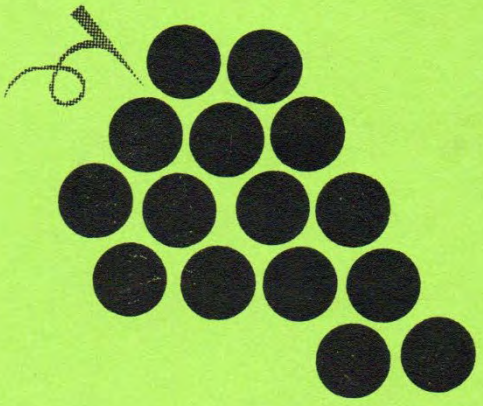
Bulletin of the NSW Association of Agriculture Teachers

BAAT

Association of Agricultural Teachers Biennial Conference Orange, NSW 18th to 21st January 1999



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inside....

Final Executive Reports
Vincentia/Yass High School
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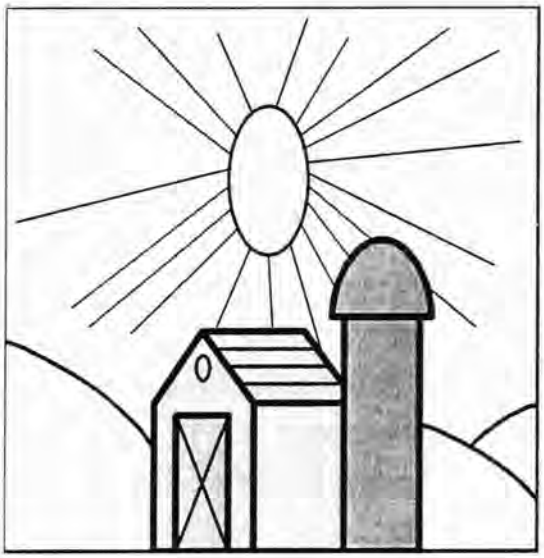
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EDITORIAL



Welcome to the Spring 1998 edition of BAAT. This is the last edition to be produced by the South Coast/Southern Highlands group. We acknowledge the enormous input in the form of time, effort and ideas from a large number of people in what is a period of great change in education in NSW, not the least in Agriculture.

In particular, we wish to acknowledge the contributions of Sue Hope, President; Trevor Sewell, Secretary; Phil Armour, Treasurer; Jenni Wilkins, BOS; Peter Jones, Phil Hurst, Ian Judd and other members of the Sydney Branch Executive and all those members on the Board of Studies panels for Agriculture and Primary Industries. All these people are to be sincerely thanked for their contributions above and beyond the call of duty.

An ongoing concern remains the number of members in our Association and we hope that teachers will appreciate the benefits to be gained from belonging to this professional group. Please encourage as many Agriculture teachers as possible to join up. Those members experiencing difficulty in remembering to pay annual membership fees could endeavour to have this subscription included in their Agriculture budget as a professional development component that is automatically paid each year.

The most important matter for immediate consideration is the 1999 Conference at Orange Agricultural College. We appreciate that this time of the year in schools is particularly hectic. However, we would encourage you to send off your application form to the organisers to make their job easier and to ensure a successful programme from 18 January to 21 January.

HSC marking in Agriculture has wound up at Blacktown and Bathurst and we believe it was an excellent form of in-service and communication between teachers as well as successfully serving its primary function of placing marks on scripts. The Board of Studies makes places available to country teachers and we would encourage anyone who has not participated in this activity before to do so by contacting their BOS Liaison Officer. Participating in marking should not require the use of long service leave or the need to arrange a school swap.

Teachers in Departmental schools should be aware of the Agriculture allocation that is listed in the global budget for all schools teaching the subject in NSW. The grant is in two parts - the first is what was once the seed and fertiliser grant, and the second component is for machinery maintenance. If you need information in relation to these funds please contact any of the State Agriculture Advisory Group members - namely Peter Jones, Mt Druitt High

School; Phil Hurst, Hawkesbury High School; Phil Armour, Yass High School; Craig O'Brien, Moss Vale High School and Jim Mather, Chair, Principal, Delroy High School, Dubbo.

In addition this group has been successful in re-establishing the tractor replacement scheme. Unfortunately, only a smail number of schools will benefit from this scheme this year. The schools that qualify under the scheme will have the option of either receiving a machinery package of tractor, slasher and PTO rotary hoe or funding equal to the cost of the package to purchase machinery suitable for your situation. NOTE WELL - *You must dispose of your current machine.* Very large savings can be made by using Government contract suppliers when purchasing new machinery.

Finally we wish to acknowledge the support that has been given by all those who have contributed ideas and feedback to the editorial team. Without this material for publication there would be no BAAT. Thank you for making the publication a useful and worthwhile resource. Additionally, we must thank all those who have helped make BAAT such a professional document. In particular, the Principal of Moss Vale High School, Mr Phillip Crampton; the wonderful and super-efficient administration staff at Moss Vale; Dave, Ross and Russell; Shellharbour and Bateman's Bay District Offices of DET and to Don Selway, Frensham.

To our sponsors, Cotton Australia, NSW Agriculture and University of Western Sydney (Hawkesbury) we express our sincerest thanks for such generous support over the past two years.

Good luck to the new editors of BAAT for the 1999, and 2000 publications. May the Y2K bug not bug you.

Craig O'Brien





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PRESIDENT'S REPORT



The last two years of my presidency have been both challenging and fruitful. Taking on the role of 'running' the state association is itself, a daunting prospect but has many significant rewards. It has been an honour representing agriculture teachers in so many diverse areas. There is a great depth of talent amongst our agriculture teachers and we are rightly proud of all our achievements and successes within the association.

Your association has been very active in the past two years, ensuring representation on behalf of our members at a variety of meetings. Meetings include BOS Syllabus Committees, Curriculum Directorate meetings (technology), Joint Council, White Paper-Securing the Future consultative groups, Sydney Branch and State Agricultural Advisory Group meetings. The list is endless.

Enthusiasm, dedication and commitment have been the key word with the outgoing executive. Phil Armour has spent many hours ensuring the accounts are in sound order. Both Phil and Craig O'Brien have travelled to Sydney on a number of occasions to represent the association at the NSW Department of School Education State Agriculture Advisory Group.

Trevor Sewell, our very capable secretary and his wife Wendy, have spent considerable time travelling to meetings such as the Joint-Council and consultation meetings at the BOS. Trevor has given tremendous support to the association over many years and I am extremely grateful for the help that I have been given regarding the future directions of the association.

Much credit for a high quality journal must be extended to Craig O'Brien and Don Selway. BAAT magazine takes up an enormous amount of time and effort that seems to be never ending. The importance of the magazine cannot be overstated. It is the major link between members, executive, Sydney Branch and major happenings on our home patch. Dave Kent, Ross Irvin and Russel Firth have also contributed to the magazine ensuring that the BAAT journal maintains a high quality and standard that is equal to any professional association. I must also thank the contributions Anita de la Motte and Peter Osterloh have made to the association over the last couple of years.

Communication is becoming an important issue in the Association. Thankfully, many agriculture teachers have helped out the association by acting as District Coordinators within the network system in NSW. We have tried to keep teachers abreast of curricula changes using faxes. The association wants to improve networking even more. The only effective way to update your network system is by establishing a web site across our widely spread constituency. At least a web site that is updated by the executive can let agriculture teachers know what is currently happening.

Agriculture teachers must not underestimate the input of the Sydney Branch. Ian Judd and his team of enthusiastic Agriculture teachers have put immense efforts into providing agriculture students with Junior and Senior Agriculture Camp, Agriculture Competition, Agview, Agricultural Promotional displays at Sydney Royal. Ian has sought sponsorship from a wide range of community's members. Perhaps it is time the association sponsored Sydney Branch with a grant of $1000 for the activities that the branch commits itself to each year. Keep in mind that we all benefit from the activities that Sydney Branch organise.

Sheree Bourke is another member of Sydney Branch, who has put in a mammoth effort in representing our association at countless Curriculum Support Directorate meetings. Sheree's representation has ensured that the Agriculture Association is fully updated and kept abreast of curricula changes in the TAS area.

Agriculture teachers are continually showing commitment, dedication and professionalism. Many hours are spent at the school's farm, on excursions and at shows week after week and these activities can sometimes be taken for granted by the School Community.

As a profession, I believe Agriculture teachers are second to none for their contribution to the teaching profession.

Teachers such as Peter Jones have put a great deal of effort into the NSW Department of School Education State Agriculture Advisory Group. Phil Hurst has worked tirelessly in the 'Animal Welfare Area' for many years. John Lee is our representative on the Board Curriculum Committee for Agriculture. It is wonderful to see John on the Board, which replaces the original Syllabus Advisory Committee. Ross McGregor has been most willing to attend important consultative meetings at the last minute. My thanks also to **Ivan Gant** for his role as Project officer for Board of Studies. To all Agriculture teachers - many thanks. This is what makes the association active.

For many years, Jenni Wilkins has supported your association and provided input and direction to the agriculture body. Her knowledge of curricula is highly valued. We wish Jenni a great deal of success in her current position at the Board of Studies. Whilst Jenni is higher up the ladder, the association will probably have less access to somebody of Jenni's capabilities in the agriculture field at the Board of Studies. It is imperative that the association remains strong by being active and using members around NSW for support and communication. Agriculture is under the banner of technology and it would be a shame to let the subject become generalised and isolated.

A welcome initiative by the state association is the establishment of an agriculture meeting each year at a chosen location. Representatives from the NSW Executive, BOS, Department of Agriculture, Sydney Branch and the new incoming branch get together to discuss future directions, changes to curricula and initiatives for the year. There is no doubt that incoming executives who attend the meeting will find the transition into their new roles much smoother and less intimidating. This meeting acts as a catalyst to drive the association forward where all participants can voice concerns, problems and initiatives.

The introduction of a chemical safety course is an initiative that was introduced from this meeting. I have written to the Hon. J. Aquilina, Minister for Education about introducing a chemical and tractor safety course. The requests have been looked upon in a positive manner. Safety is becoming an important issue to all agriculture teachers. Since litigation is a contentious issue, we all need to be aware of safety policies on the school farm and in the classroom. Teachers need to be active in carrying out safe work practices.

A major problem confronting agriculture teachers at the moment is the way we are being squeezed out of elective lines with the introduction of civics, geography and history. No doubt your school will argue that it is essential that students should have as wide a choice of subjects as possible whilst suggesting that the core subjects Mathematics, English, Science should maintain an adequate emphasis on the basics, ie literacy and numeracy. The importance of external exams also pops up where it can be seen that core subject times might be reduced as compared to electives.

With the continued introduction of more mandatory courses such as History and Geography, pressure is being applied to the elective lines. We would hate to see agriculture squeezed out of the curricula.

A growing concern for agriculture teachers is the lack of trained professionals coming back into the system. This seems to be a national problem and in the next few years may need to be addressed by the incoming executive of the association.

Issues that the 1997-98 executive believe need to be addressed over the next two years include:

- Our role and subscription to the NAAE;
- Networking, communication and updating the web site in areas of curricula, resources, practicals and web site addresses;
- Overcoming the tyrannies of distance and reducing the feeling of isolation;
- Tertiary institutions sponsoring and promoting one day workshops in regional areas
  eg. North Coast (Southern Cross)
  North West (UNE)
  Metropolitan (UWS)
  Riverina (CSU)
  South Coast (UW)
- Index of key personnel in the association that agriculture teachers can send opinions to.

The South Coast and Southern Highlands team have enjoyed a tremendous amount of friendship and collegiality over the last four years. Simply getting together on a regular basis for specific purposes as well as social activities is very rewarding. Best of luck to the new committee. Much time and effort has gone into the organising of this conference. I am sure the new president, supported by an energetic executive will find the job of running the association not only challenging in the next two years but also extremely rewarding.

Sue Hope

SECRETARY'S REPORT



Whilst it has been a busy two years, it did not have the same focus and concentration of responsibility as organising the 1997 Conference at Berry. The jobs were much less precise, less predictable and less determined by our Executive or Association members. Nevertheless, it has been a varied and challenging task.

There was considerable activity over the two years around the re-structuring of the HSC. It is clear that the decisions were made regardless of our input or efforts. It is a real shame for all teachers and students, that subjects are being actively discriminated against and that any concept of equity has been abandoned by the Department and the Board of Studies.

Small country towns or small schools with limited candidature are being deserted by centralisation, city oriented and uncaring bureaucrats who really have no idea of what goes on in small comprehensive, one High School towns. Governments allow a whole range of private interests, especially of small groups, to establish schools with funding and compete. There is no effort to allow State schools to compete on an equal footing. We are left with very little power to hold the talented in our subjects now that the 3 Unit course has been abandoned. How can we promote any Gifted and Talented State Schools group, when we abandon those same students?

The 3 Unit course was, also often a real reward for teachers, as well as students, but that does not count any more.

We genuinely regret that we were not able to represent Agriculture with the same vigour and pressure mustered by Mathematics, Modern History, Music and the Ethnic languages. This again illustrates how subjects are being abandoned and special privileges are being expanded to deny equity.

One of your Association's lingering problems is isolation. This may be in the form of access to tertiary institutions and personnel and input, isolation from each other and from agricultural activities. Everyone is rationalising and downsizing with more pressure on the fewer left. Teaching is no different, just more subtle. So we all have less time to share or communicate or respond to questions or requests.

All members, whether in a local network, a local association branch or across the State, need to make a commitment to share, to talk, to spend some time replying to surveys or requests for information and to help the subject to grow. So often we are lonely or isolated because we are not helping each other.

Telephone, fax, E-mail, website, bulletins or whatever we have, we need to use more to communicate. We cannot express Association members' views or opinions if they are not fed to us or other representatives.

Even our own BAAT requires enormous effort and time commitment to get news and information to you. Our editorial team works exceptionally hard for each edition but still lacks wide support. We struggle to get articles and news. Agriculture teachers are a far flung and diverse group but we must send in material, lesson plans, successful ideas, what works, competition results, photographs, newspaper stories, personalities, etc. The team produce a very high quality magazine. What do you want in it? Tell your editor. Send in some material. Help communicate best practice. Help others in isolated locations.

I do believe that we need to tap into the regional tertiary institutions to get them to run updating seminars/workshops/lectures for Agriculture students. What are Charles Sturt, UNE, UWS, Wollongong and Southern Cross contributing to teachers, teaching, students and agriculture each year? They should be offering regional activities with an agriculture focus even if they might deal with technology or marketing. Maybe at the local level we all need to agitate and stir the tertiary pot.

We wish the 1999 - 2000 Executive well in steering and managing your ship. We all need to contribute even if only one item and making a point of communicating with others. We all have one or two successes or bright ideas each year.

Notices of Motion for 1999 Conference

1. That the association allocate $1000 to the Sydney Branch each biennial to assist in funding the running of the Agriculture Competition and such important events.

2. That an additional Executive position be created to assist with the increasing need to access technology in the Association. Things such as establishing and maintaining a web site, E-mail addresses and other communication.

3. Support the "Farm Chemical User Certificate Course" being accessible State wide.

Agenda Items

1. Discussion of the role of NAAE and the value/benefits NSW Association of Agriculture Teachers' members are receiving.

2. Discussion of the organisation of 'Farm Chemical User Course Certificate' in NSW.

3. Networking, communication and updating the web site in areas of curricula, resources and practicals.

Trevor Sewell

NOMINATIONS FOR THE J. A. SUTHERLAND AWARD

for excellence/contribution to Agricultural Education in NSW Secondary Schools

INTRODUCTION

This is a description of the criteria for the awarding of the J. A. Sutherland Award.

(i) the Alan Sutherland Memorial Award be presented to an Agriculture teacher who is judged to have made a significant contribution to the teaching of Agriculture;
(ii) the recipient be a secondary school teacher who is a member of the NSW Association of Agriculture Teachers;
(iii) the award be judged by a committee comprising the executive of four and two other members nominated by the committee;
(iv) nominations for the award be made by any member or group of members in writing at least three months before the Biennial Conference;
(v) nominations or a summary of nominations be included in the Association Newsletter prior to the Biennial Conference;
(vi) the judging committee reserves the right not to make an award in any Biennial;
(vii) the award takes the form of -
  a. a perpetual trophy inscribed with the name and year of the recipient, and
  b. a personal award to the recipient;
(viii) in the event of the Biennial conference not being funded, the award be made and members advised in the next newsletter.

A significant contribution should include -

* a work or event from which many benefit

OR

* an outstanding worker

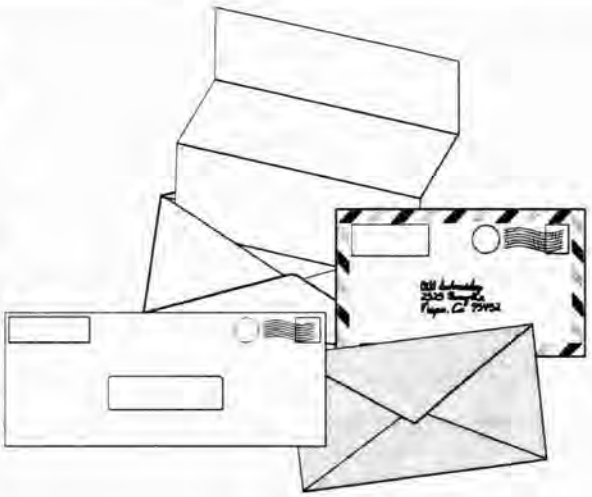
OR

* an innovation

Please put nominations to Trevor Sewell, Moruya High School, Albert Street, MORUYA NSW 2537. Include name of the person nominating the teacher for an award plus a person who is seconding the nomination.

Editor's Comment -
There are many people who are making significant contributions to Agricultural Education in our schools. The J. A. Sutherland Award is the means to give recognition of these peoples' efforts. Nominations should be passed on in writing to the state executive.

LETTER TO NATIONAL ASSOCIATION



As a result of a NSW Association of Agriculture Teachers state executive meeting held on 22 August, the association would like to make some comments concerning the following issues:

(i) printing of the Commodity Marketing Strategies Resource Document;
(ii) the value of the National Association of Agriculture Educators to NSW members.

The association is extremely disappointed that the NSW Association has not received the full allocation of Commodity Marketing Strategies Resource Documents for each of its members. Whilst discussing the printing and publishing of the booklets during the teleconference on 21 May it was indicated that NSW was to receive 300 booklets. This was then changed to 260 booklets. At this stage we have received 160 booklets with another 45 to arrive. This leaves a shortfall of 55 resource documents for our members.

As a consequence, NSW will have to pay for another 45 booklets to be printed and posted to members in the association. Perhaps the National Association would like to pay the costs associated with the printing of the resource documents.

Each member of the NSW Association pays $5 per head per annum to be a member of the National Association of Agriculture Educators. The executive of the NSW Agriculture Teachers' Association has expressed some concern in relation to the 'value' that members are receiving from the National Association. It is essential that information at a national level be published in each state's respective journal in relation to agriculture education, vocation education etc. through a National Association Report or President's Report.

At this stage the NSW State executive feels that there is little information being passed on for publication in our journal to give NSW membership an idea of what is occurring at the national level.

FROM
Susan Hope (President NSW Association of Agriculture Teachers)
dated 27 August 1998

1997 2/3 UNIT AGRICULTURE

SAMPLE ANSWERS

The NSW ASSOCIATION OF AGRICULTURE TEACHERS

Acknowledges the support of the Office of the Board of Studies in the production of the 1997 HSC Agriculture 2/3 Unit Examination © Board of Studies.

Please Note :

- A full report on the examination is available in the 1997 HSC Examination Report - Agriculture © Board of Studies 1998
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- The Board of Studies is not responsible for the answers described in this document.

MEETING

VENUE : **Moss Vale**
DATE : **1 June 1998**
FOR : **Representatives from State Executive, Central Highlands Association and Sydney Branch of Association, BOS and Independent Schools.**
PRESENT : **Sue Hope, Craig O'Brien, Trevor Sewell, Phil Armour, Don Selway, Michelle McDonald, Jenni Wilkins, Ian Judd, Tracey Watson, Karen Heap, Brigitte Herrmann, Patrick McCann, Angela Currey, David McCarron (Department of Agriculture)**
APOLOGIES: **Warwick Moore**

1. BOS - Michelle McDonald and Jenni Wilkins -
The only subjects which will have a 3 Unit type structure in the "new Era" will be English and Mathematics. Criteria is that other subjects must not be downgraded in standard or rigour. All HSC Courses being evaluated except English pre-determined pattern, Mathematics, Languages, Science and VocEd. VocEd will become more important and access the UAI (old TER). The Subject evaluation team (Michelle is the coordinator) are seeking constructive comments based on the draft report. Especially where things should go. Single course structure almost certain. Read report carefully and provide feedback. There is a need to provide some incentive or value adding for the Research Project v the two Electives, to encourage students of ability to select the more challenging and higher skills Research Project. Discussion about having a Research Project part of the exam, covering some common essentials regardless of the actual project. It is essential that in all areas the Board provide functional support documents with work samples.

   Recommended that sections from the Sheep Husbandry and Wool Technology course NOT be incorporated in the Agriculture course - not as elective topics as they are too narrow and specialist and change the nature of the course.

   Recommended that they could be covered within an elective area in the Primary Industries course. A similar response to questions on the Rural Technology course.

2. Writers for the Curriculum Comm sought. BOS Bulletins have details. Needed in Term 3.

3. Credit Transfer - from HSC/School to TAFE Courses. Mentioned in the Report. Need to mention in responses to survey and report response sheet.

4. Web Site- lengthy and detailed discussion. All questions could not be answered. Responses received from Ian Webb and Anne Howard from TEFA (Technology Education Foundation of Australia http://www..ash.org.au/teachers/tefa/.) and EdNA (Education Network Australia http://www.edna.edu.au).

   Whilst costs of $10 to $12,000 to establish a web site were quoted, it can be done initially through Karen Heap's organisation for $500 plus maintenance and running costs of about $120

per year, depending upon what is added each month. Department of Agriculture also offered help in establishing web site information and graphics.

Decided to authorise Karen and her business associate to establish a web site for the NSW Association of Agriculture Teachers. Initial consultation will be through Sydney Branch with final approval from the State Executive. Site to be Agriculture Teachers. Access will be available to other States and Branches within Associations at a cost of $120 plus at cost to place information on the site.

5. Chemical Safety - course conducted was very successful, with some very positive feedback. Money from Professional Teachers' Association was available to defray costs ($1000 for this course and $2000 for a course in the north). Teachers and Farm Assistants. Certified for five years.

6. Ag. Coop - almost non-existent. Problems with cost of site at Royal Easter Show (RAS). If we are to be represented effectively at the RAS Show or other major Agriculture functions (Henty, AgQuip, Orange Field Days, Mudgee Smallfarm Field Days etc) then we need access to sites and the support of major companies or low costs for schools to display. Letter to be written to RAS seeking support for school displays. Collective promotion of Agriculture and education.

   Suggested that approaches be made, via Sydney Branch, to Ken Langford UWS to coordinate or chair a group. Schools and students must have a higher profile than back stage filling bags. Sydney Branch to seek volunteers for the Coop. Across Ag. education.

7. Viticulture in schools and the part time traineeships being established. David McCarron Cowra and Griffith. Run by Department of Agriculture.

8. Ian Judd preparing the Agriculture Teachers' data base. Survey forms coming out in the near future along with a Conference flier. Updated information required.

9. BAAT - well in hand. Sample HSC answers have to be passed through the BOS. Awaiting their response. Department of Agriculture can support or assist with printing. Negotiations will continue.

10. AG CAMPS
   (a) Junior Camp - Brigitte Herrmann - proceeding. Basically schools around Sydney. Anticipated in July. Few organising. Burden left with a few.

   (b) Senior Camp - Sydney Uni virtually organising - Michelle Gann. Agriculture Association have little input. Little consultation with practising teachers.

   (c) Alternative Senior Camp being proposed by Department of Agriculture initially Riverina but in future may be a wider candidature. Murrumbidgee College. Later maybe Tocal. Suggested that "The Agriculture Challenge" could be introduced through these camps - knowledge and skills, problem solving. Colleges with accommodation. Possibly weekend maybe Friday? No firm decision. Could have regional and then state finals.

11. Agriculture Competition - run in 1988 and 89 again in 1995 and 96, but not in 1997. Discussion about the Education Testing Centre (Sydney University) could be used to possibly set and/or mark tests and provide detailed analytical statistics. Sponsors to be sought. Some already turned down. Potential to go national in 1999. 10 awards - one per Region. Land $200 voucher and medallion. Second a hat and coat. Agriculture Department could be involved in sponsoring. Warwick Moore or Agricultural College support. Sydney Branch still working on these options. David McCarron assisting in contacts.

12. National Association of Agriculture Teachers - International Wool Booklet publication - launch. Decided that this will occur at an Agriculture Camp. Publicity and profile for all concerned. Sue Hope.

13. Branch Membership - Discussions revolved around the confusion between the State Association and Branches having separate subscriptions and what people are getting for their money. The subscription fee for students, practical teachers etc was also raised. We have examined offering discounts through companies such as Akubra, Drysabone, Land etc. no answers or resolutions at this stage. Suggested that we have membership cards. Student membership already 50% by constitution.

14. Farm Machinery and other targeted funding in Agriculture. Initial machinery maintenance money should have arrived in schools. State Agriculture Advisory Committee. Also student based grants. These are targeted monies that must be spent in the nominated areas - NO GLOBAL GRANTS. Tractors - replacement based on a set model (Kubota with rotary hoe and slasher). Anything better desired then school funds the difference. Replacements based on serviceability and time. Proposal has gone to Treasury. Dave Rowlands and Denis Clancy.

15. Special Interest Group - submission to Teachers Federation. Considerable concern expressed over the lack of action and lack of support for teachers. The matter has been approved through Council but the Federation has not come forward with any real advice or guidelines. Their job is to represent us. Sue Hope and Ian Judd to arrange a strong letter to Federation expressing our serious concern about inaction and lack of genuine support. Their failure to genuinely represent our interests.

16. Farm Assistants - some concerns expressed.
    (a) Casuals replacing permanent positions on a long term basis. If position to be filled then may lose good, trained person. Principal's decision school based.
    (b) Permanent people who are not adequately filling their position. Need to check procedures through school PSA member or Senior School Assistant.

17. Poll Hereford Society interested in establishing web site and would like to know what would be useful to schools/students on such a site.

18. Sjann Kuiper - Sheep and Wool with RAS. Keen to start a hoof and hook competition with Prime Lambs. Very keen to promote sheep in schools.

19. Rural Industries - competencies do not, at present, line up with National Accreditation modules. To be re-written to align. Held up by White Paper consultation and HSC Review. Needs more allocation of funds, communication and coordination to make it work well.

Meeting closed at 4.00pm

Our thanks were extended to Raylee Selway and the Hospitality group at Moss Vale High School who looked after us so well. Also to Craig O'Brien for his organisation and management.



NSW Agriculture
1999 Conference Sponsor



NSW DEPARTMENT OF EDUCATION AND TRAINING STATE AGRICULTURE ADVISORY GROUP MEETING #1

MEETING : 10.00AM, 21 AUGUST 1998 AT DET BRIDGE STREET, SYDNEY

PRESENT : Jim Mather (Delroy High School), Peter Jones (Colo High School), Phil Hurst (Hawkesbury High School), Craig O'Brien (Moss Vale High School). Dennis Clancy (School Financial Support Unit), David Cooke (Properties Directorate).

APOLOGIES : Chris Evans (Mr Druitt District Office), Phil Armour (Yass High School).

ACCEPTANCE OF THE MINUTES OF THE PREVIOUS MEETING

The minutes presented to this meeting were passed as a true and accurate record of the meeting of the State Advisory Group of 10 November 1997.

BUSINESS ARISING

The letter is still to be sent out to selected schools inquiring about the amount of agriculture being taught at various schools as well as the resources available to teach the subject.

This letter is to be sent out by Dennis Clancy with minor changes as shown in Appendix 1 of the minutes of 10 November, and a reply is to come back by 25 September.

AGENDA ITEMS

1. SEED FUEL AND FERTILISER GRANT

- Dennis is happy with the way that funding happened in 1997 for 1998
- a similar form surveying student numbers is to be sent out to all schools identified with agriculture in their curriculum plus:
  a. new schools started in 1998
  b. Pendel High, Kelso High, Nowra High, Monaro High (non returns in 1997 but who do have agriculture)
- an addition to the bottom of the form is to ask for any major changes to the agriculture machinery (purchases, conditions and hours of use)
- forms are to be returned by 25 September
- Phil Hurst and Peter Jones are to be at Bridge Street to work on problem forms as well as chase up non returns on 23 October
- the whole committee will meet on 2 November to finalise the funding of the schools.

2. TRACTOR REPLACEMENT PROGRAM

- David Cooke spoke to the group and expressed his wishes of the Group. These are:
  - the group gathers State wide information and produce a data base of agricultural machinery used in schools;
  - produce a priority replacement schedule for the above mentioned machinery;
  - inform the school service units of the priority order of replacement.
- David informed the group that there was approximately $200,000 available to replace machinery in this financial year.
- Some comment was made on the possibility of leasing equipment.
- David expressed concern that there were some schools jumping the queue by going through the back door and being funded when in actual fact they were better off than other schools.
- The correct procedure schools should follow is:



- The submission written to David Rowland has not been acted upon. Jim Mather is to chase this up.
- Approximately 13 schools will be allocated a new machinery package this year
- the package will consist of the gear outlined in the minutes of the meeting of 10 November.
- The exact number of schools being offered the package will depend upon the value of the package.
- Those schools being offered the new package will be given the opportunity to increase the size of the package via the school financially contributing to the package.
- The notification of the offer will be done by a letter from David Cooke.
- An amount of money equivalent to the value of the package will be sent to each of the schools.
- Schools will be informed that they **must** dispose of the old equipment by either tender or trade.

GENERAL BUSINESS

THE UTE AT THE DUNHEVED AG POOL

It was mentioned that the lease for the Ute will expire at the end of the year.
DET fleet services are no longer interested/willing to pay for the lease in the future.

- Was this Group interested in funding the lease of the ute? NO was the answer. State wide funding should not be used to finance such a project.
- It was resolved that a letter be sent to those schools who use the ute informing them of the situation and asking them if their school was prepared to financially contribute towards a shared lease agreement. If they were not prepared to assist in this arrangement the ute would be removed from the Ag pool.
- It was resolved that a letter be sent to all schools using the Ag pool at Dunheved and Richmond seeking nominations for a committee who will supervise the running of the Ag pools at Richmond and Dunheved.

NEXT MEETING

Phil Hurst and Peter Jones are to meet at Bridge Street to work on problem forms as well as chase up non returns on 23 October.

- the whole committee will meet on 2 November.

NSW DEPARTMENT OF EDUCATION AND TRAINING STATE AGRICULTURE ADVISORY GROUP MEETING #2



MEETING : 10.00AM, 6 NOVEMBER AT DET BRIDGE STREET, SYDNEY

PRESENT

: Jim Mather (Principal, Delroy High School), Peter Jones (HT Mt Druitt High School), Phil Armour (Yass High School), Phil Hurst (Hawkesbury High School), Craig O'Brien (Moss Vale High School).

APOLOGIES

: Nil

BUSINESS ARISING

Jim Mather has had problems tracking down David Rowland re. the Tractor Replacement Program Submission. He will endeavour to catch up with him.

AGENDA ITEMS

1. AGRICULTURAL STORES VOTE - SEED, FUEL AND FERTILISER GRANT

Phil Hurst tabled a document showing the printout of points for the different schools and how they were allocated into the different school years. It also had a comparison of last years figures with this years figures.

Phil made comment of some discrepancies in the figures. It was suggested certain schools be telephoned to confirm the accuracy of the information they had sent in. This was done.

Some schools whose forms were not in, had been missed and therefore had not been telephoned. These schools were contacted and told they had until Monday, 11 November to get their forms to Phil Hurst at Hawkesbury High.

Due to missing forms, the exact number of points is not known at this stage. Phil Hurst is to work on the points totals.

It was also not known as to the amount of money to be divided up. Peter Jones is to chase up this amount from Dennis Clancy.

a. Small School Funding

The meeting confirmed that all schools declared as "small" schools would now be given a base funding rate of $400 per year. Phil Hurst and Peter Jones are to work on the cut off point between "small schools" and the rest. This cut off point is not to disadvantage small schools. It was thought that the cut off point would be in the vicinity of 415 to 430 points.

b. Other schools

These will be allocated funds based on the number of points they are worth multiplied by the value of the point.

2. ALLOCATION OF THE MACHINERY MAINTENANCE VOTE

The meeting confirmed that the funding of machinery maintenance is to be done as it was last year.

- Based on the points allocated to each school.
- Schools are to be classified into either of three groups. These are:
  a. small schools which are to be allocated a sum of $250/year;
  b. medium schools which are to be allocated a sum of $450/year;
  c. large schools which are to be allocated $600/year.

The cut off points between the different types of schools will depend upon the amount of money allocated to this area by Dennis Clancy. This is not known at present.

Peter Jones is to ask Dennis Clancy for the amount.

3. TRACTOR REPLACEMENT PROGRAM

Replies to surveys

Replies to the request sent to certain schools re. their agricultural machinery were read out.

Although 16 schools were asked to respond (Collarenebri, Coolamon, Oaklands, Wilcannia, Ardlethan, Ariah Park, Ashford, Brewarrina, Goodooga, Urana, The Forrest High, West Wallsend, Freshwater, Mendooran, Tullibigeal, Forster), replies were received back from only Coolamon, Mendooran, Freshwater, Ashford, Collarenebri and Oaklands.

Recommendation

Action to be taken by Dennis Clancy

a. Mendooran Central School - to be supplied with a new tractor package (tractor, slasher and PTO powered rotary hoe);
b. Collarenebri Central School - to be supplied with a new tractor package;
c. Coolamon Central School - to be supplied with a new tractor package;
d. Ashford Central School - to be supplied with a new tractor package;
e. Freshwater High School - **no** machinery to be supplied at their request.

4. CORRESPONDENCE FROM OTHER SCHOOLS

Camden High School
Doonside Technology High School
Elizabeth Macarthur High School
Gulargambone Centra School
Gunnedah High School
Mullumbimby High School
Narrabri High School
Oak Flats
Raymond Terrace High School
Tenterfield High School
Walcha Central School
Wee Waa High School
Woolgoolga High School
Colo High School
Dubbo High School
Glen Innes High School
Gundagai High School
Lisarow High School
Mullwaree High School
Nepean High School
Peel Technology High School
Riverstone High School
Ungarie Central School
Wauchope High School
Wingham High School

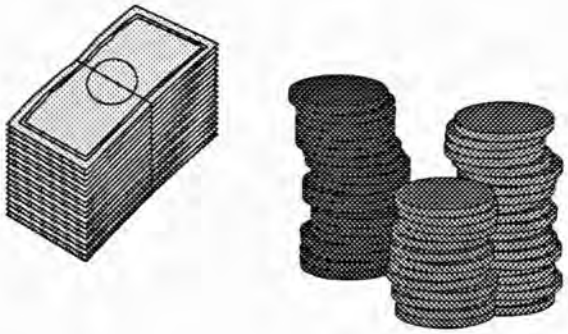
GENERAL BUSINESS

It was moved by the meeting that a memoranda be sent to all schools wishing to start teaching Agriculture, stating the correct procedure to be followed.

NEXT MEETING : no date was set.

Peter Jones
Executive Officer
State Agricultural Advisory Group

"MONEY"



NOTE for DET Schools in NSW

Utilities - Stores (Agriculture Grants)

The State Agriculture Advisory Group has recommended the payment of grants for schools that teach Agriculture and have an Agricultural plot. The grant has been calculated on the basis of the number of students studying agriculture which was advised to the Advisory Group in the state agriculture survey completed by school. The grant is included in the Stores component of your global funding entitlement and should be used for the purchase of fertiliser, seeds and maintenance of agricultural land and equipment.

(Refer to Editorial & State Agriculture Advisory Groups Meeting Minutes)

REPORT ON TEACHER TRAINING IN THE TAS AREA



Sheree Bourke and Sue Hope represented the Agriculture Association at a TAS Teacher Training day in Sydney on 22 September. The day was organised by Sally Tranter and Lyndall Foster. Both put a great deal of effort into running the day. This is the first time professional associations in the TAS and TAFE area have come together. Some important points emerged from this meeting.

At this stage the DET recognises that there are not enough graduates to meet the needs of the Department. Arising from projections figures involving the demand and supply of teachers over a seven year period in key learning areas, it has been suggested that there will be a decrease in enrolments until the year 2001 and then a gradual increase in numbers of students over the next four years. The number of teacher resignations has declined since 1990.

A number of factors will impact on student numbers;

McGaw Report
Federal Funding
Changes to Youth Unemployment Benefits
A minute possibility of the addition of Year 13

At the moment there is a shortfall of TAS teachers. Sydney University is not providing any TAS training next year. There is no doubt that fewer students are moving into undergraduate studies in the TAS area. Perhaps one of the reasons is because of the higher HECS fees for technology courses as compared to education courses that attract lower HECS fees. The final number of graduates in 1997 for Agriculture teaching was approximately 20.

The initiatives undertaken by Curriculum Directorate to overcome the shortfall of teachers in the TAS area include:

a. retraining programs

b. sponsorship offered to graduates to undertake Dip Ed programs

c. joint BHP, DET and University of Newcastle programs to retrain 70 displaced BHP staff to become TAS teachers.

As Agriculture teachers, we can influence students to move into the technology areas by

* being mentors to students.
* informing students of the enormous amount of jobs available in the technology and agriculture area
* advertising the benefits of technology/agriculture to the public and parents
* providing a scholarship from our association to a graduate who is trained in Agriculture and is prepared to teach in the subject.

Curriculum Directorate may also be prepared to make up a TAS KLA job resource information package. This package would be distributed to all Careers Advisors in secondary schools. It is hoped that the package might influence students to make more informed decisions regarding subject choice and career paths at the tertiary level.

Apparently parents account for about 60% of their child's input into subject choice. This has implications for Agriculture. The perception of many parents is that they think that computer studies is a subject that their child should take in contrast to Agriculture because of the job opportunities that exist within the area.

As Agriculture teachers we are going to have to push the benefits of our subject. With the introduction of history/geography/civics our elective lines are being reduced.





Breadth of Study

Teachers need to be aware that McGaw recommended that the 'Breadth of Study' be removed. That is, the restrictions placed on students to complete 11 units for the HSC. Units must come from English/Science/Mathematics/TAS/Languages/PD/Health/Creative Arts/Human Society and its Environment and at least three other courses.

Prior to these restrictions, students could do English and have freedom of choice regarding other units. Remember the subject Engineering Science. This subject has nearly disappeared in many schools.

All members must support McGaw in his efforts to remove the 'Breadth of Study' from the HSC. At this very moment there are political groups at the BOS arguing very strongly that the 'Breadth of Study' should remain.

There are implications for all agriculture teachers. If the 'Breadth of Study' remains, less students will be taking subjects such as Agriculture and Engineering Science because they are forced to take a subject in the humanities area. Students should have the right to maximise their opportunities into their chosen career paths and not be restricted in the choice of subjects they take.

All Agriculture teachers must support McGaw. Write to:

Professor Gordon Stanley
President of the Board of Studies
GPO Box 5300
SYDNEY NSW 2000

virbac

Here is a suggested format for your letter -

In reference to the 'Breadth of Study', I support your recommendation regarding the reduction of restrictions placed on students selecting 2 Unit subjects. Students should be able to maximise their career opportunities by studying subjects of their personal choice. Queensland already provides students with a greater range of subject choice by not having any restrictions at all. This includes English.

Surely students in their post-compulsory years should be given as much control of their own lives and be able to choose the subjects of their own choice.

As an Agriculture teacher, I support the lifting of subject restrictions and recommend that students be given a freedom of choice to select subjects that they find enjoyable and rewarding.

Yours sincerely,

NSW Agriculture
1997/98 BAAT Gold Sponsor

HOPE FOR THE BEEF INDUSTRY

OUTCOMES FROM THE BEEF CRC - ARMIDALE

Bruce West "Tocal"

The beef CRC at Armidale has been conducting one of the largest, integrated beef quality research projects in Australia's history. Funding has amounted to $59million over an expected 7 year period (the CRC is now in its fifth year of operation).

Contributors to this funding are as follows:

* $19.2 million from the Commonwealth
* $32.4 million from the 4 core partners of the CRC (NSW Agriculture, CSIRO, UNE, Qld DPI)
* $6 million from private sponsors.

The CRC's mission is to assist the beef industry of Australia to meet the meat quality specifications of domestic and export consumers at least cost and maximum profit for all sectors. The CRC's strategies to achieve this has four strands as follows:

* First, to undertake the research in genetics, nutrition, meat science, animal health and welfare, economics and waste management on which Australia's competitiveness will hinge.

* Second to integrate the results from each of these disciplines so that interactions between them are understood and exploited. This will place Australia at the leading edge of international research in producing quality beef at least cost, and add significantly to the current body of knowledge.

* Third, to immediately apply the findings to better position the Australian Beef industry on world markets.

* And fourth, to educate and train scientists, technicians, producers, managers and other end users involved in the industry so that Australia's competitive advantages can be maintained and enhanced.

The CRC's core project involves the breeding, purchase, transport, grow out, finishing, slaughter and evaluation of some 12,000 progeny from Qld, NSW, Vic and Northern Territory

Following is a brief summary of some outcomes that have emerged from the Beef CRC:

CRC Outcomes, June 1998

Carcase and Meat Quality Genetics

CRC genetics research provides the blueprint for breeding Australian beef cattle in the future. Retail beef yield is a new trait identified by the CRC in all breeds studied. It is highly heritable and of great economic value. Tenderness, on the other hand, has low heritability in Bos taurus breeds and probably not worth breeding for. It is slightly more promising in tropically adapted breeds. Marbling, on the other hand, is moderately heritable based on intramuscular fat measurement. Marble score (based on visual assessment of the quartered carcase) is a poor indicator of this trait and needs serious re-examination.

Sire Evaluation

The CRC's progeny test program has identified sires with spectacular genetic merit for marbling, particularly in the Angus, Hereford, Shorthorn and Belmont Red breeds. These are soon to be released to industry. These sires will assist our Japanese export, grain fed (B3) trade by improving success of hitting the marbling grades that attract large premiums. Recent results however, suggest that marbling and meat yield appear negatively correlated. That is if you select to improve marbling then your meat yield will suffer. Some sires, however, have been identified with both high marbling and meat yield genetics.

Gene Markers

CRC molecular genetics research has been successful in identifying gene markers (DNA tests) for meat quality traits. Promising gene markers exist for growth, carcase retail yield, fatness, marbling, tenderness of striploin and eye-round muscles, meat and fat colour. This means that animals can be sampled at a very young age to see if they have the favourable genes and hence potential. This research could mean a 50% increase in the rate

of genetic progress in some meat quality traits. A good step towards catching up with the chicken industry. First steps in the commercialisation of this technology for Australia industry use are now under way.

Beef Tenderness
The CRC has contributed significantly to achieving tenderness of Australian beef through studies of post-slaughter practises including electrical stimulation (high or low voltage stimulation of carcase immediately after death), chilling regime of carcase, tenderstretch (different way of hanging carcase) and ageing. CRC carcases are key elements in testing protocols for the MSA (Meat Standards Australia) grading system based on eating quality and are especially important in identifying successful pathways for high Brahman content animals to meet 3 star specifications. Therefore the CRC has had a lot of input into developing the pathways for 3, 4 and 5 star beef in the new grading system (MSA).

Net Food Efficiency
The CRC has developed new technology to measure individual feed intake of feedlot cattle. The equipment is now being commercialised by Ruddweigh Australasia. This technology will help industry to capture the benefits of selecting cattle for net feed efficiency in the way the poultry and pig industry have done. More efficient cattle will benefit Australian breeding herds, feedlot progeny and live export steers. The CRC has made some progress in understanding the physiological basis of differences in net feed conversion efficiency and this will allow us to anticipate any negative genetic associations.

Pre-boosting Cattle
CRC scientists have identified that post weaning nutritional treatments and behaviour modification can enhance feedlot growth, feed efficiency, disease resistance and carcase yield.

New Hormonal Growth Promotant
A new hormonal growth promotant (HGP) has been developed at the CRC to extend the duration of effect with increased growth production benefits. The CRC program is also evaluating the HGP effects on beef eating quality to ensure that consumer satisfaction is not compromised.

Bovine Respiratory Disease Vaccines
CRC has developed a new vaccine against Pasteurella hemolytica, a major causative agent of "shipping fever" and respiratory disease in feedlots. Respiratory disease in feedlots is the most important disease costing millions of dollars in lost production. In one trial in a 50,000 head feedlot, the vaccine saved the enterprise $4.5 million. The product is now being commercially produced by Aus Vac.

Reduced Antibiotic Usage
CRC achievements will lead to reduced need for antibiotic treatment of cattle thus helping Australia maintain "residue free" status in discerning domestic and export markets. These achievements include the vaccine above as well as identifying an animals immune competence thus ensuring that only cattle with good disease resistance are exposed to stressful environments.

Feedlot Waste Management
The CRC, together with the MRC, have developed new methods of more efficiently recycling waste products from intensive animal production systems such as feedlots. These results will mean more realistic environmental projection targets and more profitable feedlot waste management strategies.

Meat Industry Education and Training
The CRC has invested heavily in beef industry education at undergraduate, postgraduate and industry training levels. The CRC invests $800,000 per year in developing a more skilled meat industry workforce. This will mean university, TAFE and industry-certificate graduates to work in the seedstock, grazing, feedlot, processing, food service, export and beef retail sectors.

Hopefully this article has given you some insight into the role, function and findings of the Beef CRC at Armidale. These are just some of the results and if you require more information contact myself or the CRC directly via Fay Hughs (0267 733291)

Bruce West (for the Beef CRC and the NSW Agriculture Beef Products Program)
C. B. Alexander Agricultural College TOCAL
PATERSON NSW 2421 Ph 0249 398888

C. B. ALEXANDER AGRICULTURAL COLLEGE
"TOCAL" PATERSON NSW 2421

Where is "Tocal"?
On recent school visits to the New England and Northwest regions, as well as talking to students at careers markets in Goulburn and Bowral, I was surprised to find that very few students knew where Tocal is situated. Many students had never heard of Tocal.

"Tocal" is a 2200 ha property in the Lower Hunter Valley, about 15km north of Maitland. Follow the signs from Maitland to Paterson and the unique architecture of the college buildings will let you know when you have reached Tocal. If you are passing through this way, call in and have a cuppa, a chat and a look around.

Tocal is the only agricultural college in NSW with large commercial enterprises, with up to 1500 beef cattle, 150 dairy cows, 50 Australian Stock Horses, 350 sheep and producing more than 5000,000 broilers per year.

The college is easily accessed by phone (1800 025520) or Internet (www.tocal.nsw.edu.au)

Jobs in Agriculture?
In contrast to the current rural economic situation, there are plenty of rural jobs available at the moment. The Land newspaper often has 3-4 pages of "Positions Vacant" advertisements and we are constantly being contacted to supply graduates to rural enterprises. If students are interested in rural vocation, it may be worthwhile to **encourage them to pursue that option.**

Whilst on the topic of jobs, I am currently on LWOP from the education department and enjoying a three year temporary position with NSW Agriculture at Tocal. At the end of 1999, I am back in the classroom. If you know of any Agriculture/Rural Industry positions coming available in the next 18 months, please contact me. I have a great liking to places "fishy" and coastal!

Resources
On a recent visit to Moss Vale HS, Craig asked if I could send in some material for BAAT. I have managed to scrape a few things together that may be of interest. The worksheets fit into our 'problem-based learning' strategy, so they may need some interpretation: I have tried to modify them and include instructions so that they are more user friendly.
Tocal also produces some excellent resources in the form of books and videos.

Many schools in the Hunter and Central Coast regions are now using Tocal as a training facility for Rural Industries. Students can gain the 'Tocal Certificate in Tractor Operation and Maintenance' and the 'National Farm Chemical Users Certificate'. Training is also provided for farm motorbikes and livestock husbandry.

Travers Powell

TOCAL'S NEW COURSES

Tocal College at Paterson has developed two new courses as a result of increased demand by students. Prospective students have asked for a residential horse husbandry course and an advanced course in Agriculture.

College staff have developed two new programs based on national competency standards. These are a Certificate III in Horse Breeding and a Diploma in Agriculture.

The Certificate in Horse Breeding allows students to specialise in horses including breeding, feeding, foal handling and horse breaking. It will make extensive use of the College's 60 horses and students will also work on local horse properties in the Hunter Valley.

The Diploma in Agriculture follows on from the Certificate III and IV programs. These courses develop the practical skills and knowledge required to work on the land and in other rural businesses.

There are shortages of trained people for the agricultural industries throughout Australia. Positions are available on horse studs and grazing and mixed cropping properties in many areas. There are also opportunities in agribusiness as agronomists, trainee managers, Rural Lands Protection Board rangers and technical officers on Research Stations.

CERTIFICATE III IN HORSE BREEDING



As part of the new National Vocational Training program, Tocal College has revised its full-time courses. They are now more flexible and lead to National qualifications, recognised throughout Australia.

In response to the large demand from current and prospective students, Tocal will be introducing the **Certificate III in Horse Breeding** course in 1999. This course will contain a balance of practical, theory and skills training, covering all aspects of horse handling and management.

The practical training will be carried out with College horses and on Hunter Valley horse properties. Students will gain experience in a variety of horse enterprises. Unlike other horse courses, the Tocal course has been broadened to include valuable rural skills, such as fencing and machinery skills, to provide graduates with greater opportunities to successfully gain employment in a wide range of rural enterprises.

Topics covered in the course include; Horse Husbandry, Nutrition and Feeding, Hoof Care and Dentition, Brood Mare Management, Horse Breaking, Horse Training, Horse Health, Farm Chemicals, Farm Safety, Grazing Systems.....

Situated in the Hunter Valley, Tocal with its registered Stock Horses and large Beef enterprise, is ideally situated to deliver a high quality, industry recognised course in horse handling and management.

The College is well known throughout Australia for **its practical, hands-on approach** and its **excellent employment rate** for graduates.

For further information and an application form, contact the College on phone **1800 025520**

Information to share?

Send it in for the next BAAT Newsletter.

Ring Craig O'Brien on (02) 48681717 and he will tell you where to go .... next.



Murrumbidgee College of Agriculture

David McCarron - Education Officer
Murrumbidgee College of Agriculture

Part-Time Rural Traineeships - Progress Update

Murrumbidgee College of Agriculture, located in the MIA near Leeton, NSW, is currently involved in delivering the following Part-Time Rural Traineeship Pilots to be run over a two year period, 1998 to 1999. Students who are signed up as "indentured trainees" (ie. with part-time paid employment) have up to 30 months from the time of their indenture in which to complete the on-the-job component of their Traineeship. The off-the-job component will be completed by November, 1999.

Pilot 1 : West Wyalong Vocational Education Training Group

Students are undertaking a full Rural Traineeship over two years. This Traineeship involves indentured trainees and students completing modules which will enable them to gain credit in Traineeships. The West Wyalong Vocational Educational Training Group has a full time coordinator and includes schools in the following towns - West Wyalong, Lake Cargelligo, Ungarie, Ardlethan, Grenfell, Quandialla, Ariah Park and Barellan.

Initially there were twelve (12) students enrolled in this pilot. Off-the-job training commenced on 16/3/98. Students are required to complete approximately six weeks of off-the-job training at MCA over the next two years. The balance of the off-the-job training is delivered within the current school curriculum, hence students will be granted RPL (Recognised Prior Learning) upon receipt of appropriate evidence.

Students who are signed up as indentured trainees also complete the on-the-job training component of the Traineeship while they are at school. All students are to be enrolled in the Content Endorsed Course - Rural Industries. On completion of

the pilot students will receive 2 units of credit towards their HSC and a Certificate II National Rural Skills. Those students who have not completed the on-the-job component with an employer will need to do so before a qualification is issued.

Pilot 2 : Tullibigeal Central School

Students are undertaking a full Rural Traineeship over two years. This Traineeship involves a contract of training and part-time paid employment while students are studying for their HSC. Tullibigeal Central School is associated with the Western Access Group which also includes schools from Peak Hill, Trundle, Trangie and Yeoval. There are three students to be enrolled in this pilot. All students are enrolled in the Content Endorsed Course - Rural Industries. Off-the-job training commenced on 20/7/98. Students are required to complete another two to three weeks of off-the-job training over the next two years.

Tullibigeal also have an additional 3-4 students who will be eligible to study rural vocational education modules as part of their HSC, that will provide credit transfer into a Traineeship which they can take up on leaving school. This being the case, these students will attend the same training blocks as their classmates to reduce costs. All students are enrolled in the Content Endorsed Course - Rural Industries. On completion of the pilot students will receive 2 units of credit towards their HSC and an Academic Transcript from the training provider stating completed modules. Should students enrol in a Rural Traineeship on completion of their HSC, there will be little off-the-job training required.

Pilot 3 : Yanco Agricultural High School

Students are studying rural vocational education modules as part of their HSC, that will provide credit transfer into a Traineeship which they can take up on leaving school. There are 9 students enrolled in this pilot. Off-the-job training commenced on 25/5/98 and will continue in small blocks over 1998 and 1999. Yanco Agriculture High School has successfully applied to the Board of Studies to enrol their students in a School Designed Board Approved Course - Cropping and Grazing (Rural Skills) as well as the Content Endorsed Course - Rural Studies. Hence, on completion of the pilot students will receive 4 units of credit towards their HSC and an Academic Transcript from the training provider stating completed modules. Should students enrol in a Rural Traineeship on completion of their HSC, there will be little if any off-the-job training required. On completion of the on-the-job requirements a national qualification can be issued.

THE LAND
1999 Conference Sponsor

TRAINEESHIP DEVELOPMENTS

It was interesting to note that at the recent NSW VETAB Conference (29-30 October, 1998) the model being proposed by DET for the format of Part-Time Traineeships suggested a 400 hour course that contributes 4 units towards the HSC. These 4 units are to be made up of the current content of CEC courses (ie. rural Industries 240 hours) and an additional 160 hours (minimum) that is delivered by a RTO (Registered Training Organisation). This is the basis of what is currently happening in the pilots being run at MCA. Agriculture in this case is not lagging behind, but rather paving the way ahead!

Given that 4 units could be credited towards the HSC, students would only require an additional 7 units to satisfy the BOS requirements (in their HSC year). What this means for the average students is that they would only need to enrol in four other 2 unit HSC subjects, if enrolled in a Part-Time Traineeship. This could be cut to three, if the student also completed a JSST subject (outside of the Traineeship) worth 1 unit.

Further to this, early indications are that many students currently enrolled in Traineeship pilots are finding it hard to combine a full HSC load with part-time employment obligations. Under the "new" structure students would have more time to complete their studies and part-time work due to a reduced HSC work load.

The implications for school timetabling remain unresolved. Dr Boston himself admits that no single model will suit all locations. Students who are timetabled for 4 units of a particular subject however, may be better accommodated on current timetable structures, particularly where a two week cycle is used. Some school may argue that since some modules may be delivered by an RTO, that the Agricultural teacher (or others) need not be timetabled for those periods. I would argue that this is not the case and in fact the teacher requires additional periods, given that they will most likely enter into a partnership arrangement and will actually deliver modules on behalf of the RTO. Additionally, such teachers may be required to assess on behalf of the RTO which will require visiting the workplace of their students.

Delivery of off-the-job modules can take place in a variety of ways. It is most likely however, that many schools will enter into partnership arrangements with RTO's rather than seek to become an RTO in their own right. In Agriculture in particular, it will be very difficult for most schools to satisfy the VETAB requirements to become an RTO, therefore a partnership arrangement is a viable alternative.

DET also indicated that they are only interested in Traineeships and/or pilots in which students achieve a HSC outcome. Again the pilots organised at MCA had this in mind as a primary goal from the outset.

The incorporation of the National competency Standards into the "NEW HSC" will mean that students are given full recognition for what they achieve

at school - particularly in vocational education type subjects. No longer will they do one thing at school and then not have it recognised should they enrol in further studies elsewhere.

The introduction of the National Competency Standards means the introduction of a level playing field where qualifications are recognised not only State wide, but Australia wide. Students will finally gain "dual recognition"

Year 10 Rural Skills Workshop Initiative

Murrumbidgee College of Agriculture has initiated a week long Rural Skills Training Workshop pilot, specifically targeted at students currently enrolled in Year 10. The workshops are to be duplicated in a second week. During a week long program students will be instructed in selected modules from the National Rural Skills Traineeship which they have elected. Successful completion of modules will result in a Certificate of Completion being issued to students stating module name and number.

All the modules to be offered will provide direct articulation into Certificate II and Certificate III level rural courses, Part-Time Rural Traineeships and the Content Endorsed Course - Rural Industries. There is no charge to the students to attend the week apart from their travel.

Expressions of interest were sent out to about thirty selected schools across the Riverina, Central West and Western Regions. Initial expressions of interest from over 100 students for the two weeks were received from as far away as Bourke. At the time of writing this article the following modules look likely to run - Farm Chemicals, First Aid, Farm Tractor Operations, Conventional Fencing, Sheep Handling, Cattle Handling, and Soil and Fertilisers.

When students are not engaged in formal training sessions, I have organised for them to be on rural industry tours. I have also organised a number of after hours recreational activities for the students which will include guest speakers - providing an overview of food and fibre production and processing as well as rural employment opportunities in the Riverina.

Should this pilot be a success, there are plans afoot to expand it in 1999. Further detail will be supplied at the Biennual Conference in Orange.

Dave

NSW Agriculture

1999 Conference Sponsor

AGRICULTURE offers exciting opportunities

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

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

New Courses

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

Agricultural College courses are for:

- School leavers
- Land holders
- People working on farms
- New entrants to agriculture
- Aboriginal communities
- Food and fibre producers

NSW Agriculture



FOR FURTHER INFORMATION

Murrumbidgee College of Agriculture
Yanco NSW 2703
Ph (02) 69512700

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

VINCENTIA HIGH SCHOOL AGRICULTURE



Vincentia High School was established in 1993 with Agriculture among the foundation electives that year. It has grown from 1 form per year with 1997 being our first HSC year. The school is now nudging 1000 students.

Agriculture operates out of the TAS KLA. Year 8 does an Agriculture module as part of their D&T studies and we offer Agriculture to both Year 9 and Year 10 as electives. Both classes have over 20 students. In 1999, we will start our first Year 11 Agriculture class. Although the students at Vincentia come from mainly coastal suburban areas, Agriculture is an increasingly popular elective.

The farm at Vincentia High is tiny - less than 1 hectare and carved out of coastal heath. The soil is shallow, sandy and extremely infertile. Due to the sandstone rock below, any rainfall quickly turns the area into a sodden mess as you watch the precious organic matter float away, into the staff car park.

Native birds (*Crimson Rosellas, Wood Ducks etc*) have made vegetable and fruit crops a difficult proposition so we have concentrated on our livestock enterprises. As well as running poultry (2 purebred breeds and one group of crossbred layers), we also run goats and pigs. The pigs are purely a grower operation - we purchase weaners from a local breeder and grow them through to porkers or baconers. The pigs are fed commercial grower ration supplemented by vegetable scraps from the Canteen and Home Science Departments.

The goat enterprise is our latest venture. We have two Boer Goat cross females, one 3/4 bred and the other ½ bred. These have been crossed back to pure Boer and we have two sets of twins (7/8 and 3/4). The Boer Goat is a hardy meat breed of goat and because of their great nature they are terrific for the students to handle.

Our farm is run on organic principles with composting and worm farming part of the Agriculture experience for our students.

Because of our poor soils we have planted a small plot of proteas for cut flowers. This enterprise and goats however, are not compatible without good quality fencing - in fact goats are an ideal way to test the quality of any fence (adjustments have been made).

I hope this snippet from our Agriculture enterprise on the edge of Jervis Bay is of interest. Plenty of challenges - but matched by a lot of interested and enthusiastic students. We hope in the next few years to diversify further into aquaculture.

Cheers *Russ Firth*

YASS HIGH SCHOOL FARM & AGRICULTURE PROGRAM

Agriculture has been taught at Yass High since 1986 when an area was put aside behind one of the school buildings for a general Agriculture area.



This area includes vegetable gardens for Year 7, an area for Horticulture including shade and hot houses, fruit trees, vines (kiwi fruit and grapes), berries, as well as the poultry unit, beehives, machinery and tool sheds.

All of Year 7 do Agriculture for one period per week over a year while Year 8 do Design & Technology in 10 week blocks over the year.

Years 9 and 10 run as a vertically integrated class while Years 11 and 12, 2 Unit Agriculture, has recently been joined by Rural Industries.

The program relies on the annual calendar of events on a typical farm in the region for its inspiration with the aim of introducing the students at all levels to the seasonal changes that influence a farm and its management.

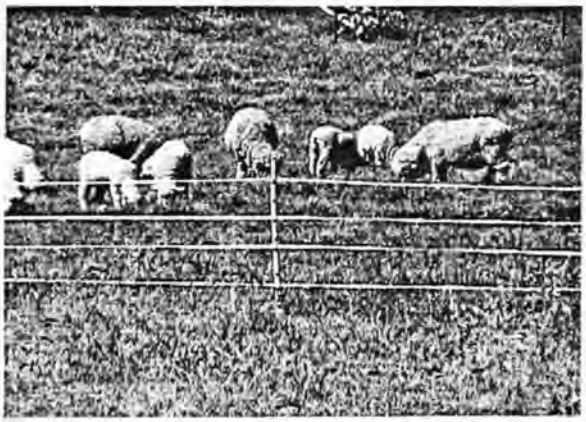


The major enterprises centre on prime Lambs, fine Wool, Beef Cattle, pasture production and fodder cropping. These are carried out on a second farm area purchased eight years ago and developed by the students over time to be a highly productive area.



This farm has well set out cattle yards and shed for small numbers of animals and has also been designed to facilitate sheep. Recently we purchased a set of portable sheep panels that enable more specialised operations such as drafting etc. to be carried out with the flexibility that light weight temporary yards allow.

In addition to these enterprises, Yass has a Jersey Stud to add an extra dimension to the program and along with showing steers at most major shows, the Jerseys have met with success in the show ring.



In recent years a lot of emphasis has been placed on pasture establishment and management. Grazing management in particular has been stressed as a weed control method as well as a means to maximise production. Sheep are used to cell graze and strip graze the pastures and fodder crops to considerable success.

Yass High School enjoys a great deal of local support for its Agriculture Program and this has made a big difference to the depth and quality of the program available to the students.

FARM CHEMICAL USER'S COURSE

YASS HIGH SCHOOL - MAY 1998

In late May, 20 participants attended the first Farm Chemical User's Course for Teachers and Farm Assistants. It was held at Yass High School and was conducted by Craig O'Brien from Moss Vale High School.

Participants came from as far away as Wagga Wagga, the South Coast, Orange and the ACT system. The most pleasing feature was to welcome Farm Assistants from Yass, Mulwarree, Crookwell and Karabar High Schools.

A number of the participants began to calibrate a boom spray on a four-wheel motor bike which was one of the spray-rigs available on the day.

Craig O'Brien is to be commended for his efforts in running the course and readers of the last BAAT will have seen the many favourable comments made about the day and his efforts.

It is hoped that more of this type of day can be held in other areas of the state to meet the need for better trained chemical handlers.

Phil Armour

Cotton Australia's world wide web site - **www.farmwide.com.au/nff/cotton/cotton.htm** carries a lot of general information on cotton growing in Australia, and we can be emailed for further information on **shelleysp@msn.com.**

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

COTTON AUSTRALIA

1997/98 BAAT Gold Sponsor



CURRICULUM RESOURCES FOR AGRICULTURE TEACHERS

- Two draft documents should have reached your school. They include **'Making Technology Learning Safer'** and **'Frequently Asked Questions about Safety in the Technological and Applied Studies KLA'**. These documents are valuable and suggest that we all should have safety policy/processes documented. Thanks to Sheree Bourke for her contribution to the Curriculum Directorate Documents.

- Ministers Young Design Awards will be exhibited at the Sydney Visitors Centre, The Rocks from 12 November 1998 to 25 January 1999.

- The Design Technology exhibition at the Powerhouse Museum is from 10 December 1998 until 28 March 1999.

- Have you seen Teaching Literacy in D&T in Year 7 and Teaching Literacy in Science Year 7? Cost $20 each. Purchase from NSW DET Fax (02) 9647 1066.

- D&T Agriculture Briefs. Curriculum Support Directorate has reprinted a previous publication to support the Agriculture Context in D&T Years 7-10. These were distributed to your school in Term III.

- Design scapes includes a range of innovative teaching suggestions for use in D&T. Should have been distributed to your school in Term III.

- Curriculum Support provide the following resources. Purchase from Gayle Robinson, Curriculum Support Directorate, Fax (02) 9886 7654.
  - Agriculture Chemicals
  - Animal Husbandry
  - Farm Equipment
  - Plant Management.

- Have you seen the following resources?
  TEFA Web Site. Technology discussion papers.
  http://www.ash.org.au/teachers/tefa/TEFAdest.html

IS YOUR SCHOOL INTERESTED IN STEER SHOWING?

- If so, start planning now for the 1999 Central Coast Schools' Steer Show, to be held on Thursday, 9 September (Week 8, Term III) at the Wyong Racecourse - an easy one hour drive from Sydney, Newcastle or the Hunter Valley.

- The program for the day includes:
  - a junior judging competition
  - a handlers competition, and
  - the judging of the four 'live' steer classes.

- Free transport to Woy Woy abattoirs can then be arranged for the steers wishing to be entered in the "carcase judging competition" on Wednesday, 15 September.

- The competition has been successfully running for five years and attracts entries from some of the top steer showing schools in NSW such as Umina High, Barker College, Lisarow High and others.

- The competition is open only to schools, and therefore has an emphasis toward learning and participation.

- It is an ideal opportunity to catch up with other agriculture teachers/old mates, etc. and soak up some good old Central Coast hospitality. See you there!

- For further information or an entry form, please phone or fax one of the committee at the following schools:

Cameron Dusting (Lisarow High))
Megan Chandler (Nerara Valley High)
Alex Skladner (Northlakes High)
Grant Jackson (Gosford High).

USEFUL INTERNET ADDRESSES

"TOCAL" AGRICULTURAL COLLEGE www.tocal.nsw.edu.au

AGRICULTURE DEPARTMENTS

NSW Agriculture	www.agric.nsw.gov.au
Qld Dept Primary Industry	www.dpi.qld.gov.au
WA Agriculture	www.agric.wa.gov.au
SA Primary Industry	www.pir.sa.gov.au
Tasmanian Primary Industry	www.dpif.tas.gov.au
Vic Natural Resources and Environment	www.nre.vic.gov.au
CSIRO	www.csiro.au

UNIVERSITIES

Charles Sturt University	www.csu.edu.au
Queensland University	www.uq.edu.au
Newcastle University	www.newcastle.edu.au
University of New England	www.une.edu.au

STATISTICS, COMMODITY PRICES & INFORMATION

ABARE	www.abare.gov.au
FARMWIDE	www.farmwide.com.au
LANDLINE	www.abc.net.au/landline
FARMING ONLINE	www.rpl.com.au/farming/index.html

SEARCH ENGINES / LINKS

ANZWERS	www.anzwers.com.au
AG LINKS	www.uq.edu.au/agriculture/links.html
AGNET	www.agnet.com.au

EDUCATION PACKAGES

AG & NAT. RES. WAITE UNI	www.waite.adelaide.edu.au/school

ANIMALS

Woolmark	www.wool.com.au
Aust. Wool Exchange	www.awex.com.au
Aust. Council of Wool Exporters	www.ozemail.com.au/~acwemelb
AMLC	www.amlc.com.au
Breeds of Livestock	www.ansi.okstate.edu/breeds
CRC Premium Wool Quality	ansc.une.edu.au/wool-crc
CRC Beef	ansc.une.edu.au/beef-crc
NSW Dairy Coop.	www.dairy.nsw.gov.au

PLANTS

Aust. Wheat Board	www.awb.com.au
Permaculture Concepts	www.attra.org/attra-pub/perma.html
Aust. National Botanic Gardens	http://155.187.10.12/anbg
National Landcare Program	www.dpie.gov.au/agfor/landcare/nlp-organisations.html
Aust. Cotton Foundation	www.farmwide.com.au/nff/cotton/cotton.htm
Grains Council of Australia	www.farmwide.com.au/nff/grains/grains.htm
Rice Growers Assoc of Australia	www.farmwide.com.au/nff/rga/rga.htm

WEATHER

Bureau of Meteorology	www.bom.gov.au

ADMINISTRATION

Whitepages	www.whitepages.com.au
Postcodes	www.auspost.com.au/postcodes

EDUCATION PACKAGES

AG & NAT. RES. WAITE UNI	www.waite.adelaide.edu.au/school

USEFUL WEB SITES FOR RURAL INDUSTRIES
MODULE 1 : THE RURAL WORKPLACE

from Peter Jones
Mt Druitt High School
November 1998

The following are some of the useful sites that will be included in the HSC On Line - Rural Industries CEC web site. This site should be online early Term I 1999.

Learning Outcome 1

NSW Agriculture
http://www.agric.nsw.gov.au



Dept Ag. WA
http://www.agric.wa.gov.au

Tasmanian Dept Ag
http://www.dpif..tas.gov.au

Dept Ag South Australia
http://www.pi.sa.gov.au

Queensland Dept Ag
http://www.dip.qld.gov.au

Learning Outcome 2

Learning Outcome 3

NSW Annual Holiday Act 1994 -
http:/www.austlii.edu.au/au/legis/nsw/consol_act/aha1944163/



Industrial Relations Act 1996 -
http://www.austlii.edu.au/au/legis/nsw/consol_act/ira1996242/

Employment Protection Act 1982
http://www.austlii.edu.au/au/legis/nsw/consol_act/epa1982274//

Rural Workers Accommodation Act 1969
http://www.austlii.edu.au/au/legis/nsw/consol_act/rwaa1969301/

Occupational Health and Safety Act 1983
http://www.austlii.edu.au/au/legis/nsw/consol_act/ohasa1983273/

Rural Industries (Machinery Safety) Regulation
http:/www.austlii.edu.au/au/legis/nsw/consol_reg/risr439/

Learning Outcome 4

NSW Farmers
http://www.nswfarmers.org.au/

National Farmers Federation
http://www.nff.org.au/member.htm

NSW Dept. Industrial Relations
http://www.dir.nsw.gove.au

Labour Council of NSW
http://labor.net.au/lcnsw

Cinemedia - National Library of Australia (borrowing film and videos)
http://www.cinemedia.net/NLA

National Occupational Health and Safety Video Library
http://www.worksafe.gov.au/worksafe/wsa/video/intro.htm

Pastoral Award
http://www.dwrsb.gov.au/awardman/PO143.pdf



Learning Outcome 5

Agricultural Health Unit

http://www.aghealth_farmsafe.nsw.gov.au/farms.htm

ACTU workstie for students
http://www.worksite.actu.asn.au

WorkCover NSW
http:/www.workcover.nsw.gov.au

Learning Outcome 6

NSW Dept. Industrial Relations
http://www.dir.nsw.gov.au

Learning Outcome 7

WorkCover NSW
http://www.workcover.nsw.gov.au

National Health and Occupational Safety Commission
http://www.worksafe.gov.au/worksafe/home.htm

Western Australia Worksafe
http://www.wt.com.au/safetyline/

Occupational Health and Safety Act 1983

http://www.austlii.edu.au/au/legis/nsw/consol_act/ohasa1983273/



Learning Outcome 8

Western Australia Worksafe
http://www.wt.com.au/safetyline/

WorkCover NSW
http://www.workcover,nsw.gov.au

Agricultural Health Unit
http://www.aghealth_farmsafe.nsw.gov.au/farms.htm

*** Sites for learning outcomes 9 to 12 are still being developed ***

JUNIOR SYLLABUS TOPIC

The North Coast Ag. Teachers Association has compiled a disc containing 12 Topics (42 pages) for the new Junior Syllabus.

The Topics include those which were in the Support document and also some which were started at a conference in Armidale earlier this year. They are not perfect, however, they are in a form which can be changed and are a good starting point.

These Topics are available to Ag. teachers.

Cost : $10

Please make cheques payable to :

North Coast Ag. Teachers Association
c/- M. Melino
St. Johns College
PO Box 6
LISMORE NSW 2480

Following is a sample Topic plus an outcomes sheet.

OUTCOMES SHEET

	Beekeeping Stage 5	Fruit & Nut Stage 5	Aquaculture Silver Perch Stage 4 or 5	Dairy Production Stage 4 or 5	Pig Production Stage 4	Feedlot Steers	Vegetables	Soybean Stage 5	Prime Lamb Stage 5	Ornamental Plants Stage 5	Broiler Production Stage 5	Pastures
1.1	✔	✔	✔	✔	✔	✔	✔			✔		✔
1.2	✔	✔	✔		✔	✔		✔			✔	
1.3	✔	✔						✔	✔		✔	
1.4	✔	✔	✔		✔	✔				✔		
2.1		✔	✔			✔	✔		✔	✔	✔	
2.2	✔	✔										
3.1	✔	✔	✔		✔	✔		✔	✔	✔	✔	
3.2		✔					✔	✔	✔	✔		✔
3.3	✔		✔	✔		✔		✔	✔		✔	
3.4	✔	✔	✔	✔	✔	✔	✔	✔				✔
4.1		✔	✔		✔			✔	✔			
4.2	✔	✔	✔		✔	✔	✔	✔	✔		✔	
5.1		✔					✔	✔		✔		
5.2		✔						✔		✔		
6.1	✔		✔	✔	✔				✔		✔	
6.2	✔		✔		✔	✔	✔		✔		✔	✔
7.1	✔	✔	✔				✔			✔	✔	
7.2			✔		✔	✔					✔	✔
8.1		✔	✔			✔	✔			✔		✔
8.2			✔			✔				✔		✔
9.1		✔	✔			✔	✔	✔	✔	✔	✔	
10.1	✔		✔					✔	✔	✔	✔	
11.1	✔	✔		✔		✔		✔		✔		✔
11.2	✔			✔	✔			✔		✔		
12.1							✔			✔		
13.1	✔		✔		✔	✔				✔		

Proforma Unit of Work

Sample Unit of Work : **FEEDLOT STEER ENTERPRISE - AN INTENSIVE ANIMAL SYSTEM**
Unit Aim : To prepare an animal for a specific market and develop skills in animal husbandry practices.

Areas of Focus

Interactions
* Animals / management
* Animals / climate
* Animals / microbes / invertebrates

Sustainability
* Environmental - feedlot impact
* Economic viability

Management
* Selection and breeding
* Marketing
* Assessment (live ---> carcase)
* Nutrition
* Animal welfare
* Animal husbandry
* Calendar of operations

Processes

Designing
* Feeding routine / ration formulation
* Housing system
* Training and preparation

Using technology
* Electronic scales
* Scanner
* Computer
* Internet
* Video image analysis
* ABCAM judging system
* Estimated breeding Values (E. BUS)

Investigating
* Nutrition
* Breeds
* Animal Health and Welfare
* Market specifications
* Calendar of management

Communicating
* Report
* diary eg. weight records, management operations
* Working cooperatively

Perspectives

Aboriginal

Environmental
* Feedlot implications

Historical
* Product specifications ---> market changes

Careers and Further Study
* Feedlot manager
* Breeders
* A.M.C. / A.M.R.D.C. (research & dev)
* Meat marketing
* Animal health Ind.

Community
* Consumer requirements
* Future of grain fed beef

Animal Welfare
* Handling, husbandry practices, hygiene

Health and Safety
* Equipment / techniques
* Awareness of animal behaviour

Name of enterprise :	**FEEDLOT STEERS**	(1)
Stages :	5	
Duration :	8 weeks	
Factors to consider :	School facilities, eg. yards; availability of feeder steers; costs, eg. grain	

Outcome :	**Enterprise - specific outcomes** At the end of this unit, students should be able to :	**Suggested teaching / learning strategies**
1.2	* State the role of Feedlotting in the production of prime cattle in the Aust. Beef Industry.	* Overview of cattle industry including analysis of current production data.
2.1	* Use terms associated with beef cattle.	* Mindmap summarising production systems. * Observe and record different classes of cattle.
3.1	* Identify different markets for prime steers. * Relate product produced to consumer requirements.	* Define term "market specification". * Class survey.
1.1	* Describe different beef breeds.	* Research * Identify breeds on school farm.
1.1, 1.2	* Recognise a number of breeds within breed types, eg. early, late maturity.	* Discuss breed differences. * Evaluate breed differences.
1.4 3.3	* Compare breeding systems.	* Investigate breeding used in school cattle * Analyse results of research trials. * Demonstrate the use of E.B.V.'s as selection tool (brief).
3.1	* Assess steers for suitability for a purpose.	* Visual assess, of school animals, eg. muscles, fat, mouth, general soundness. * Use of scanner.

Name of enterprise :	**FEEDLOT STEERS**	(2)
Stages :	5	
Duration :	8 weeks	
Factors to consider :	School facilities, eg. yards; availability of feeder steers; costs, eg. grain	

Outcome :	**Enterprise - specific outcomes** At the end of this unit, students should be able to :	**Suggested teaching / learning strategies**
6.2	* Collect and record data relating to growth and development.	* Photographic record. * Measurements / weights of steers * Write a procedure (Text Type) of how data collected.
7.2 8.1	* Analyse and interpret data.	* Use a computer to calculate and graph data. * Write conclusions re. meeting market specifications.
3.3	* Outline the features of a ruminant digestive system.	* Dissection - Draw and label diagrams * Sequencing parts and functions of the digestive system. * Compare system with monogastric (briefly).
3.3	* Identify feeding systems for prime steers.	* Comparison of systems on school farm, eg. grass vs grain. * Discuss features of an intensive system.
3.3	* Outline basic nutritional requirements of prime steers.	* Identify feed components. * Comprehension / cloze exercise. * Brainstorm nutrients needs of animals in general. * Read and interpret feed labels.
3.4 11.1	* Outline management practices associated with health and welfare.	* Classify feed ingredients, eg. protein, energy. * Handling cattle and completing husbandry practices. * Maintain diary * Research * Discuss animal welfare code of practice.
9.1	* Apply safe working techniques when handling cattle.	* Design a pamphlet on safe handling. * Short talks.

Name of enterprise :	**FEEDLOT STEERS**	(3)
Stages :	5	
Duration :	8 weeks	
Factors to consider :	School facilities, eg. yards; availability of feeder steers; costs, eg. grain	

Outcome :	**Enterprise - specific outcomes** At the end of this unit, students should be able to :	**Suggested teaching / learning strategies**
8.2	* Outline steps involved in preparing cattle for showing.	
4.2	* Investigate environmental impacts of prime steer production.	* School farm observations and testing * Research
7.2 3.1	* Describe systems of selling steers.	* Compare prices in marketing reports for steers sold : C.A.L.M. Consignment Saleyards * Visit saleyards.
3.1	* Recognise that a number of changes occur to the product between producer and consumer.	* Flow chart diagram * Discuss value adding. * Visit butcher or supermarket.
7.2	* Recognise the importance of feedback information to producers..	* Examine different sources of feedback information, eg. Market reports, abattoirs kill sheets, ABCAM judging sheets.
13.1	* Evaluate a steer production enterprise. .	* Complete a budget, eg. gross margin. * Compare photographs of starting animal with finishing animal. * Discuss any problems ---> solutions.

WORKSHEETS & PRACTICALS

Thanks to :

Travers Powell (Tocal)

Sue Hope

Dave Kent

Arthur Kelly

Peter Ryan

Trevor Sewell



NSW Agriculture

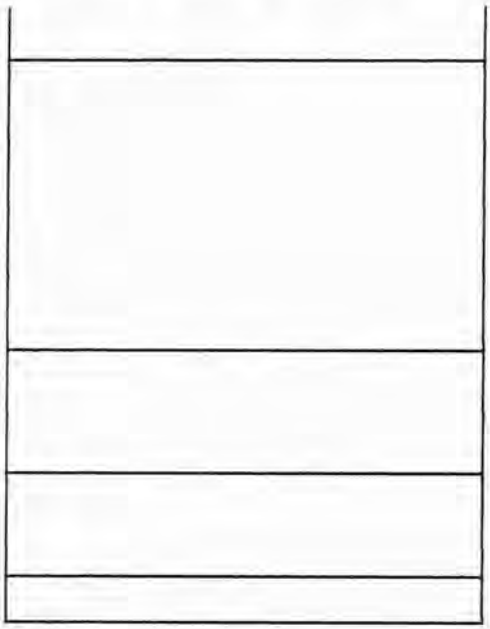
1999 Conference Sponsor

for their contributions.

STUDENT ACTIVITY

SOIL COMPONENTS

Place half soil in a gas jar. Fill three quarters with H_20. Add a teaspoon of Sodium Hydroxide. Outside the building, shake for 10 minutes. Leave at back of laboratory for 24 hours. (Do not allow any contact to occur between skin and Sodium Hydroxide Solution.) (O.H. & S.)



STUDENT'S COPY

'SOIL PARTICLES'

NAME OF PARTICLE	DIAMETER OF PARTICLE
Gravel	>2 mm
Coarse sand	2.0.02 mm
Fine sand	.2- .02 mm
Silt	.02 - .002 mm
Clay	< .002 mm
Humus	< .002 mm

PHYSICAL PROPERTIES OF SOIL

Texture: defined as the proportion of sand, clay and silt.

STUDENT ACTIVITY

Equipment: 6 different plastic bags of soil from around school and home. eg. clay, loam (mixture sand, clay, silt) and sand.

Students write: Texture of soil can be determined by carrying out the ribbons test. Place a small amount of soil in hand, moisten and roll into a ball. Then roll between fingers into a ribbon. Measure the ribbon with a ruler. (This is important). Observe Texture Class Table.

TEXTURE CLASSES (Hand out)

SAND	SANDY LOAM	LOAM	CLAY LOAM	LIGHT CLAY	HEAVY CLAY
↓	↓	↓	↓	↓	↓
0-10% Clay	10 - 20% Clay	20 - 30% clay	30 - 35% Clay	35 - 45% Clay	> 45%
↓	↓	↓	↓	↓	↓
not sticky will not ribbon very sandy feel	forms a ball ribbons 15 - 25 mm feels sandy slightly sticky	ribbons 25 - 40 mm feel 'silky' moderate stickiness	ribbons 40 - 50 mm almost no sandy feel very sticky	ribbons 50 - 75 mm little evidence of sand very sticky	ribbons more than 75 mm very sticky no sandy feel

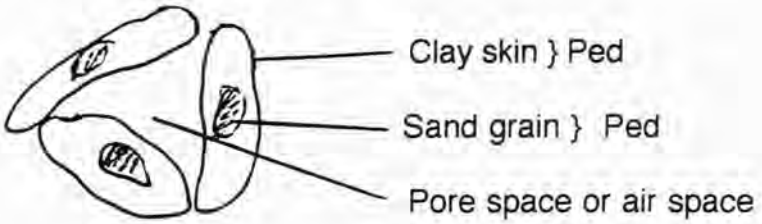
RESULT TABLE

	SOIL TYPE	COLOUR	DESCRIPTION	TEXTURE CLASS
1				
2				
3				
4				
5				
6				

SOIL STRUCTURE (Notes)

Structure refers to the arrangement of soil particles in a soil

STRUCTURE OF SOIL PEDS (Notes)



Soil pores contain air or water.
Stable structure eg loam - soils hold together
Unstable structure eg sand - soil won't hold together - loose, easily eroded, poor water holding capacity.

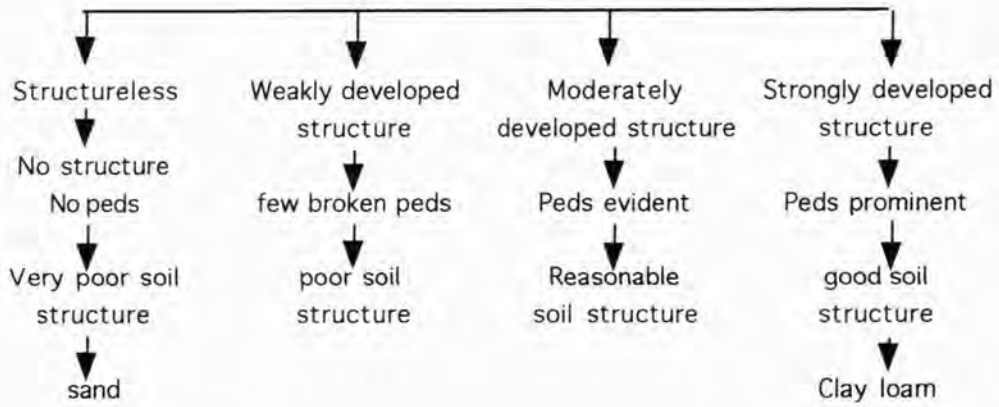
STUDENT ACTIVITY / SOIL STRUCTURE

Equipment:

6 bags of soil - numbered 1 - 6
Include sand, loam and nearly pure clay.
Observe and feel each soil. Look at the peds or soil crumbs. Do they exist? eg. sand has NO ped development.
Good soil or well structured soil will have peds that are evident.
A weakly structured soil will have large blocky peds that won't break easily.

Look at the table and feel and observe each soil 1 - 6. Write down in the table whether the soil is well structured or structureless.

SOIL STRUCTURE / Student Activities



SOIL NUMBER	SOIL DESCRIPTION	SOIL STRUCTURE
1a	eg. Clay, loam - peds are prominent and soil strongly developed	Good soil structure
1		
2		
3		
4		
5		
6		

STUDENT QUESTIONS

1. List the main inorganic fractions of soil?

2. Explain the difference between organic and inorganic material in a soil.

3. Describe the major differences between sand and clay soil.

4. Explain what the term "soil texture" means?

5. What properties of a soil does texture influence?

6. Can the texture of a soil be easily changed?

7. What is meant by the term "soil structure"?

8. Describe what is meant by the term "soil ped"?

9. What are two ways by which a farmer could improve soil structure?

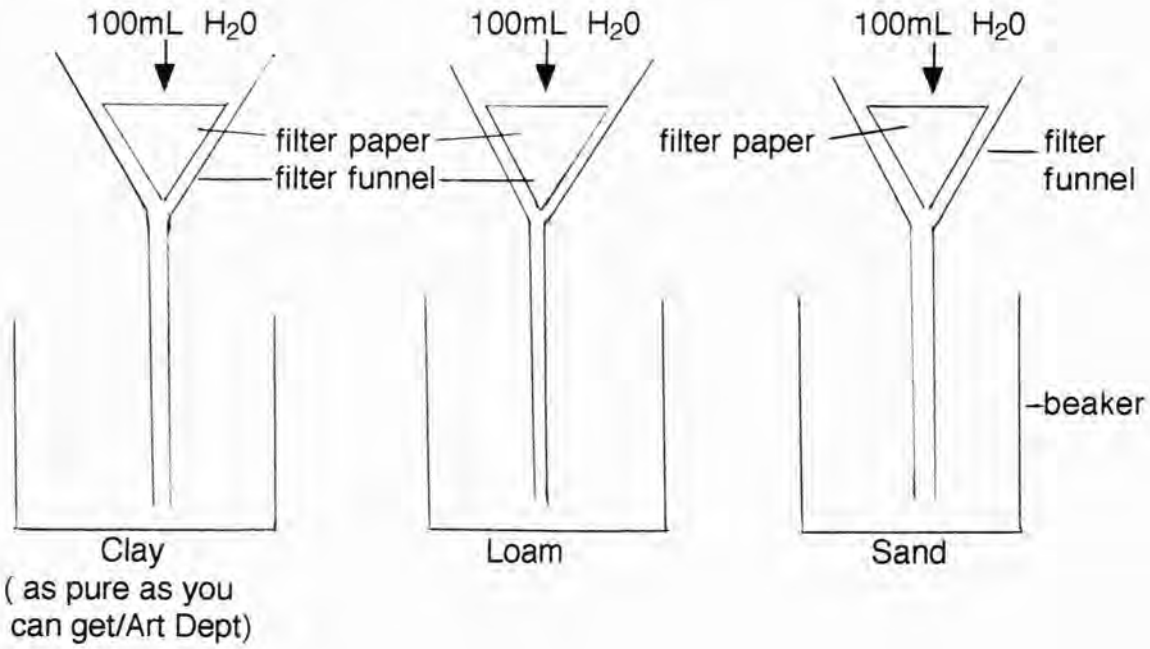
10. What are two ways by which a farmer could ruin soil structure?

STUDENT ACTIVITIES

SOIL DRAINAGE AND SOIL WATER HOLDING CAPACITY

Student notes: Structure and Texture influence how soil holds water and lets water drain through it.

Equipment: Funnels, Filter paper, Beakers.



Pour 200ml of H_2O through each.
Students work in groups of 3.
Set as in diagram.
Soil sits in filter paper.
Time how long it takes for water to pass through each filter funnel.

SOIL TYPE	TIME / SECOND / MINUTES
Clay	
Sand	
Loam	

QUESTIONS:

1. Which soil had the best drainage?

2. Which soil had the poorest drainage?

3. Which soil had the best water holding capacity?

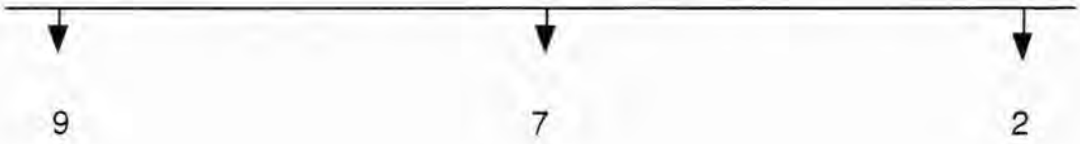
4. Which soil had the poorest water holding capacity?

5. In the Local area which soil would you have if you owned a farm?

6. Which soil would become water logged? What does water logged mean?

pH

Defined if a soil is acid or alkaline. Soil plants and microbes prefer a neutral soil ie. pH7.



DEMONSTRATION

Show students a pH card and explain how it works (briefly)

Students Activity

Place a teaspoon of soil on a white tile or in a petri dish. Add universal indicator to the soil and make a slurry using a paddle pop stick. Sprinkle barium sulphate powder over the slurry and observe the colour change. Using the pH colour chart determine the pH of the soil.

pH less than 7 is acid.
pH greater than 7 is alkaline.
pH of 7 is neutral.

Use soils numbered 1-6

SOIL NUMBER	SOIL pH COLOUR + NUMBER	ACIDITY/ALKALINITY
1		
2		
3		
4		
5		
6		

SOIL EXERCISES

1. SOIL COLOUR

Name the soil colours and give a reason for their colour.

SOIL NO.	COLOUR	REASON FOR COLOUR
1		
2		
3		
4		
5		

2. SOIL TEXTURE

Determine the texture in each of the samples provided and suggest whether they are agriculturally suitable.

SAMPLE	FORM A BALL Y/N	FEEL OF SAND Y/N	RIBBON LENGTH (mm)	PLASTICITY HIGH/LOW	TEXTURE CLASS
1					
2					
3					
4					

3. AGRICULTURE SIGNIFICANCE

SAMPLE No	SUITABILITY FOR AGRICULTURAL PURPOSES
1	
2	
3	
4	

4. STABILITY OF DRY AGGREGATES

Remember:

Swelling clays:	Are unstable
Slaked soils:	Break down to smaller aggregates, i.e. they explode and disintegrate. Due to low organic matter.
Water stable aggregates:	Have a good aggregate formation and a great deal of organic matter. (Well structured soil)
Soil dispersion:	The structure of the aggregate collapses and results in complete separation to individual clay particles. Halo in solution. Due to sodium soils. Gypsum can be added to these soils to increase flocculation of these particles.

Complete the following table.

SAMPLE No.	OBSERVABLE FEATURES IN A DRY SOIL	BEHAVIOUR IN WATER	SUSPECTED REASON FOR THE RESULTS OBTAINED
1			
2			
3			
4			

FARM PROBLEMS

SOILS

ACTIVITY - STUDENT

EQUIPMENT
Binocular microscope
Ordinary Loam soil
Sand

STUDENT ACTIVITIES (Pairs) Write up tabulated description. Observe under the binocular microscope.

a) loam soil
b) sandy soil

DESCRIPTION

LOAM SOIL	SANDY SOIL

NOTES

Organic Parts: Leaf matter - insects etc. Defined as living or once living.

Inorganic Parts: Non-living - called soil fraction: Include gravel, sand, clay, silt.

SOIL COMPONENTS (Pairs)

Equipment:
- 1 bucket of soil Loam and sand
- Gas Jar
- Hydrogen Peroxide
- Labels

INPUT - **PROCESSES (ACTIONS)** - OUTPUT

An illustration to in some way demonstrate what is happening in an Agricultural system as well as what is happening in a learning system. The list can be modified to suit a range of specific purposes.

Arrange with the Canteen to get some milk shakes and some paper or polystyrene cups.

The class are pre-warned that this will happen. Walk into the class and give each student a half milk shake. Half size to save cost and time. Check that no one is allergic to milk products.

Once the milk shake is consumed then show the left hand side of the action and discuss the steps and processes. This will depend somewhat upon either previous teaching / learning in Science or Agriculture.

Check for any questions or lack of understanding.

Now reveal the right hand side. Discuss the processes and outcomes or outputs here.

When this is all finished then reveal the bottom section.

The response will depend upon your relationships with the students and how well they receive the information. The emphasis is upon the individual. You can only enjoy and gain from the milk shake if you go through the whole input - processes - output chain. The same applies to the learning cycle or system.

Giving an example of a topic or section of recent learning. Maybe related to a topic test result.

MILK SHAKE	BOOK OBSERVATION NOTES PRACTICE
INPUT	**INPUT**
CONTAINS	CONTAINS
ENERGY	KNOWLEDGE
PROTEIN	WORDS
VITAMINS	PICTURES
MINERALS	IDEAS
WATER	THOUGHTS
ACTION / PROCESSES	**ACTION / PROCESSES**
DRINK	READING
DIGEST	LISTENING
ABSORB	THINKING
TRANSPORT	QUESTIONING
ANALYSIS	MATCHING
PARTITIONING	RELATING
ALLOCATING	TALKING
SYNTHESISING	SEEING
GROWING	LEARNING
OUTPUT	**OUTPUT**
GROWTH	INTELLIGENT
DEVELOPMENT	EVALUATION and
REPAIR	STORAGE for RETRIEVAL

KNOWLEDGE PASSED THROUGH A "BRAIN" FILTER

WHY? WHAT? HOW? WHERE? WHO? WHEN? etc.

ACTIVE INVOLVEMENT, PARTICIPATION IN A LEARNING PROCESS

THE MILKSHAKE CANNOT BECOME A PART OF THE BODY

UNTIL PROCESSED

Assessment Task

Name : .....

HAND-HELD/KNAPSACK SPRAYER CALIBRATION WORKSHEET

Pass ☐ **Fail** ☐ **Assessor :** **Date :**

Instructions to candidates: In this exercise you are required to complete a calibration worksheet on an item of application equipment. The exercise should preferably be carried out on an item of equipment with which you have had experience. Work your way through the exercise step by step. Where applicable show working by putting answers in spaces provided. Ask your instructor if you have any problems/questions.

What item of equipment are you calibrating ? .....

Area to be sprayed ..... ha **Chemical** .....

Part A - Recording: Refer to the manufacturers' charts and the chemical label.

Step	Instructions	Hand held
1	What is the **Minimum Desired Water Application Rate** ? (Use the chemical label to select a water volume)	**L/ha**
2	Select appropriate **Chemical Rate** from the label.	**L/ha**
3	Select a **Ground Speed** to suit spraying conditions. *For Hand Held equipment use a slow walk.* **(approx 1 m/sec)**	**Slow Walk**
4	Record the **Nozzle Type and Size** in the spray unit. Check the rated "water output" using the manufacturer's nozzle chart.	**Type** **Size**
5	Select and set **Spray Operating Pressure** (use the manufacturer's nozzle chart as a guide)	**kpa** or **bar**
6	**Tank size**	**litres**
7	Select **Minimum Nozzle Height** above target for the **Hand held** sprayer.	**cm**

Part B - Calculating actual water application rate

Step	Instructions	Hand held
8	Record **Output from every Nozzle for 1 Minute** 1..... 2..... 3..... 4..... 5..... 6..... 7..... 8..... 9..... 10..... 11..... 12..... Replace nozzles that vary +/- 10% from the average output	**Total Spray Output** (add all nozzles) **L/m**
9	Record actual **Effective Spray Width** (Measure the wet pattern width while performing the "actual ground speed" task).	**m**

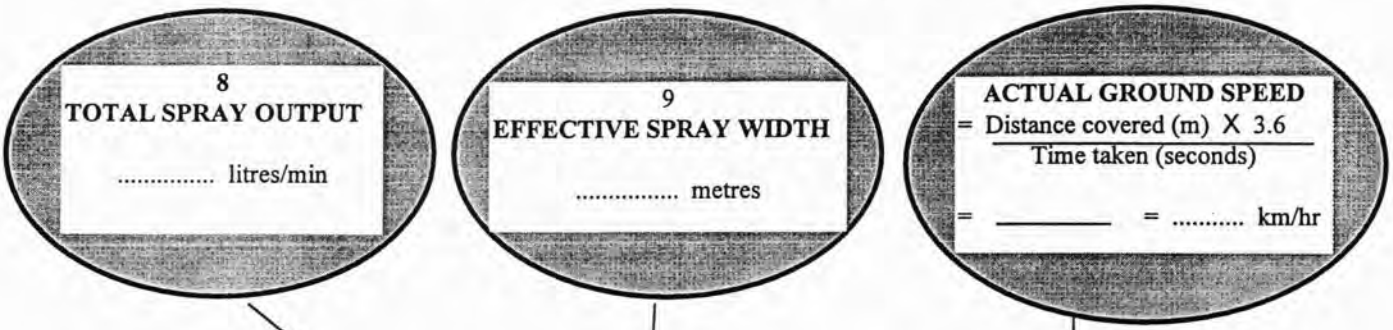
Notes

Determine **actual ground speed** by measuring a set distance, say 100 metres, under similar conditions to the area to be sprayed and timing how long it takes using the pre-determined gears and revs.

Determine **Water application rate** by using the answers to earlier questions. Ensure the calculated water rate is equal to or greater than the minimum desired water application rate from the label.

Note: 3.6 in the formulae is a conversion factor to convert seconds to hours, 600 is a conversion factor to convert km/hr to m/min and l/min to l/ha.

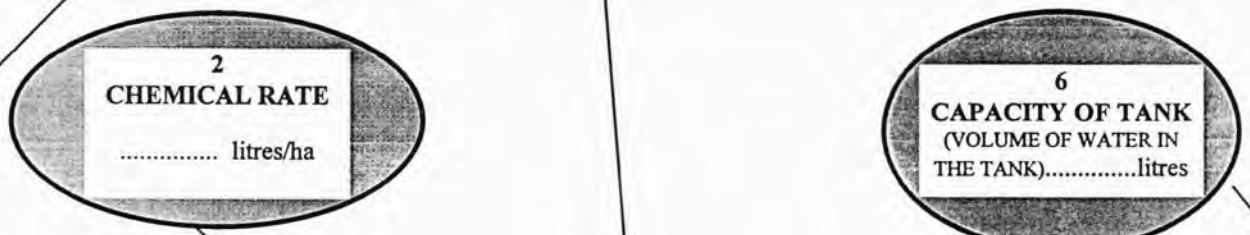
To calculate how much chemical to put into the tank



WATER APPLICATION RATE

Water application rate = Total output (litres/min) X 600
Effective spray width (m) X Actual ground speed (km/hr)

= Top multiplication = _____ =..... litres/ha
Bottom multiplication



HOW MUCH CHEMICAL TO PUT IN THE TANK

Volume of chemical = Chemical rate (l/ha) X Volume of water in tank (litres)
Water application rate (l/ha)

= _____ = ... litres

HOW MANY TANK LOADS ARE NEEDED FOR THE JOB?

Total spray mix volume required = Area to be sprayed (ha) X Water application rate (l/ha)= ..... X ..... = ...litres

Number of tanks = Total spray mix volume required (litres) = _____ = ...tanks
Capacity of spray tank (litres)

Assessment Task

Name : .....

BOOMSPRAY CALIBRATION WORKSHEET

Pass ☐ **Fail** ☐ **Assessor :** **Date :**

Instructions to candidates: In this exercise you are required to complete a calibration worksheet on an item of applicatio equipment. The exercise should preferably be carried out on an item of equipment with which you have had experience. Worl your way through the exercise step by step. Where applicable show working by putting answers in spaces provided. Ask your instructor if you have any problems/questions.

What item of equipment are you calibrating ? .....

Area to be sprayed ..... ha **Chemical** .....

Part A - Recording: Refer to the manufacturers' charts and the chemical label.

Step	Instructions	Boomspray
1	What is the **Minimum Desired Water Application Rate** ? (Use the chemical label to select a water volume)	**L/ha**
2	Select appropriate **Chemical Rate** from the label.	**L/ha**
3	Select a **Ground Speed** to suit spraying conditions. (It must be realistic for the particular paddock conditions)	**km/hr** **Gear** **rpm**
4	Record the **Nozzle Type and Size** in the spray unit. Check the rated "water output" using the manufacturer's nozzle chart.	**type** **size**
5	Select and set **Spray Operating Pressure** (use the manufacturer's nozzle chart as a guide)	**kpa** or **bar**
6	**Tank size**	**litres**
7	Select **Minimum Boom Height** above target for these nozzles.	**cm**

Part B - Calculating actual water application rate

Step	Instructions	Boomspray
8	Record **Output from every Nozzle for 1 Minute** 1..... 2..... 3..... 4..... 5..... 6..... 7..... 8..... 9..... 10..... 11..... 12..... 13..... 14..... 15..... 16..... 17..... 18..... 19..... 20..... 21..... 22..... 23..... 24..... 25..... 26..... 27..... 28..... 29..... 30..... Replace nozzles that vary +/- 10% from the average output	**Total Spray Output** (add all nozzles) **L/m**
9	Record actual **Effective Spray Width** (The distance between the outside nozzles plus the distance between two adjacent nozzles).	**m**

Notes

Determine **actual ground speed** by measuring a set distance, say 100 metr s, under similar conditions to the area to be sprayed and timing how long it takes using the pre-determined gears and revs. Determine **Water application rate** by using the answers to earlier questions. Ensure the calculated water rate is equal to or greater than the minimum desired water application rate from the label.

Note: 3.6 in the formulae is a conversion factor to convert seconds to hours, 600 is a conversion factor to convert km/hr to m/min and l/min to l/ha.

To calculate how much chemical to put into the tank

8
TOTAL SPRAY OUTPUT
..... litres/min

9
EFFECTIVE SPRAY WIDTH
..... metres

ACTUAL GROUND SPEED
= Distance covered (m) X 3.6 / Time taken (seconds)
= _____ = ... km/hr

WATER APPLICATION RATE

Water application rate = Total output (litres/min) X 600 / Effective spray width (m) X Actual ground speed (km/hr)

= Top multiplication / Bottom multiplication = _____ =..... litres/ha

2
CHEMICAL RATE
..... litres/ha

6
CAPACITY OF TANK
(VOLUME OF WATER IN THE TANK).....litres

HOW MUCH CHEMICAL TO PUT IN THE TANK

Volume of chemical = Chemical rate (l/ha) X Volume of water in tank (litres) / Water application rate (l/ha)

= _____ = ... litres

HOW MANY TANK LOADS ARE NEEDED FOR THE JOB?

Total spray mix volume required = Area to be sprayed (ha) X Water application rate (l/ha)= ..... X ..... = ...litres

Number of tanks = Total spray mix volume required (litres) / Capacity of spray tank (litres) = _____ = ...tanks

CALCULATING STEER FEED REQUIREMENTS

1. Is there enough feed in the paddock to feed the steers for the required time?

If 1 DSE requires 1.5 kg of dry matter per day (ie. a 50 kg Merino wether requires 1.5 kg DM per day to maintain its body weight), it is possible to calculate the feed requirements of other animals. A 250 kg liveweight weaner, growing at 0.75 kg/day has a DSE equivalent of 8.0.

STEER FEED REQUIREMENT = 1.5 kg DM/day X 8.0 =..... kg DM/day/steer

How much feed will the 100 steers require for 214 days?

QUANTITY OF FEED REQUIRED BY STEERS = kg

2. Is the *quality* of feed good enough to maintain the required growth rate?

Of the available dry matter, a certain proportion will be green herbage (leaf) and the rest will be stems, flowers and dead material (low nutritional value). Take a representative sub-sample from your pasture cuts, remove the green, leafy parts and calculate the green herbage proportion (as a %) of the pasture. (Assume a pasture digestibility of 65 - 70%.)

As the green herbage is the part of the pasture that will result in productive lamb growth, we must calculate how many *kg green DM/ha* there is in our pasture.

GREEN DRY MATTER = AVAILABLE PASTURE DM X Proportion of green herbage

= ..... kg green DM/ha

QUESTIONS

1. Can the steers achieve market weight, grazing on the current paddock? Explain how you came to this answer.

2 What additional information would you need to gain a more accurate answer?

Travers Powell
Tocal Agricultural College

PASTURE ASSESSMENT

PASTURE CUTS (using a 0.25 m^2 quadrat)

0.25 m^2 SAMPLE	SAMPLE WET WEIGHT (g)
1	g
2	g
3	g
4	g
TOTAL	g/m^2

Use a representative sub-sample to determine the pasture dry matter %.

SAMPLE DRY WEIGHT = SAMPLE WET WEIGHT X Dry Matter %
(eg. 28% DM = 0.28)

= ..... g

PASTURE DRY MATTER = SAMPLE DRY WEIGHT X 40

= ..... kg DM/ha

If we make the assumption that only 75% of the dry matter feed is available to the stock (25% is too close to the ground and is not grazed), then;

AVAILABLE PASTURE DRY MATTER (per ha) = PASTURE DRY MATTER X 0.75

= ..... kg DM/ha

AVAILABLE PADDOCK D.M. = PADDOCK SIZE X AVAILABLE PASTURE DM/Ha
(Two 50 ha paddocks)

= kg

AIM: To sell 100 weaned 220 kg Brangus steers (@ June 1) on December 30, at 380kg liveweight.

* Need to feed 100 Brangus steers.
* Current weight = 220 kg
# Need to grow 160 kg in 214 days.

This table is used to determine if feed quality is high enough to maintain required growth rates.
eg. For steers to grow at 95 kg/day, they must have 1300 - 1500 kg green dry matter per hectare in front of them for the entire time that you want them to grow at this rate.

Table 1: Pasture benchmarks for cattle.

Cattle Category	Minimum Pasture (kg green DM/ha)
Dry Cow	700 - 900
Pregnant Cow (7-8 months/not lactating)	900 - 1200
Lactating Cow (calf 1-2 months old)	1500 - 2300
Growing stock	
Per cent of potential growth rate:	
30% (0.44kg/d)*	700 - 800
50% (0.71kg/d)	1000 - 1100
70% (0.95kg/d)	1300 - 1500
90%(1.20kg/d)	2200 - 2300

* The growth rates in brackets are based on weaned 13 month old steer of approximately 320 kg (standard reference weight 500 kg), on a pasture where the green component was 73% digestible, there was 500 kg DM/ha of dead herbage of 45% digestibility and 30% legume.

Travers Powell
Tocal Agricultural College

THE 4-T TEST

CHECKING THE ABILITY OF A RAM TO MATE SUCCESSFULLY

1. TEETH

- CHECK AGE OF RAM
- JAW NOT OVERSHOT OR UNDERSHOT

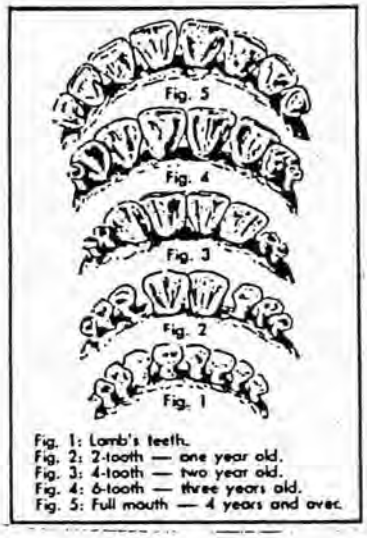


Fig. 1: Lamb's teeth.
Fig. 2: 2-tooth — one year old.
Fig. 3: 4-tooth — two year old.
Fig. 4: 6-tooth — three years old.
Fig. 5: Full mouth — 4 years and over.

2. TOES

- FEET EVEN AND TRIMMED
- NO FOOT ABSCESS - FOOTROT
- FREE JOINT MOVEMENT
- NO JOINT SWELLING



4. TESTES

- FIRM AND SPRINGY
- EQUAL SIZE
- GOOD SIZE
- EPIDIDYMIS SOFT, NOT LUMPY



3. TOSSLE

- FREE OF GRASS SEEDS
- NO INFECTIONS
- WHIP INTACT

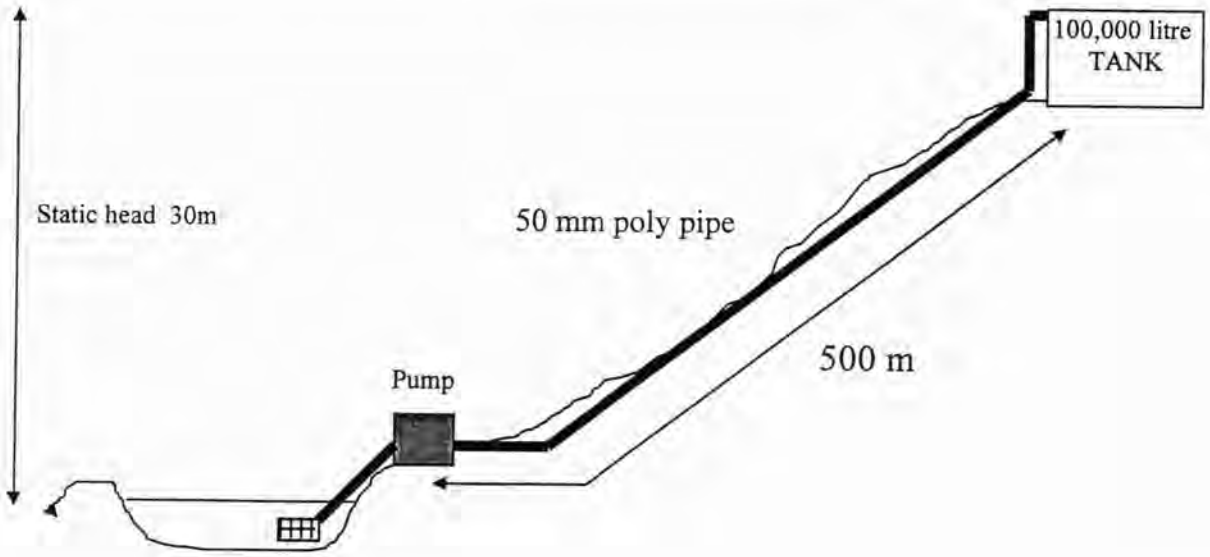
Gently examine the scrotum for lumps, ▲ swellings, or soft spots. Testes should be firm and uniform in size; the tails of the epididymis on each side should be similar in size and have no hard swellings

Travers Powell
Tocal Agricultural College

FARM WATER

Exercise 1. What size pump is required for our stock water requirements?

You need to pump water from a dam to a tank, as shown in the diagram below.



1. A lactating cow will drink 70 litres of water per day. Assuming that this represents the biggest demand on stock water (ie. we are producing vealers), determine the daily and weekly stock water requirements for a 60 head breeding herd.

   Daily stock water requirements .....

   Weekly stock water requirements .....

2. If we choose to pump water once a week over a 12 hour period, it is simple to calculate the flow rate (in litres per second) required to refill the tank (ie. replace the water used by the cattle).

NB. Volume of water pumped = Weekly stock water requirements (in this example)
12 hrs = 12hrs X 60min X 60sec = 12 X 60 X 60 = ... seconds

$$\text{Flow rate} = \frac{\text{Volume of water pumped (litres)}}{\text{Time taken to pump water (seconds)}}$$

Flow rate = _____ = ... l/sec

What size pump?

Before we can determine the ideal size pump for our situation, we need to calculate **head loss** (or friction loss). **Head loss** is a method of describing the additional energy required to push water through pipes, due to the friction created by the internal walls of the pipe. Head loss is expressed as additional head to the static head.

On the "Flow Chart" graph, draw a vertical line from the "Discharge" axis, for the flow rate calculated above, to the appropriate pipe size (in this case, 50/12) and then horizontally to the "Head loss" axis. (Note: the units are 'metres head of water per 100 metres of pipe').
Eg. If the head loss was 0.8m per 100m of pipe and we had 500m of pipe, the head loss would be 0.8 X 5 = 4 metres.

3. Use the *"Flow chart for small bore polyethylene pipe"* graph to determine the **head loss** for the system.

   Head loss = ... m per 100 m of pipe

   Head loss = ... m

4. Calculate **Total Head**

   Total Head = Static head + Head loss = ... + ... = ... m

5. Use the pump charts to determine the best pump to use for the system.

NB. You will need to convert flow rate from litres/second to cubic metres/hour. (1 litre/second = 3.6 cubic metres/hour)

   Flow rate = ... X 3.6 = ... m^3/hr

   To read the pump selection chart, draw a vertical line above the calculated flow rate (in m^3/hr) and a horizontal line from the Total Head. Where these two lines cross will indicate your pump requirements. As the pump curves represent the maximum capacity of each pump, it is wise to choose a pump larger than required.

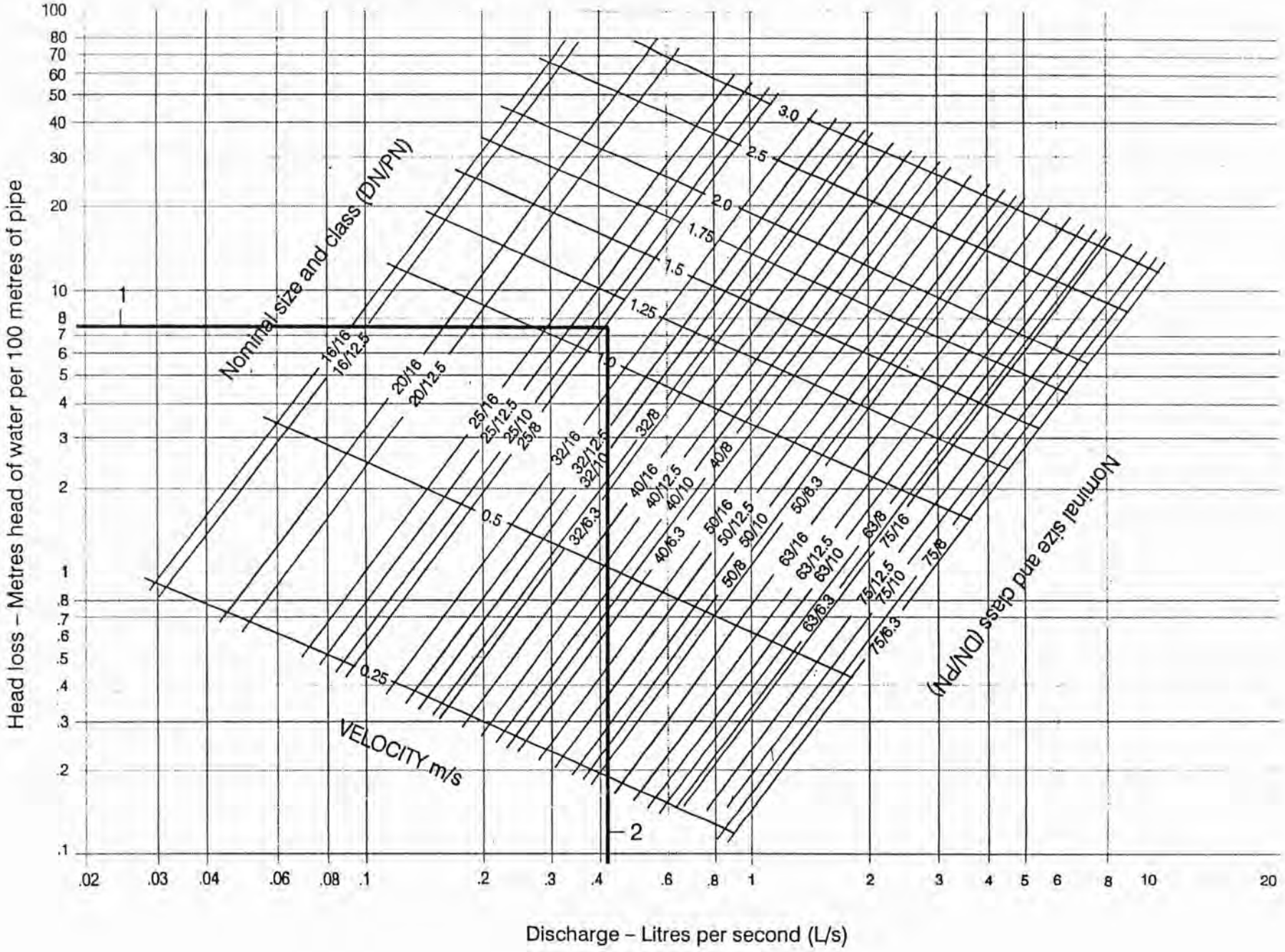
   The best pump for the system would be .....

   The reason that I chose this pump is because .....

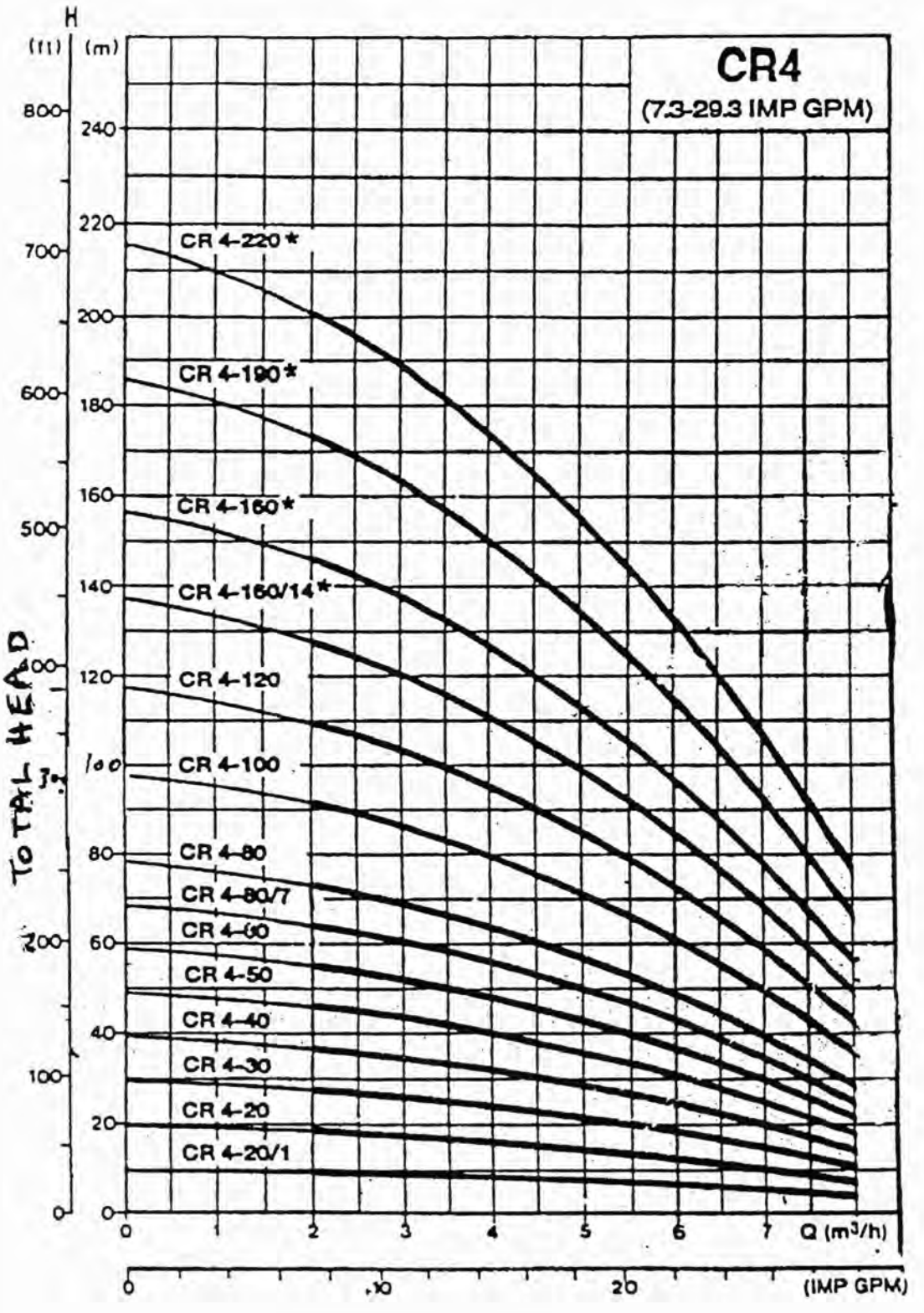
   .....

   .....

Flow chart for small bore polyethylene pipe — DN16 to DN75 (PE 80B, PE 80C materials)



Multi-Stage Pumps



FEEDLOT NUTRIENT LOADS

Exercise: Determine the quantity of nutrient produced in a 1000 head feedlot.

An average 450kg beef animal produces 27.2kg of wet manure (liquids and solids) per day.

Table 1: Nutrient loads in wet cow manure

Nutrient	Amount in 1t of manure
Nitrogen	5kg
Phosphorus	1kg
Potassium	4kg

Use the following process to determine the "fertilizer equivalent" of manure produced in a feedlot.

1. Quantity of wet manure per day = Av. number of cattle **X** Amt. manure per steer
= ..... **X** .....
= ..... kg

2. Total quantity of manure per year = Daily production **[1]** **X** 365
= ..... kg

3. Total tonnes of manure per year = Total manure in kg **[2]** ÷ 1000
= ..... tonnes

4. Amount of Nitrogen per year = 5kg/t **X** **[3]**
= ..... kg

5. Amount of Phosphorus per year = 1kg/t **X** **[3]**
= ..... kg

6. Amount of Potassium per year = 4kg/t **X** **[3]**
= ..... kg

Danny Norris
Tocal Agricultural College

Table 2: Nutrient content of common fertilizer types

Fertlizer Type	Major Nutrient	% Composition
Urea	Nitrogen	46.0
Single Super	Phosphorus	9.0
Muriate of Potash	Potassium	50.0

Using the quantities of nutrient produced (calculated in [4,5,6]) and the procedure below, calculate the equivalent number of 50kg bags of commercial fertilizer a 1000 head feedlot produces in an average year.

7. Number kg nutrient per bag = % composition **[table 2] X** 50kg

= _____ kg N

= _____ kg P

= _____ kg K

8. Number bags fertilizer = $\frac{\text{Amount nutrient produced per year [2]}}{\text{Number kg nutrient per bag [7]}}$

9. Amount Urea = _____

= .....kg

10. Amount Single Super = _____

= .....kg

11. Amount Muriate Potash = _____

= .....kg

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Tocal Agricultural College

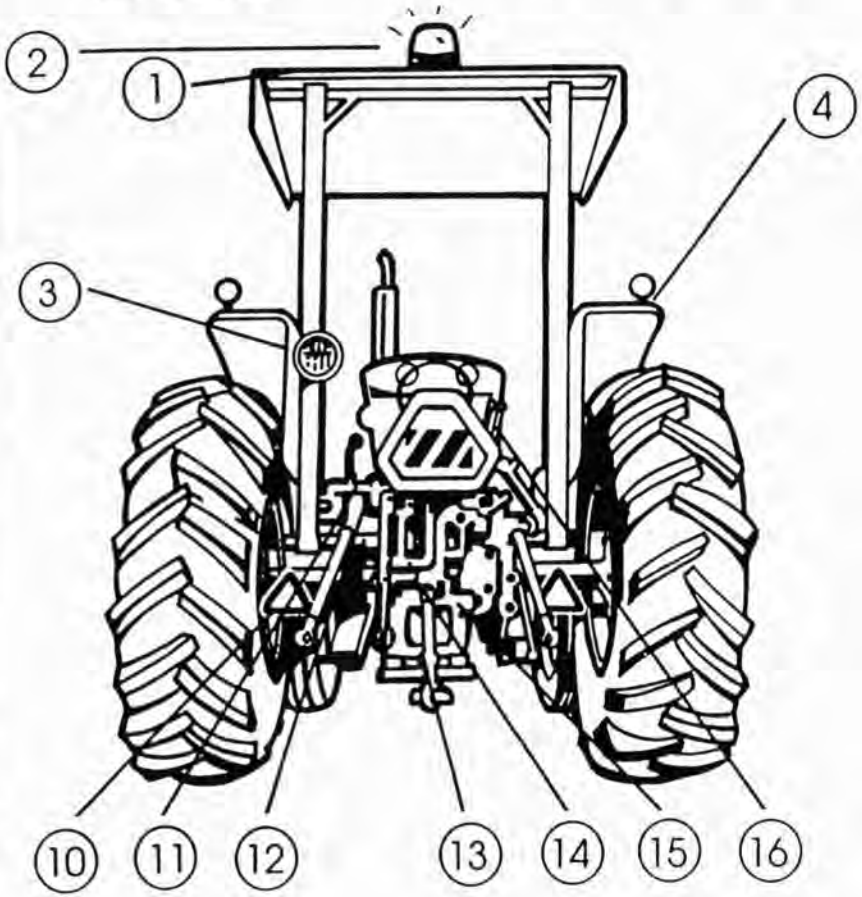
TRACTOR SAFETY I

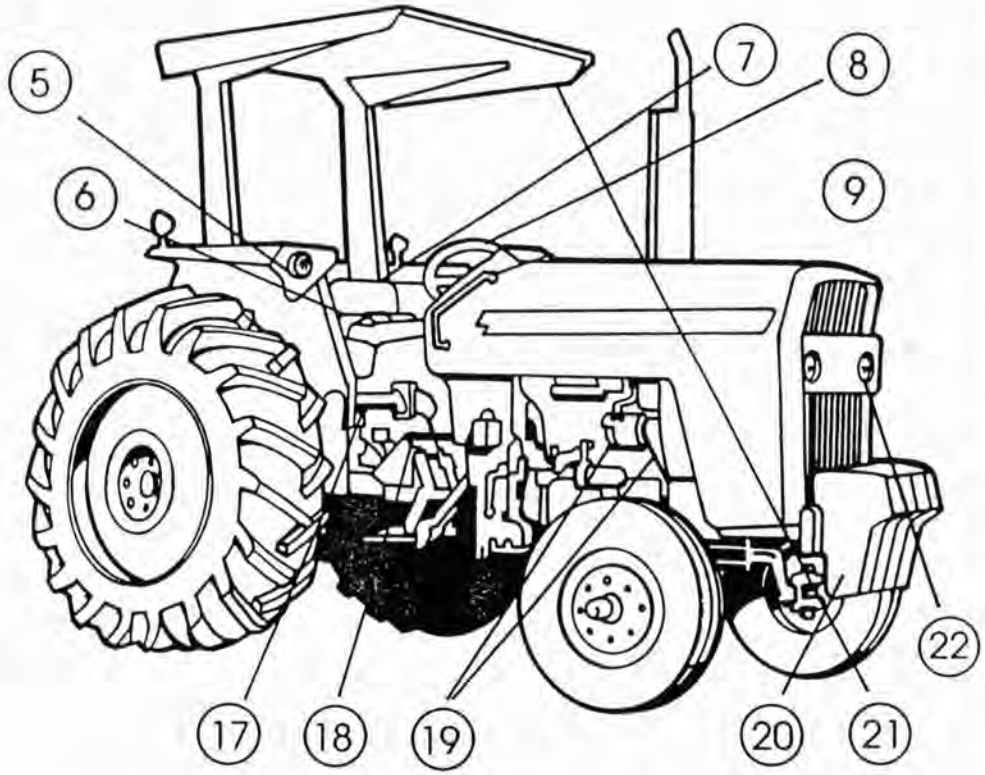
Using the diagram below check-off all the safety features that you can find on the school tractor by simply ticking each circled number that matches a safety feature you have found.

Tractor safety features

Know your tractor!
Young people and learners should not drive tractors unless they are under strict supervision or unless they have received sufficient training. A tractor is not a toy.

The following illustrations show safety features that should be included on a tractor, as well as components that assist in its safe operation.





1. Roll Over Protective Structure (ROPS).
2. Flashing amber light for towing on roads.
3. Rear tail and work lights.
4. Mudguards.
5. Side light.
6. Seat-belt.
7. Posture designed seat.
8. Manual over-ride power steering.
9. Maximum visibility.
10. Hazard warning decals.
11. Hydraulic power for heavy lifting.
12. Three point hitch to prevent back-flipping.
13. Draw-bar located low to minimise back-flipping.
14. Protective PTO shaft cover.
15. PTO shield.
16. Controls conveniently located.
17. Skid-resistant platform and footrest.
18. Neutral start switch with safety interlock.
19. Shroud and shield for fan and alternator.
20. Weights for greater stability and traction.
21. Sun-shield to reduce risk of skin cancer.
22. Headlights.

TRACTOR SAFETY I

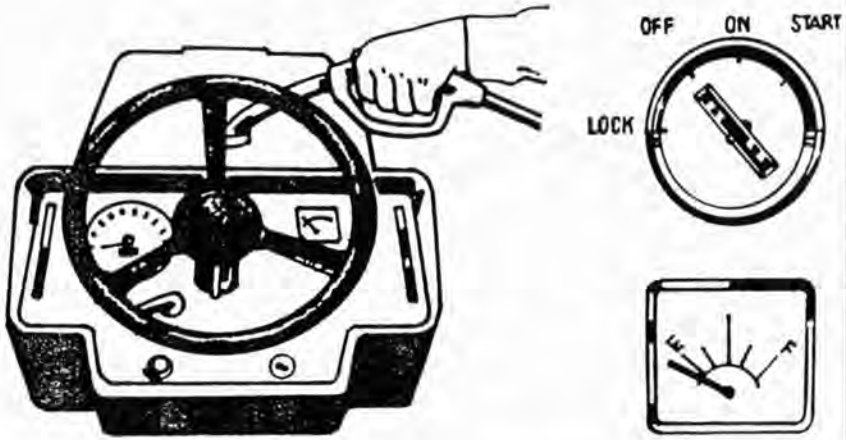
General safety precautions

- Wear close-fitting clothing.
- Always sit on the seat while riding on the tractor.
- Do not run the tractor engine in a confined space. Carbon monoxide in exhaust fumes can be lethal.



- Rest when you are tired. **This is most important!** Tired drivers have more accidents.
- Keep all guards in place.

- Stop the engine before greasing and refuelling.



- Do not remove belts while the engine is running.
- Regularly service your tractor, checking tyres, brakes and steering
- Do not work on or under a tractor while the engine is running.



TRACTOR SAFETY I

Before starting your tractor

- Know where to find — and how to operate —brakes, clutch and gears.
- Know how to stop the tractor.
- Familiarise yourself with other controls and instruments.
- Check the tractor is in neutral and the handbrake is on.
- Check power take-off is disengaged and properly guarded.
- Keep children well clear.
- Remember to wear hearing protection.



TRACTOR SAFETY I

TRACTOR TERMS

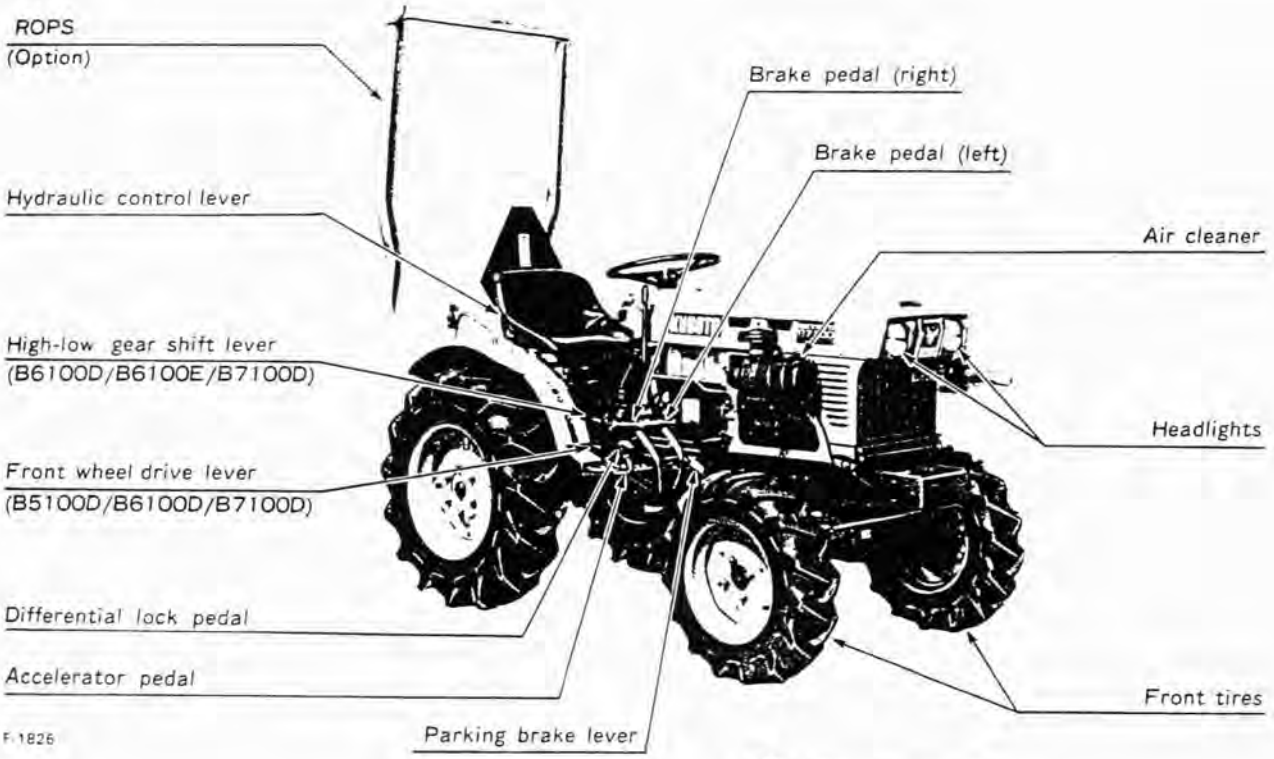
Match the words below with the correct definition by joining them with a line.

HYDRAULICS	engages and disengages the engine from the transmission so that there is no power transmitted from the engine to the wheels.
THROTTLE	power take off.
GEARS	a device for arresting the motion of a wheel by friction or pressure.
CLUTCH	indicates that the engine is pre-heating.
PARKING BRAKE	allows the tractor operator to raise implements (eg:slasher) attached to the tractor.
PTO	controls engine speed.
ACCELERATOR	roll over protection structure.
ROPS	allow the operator to select a suitable engine transmission speed.
BRAKE	the common name for the accelerator lever.
GLOW PLUG	allows the driver to lock the brakes they are off the tractor.

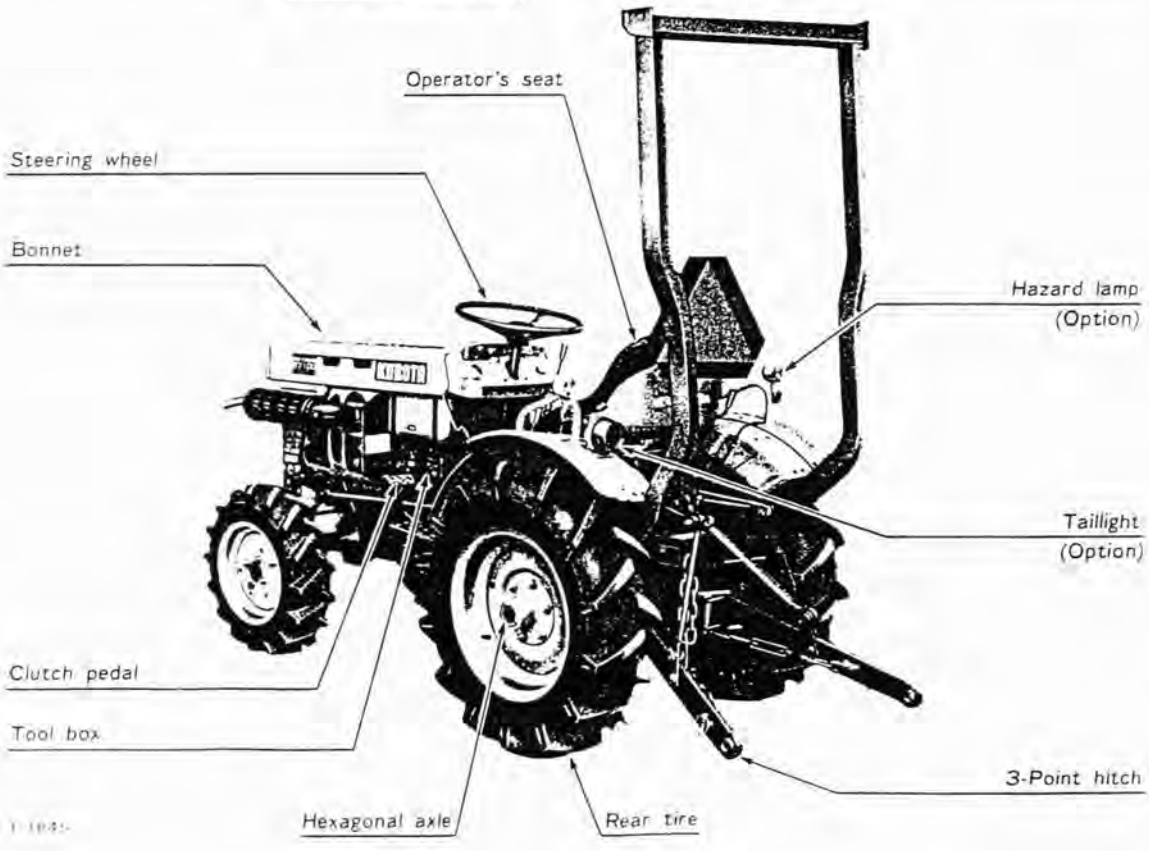
TRACTOR SAFETY I

4

Major Parts Identification



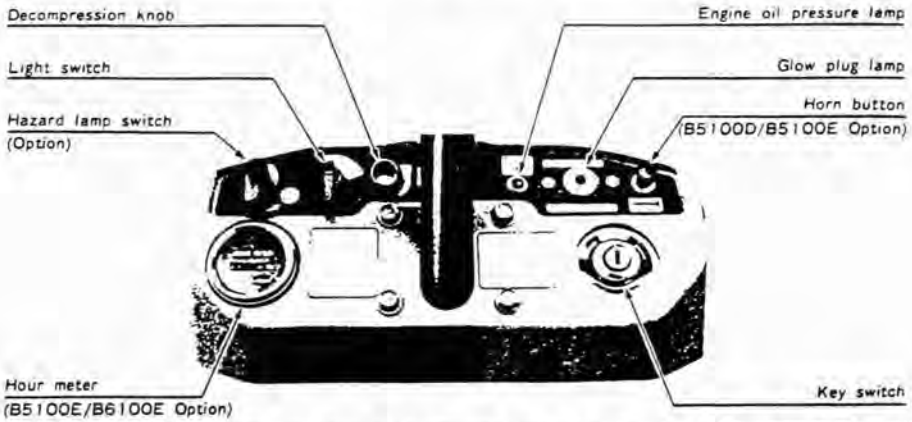
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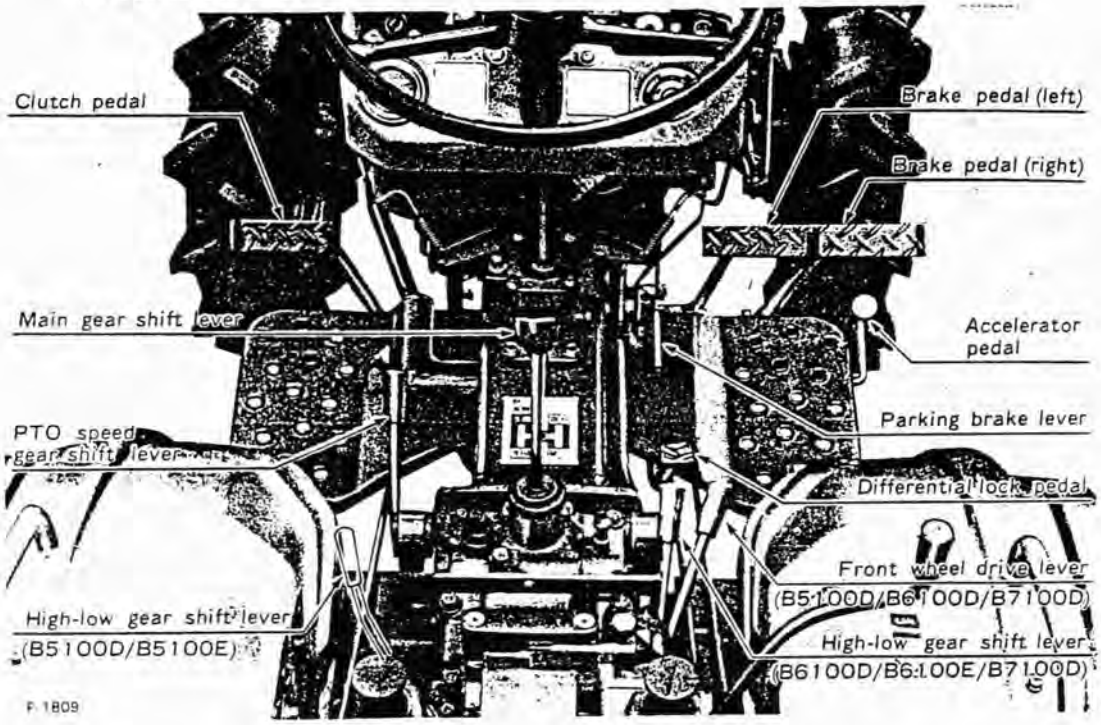


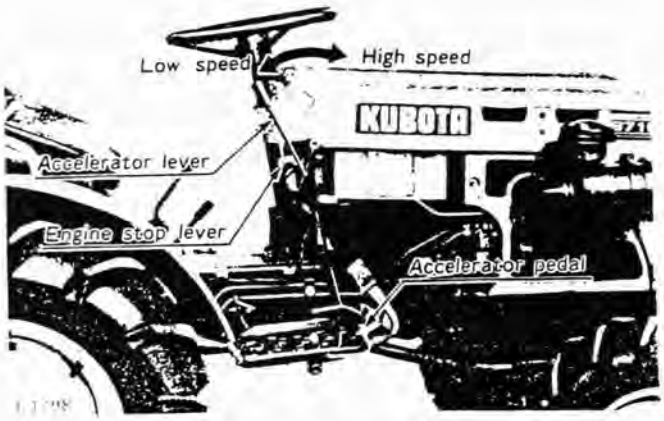
PARTS IDENTIFICATION TEST Kubota Tractor

Study the diagrams below and on the next page.
Use the diagrams to help you to identify the relevant parts on the tractor.
You will be assessed on parts identification next lesson. This test has a **pass mark of 80%**.

Instrument Panel And Controls







TRACTOR SAFETY I

PRE-START CHECK

The following checks should be made before you start the tractor.

PROCEDURE:

1. Check the fuel level.
2. Check the engine oil level.
3. Check the water level.
4. If any of the checks in 1 - 3 show a low level fill them up.
5. Check the air filter.
6. Check the front and rear tyres visually to see that each tyre is inflated.
7. Check for evidence of oil leaks.
8. Check battery water level.
9. Report any problems found by checks 5 - 8.

TRACTOR SAFETY I

Climbing on and off the tractor

A tractor must be _____ when being mounted or dismounted.

Never dismount from a moving tractor.

Ascend and descend from the vehicle only from the LEFT / RIGHT (clutch pedal) side, always using the access and egress provided, and facing towards the drivers seat.

DO NOT use the right side because:

* _____
* _____
_____
* _____

ALWAYS:

* _____
_____
* _____
_____
_____

Have this section checked by your teacher.

Safety Features ____/____/____ Yes/ No

Climbing on/off a tractor ____/____/____ Yes/ No

Student signature: _____

Teachers signature: _____



Remember always to mount and dismount on the left side, using access or egress provided.

TRACTOR SAFETY I

STARTING AND STOPPING A TRACTOR

These steps should be followed to start and stop the tractor.

PROCEDURE:

STARTING

1. Be seated on the tractor and put the gear lever into neutral.
2. Check to ensure that any attached implements are on the ground and/or disengaged.
3. Set the following controls for starting:
   (a). Step on the parking brake and set it.
   (b). Place the main gear lever and the PTO speed gear shift lever to the neutral position.
   (c). Set the throttle to the high position.
   (d). Fully step on the clutch pedal and turn the key to the left, waiting for the glow plug lamp to turn red. It will take about 20 seconds for the combustion chamber to fully heat up, it will take longer in cold conditions.
4. Ensure that everyone is clear of the tractor.
5. Turn the key switch to the start position (to the right) and the engine will start.
6. Make sure the oil pressure lamp has gone off. If the lamp is still on, immediately stop the engine and advise your supervisor.
7. Adjust the throttle and run the engine at a medium speed.

STOPPING

1. Slow down the engine by moving the throttle backward and/or releasing the accelerator pedal.
2. Fully raise the stop lever and the engine will stop.
3. Turn the key switch off and take out the key.

_____ has *attempted/mastered* this skill.

Student's signature: _____

Teaher's signature: _____

Date: _____

TRACTOR SAFETY I

HAND SIGNALS



Start The Engine. Move Arm In A Circle At Waist Level, As Though You Were Cranking An Engine.



Stop The Engine. Move Your Right Arm Across Your Neck From Left To Right In A "Throat-Cutting" Motion.



Come To Me. (May Mean "Come Help Me" In An Emergency.) Raise Arm Straight Up, Palm To The Front, Move Arm Around In A Large Circle.



Move Toward Me — Follow Me. Look Toward Person Or Vehicle You Want Moved. Hold One Hand In Front Of You, Palm Facing You, And Move Your Forearm Back And Forth.



Move Out — Take Off. Face Desired Direction Of Movement. Extend Arm Straight Out Behind You, Then Swing It Overhead And Forward Until It's Straight Out In Front Of You With The Palm Down.

TRACTOR SAFETY I



Speed It Up. Clenching Your Fist, Bend Your Arm So Your Hand Is At Shoulder Level. Thrust Arm Rapidly Straight Up And Down Several Times.



Slow It Down. Extend Arm Straight Out To The Side, Palm Down. Keeping Arm Straight, Move It Up And Down Several Times.



Raise Equipment. Point Upward With Forefinger, While Making A Circle At Head Level With Your Hand



Lower Equipment. Point Toward The Ground With The Forefinger Of One Hand, While Moving The Hand In A Circle.



This Far To Go. Put Hands In Front Of Face, Palms Facing Each Other. Move Hands Together Or Farther Apart To Indicate How Far To Go.



Stop. Raise Arm Straight Up, Palm To The Front.

TRACTOR SAFETY I

HAND SIGNALS TEST

Place the correct number next to the appropriate picture on your sheet.

1 Move Out-Take Off

2 Stop The Engine

3 This Far To Go

4 Speed It Up

5 Stop

6 Raise Equipment

7 Start The Engine

8 Come To Me

9 Move Toward Me-Follow Me

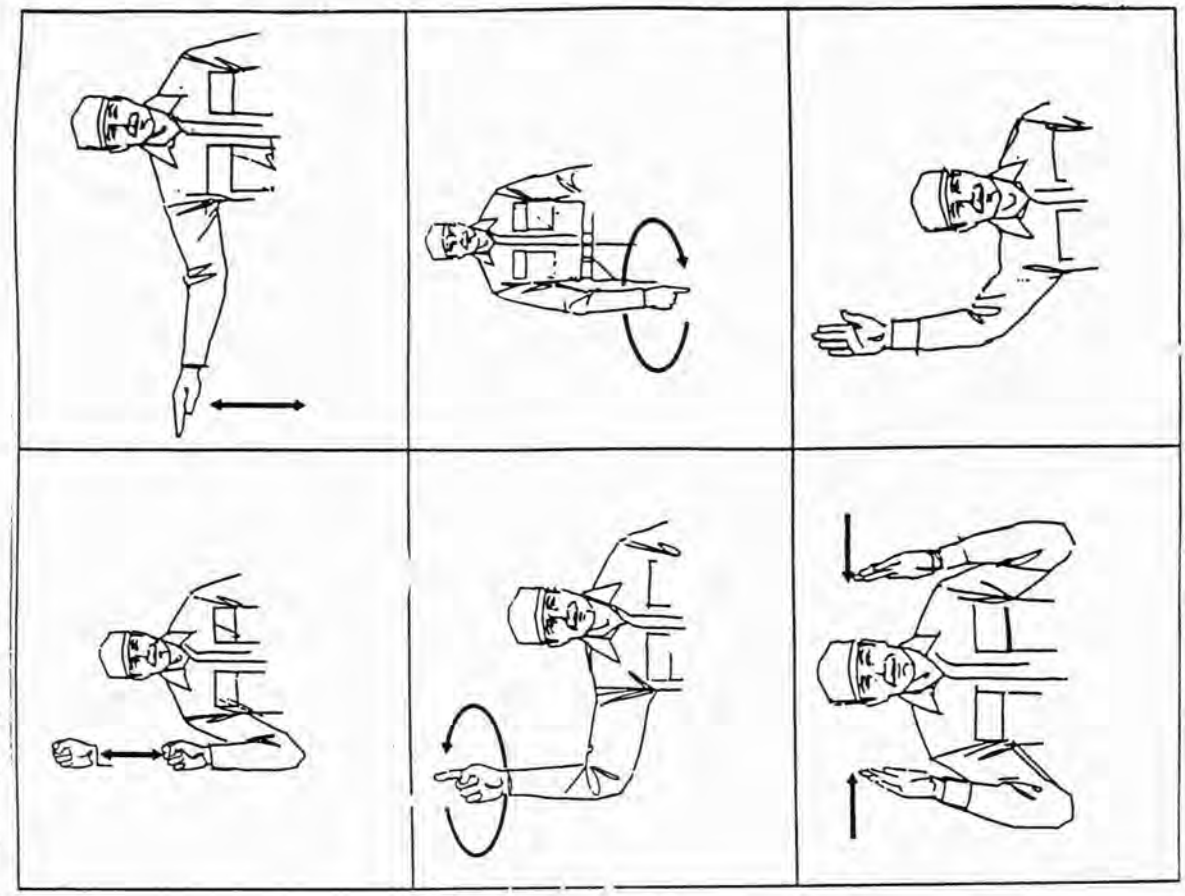
10 Slow It Down

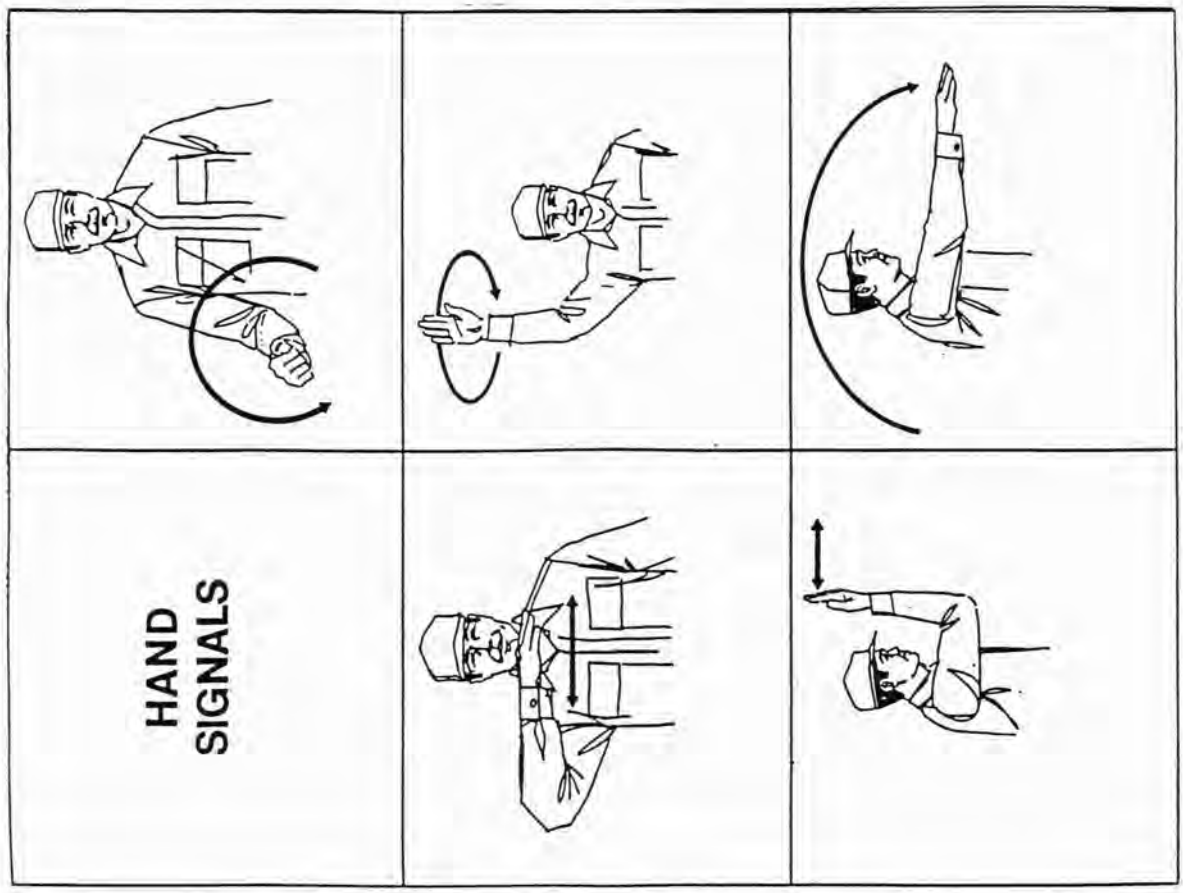
11 Lower Equipment

TRACTOR SAFETY I

HAND SIGNALS TEST

Place the correct number next to the appropriate picture.





Sustainability and Monoculture

Two simple case studies and worksheets have been provided to improve Year 9 Agriculture student's concept of sustainability using European and traditional Aboriginal farming methods as a contrast.

The aim of the case studies is to promote student knowledge and understanding of :

i) Traditional Aboriginal farming methods
ii) Traditional European farming methods which have resulted in some detrimental effects on the Australian landscape.

Student Activity

1. *Read* Case Study I and Case Study II.
2. *Underline* key ideas.
3. In a group of 3 *discuss* the terms 'monoculture' and 'sustainable practices'. Your teacher might have to help you.
4. *Answer* the questions relating to Case Study I and II on your worksheet.
5. *Complete* the activities at the end of the case studies on your worksheet.



virbac

Case Study I

Traditional Aboriginal people managed their land in an effective manner. Each group of Aboriginal people had their own territory and migrated from area to area each season. They ate foods consisting of fruit, plants, yams, kangaroos, fish and insects. By changing their diet Aboriginal people ensured that no food was ever eaten out of existence. As Aboriginal people migrated from one area to the next the grasses and animal life would build up again while the group was absent.

Women were traditional food gatherers. Women would normally work in a group and gather shellfish, crabs, grass seeds, yams and witchetty grubs. The basic role of traditional Aboriginal men was as hunters and fishermen.

The Aboriginal people utilized trees in a non-destructive way for food, timber and weapons. Wattle and kurrajong seeds can be ground into flour and made into a damper. Bark of trees was used in the making of canoes and shields.

Aboriginal people regularly burnt off small portions of land as they migrated around their territory. Burning off controlled the hazards of fire starting from a large build up of dried grass and timber. Native grasses regenerated after the control burn and the green pick was a source of food for native animals.

Case Study I Questions

1. Write a 'heading' for Case Study I.

_____

2. What does the term 'sustainable' mean?

_____

_____

3. Name 2 sustainable farming practices traditional Aboriginals carried out.

_____

_____

4. Why was it important for Aboriginal people to migrate from one area to another?

_____

_____

5. Name one sustainable Aboriginal practice that could be used successfully today.

_____

Case Study II

At the end of WWI, ex war veterans were given small blocks of land called 'soldier settlements'. Large properties of 10,000 - 20,000 hectares were broken up into small blocks of land comprising of about 400 hectares. These parcels of land in the Victorian Mallee region were given to returned servicemen. Many war veterans with little farming experience made the mistake of farming the land like their parents had done in England.

On the soldier settler's blocks, land was totally cleared of trees and native vegetation to plant crops such as wheat. Orchards were planted. Successive years of irrigating fruit trees caused the water table to rise resulting in saline soils. The land was overstocked with sheep and erosion resulted. In the first year the soldier settlers achieved a good crop of wheat but as they planted the same crop year after year in the same paddock the yield declined. The soil structure was destroyed and the land became a dust bowl. Wind blew much of the topsoil away. Clearing the land of trees and overuse of irrigation has resulted in large tracts of land becoming salty.

In the 1990's it has been recognised that landholders must look after their land and manage it in a more 'environmentally sensitive manner'. Trees and shrubs have been planted on ridges and around fence lines to reduce the intensity of wind and protect stock. Irrigation practices are better managed to control salting of soils. Native trees and plants such as salt bush are being planted to reduce salt problems, control soil degradation and lower the water table. Creeks are being fenced off to allow natural regeneration of the area.

Case Study II Questions

1. Write a 'heading' for Case Study II.

   _____

2. Name 3 non-sustainable management practices carried out by the returned servicemen.

   _____

   _____

   _____

3. What were the effects of these non-sustainable practices on the land?

   _____

   _____

   _____

4. What does the term 'monoculture' mean? Give an example of a 'monocultural practice' in the case study?

_____

_____

_____

5. Name 2 sustainable practices carried out in the 1990's.

_____

_____

Activities

1. Explain the meanings of each of the following words in the case studies.

Vegetation _____

Saline _____

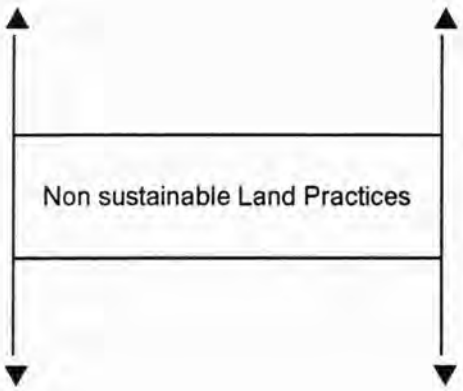
Erosion _____

Environmentally sensitive manner _____

_____

Traditional _____

2. On the diagram at the end of each arrow state 4 non-sustainable farm practices.



3. On the diagram at the end of each arrow state 4 sustainable farming practices.



4. Work in a group of 3. Predict what you think will happen to the land in your region in 20 years time.

Predictions

Agricultural Products Raffle

at the Association of Agricultural Teachers Biennial Conference Orange, NSW 18 to 21 January 1999



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