of interest, *e.g.* ☐ Women in Agriculture ☐ Environment ☐ Production

● **Please send to:** Networking Co-ordinator, Women in Agriculture,
Department of Conservation & Natural Resources,
7 Service Street,
BAIRNSDALE 3875, VICTORIA, AUSTRALIA.

Telephone: [051] 52 0400 *Facsimile:* [051] 52 0444

AGRICULTURE WORKSHEET

41

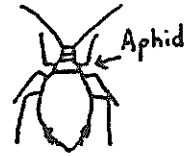
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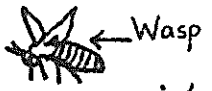
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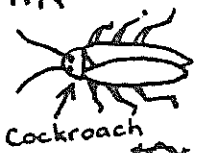
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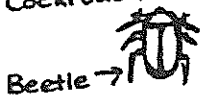
INSECTS WONDERWORD

G	M	O	S	O	U	I	T	O	E	S	P	S	A	W
R	A	N	T	S	U	H	C	A	O	R	K	C	O	C
A	X	I	S	E	Y	E	O	N	U	O	P	M	O	C
S	I	A	O	A	P	T	E	O	F	O	S	S	I	L
S	L	A	S	T	C	E	S	N	I	E	E	E	E	T
H	L	W	O	L	L	E	Y	O	B	R	I	X	G	E
O	A	I	B	U	G	P	N	O	U	E	C	H	A	L
P	A	E	L	S	W	U	I	C	R	D	E	T	O	T
P	D	E	A	F	H	P	T	O	G	A	P	O	N	E
E	E	E	A	V	R	A	L	C	D	S	S	M	E	E
R	T	N	E	M	G	E	S	G	R	E	E	N	P	B
S	E	T	I	M	R	E	T	H	O	R	A	X	P	A
I	C	H	E	W	I	N	G	T	C	E	L	L	A	R
S	S	E	I	A	C	A	M	O	U	F	L	A	G	E
O	E	L	W	N	N	E	M	O	O	B	A	O	W	T
H	I	B	G	N	A	T	S	I	L	K	C	R	O	P
P	L	I	L	E	A	F	H	O	P	P	E	R	S	O
R	F	O	A	T	R	M	O	A	E	A	W	I	N	O
O	N	N	I	N	N	O	T	P	S	T	I	G	E	I
M	O	S	B	A	R	I	A	H	T	A	N	H	T	P
A	G	M	U	I	B	A	L	I	S	N	G	G	E	F
T	A	O	G	A	E	L	F	O	L	O	W	S	E	L
E	R	P	S	A	W	P	I	S	R	O	U	N	G	O
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The WONDERWORD is ..... _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

$Clue

INSECTS " LIFE ON EARTH " _ _ _ _ _ _ _

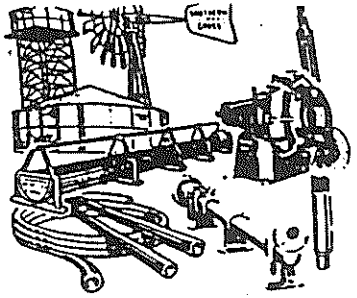
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BLOOD	BUG	BEETLE	COCOON	CAMOUFLAGE	CROP
CHEWING	COCKROACH	COMPOUND EYE	CELL	DUNG	DEAF
EGG	FOSSIL	FLEA	FLAT	GNAT	GRUB
GRASSHOPPER		GREEN	HEAD	HAIR	INSECTS
JAW	LARVAE	LEPIDOPTERA	LAID	LEAFHOPPERS	
LACEWING	LAST	LABIUM	LOUSE	LEAF	MOSQUITOES
MAXILLA	MANDIBLE	METAMORPHOSIS		NET	ORTHOPTERA
ODONATA	PUPA - PESTS		QUEENBEE	RED	SILK
SEX	SIP	SIX	SEGMENT	TWO	TINY
THORAX	TERMITES	WASP	WING		

20.



-49-

MACHINERY MAZE



S M U L T T R A C T O R A

T C O A D T R U C K E K S

R O A W I R A P U L L E Y

O M U G E U R B L A R N E

L B G O S R E I T O O F O

R I E T E E T K I W U E H

E N R R L G S E V L N G B

O E N E O A E H A Y S A H

A N O O I K V O T I L R S

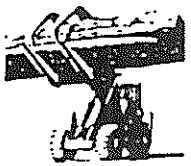
E S T E E N R K O E N E D

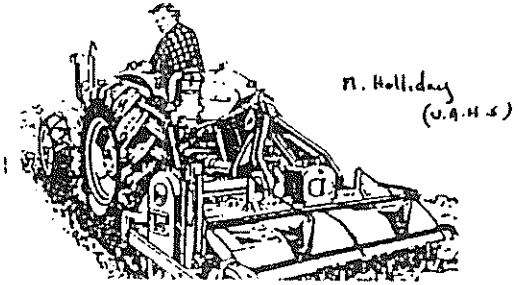
R A F E L I A O R A T T I

P N I S C L H A R R O W S

S C A R I F I E R E W E T

COMBINE
PLOUGH
CULTIVATOR
SEEDER
SPREADER
TRACTOR
BALER
MOWER
HARVESTER
HEADER
HARROWS
HOE
TYNE
AUGER
HAY
DIESEL
DISC
PULLEY
LINKAGE
TRUCK
BIKE
SCARIFIER





M. Holliday (U.A.H.S.)

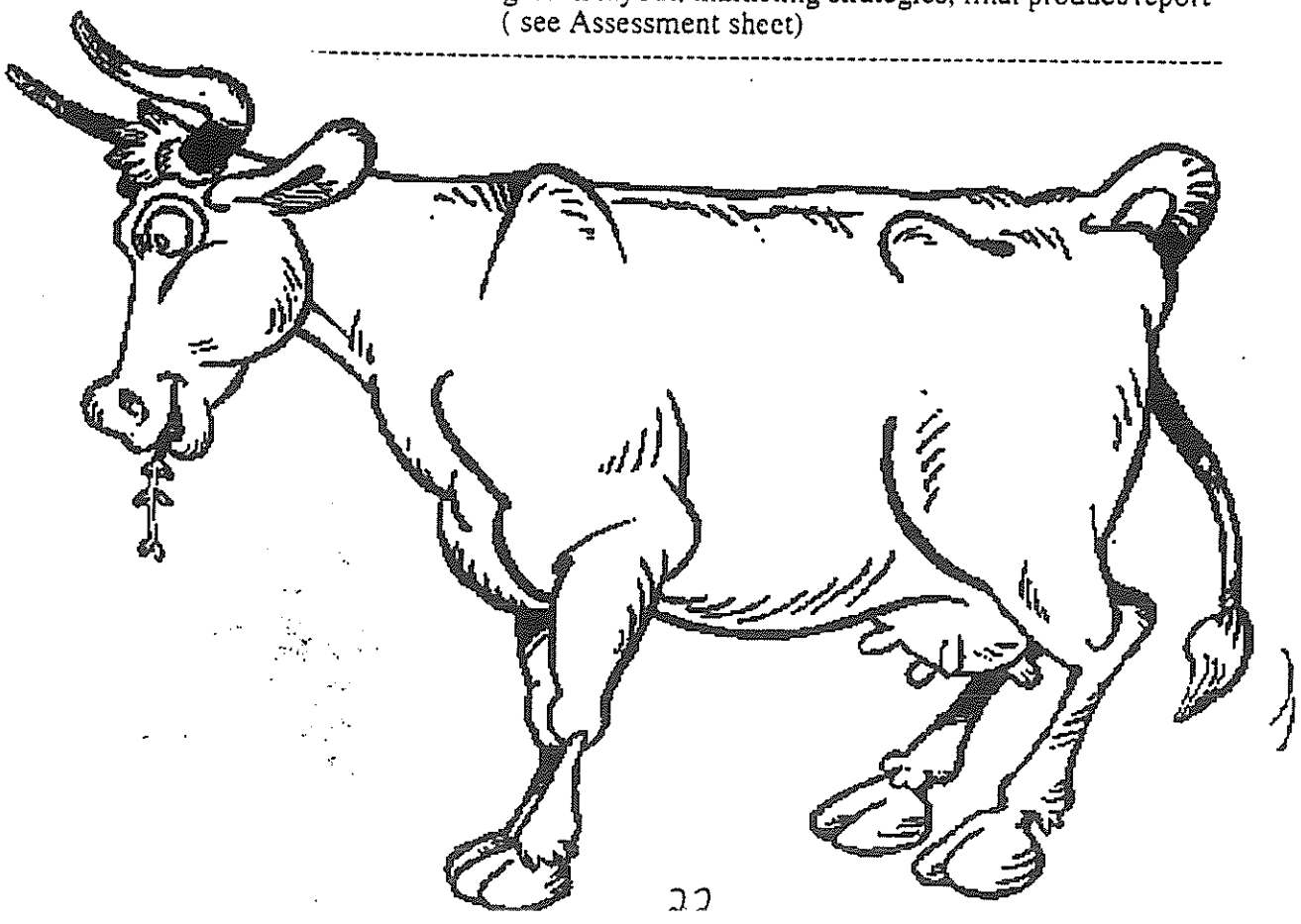
D & T
Tweed River High

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 approx: 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

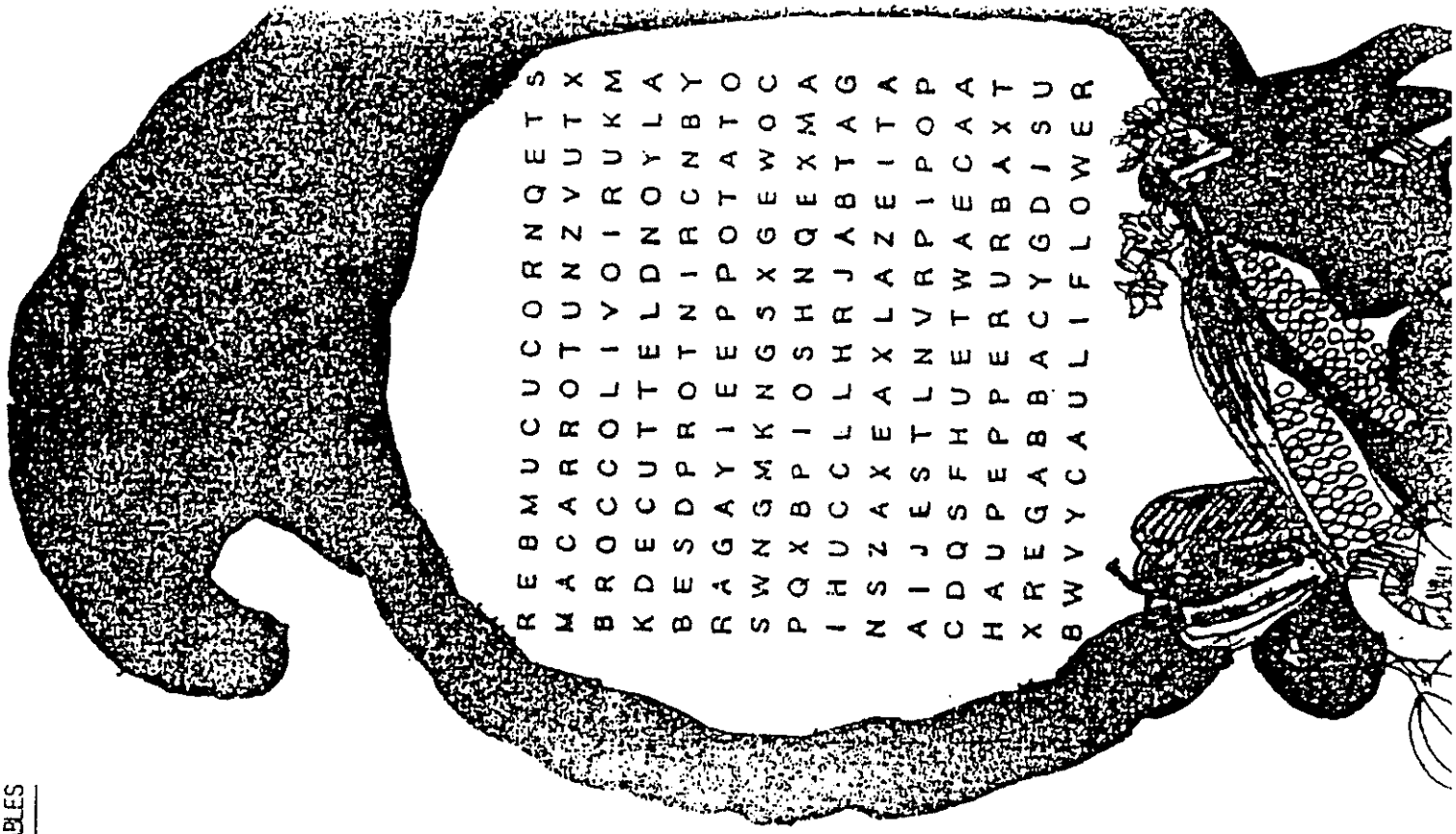
Global	Companion planting and organic gardening techniques to address the issue of chemicals used in food production use of herbs as insect repellents and cooking in ethnic cultures
HUMAN IMPACT	
Cultural Issues	Comparison of use of herbs by Aboriginal and European cultures (native/wild herbs)
Environmental 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 monastries - 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 quantity 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)



Objective (Knowledge)	Outcomes(Knowledge)
Students will develop knowledge and understanding about:	
* a range of technologies and their uses	- describe the technologies of basic gardening tools, computers, ORT Sensorsand machines used in garden developments - relate these technologies to designing/ growing and using herbs
* the role of technology in society	- identify the technology used for garden production - relate herb production to personal/ commercial domains - relate food production and preservation to technology
* the impact of technology on the environment	- relate the use of resources to environmental sustainability - identify environmental issues in herb propagation
* designing, making and evaluating products	- analyse the situation and motivation for the design project - relate the importance of 'quality' in design development - identify the functional requirements of the herb garden and product - outline the application of computers in designing the garden - identify criteria for evaluating gardens/ herb products in the marketplace
* processes used in making and marketing products	- relate the processed used to develop the garden/product to eqivalent commercial processes - identify marketing strategies at various stages of the project
* resources used in making products	- describe the structures and properties of plants - identify the appropriate tools and equipment, materials to use in this brief
* sake working environment, habits and procedures	- describe and display safe work practices

Objectives (Skills)	Outcomes (Skills)
Students will develop skills in:	
Designing	- analyse the situation and refine the design brief - brainstorm possible solutions to the brief - research information related to herb growing - domestic/commercial - experiment with propagation methods - research uses of herbs and evaluate commercial viability - design a herb garden and product - develop sketches of the garden and evaluate its suitability - computer aided
Making	- experiment with various herbs, soils, methods - evaluate- redesign if needed - prepare seed/lings and garden pots/beds baskets - demonstrate a proficiency in using a variety of skills, tools and equipment
Evaluating	- make the garden using appropriate techniques and technology - nuture plants to a quality suitable for use as a commercial product - assess safe work practices - final herbal product choice
Using computers	- demonstrate proficiency in using Clarisworks- word processing, graphics and database
Communication	- prepare diagrams/sketches for garden design - research the needs of consumers for herbs - prepare a project report for final presentation
Marketing	- suggest ideas for marketing herbs - present a marketing strategy for the herbal product developed
Managing	- plan the steps in constructing the herb garden and product - demonstrate safe and co-operative work practices - select apporpriate garden tools/ technology and processes and manage to completion

Objectives (Attitudes)	Outcomes (Attitudes)
* an appreciation of the implication of technology on society	- develop an appreciation for and commitment to the efficient use of technology in food/product processing
* a sensitivity to the effects of technology on the environment	- recognise the need to use resources in a sustainable way to maintain our quality of life
* an awareness of the impact of technology on the quality of life	- appreciate the impact technology has on agricultural developments - willingly use technology for this brief
* a sense of responsibility for the use of technology	- develop confidence, purpose and competence in using technologies - value safe work practices and conditions
* an appreciation of the contribution of self and others in the process of design	- appreciate personal needs for creative leisure pursuits through effective design - strive for success and quality in herb production - recognise the therapeutic qualities of gardening and also the commercial viability - value techniques and quality through positive oral communication within and between groups



A HARVEST OF VEGETABLES

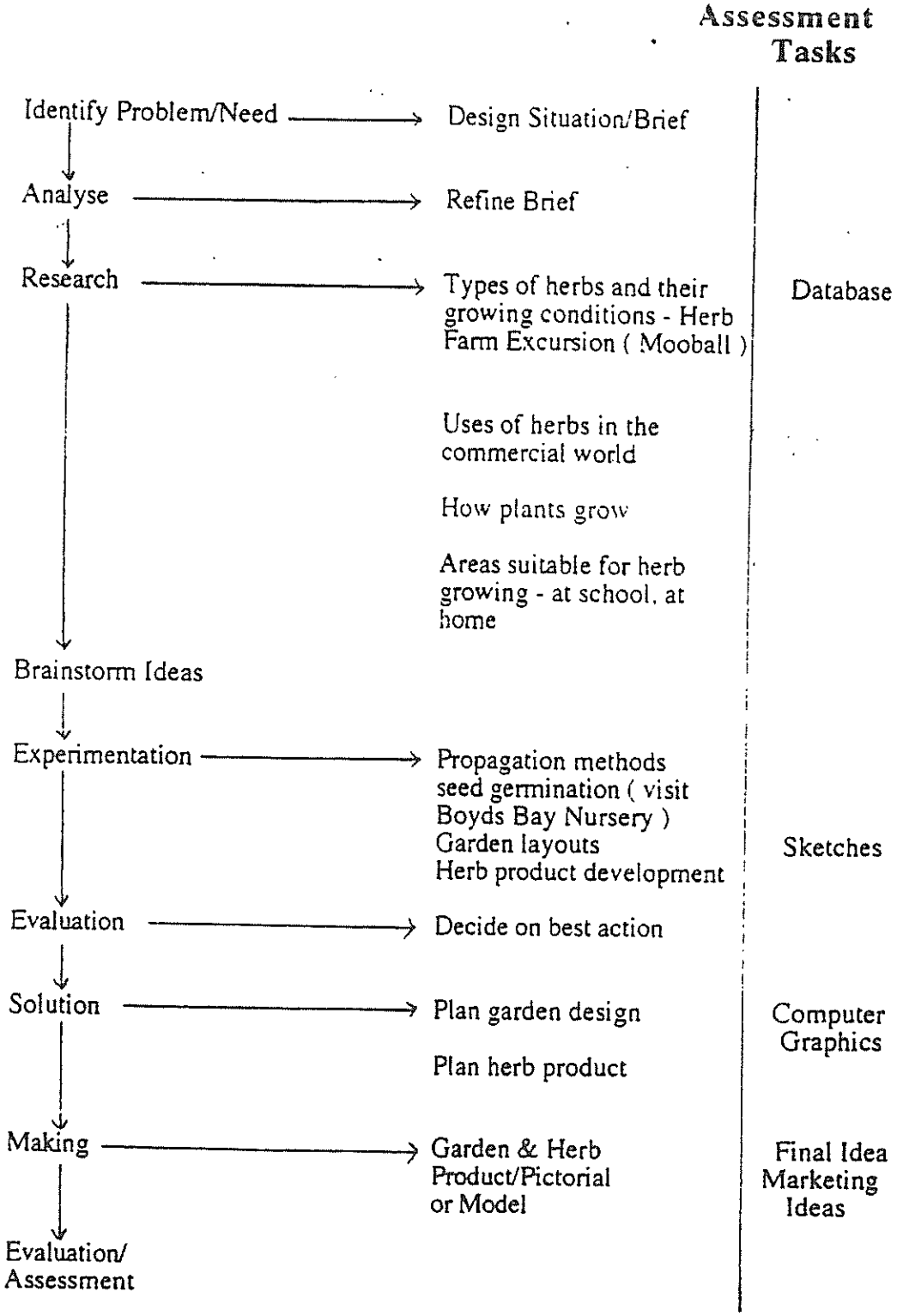
BEANS
BEET
BROCCOLI
BRUSSELS SPROUTS
CABBAGE
CARROT
CAULIFLOWER
CELERY
CORN
CUCUMBER
EGGPLANT
ENDIVE
KOHLRABI
LETTUCE
LIMAS
OKRA
PARSNIP
PEAS
PEPPER
POTATO
RADISH
RUTABAGA
SPINACH
SQUASH
TOMATO
TURNIP
YAM

D & T
Tweed River High

Agriculture Context

Overview and Flowchart

A Teacher's Guide



Unit Details / Content	Strategies / Applications
Cycle 1:	
Introduce Design situation and Brief	Distribute Agriculture Booklets to each student and stress the importance of having these at each lesson and that they form part of their Design Folio Read and discuss the situation/brief and identify the problrm/need
Analyse the Brief	Students work in groups of 4 and refine brief to suit their needs/skills Students may visit School Farm and walk around the school to observe resources available and potential herb garden sites
Cycle 2:	
Research phase of the project:	
- What are herbs?	Definition of herbs - recordin folio
- Herbs in history	Overview of herbs in history - discussion and brief summary in folio
- What are herbs used for? * culinary - cooking, flavouring * cosmetics - creams, perfumes * medicinal - lotions, tonics, role of herbalists	Brainstorm uses of herbs - record list Homework: 'Pantry Puzzle' Excursions : Herb Farm (Mooball) Boyds Bay Nursery
- What do they look like and taste like?	Taste test: students work in pairs (you could use a blindfold) one student tastes the other records comments on table provided, then swap roles. (use fresh and dried herbs eg. basil, parsley, mint
Cycle 3:	
Basic Botany - parts of a plant - plant anatomy	Students fill in parts of a plant (from OHT) and basic botany worksheets
Plant Propagation - sexual and asexual methods	Students investigate the advantages and disadvantages of these methods and complete table in booklet
What do seeds look like?	OHT on seeds. Students complete activities on seeds
What do germinating seeds need?	Students carry out experiments (test tubes) as per booklet in groups of 4.

Cycle 4:	
Soil textures - sand - loamy sand - silt - clay	Students test soil texture by doing activity on soil
Mulches - what are they and why are they used?	Brief discussion of uses and summary in folios
Growing seedlings - using punnets - herb seeds - potting mix, water - labels - caring for seedlings	Students prepare their seeds/lings in groups of 4 and nuture for a few weeks until transplanting
Growing plants from leafcuttings and softwood cuttings	Students prepare an experiment on African Violet or Coleus from leaf cuttings and complete worksheet on rooting powder and softwood cuttings
Cycle 5:	
Propagating plants	Students make a simply designed plant propagator from a coathanger. plastic and pot plant filled with sand and complete the questions on the worksheet Use ORT technology - Sensors (if available)
Things to grow plants in	Students do PMI worksheet in booklets
How will I design my garden? - area - sun, wind, drainage - types of herbs to be planted where?	Students complete worksheet on garden design Brainstorm ideas, in groups and decide on which herbs are going where - complete activity using sundial
Cycle 6:	
Computer applications	Students record on database, the type of herb, its appearance, how it is planted, and its special requirements during growth
Garden tools and machines - use, care, storage - safety	School Farm visit observation of tools/equipment discussion on use, care and safety.
Planting out seedlings	Plant sedlings for next group if ready
Cycle 7:	
Commercial uses and preservation of herbs - developing a herb product eg. pot pourris, pomanders, herb sachets/ pillows, infusions, butters, oils/vinegars, cosmetics-shampoos, creams, soaps,	Refer to brainstorm list Students investigate the uses/preservation ofherbs for profit and design and make a herb product that has market potential (use garden herbs or purchased fresh herbs if necessary)

Designing a package and label for product

Develop marketing proposals for product - pictorial
- model
- samples etc

Evaluation and assessment

Brainstorm marketing ideas and prepare selected marketing strategie(s)

Teacher and peer evaluation
Final Presentation - oral and written report, including all folio work, the final herb garden design and product idea - Assessment as per sheet

D & T
Tweed River High

ASSESSMENT SCHEDULE
AGRICULTURE CONTEXT
" HERBS TO GROW "

Name _____
Class _____
Unit Grade _____

Descriptor	Evidence		A	B	C	D	E	N	Comment
Demonstrates an ability and willingness to investigate and gather information	Research - Herbs	Content							
		Folio							
Ability to produce appropriate graphics, sketches and drawings	Pictorial / Garden Sketch								
	Package								
Ability to carry out research outside the classroom	Excursion - Herb Farm	Folio Content - Excursion answer sheet							
Ability to produce a product and package as a solution to the problem and / or Brief									
Ability to express and record in written form	Design Folio	Package completeness							
		Neatness / presentation							

A - outstanding B - excellent C - very good D - satisfactory E - elementary N - no evidence

Willingness to work and Co-operate with other students	*Always*	*Sometimes*	*Seldom*	*Never*

General Comments _____

Price list and order form (May 1993)

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 @ $50 = $
OR individual titles	
EXOTIC DISEASE - think the worst, first	copies @ $20 = $
EXOTIC DISEASE - the nation's nightmare	copies @ $20 = $
EXOTIC DISEASE - to market, to market	copies @ $20 = $
EXOTIC DISEASE - stop the spread	copies @ $20 = $
EXOTIC DISEASE - vital signs	copies @ $20 = $
OR compile tapes	
EXOTIC DISEASE - the series (compile tape - all five programs on one tape)	copies @ $20 = $
EXOTIC DISEASE - show tape (3 hour long repeating compile)	copies @ $20 = $

Recognising Exotic Livestock Diseases

A series of eleven 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 @ $30 = $
2. Two of a Kind - avian influenza and Newcastle disease	kits @ $30 = $
3. A Tale of Transmission - serapin and BBB	kits @ $30 = $
4. A Strange Kind of Madness	kits @ $30 = $
5. Capripox (sheep pox, goat pox and lumpy skin disease)	kits @ $30 = $
6. Hypothetical - Rift Valley fever	kits @ $30 = $
7. Screw worm fly	kits @ $30 = $
8. Exotic diseases of pigs	kits @ $30 = $
9. Erosive diseases of ruminants (rinderpest, PPR etc) (Available June)	kits @ $30 = $
10. Foot-and mouth disease and other vesicular diseases (Available June)	kits @ $30 = $

Slide sets

On Alert for Bluetongue (48 slides)	sets @ $60 = $
Two of a Kind - avian influenza and Newcastle disease (47 slides)	sets @ $60 = $
Screw worm fly (32 slides)	sets @ $40 = $
Capripox (sheep pox, goat pox and lumpy skin disease) (35 slides)	sets @ $40 = $
Exotic diseases of pigs	sets @ $60 = $
Erosive diseases of ruminants (rinderpest, PPR etc) (Available June)	sets @ $60 = $
Foot-and mouth disease and other vesicular diseases (Available June)	sets @ $60 = $
Individual slides are available for $2 each - minimun 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. (Available June)

OUTBREAK CONFIRMED (boxed set with one copy of each program)	copies @ $50 = $
OR individual titles	
1. Stamping it out - an introduction to disease control	copies @ $20 = $
2. First things first - slaughter and disposal of sheep, cattle and horses	copies @ $20 = $
3. First things first - slaughter and disposal of pigs	copies @ $20 = $
4. First things first - slaughter and disposal of poultry	copies @ $20 = $
5. Cleaning it up - decontamination of property and equipment	copies @ $20 = $
OR compile tapes	
OUTBREAK CONFIRMED (compile tape - all five programs on one tape)	copies @ $20 = $
OUTBREAK CONFIRMED - Show Tape (3 hour long repeating compile)	copies @ $20 = $

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 @ $15 = $
Note: prices may change without notice.	TOTAL COST =

Please fax or post your order to: Communications Group, CSIRO AAHL

PO Bag 24 Geelong VIC 3220, Australia, ph (052) 27 5028, fax (052) 27 5555.

NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS

Muirfield Technology High
Barclay Rd.
North Rocks 2151
4 November, 1993.

Dear Colleagues,

IT'S NOT TOO LATE TO BE PART OF THE EIGHTH BIENNIAL CONFERENCE OF THE N.A.A.E. BUT GET YOUR REGISTRATION FORM IN ASAP

The theme of the conference is ***Technology Education For A Sustainable Future in Agriculture.*** In keeping with this theme the goals of the conference are

1. to facilitate the professional development of teachers of agriculture
2. to provide up-to-date information from producers, business and research institutions on current sustainable practices in agriculture
3. to provide a forum for the exchange of ideas on the impact of current and future directions in national agricultural and technological education
4. to increase the effectiveness of teachers of agriculture across Australia.

We have planned a comprehensive program with a variety of keynote speakers from rural business, research, education and support groups. Attached is a copy of the draft program, please note the conference tours which should allow interstate delegates to experience the diverse nature of agricultural pursuits in the region and allow for appropriate social interaction.

Travel:

All delegates are requested to arrange their own transport to and from the conference.

Accommodation:

Mountain Heritage Country House Retreat Katoomba is a restored mountain guesthouse with excellent conference facilities (and pool) in the centre of the picturesque Blue Mountains of N.S.W. The management of Mountain Heritage have offered us very competitive rates for the duration of the conference including:

* a package of $350 per person twin share all breakfasts, dinners and 4 nights
* daily rates of $95 per person twin share dinner, bed and breakfast
* accompanying spouse dinner, bed and breakfast $70 per day
* accompanying children under 10, dinner, bed and breakfast $40 per day

Registration:

Full registration of $175 entitles delegates to admission to all conference sessions, bus trips, lunches, morning and afternoon teas and the confernce dinner and J.S. Sutherland Memorial address

Daily registration of $50 entitles delegates to attend that day's sessions lunch and morning and afternoon teas.

Accompanying spouse and children are welcome on bus trips at a small extra cost.

Funding:

Now is the time to seek financial support to attend this conference. Make application to your school's human resource development committee and seek support at regional level. Remember registration, accommodation and travel costs to such conferences are tax deductible.

Deposits:

A $50 registration deposit per delegate is requested to reach the organising committee ASAP Similarly a $50 accommodation deposit per delegate will facilitate conference planning.

Cheques should be made payable to The National Association of Agricultural Educators (N.A.A.E.) and posted with the information sheet on the following page.

If you have any questions or suggestions about the conference please contact me as soon as possible . Looking forward to seeing you there!

Yours sincerely
Jenni Wilkins
Secretary N.A.A.E.

DRAFT PROGRAM

EIGHTH BIENNIAL CONFERENCE OF THE NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS.
Mountain Heritage Country House Retreat
Apex St. Katoomba, Blue Mountains, N.S.W.

JANUARY 23-27, 1994.

SUNDAY 23.

pm Arrival of delegates.
Registration.
Light meal/BBQ
Informal welcome.

MONDAY 24.

am Breakfast
Arrival and Registration of delegates.
Official welcome, introduction and opening of conference.
Morning tea
Conference address
Lunch

pm Conference address
Afternoon tea
Conference address
Dinner at Mt. Heritage and Biennial general meeting of N.A.A.E.

TUESDAY 25

am Breakfast.
Bus trip local area nurseries, mushroom growers etc.
Lunch at Mt. Heritage.

pm Conference address
Afternoon tea.
Conference address
Semi-formal conference dinner
and J.S. Sutherland Memorial Address at Mt. Heritage.

WEDNESDAY 26 (Australia Day)

am Breakfast.
Full day bus trip Western Slopes/ Tablelands of N.S.W.
Picnic/BBQ lunch

pm Bus tour continues
Dinner and wine tasting Mudgee Winery -bus return to Mt. Heritage.

THURSDAY 27

am Breakfast
Conference address
Morning tea.
Conference address
Conference close and farewell
Lunch (Checkout)

EIGHTH BIENNIAL CONFERENCE OF THE NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS

Technology Education For A Sustainable Future in Agriculture.

January 23-27 1994.

Mountain Heritage Country House Retreat
Apex St. Katoomba Blue Mountains.

To express your interest please return the portion below :

Name:_____
School/Organisation:_____
Postal address:_____
Telephone:_____ Fax:_____

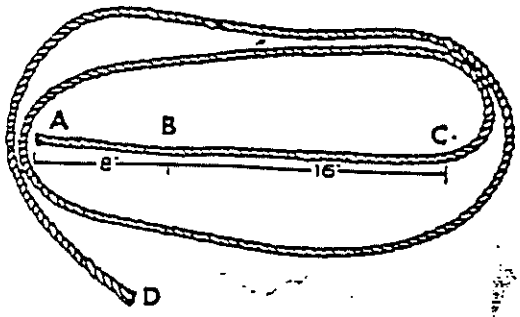
*I have enclosed a $50 deposit for registration Yes/No
*I require interstate travel arrangement assistance Yes/No
*I require accommodation at Mt. Heritage Yes/No
*I have enclosed a $50 deposit for accommodation Yes/No

Please list names of accompanying spouses/adults/children who require accommodation.

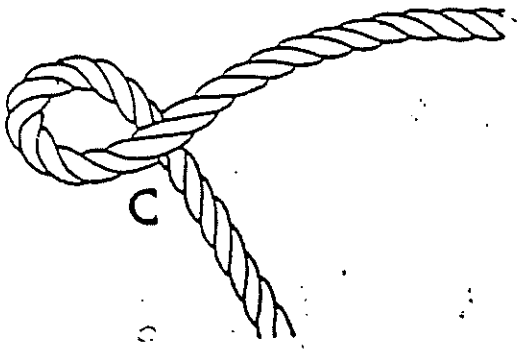
Please send to: Jenni Wilkins
Muirfield Technology High School
Barclay Rd.
North Rocks 2151
ph. 02 8722244(school) & 02 5609969 (home)
fax. 02 8714106

before September 30, 1993

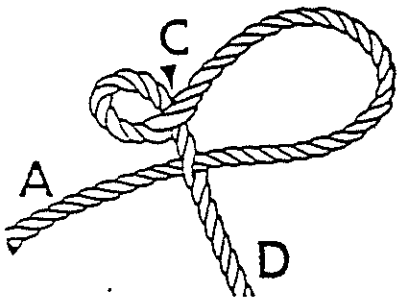
HOW TO MAKE A HALTER



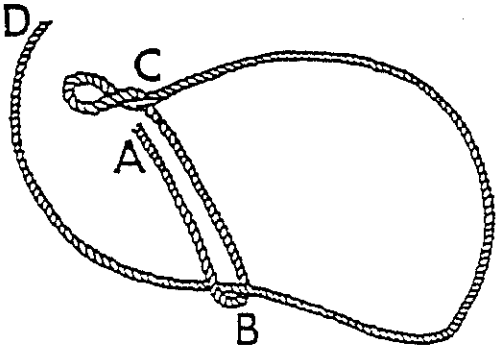
1. Lay out a piece of 7/16 or ½-inch manila rope, 13 feet long. Mark points A, B, and C as shown.



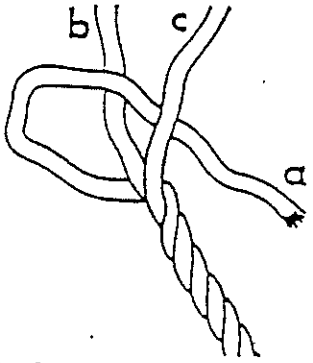
2. Work end of rope, D, between strands at point C. Point C is 24 inches from end of rope, A.



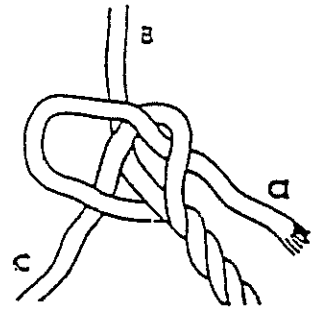
3. Now work end of rope, A, between strands near point C. This will form two loops as shown above.



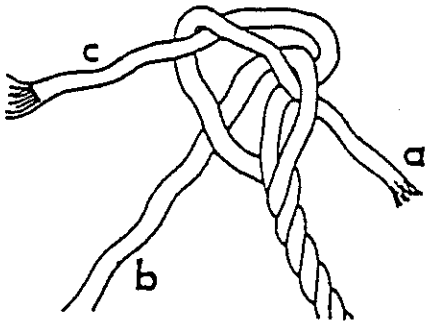
4. Form loop at B by folding A back over the rope and unravelling end A for 6 or 8 inches.



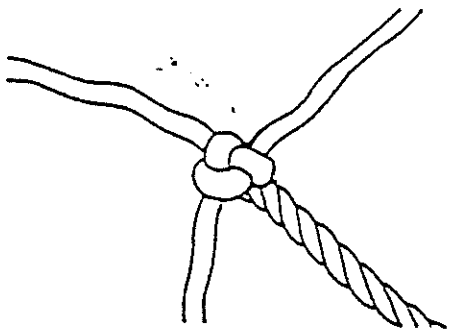
5. Form a crown knot in end D by unraveling 6 to 8 inches. Bring strand A in front of strand B and behind strand C.



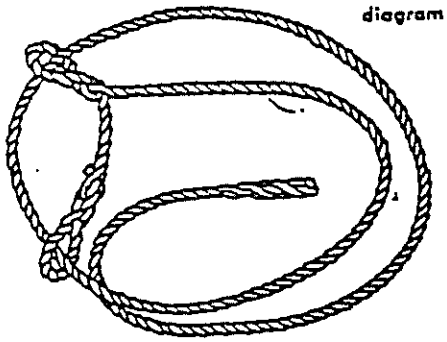
6. Bring strand c between the loop formed by strand A and strand B. Study the diagram above.



7. Now put strand b through the loop formed by strand A. Study the preceding diagram to see how each loop is formed.



8. Now pull all strands tight to form the crown knot and interlace loose strands back into strands of your rope.



9. Complete your halter by putting end D through loop B and then through loop C.

1995 AGRICULTURAL BIENNIAL CONFERENCE

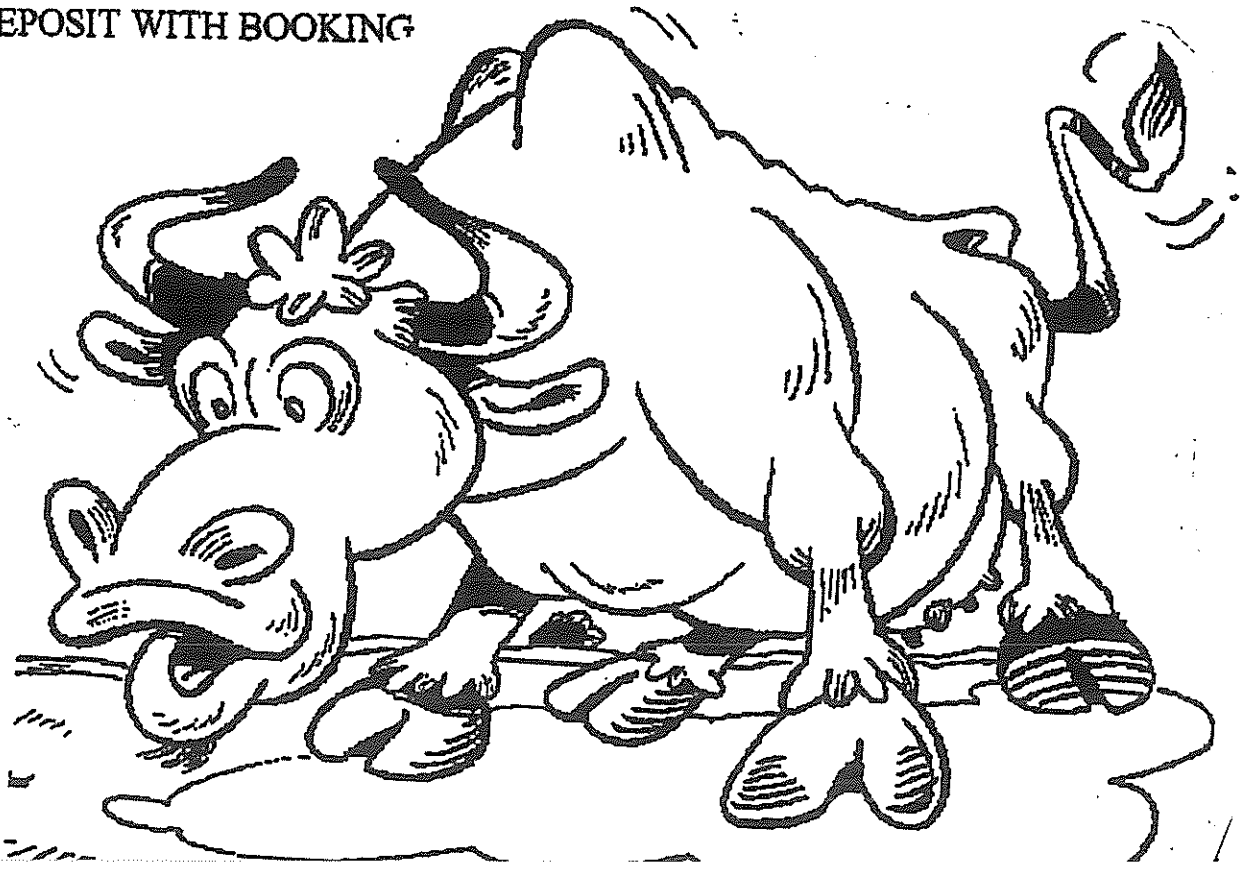
21-25 JANUARY 1995
LAKE AINSWORTH SPORT AND RECREATION CENTRE

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VAN SITES FROM $90 PER WEEK.
$30 DEPOSIT WITH BOOKING



ACTIVITY 13

Salt in the soil

▶ Aim

To show if salt in soil can dissolve in water.

To discover if salt remains in soil when salty water evaporates.

▶ You will need

- Three beakers
- Handful of fine soil
- Three tablespoons of salt
- Bunsen burner
- Tripod and mat
- Fine sieve (or piece of cloth)
- Labels to stick onto beakers

Part A

▶ What to do

1. Examine the Figures 13(a), (b), and (c).

2. Pour tap water into one beaker. Label it 'Beaker 1' and place to the side.

3. Put a half handful of soil in your sieve. Hold the sieve above a clean empty beaker and pour water through the soil (so it drains into beaker).

4. Label the beaker 'Beaker 2' and put it to the side.

5. Rinse the sieve.

6. Place the other half handful of soil in the sieve and mix in the salt.

7. Again, pour water through into a clean, empty beaker and label it 'Beaker 3'.

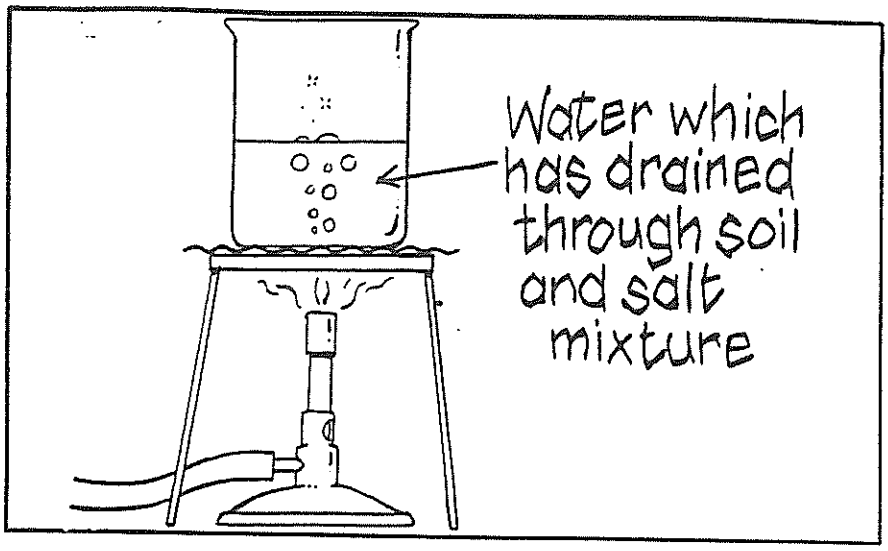


Figure 13(b)

▶ Questions

1. Describe what is left in the beaker (if anything) after all the water has evaporated.

2. You placed three tablespoons of salt in the soil to start.

(a) Do you have three tablespoons in the beaker?

(b) If not, where is the rest of the salt?

(c) Suggest ways you could check this.

▶ Extra questions

1. Examine Figure 13(c). If the watertable rose up through the soil, what might happen to the salt?

2. Why might the watertable rise?

3. How do you think a rising watertable would affect plants? Explain.

4. If salty water reached the surface, describe what may happen next.

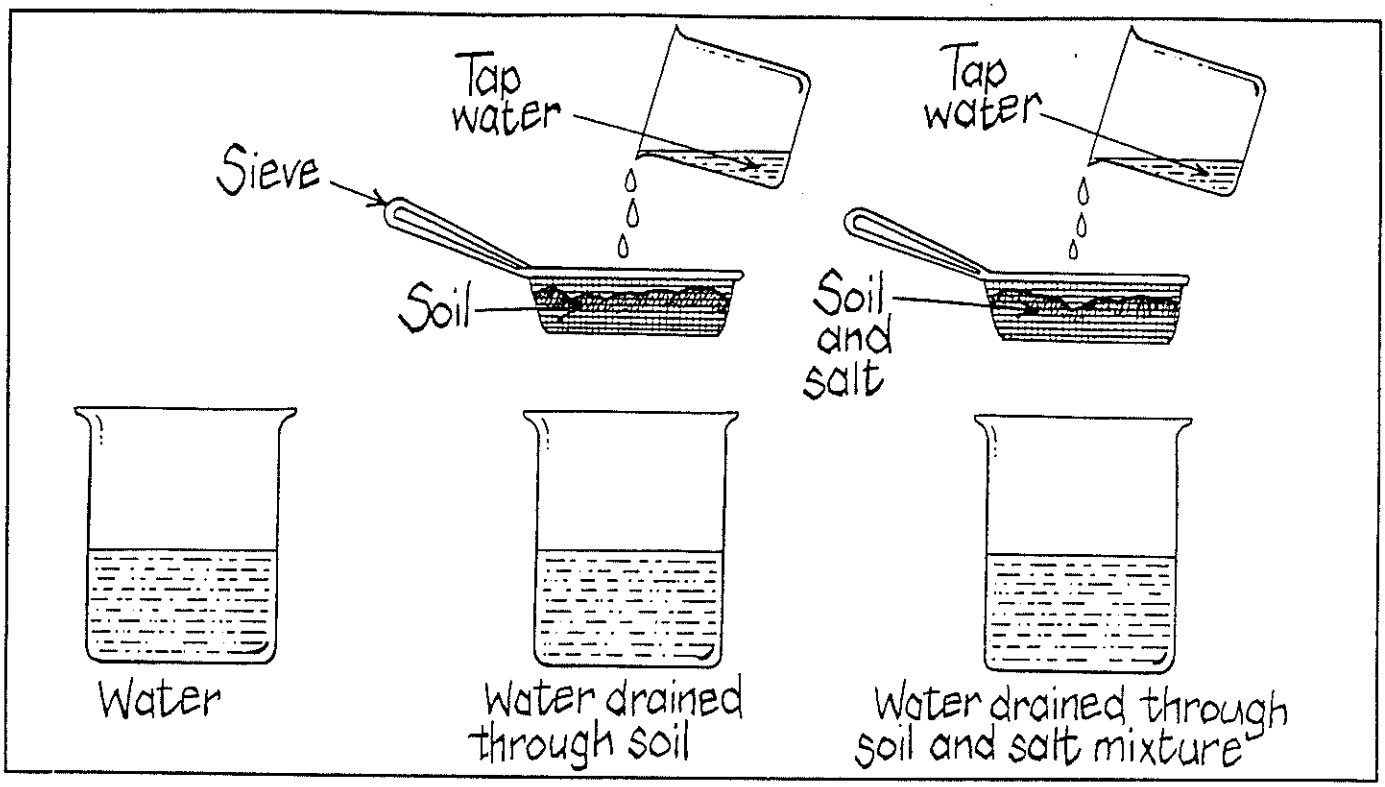


Figure 13(a)

▶ Questions

1. Describe any differences you observe in the water in each beaker.

2. Taste the water in each. Describe the taste.

Part B

▶ What to do

1. Heat the water that has drained through the soil and salt until all the water evaporates by placing Beaker 3 on the tripod (Figure 13(b)).

2. Make your own hypothesis about what you expect to be left in the beaker.

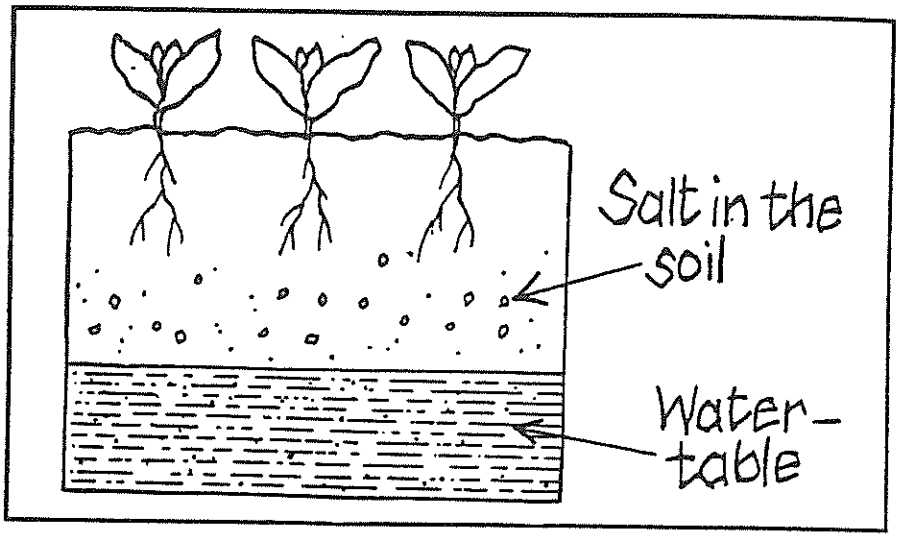


Figure 13(c)

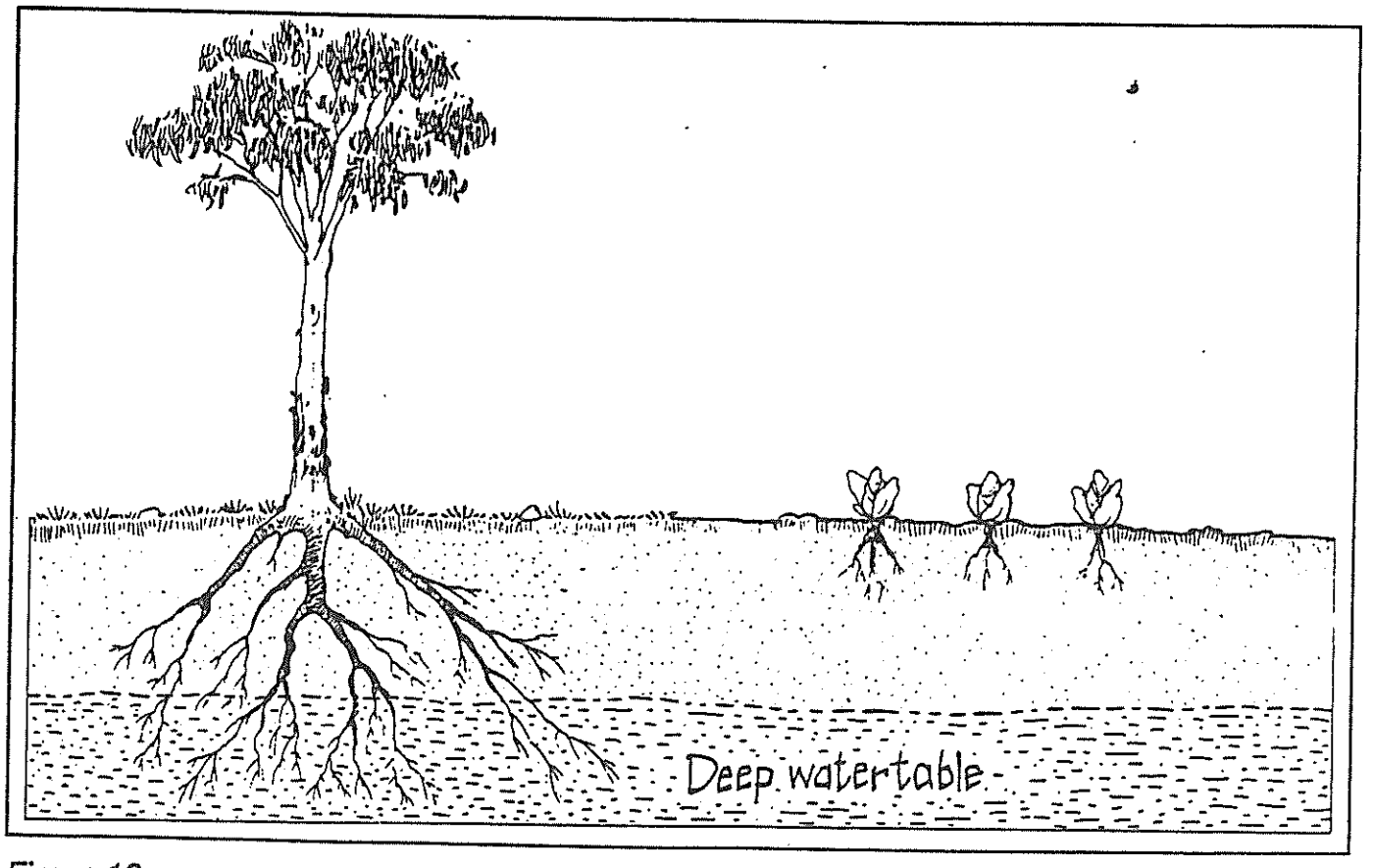


Figure 12

MEAT-WORD CLUES

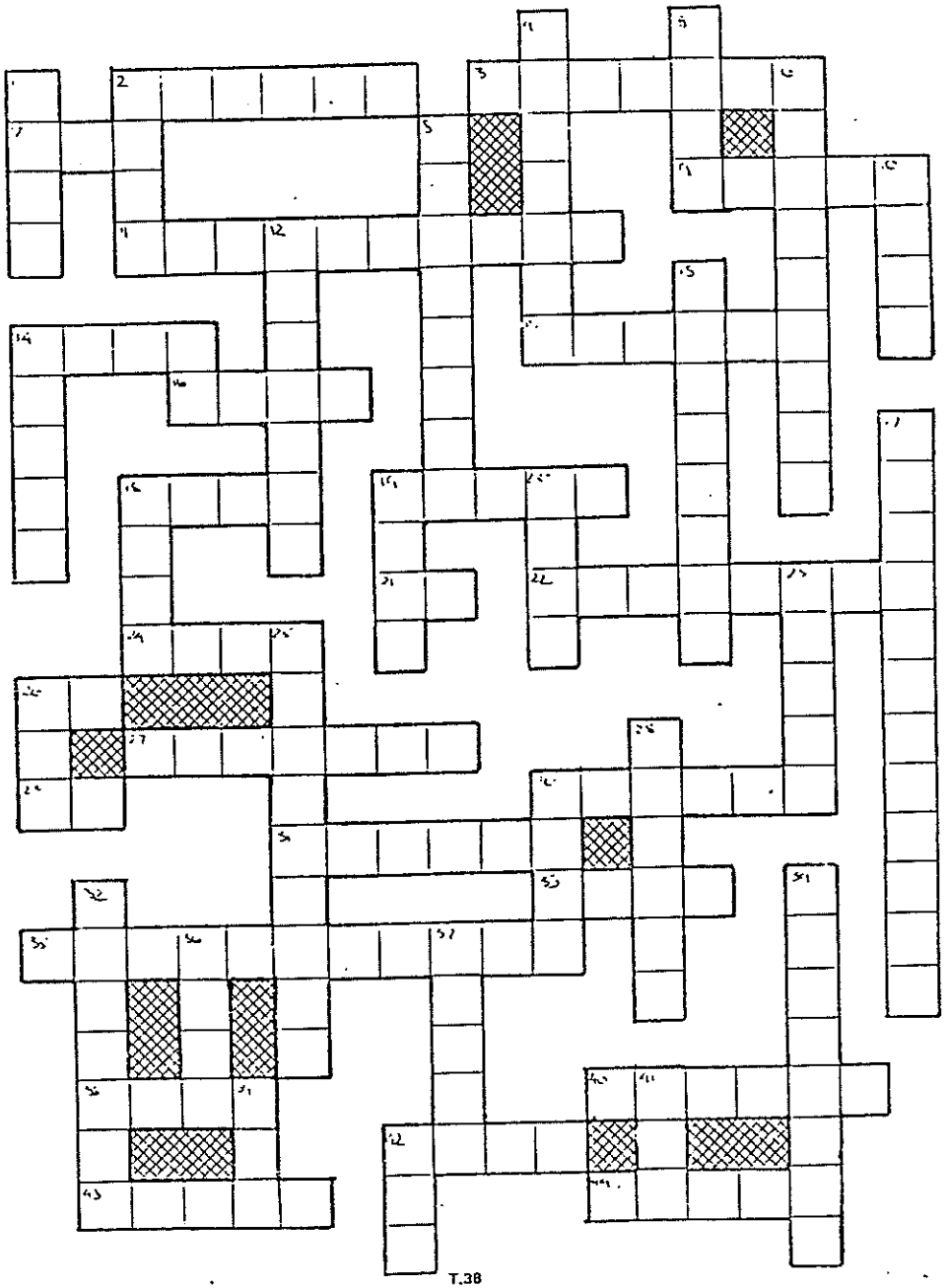
ACROSS

2 Meat is the _____ of animals.
3 Meat provides us with _____ in our diet.
7 (13 - 12) x (6 + 10) x $^{1}/_{16}$ = ?
9 A good farmer _____ down which cattle are producing the most meat.
11 _____ is one of the qualities the consumer looks for in meat.
14 The farmer receives payment for his stock after the _____.
15 Bruising is difficult to _____ in the live animal.
16 Meat is an important part of our _____.
18 You look through a _____ system when looking at slides through a microscope.
19 _____ does affect meat quality.
21 Can you estimate meat quality just by looking at it?
22 The level of _____ in the body at slaughter time affects tenderness.
24 _____ are high in protein and are used to make meat substitutes.
26 Artificial insemination (abbrev.).
27 Cattle must be fed good _____ feed to produce plenty of meat.
29 For example (abbrev.)
30 The source of all food.

DOWN

1 The way we _____ meat will greatly affect its eating quality.
2 _____ is not the only product we get from beef cattle.
4 If cattle are not carefully handled, they may be _____.
5 The name for meat without very much fat.
6 _____ of the live cow has a big effect on meat quality.
8 The person at the end of the meat chain.
10 _____ is a meat by-product.
12 Meat inspectors look for this in carcasses.
13 _____ is important as it helps us to improve the quality of the meat produced.
14 One of the most expensive cuts of meat from a beast.
17 People who don't eat enough protein in their diet suffer from _____.
18 When prices for cattle are down farmers may need a _____ from the bank.
19 This part of the beast is often used in fertilizer.
20 Another animal product high in protein.
23 Cattle make meat from _____.
25 _____ and breeding from the best beasts in the herd is one way of improving meat quality.
26 Another factor affecting meat quality.
28 The first person in the meat chain.
30 Cattle are often sold in groups or "_____".

MEAT-WORD



4 MAT LEARNING

"TEACHING ALL THE CHILDREN ALL THE TIME"

Now with an even bigger emphasis on teachers catering to the different learning styles of pupils plus with new Junior and Senior Agriculture Syllabi just around the corner NOW is an opportune time to share with fellow "aggies" on the 4 - MAT Model and in turn 4 MAT programming for Agriculture.

Our Region (Western) has been fairly active in the last four or five years of enabling teachers to hear about new and useful ways or theories about how children think and better learn. Part of this has come about from guest speakers speaking to teachers either at Western Region Schools in-service days or regional inservice days. Much has been organised by the Lachlan Valley Education Resource Centre at Forbes. Some of the Learning style speakers include Dr Julia Aitken, Michael Grinder, Stephanie Burns and Jane Perry.

One particular model that I found particularly useful was that of the 4 MAT approach to learning. This is a model put out by Bernice McCarthy 1987 The 4 MAT System . EXCELL, Inc. Barrington, U.S.A.

From listening to these speakers and being quite enthused on what was said I felt that I would like to ensure these teaching and learning approaches made their way into my class. **To better ensure this I knew I would have to program for it.** This I did in conjuction with L.V. E. R.C. who provided a small grant, advice and assistance thru a "Teaching and Learning Project" for myself to program and trial two 4 MAT units with two Year 10 classes. The results of this trial were published late last year in the Educational Reconstructuring Newsletter - Nov/Dec 1992 by Lachlan Valley ERC.

My conclusion fom employing 4 MAT programming is that it is a very worthwhile model to better cater for the diversity of learning styles of pupils, better reinforce knowledge plus it does ensure a more improved sequential approach to a body of learning. It still holds my enthusiasm! It stimulates a teacher to educate from a number of different angles and try new things.

Nowadays with many teachers employing the flexibility of computers for programming, plus new Agriculture syllabi just around the corner it's an ideal time for "aggies" who wish, to be in the vanguard of employing a workable, educationally sound model to their programming. Using computers is essential in recording the improvements you would wish to make to your new programs.

To give yourselves a quick clear overview of what the 4 MAT model basically is, I will enclose two pages from McCartneys publications that do this.

On the following pages you will see a 4 MAT approach for a Year 9 Agriculture unit on The Broiler Industry - "Drumstick", written by myself this year.

To discover more get in contact with your Regional Resource Centre and borrow Bernice McCarthy The 4 MAT System . There are four well presented manuals on the system and programming. Plus if you wish, send P Napier $10, Care of Young Technology High School, Young 2594 and I will send you a Macintosh 3.5in disc with a 4 MAT PROGRAM TEMPLATE plus several junior and senior units I have written this year and last. You will need Microsoft Word to run the program.

Peter Napier
Young Technology High School

4-Mat System of Learning Styles

CONCRETE
(Sense/feel)



WHAT IF? (25%)

start with what they see/feel and then plunge in
SEEK hidden possibilities
NEED to know what can be done with things
LEARN by trial and error and self-discovery

HOW WE PERCEIVE

WHY OR WHY NOT? (35%)

study life as it is and reflect on it
SEEK meaning
NEED to be involved personally
LEARN by listening and sharing ideas with others



ACTIVE
(doers)

HOW WE PROCESS

4	1
3	2

HOW WE PROCESS

REFLECTIVE
(watch)



HOW? (18%)

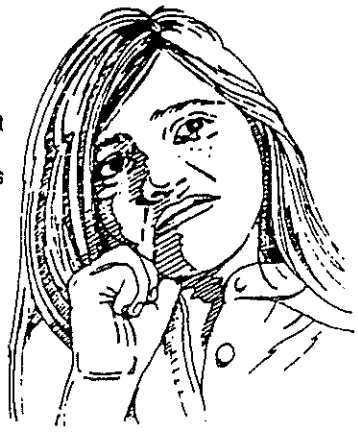
start with an idea, try it out, test if it works
SEEK usability
NEED to know how things work
LEARN by testing theories in ways that seem to make sense

(After Bernice McCarthy)

HOW WE PERCEIVE

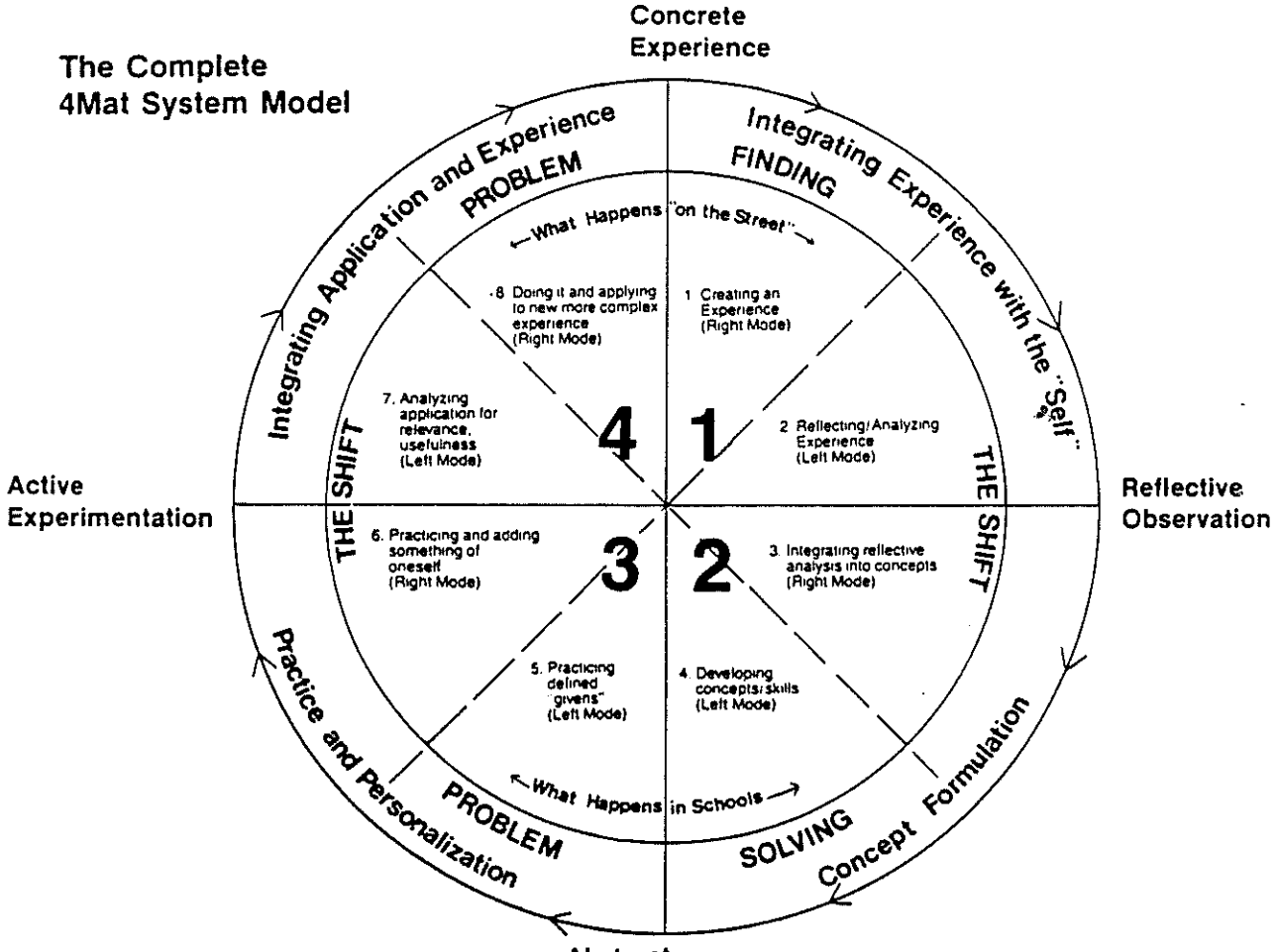
WHAT? (22%)

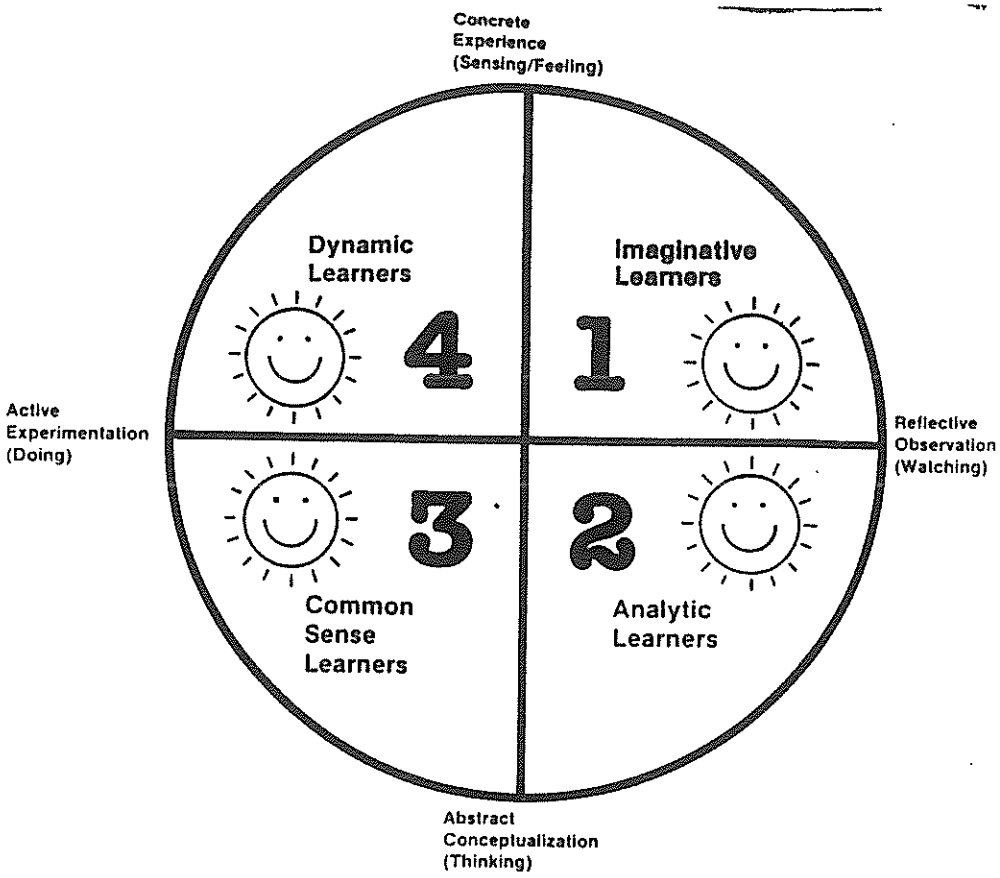
come up with an idea and reflect on it
SEEK facts
NEED to know what the experts think
LEARN by thinking through ideas



ABSTRACT
(thinking)

The Complete 4Mat System Model





Major Premises:

1
- Human beings *perceive* experience and information in different ways.
- Human beings *process* experience and information in different ways.
- The combinations formed by our own perceiving and processing techniques form our unique learning styles.

2
- There are four major identifiable learning styles.
- They are all equally valuable.
- Students need to be comfortable about their own unique learning style.

3
- Type One Learners are primarily interested in personal meaning. Teachers need to *Create a Reason.*
- Type Two Learners are primarily interested in the facts as they lead to conceptual understanding. Teachers need to *Give Them the Facts* that deepen understanding.
- Type Three Learners are primarily interested in how things work. Teachers need to *Let Them Try It.*
- Type Four Learners are primarily interested in self discovery. Teachers need to *Let Them Teach It to Themselves and to Others.*

4
- All students need to be taught in all four ways, in order to be comfortable and successful part of the time while being stretched to develop other learning abilities.
- All students will "shine" at different places in the learning cycle, so they will learn from each other.

5
- The 4MAT System moves through the learning cycle *in sequence,* teaching in all four modes and incorporating the four combinations of characteristics.
- The sequence is a natural learning progression.

6
- Each of the four learning styles needs to be taught with both right- and left-mode processing techniques.
- The right-mode dominant students will be comfortable half of the time and will learn to adapt the other half of the time.
- The left-mode dominant students will be comfortable half of the time and will learn to adapt the other half of the time.

7
- The development and integration of all four styles of learning and the development and integration of both right- and left-mode processing skills should be a major goal of education.

8
- Students will come to accept their strengths and learn to capitalize on them, while developing a healthy respect for the uniqueness of others, and furthering their ability to learn in alternative modes without the pressure of "being wrong."

9
- The more comfortable they are about who they are, the more freely they learn from others.

YR 9 AGRICULTURE
YOUNG TECHNOLOGY HIGH SCHOOL

UNIT: "DRUMSTICK"
The broiler industry TEACHER.....

DATE..... to ..... CLASS .....

LEARNING PHASE and ROLE of the TEACHER 4 mat approach	UNIT : OUTCOMES and OBJECTIVES For Pupils to :	SUGGESTED EXPERIENCES and RESOURCES left or right brain activity
ONE : Establish curiosity and relevance "create a reason" "MOTIVATOR and WITNESS"	1/ participate in preparing and eating a number of poultry dishes.	* easy, minimal fuss operation hopefully in Home Science. **right**
	2/ Awareness of the importance of the Broiler Industry in Australian Agriculture.	* large poster with photographs of meat chickens and production, income returns of Industry. NFF Year book. **right**
TWO : Obtain ideas and facts "give them the facts" "PROVIDER of INFORMATION"	3/ Identify the contributions of the Broiler Industry to Aust Agriculture interms of employment and value of production.	* clear table of information, quoted from most recent NFF Year Book. **left**
	4/ Identify the impact of technology in improving production efficiency in the Broiler Industry. ie	*seek out video on recent broiler industry. **right**
	* improved genotypes/ strains of meat birds	*stencil of Indian Game Pedigree and simple representation of modern breeding methods. **left**
	* Identifying feed needs. Scientific feeding programs.Protein needs will vary with change in age.Feed Conversion Ratios and the need for close monitoring.	*Feed groups needed and why. **left** * small amounts of feed from T&D's are tapped into their books. **right**
	* environmentally controlled housing.	* diagram depicting needs of birds. **left**
	5/ Identify the social effects of the Broiler industry technology and marketing on our society. ie fast food outlets, poultry meat consumption per capita greatly increased over last thirty years.	* Discussion and summary of main points as to changes. **right**
	6/ Outline the feed needs of meat chickens and the variety of feed stuffs available.Follow the procedure for using the "Pearson's Square" in meeting protein needs of birds.	*O/H presentation and blackboard demonstrations. **left**
	7/ Investigate the alimentary organs of Poultry digestion.	* O/H presentation of parts followed by teacher led dissection of a fowl. **left**

THREE : Establish Practical Relevance and Learning by doing. "let them try it" "ORGANISER"	8/ Design and Conduct a short feed trial and / or housing trial and draw conclusions from this with regards to solving	* short seven day feed trial. * monitoring growth, feed conversion and max/min temp of two different hosing environments. **left / right**
	9/ Demonstrate numeracy skills when employing the "Pearson's Square" to solve ration choices and protein needs of meat chickens. Calculate most economical ration.	* Various feed choices are given and pupils employ "P Sq" to calculate the most economical choice. **left**
	10/ Handle, maintain and monitor the growth of Meat chickens over ten weeks.	* Pupils take responsibility for regular fortnightly monitoring of birds. SKILL SHEET. **right**
	11/ Employ freehand diagrams of three growth stages, chick, 4 weeks & 9 weeks.	The best freehand drawings of the various stages are displyed.**right**
	12/ Observe and relate reasons for chicken behaviour and interpret how good animal husbandry will use this knowledge when managing the animal.	* Pupils observe and record date, behaviour and make management notes **right**
	13/ Prepare a computerised advertisement for the sale of the School's meat chickens.	* Mac Superpaint program - one period.**right**
	14/ Carry out a financial analysis of the School's meat chicken enterprise.	* Mac Spreadsheet - two periods / work in pairs. **left**
FOUR : How does this affect me? "let them teach it to themselves and others" "FACILITATOR OF OPTIONS"	15/ Appreciate the feasibility of raising meat chickens themselves at home. Analyse feasibility in light of costs and needs as identified in the School Broiler Trial.	* From experience gained and an appreciation of data obtained from the School Broiler Trial plus prepared guidelines given prepare a feasibility study. **left / right**
	16/ Creatively utilise a range of communication Involved with presenting or listening to a seminar on aspects of Broiler Chickens example *The breeding of meat chickens, presentation of old and new breeds. *Research the price of chicken dishes relative to other meat dishes, * Preparing Indian Game show birds. * This is how we grow meat birds at home	* Four to six pupils take responsibility for presenting seminars on a particular aspect of the Broiler Industry. **left / right**
	17/ Creatively use writing skills to summarise information, ideas, suggestions and conclusions on the Broiler Industry Unit - Revision	* Revision guidelines given prior to theory testing. **left / right**

EVALUATION

(Author - Peter Napier 13 /2 /93

POULTRY TERMS

The following terms are common to the Poultry Industry.
ROOSTER , HEN , CHICK , LAYER , BROILER , PULLET , INCUBATION , BROODING.

Match the above terms with their corresponding definition below;

* A mature adult female fowl._____.

* A fowl specially bred and raised for meat production._____.

* The period of development of a chicken from an egg._____.

* A mature adult male fowl._____.

* The time during which the hen keeps the chicks warm until their feathers have developed._____.

* A young female fowl before its first moult._____.

* A fowl specially bred and raised for egg production._____.

* A young immature fowl._____.

EXERCISE:

Construct a sentence using three of the words that you have just matched.

_____

_____

ANAGRAMS:

Poultry types and breeds.

_____ STRAPAROLU _____.

HORDE DER INSLDA _____.

BAMNAT _____.

YURKET _____.

GILTH SUXSSE _____.

VOYSCUM _____.

CHICKEN FEEDING TRIAL

AIM

METHOD

RESULTS

1. WEIGHT GAIN

Group 1

Feed type= _____

Group 2

Feed type= _____

Chick No	day 1	day	day	day	Chick No	day 1	day	day	day
1					1				
2					2				
3					3				
4					4				
5					5				
6					6				
7					7				
8					8				
9					9				
10					10				
Total					Total				
Mean					Mean				

2. FEED CONSUMPTION

Group 1 **Group 2**

Day	Food Given (Kg)	Day	Food Given (Kg)
Total given (kg)		Total given (kg)	
Food remaining (kg)		Food remaining (kg)	
Total consumed (Kg)		Total consumed (Kg)	

RESULTS SUMMARY

	GROUP 1	GROUP 2
Average weight at start (g)		
Average weight at finish (g)		
Average weight gain (g)		
Average food consumption (g)		
FCR calculation		
Final FCR		

NOTE

$$\text{FOOD CONVERSION RATIO (FCR)} = \frac{\text{AVERAGE FOOD CONSUMPTION}}{\text{AVERAGE LIVEWEIGHT GAIN}}$$

Draw graphs of

1. Liveweight vs time (line graph)

2. FCR (column graph)

ORDER FORM

Please send me		No. of copies	$
The video – VO 07 Managing Livestock in Drought	$30		
Postage & handling	PLUS		$4.00
I also wish to order the following Agfacts			
Drought management of beef cattle A2.1.2	$1.50		
Drought feeding & managing sheep A3.5.4	$2.50		
Drought Map Poster	$3.50		
Publications catalogue (please tick)			Free
		TOTAL	

PAYMENT DETAILS

I enclose cheque / money order in payment (cheque made payable to NSW Agriculture)

OR

Please charge my

❑ Bankcard ❑ Visa ❑ Mastercard

Expiry Date ____ ____

Card Number

Signature _____ Date _____

Delivery details _____

Name _____

Address _____

Postcode _____ Telephone _____

POST TO:
The Cashier
NSW Agriculture
Locked Bag 21
Orange NSW 2800

OR ORDER BY PHONE

TOLL FREE 24 HOURS
Phone 008 028 374
and quote your Bankcard/Visa/Mastercard details

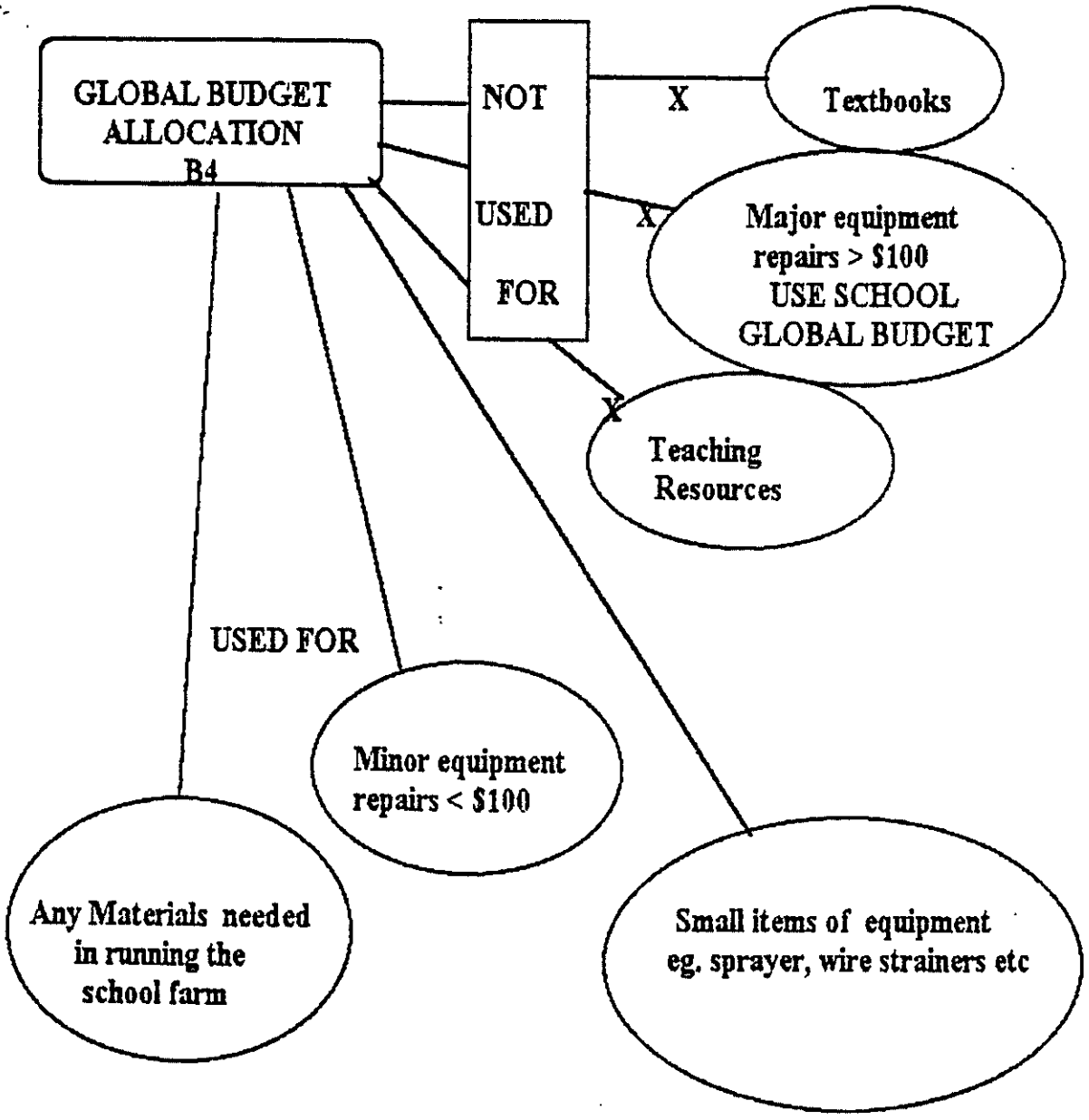
MANAGING LIVESTOCK IN DROUGHT



THE FOLLOWING 4 PAGES ARE AN EXTRACT FROM THE MET WEST *REGIONAL AGRICULTURE RESOURCE BOOKLET 1993.*
THE BOOKLET IS EDITED BY PHIL HURST AND PETER JONES.
COMPLETE BOOKLETS ARE AVAILABLE BY CONTACTING
CHRIS EVANS PH. 02 628 2413 FAX 02 628 0442.
COST IS $5.00 INCLUDING POSTAGE.

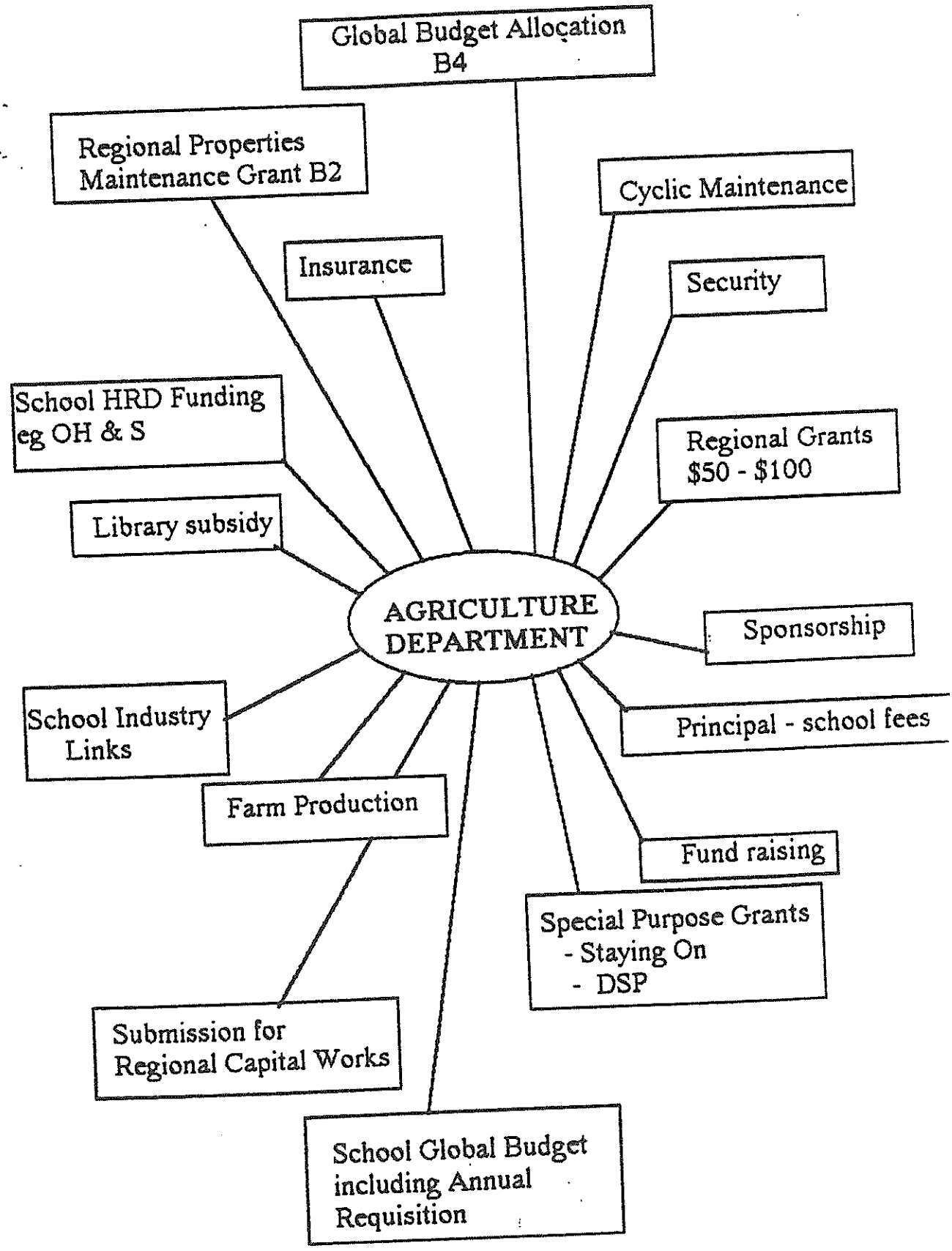
GLOBAL BUDGET ALLOCATION B4

Generally available at the beginning of each year and money allocated is based on a points system related to the number of students studying agriculture.



Throughout the year all schools should document all proposed projects and maintenance as they arise - then prioritise in October when the Agriculture Surveys have to be completed. Funds are usually distributed to schools at the end of the calendar year.

IDEAS ON HOW TO OBTAIN FUNDS FOR YOUR AGRICULTURE DEPARTMENT



LIVESTOCK REGISTER

To be completed as required for each animal.

STOCK TYPE/BREED :_____

DENTIFICATION/RECOGNITION MARKS :_____

_____

DATE OF BIRTH : _____ **SEX :**_____

MARKED/UNMARKED (Cross out word not applying)

DATE	FEATURES	AGE	STAGE OF GROWTH

MANAGEMENT OPERATIONS

DATE	OPERATION/ACTIVITY	CLASS/GROUP PERFORMING ACTIVITY

COMMENTS:

PADDOCK RECORDS

PADDOCK NAME/NUMBER _____

DATE	CROP PASTURE ETC.	SOIL PREPARATION	SOWING - TIME - DATE - METHOD	TREATMENT (I.E.FERTILIZER CHEMICALS IRRIGATION ETC.)	OTHER FACTORS AFFECTING PRODUCTION (IE GRAZING WEATHER ETC.)

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

NAME:_____

SCHOOL:_____

SCHOOL ADDRESS:_____

_____

POST CODE: _____

SCHOOL PHONE:_____

SCHOOL FAX: _____

MAILING ADDRESS: leave blank if same as above.

_____

_____ _____

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

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

OR

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

OR

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

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

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

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

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

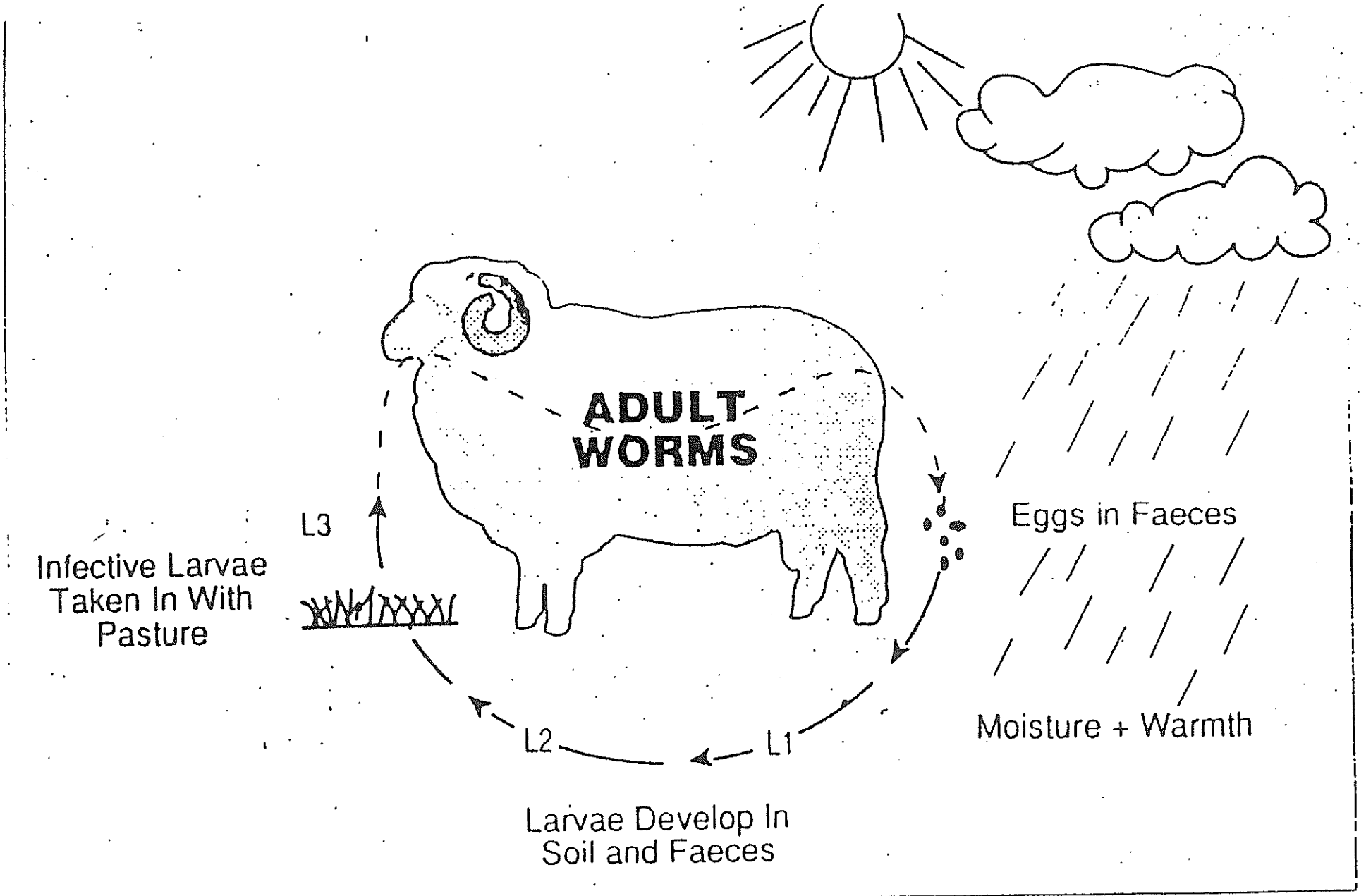
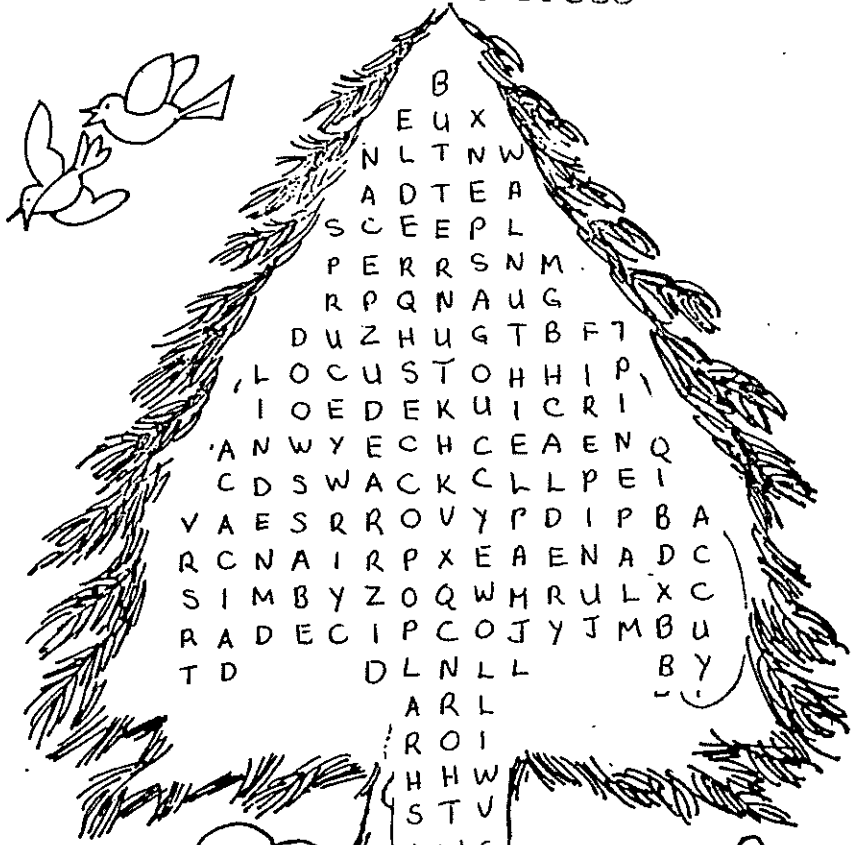


Figure 1. Life cycle of parasitic roundworms of sheep

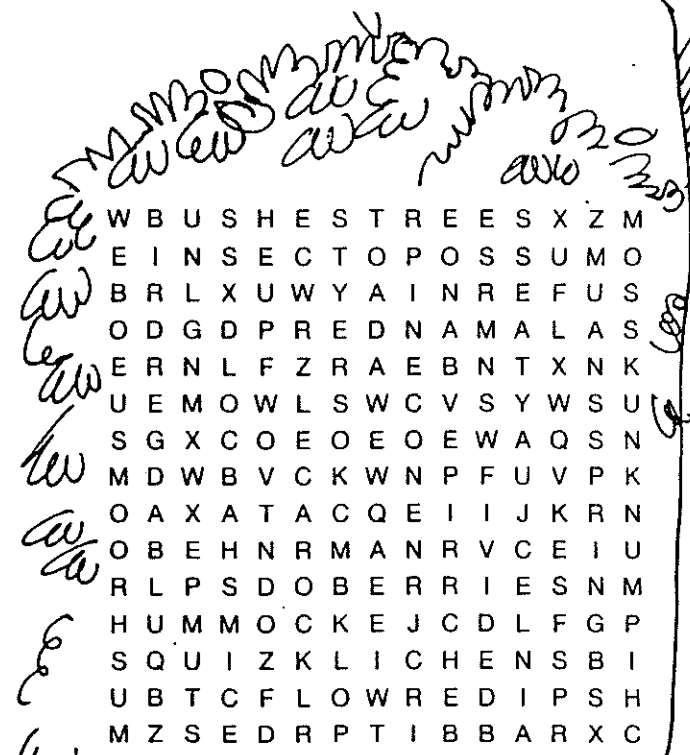
Among the Trees



ACACIA
ALDER
ASH
ASPEN
BASSWOOD
BEECH
BIRCH
BUTTERNUT
CEDAR
ELDER
ELM
FIR
HAWTHORN
HICKORY
HOLLY
JUNIPER
LINDEN
LOCUST
MAPLE
OAK
PALM
PECAN
PINE
POPLAR
SEQUOIA
SPRUCE
SWEETGUM
TAMARACK
WALNUT
WILLOW
YEW
YUCCA

I. Taylor
Dunheved High School.

THE ENVIRONMENT



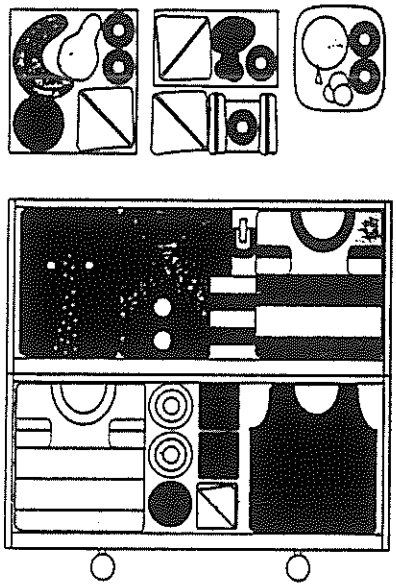
W	B	U	S	H	E	S	T	R	E	E	S	X	Z	M
E	I	N	S	E	C	T	O	P	O	S	S	U	M	O
B	R	L	X	U	W	Y	A	I	N	R	E	F	U	S
O	D	G	D	P	R	E	D	N	A	M	A	L	A	S
E	R	N	L	F	Z	R	A	E	B	N	T	X	N	K
U	E	M	O	W	L	S	W	C	V	S	Y	W	S	U
S	G	X	C	O	E	O	E	O	E	W	A	Q	S	N
M	D	W	B	V	C	K	W	N	P	F	U	V	P	K
O	A	X	A	T	A	C	Q	E	I	I	J	K	R	N
O	B	E	H	N	R	M	A	N	R	V	C	E	I	U
R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

BEAR
BERRIES
BIRD
BUSHES
DEER
FAWN
FERN
FOX
HUMMOCK
INSECT
LEAVES
LICHENS
MOSS
MUSHROOMS
MICE
NEST
OPOSSUM
OWLS
PINECONE
RABBIT
ROCK
SALAMANDER
SKUNK
SPIDER
SPRING
SNAKE
SQUIRREL
STUMP
TOAD
TREES
VINES
WEB
WILDFLOWER
WOLF

I. Taylor
Dunheved High School

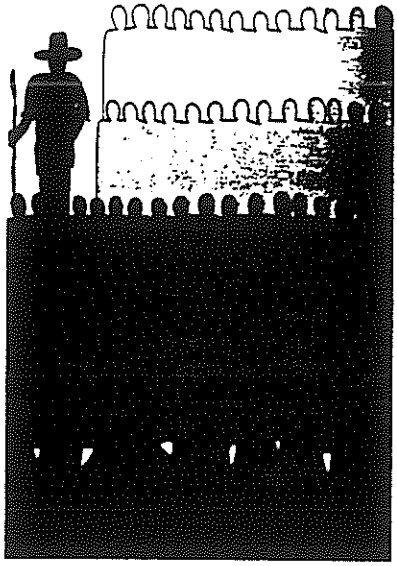
FOOD & CLOTHES

Agriculture provides people with the food and clothing they need. Fertilizers and crop protection products are necessary in productive farming systems.



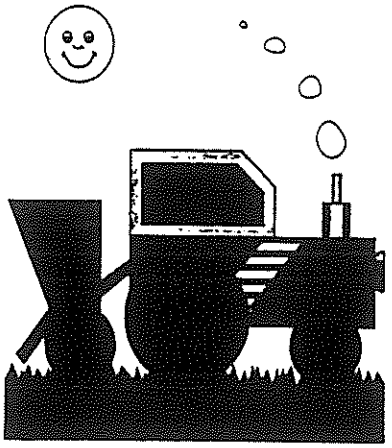
PRODUCTION

Australia's 130,000 farmers feed and clothe 17 million Australians and about 34 million people overseas.



PRODUCTIVITY

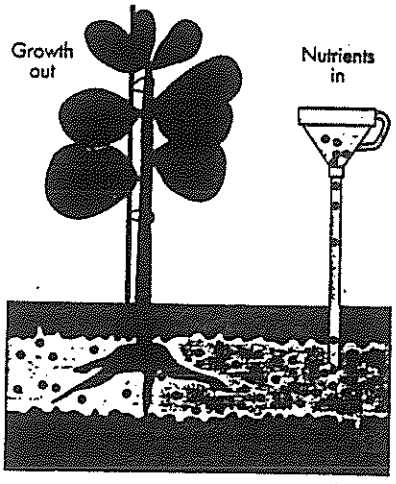
We can produce more by either farming more land or making better use of existing farm land. Technological advances including fertilizers and crop protection products allow us to produce more food of better quality from existing farm land.



If the World and indeed Australia are to feed this growing population all aspects of production

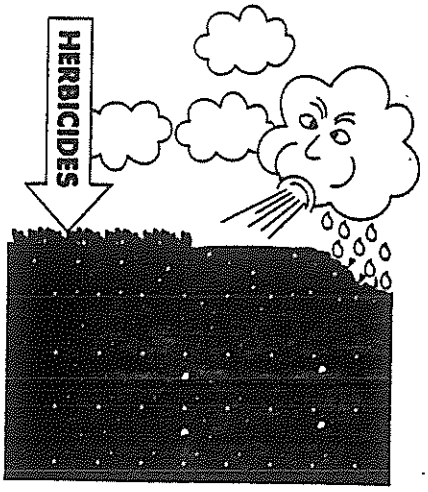
FERTILIZERS

The single most important factor limiting crop and pasture yields world wide is soil infertility. Plants extract nutrients from the soil which have to be replaced. The most practical way to replace them is with fertilizers.



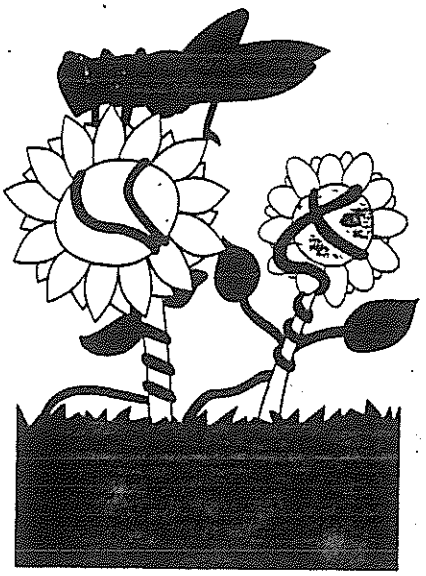
LANDCARE

Cultivation can leave soil bare, loose and prone to water and wind erosion. The adoption of minimum tillage practices and using herbicides allow a protective layer of crop residues and stubble to be retained on the soil surface to prevent this erosion.



CROP PROTECTION

We need to protect our crops, pastures and livestock from insects, weeds and diseases. Crop protection products allow us to do this.



and caring for the environment need to work together. **Incitec** People with answers

EVALUATION / QUESTIONNAIRE

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

ARTICLE OR SECTION	VERY VALUABLE	OF SOME VALUE	VERY LITTLE VALUE
presidents report			
editors report (letters to editor in future??)			
farm safety notes			
alternate animal production			
crosswords/jumbles			
animal and plant data, notes and stats			
design and technology units			
Order forms/fliers/general resources			
essay instructions			
"Bits and Pieces" of information			

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

_____

_____

_____

_____

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

_____

_____

_____

_____

_____

PLEASE TAKE A MINUTE TO FILL THIS OUT AND MAIL TO :

S.TIMMINGS (B.A.A.T. EDITOR)
FARRER M.A.H.S.
CALALA VIA TAMWORTH 2340

OR WHY NOT *FAX STRAIGHT AWAY* TO FARRER ON **067 679451**
ANY MATERIAL YOU MAY HAVE FOR INCLUSION CAN BE SENT OR FAXED TO THE ME AT FARRER AT ANY TIME!!
LET'S MAKE THE INFORMATION FLOW GOOD FOR N.S.W. AGRICULTURE TEACHERS!! ITS **YOUR** JOURNAL! NAME AND SCHOOL: (optional) _____