BULLETIN

OF THE NSW ASSOCIATION
OF AGRICULTURE TEACHERS

B. A. A. T.

Volume II 1989

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PRESIDENT WRITES

It has been very encouraging to see the growth in membership of the Agriculture Teachers Association this year. To all of you who are members and reading this issue, I would say, it is upon you to enthuse your colleagues in Agriculture to join the Association.

Given the changes taking place in education in NSW, my belief is that professional associations will need to take on a much higher profile in the area of specialized professional development. The cluster director form of organisation with greatly reduced specialized consultancy services essentially does away with secondary expertise within the system at both State and Local levels. Such people may identify professional needs and provide non-specialized advice - but what of the vacuum. It is for the professional associations to take on an important role in sharing knowledge and skills and providing a vehicle for networks where advice can be sort. This journal then takes on an important place for teachers.

I urge you all to not only read the journal and take ideas from it, but to share your ideas and expertise, with others. Enjoy this issue and add to the next.

Rod Francis

4th September, 1989.

AGRICULTURE NEEDS MORE GRADUATES

The agricultural industry, Australia's most important, will need more and more trained people to service it in the decade ahead. The reasons are simple:

* community concerns have heightened regarding the environment of rural Australia
  - soil erosion
  - soil acidification
  - soil salinity
  - pollution
  - pesticide residues

  "1990s have been designated the decade of conservation"

* farmers need to increase productivity to survive

* consumers both overseas and locally are insisting on quality of agricultural produce

* producers need to find new crop and livestock products

* better marketing skills are needed to support the industry

To cope with these pressures, all sections of the industry will require trained personnel.

AGRICULTURE IS IN A MOST EXCITING AND CHALLENGING PHASE

OPPORTUNITIES EXIST TO PARTICIPATE IN SHAPING AUSTRALIA'S FUTURE

WHY STUDY AT WAGGA WAGGA - at CHARLES STURT UNIVERSITY?

There are many reasons why students should consider the agriculture programme at Wagga Wagga:

* Wagga Wagga is a beautiful city with excellent facilities for sporting, cultural and social activities

* Cost of living is much lower than in metropolitan areas

* A degree only takes 3 years, thus saving graduate tax

* Agriculture is studied where it is practised

* Wagga is in the heart of an important agricultural region in close proximity to sites for study of degradation and environmental issues

* Employment prospects are excellent as:

  . agriculture and science teachers
  . soil conservationists and environmental managers
  . farm advisers
  . agronomists
  . farm managers
  . technical officers
  . field officers (fertiliser, chemical, animal product, and seed production companies)

Come and visit the Wagga Wagga campus of Charles Sturt University, which has been in agricultural education since the 1890s.

For further information contact:

Dean of Agriculture
Charles Sturt University-Riverina
WAGGA WAGGA. 2650

Telephone: 069.222420

NEW PROMOTION FOR SCHOOL AGRICULTURE

The association has been liaising with the Land newspaper to provide a schools section on a regular basis. This section would include the following:

i) a featured school each issue;

ii) opportunities for students to write in and provide pars on activities done at their school in agriculture;

iii) opportunities for students to write in with letters about agricultural topics or with questions they might like answered about agriculture;

iv) ongoing competitions with major prizes;

v) an essay competition with major prizes for senior and junior students.

I commend this initiative to you as a way in which you can have your students writing about agriculture. As part of the K-12 writing document we can have students writing individually or in groups. The 'Land' is a paper writing about agriculture and as such feels that they have a role in supporting and developing writing in agriculture.

Here is an opportunity to tell a wider audience about your school and the exciting activities going on in school farms and in classrooms.

The featured school in each issue will be approached by the Land. They will take photos and make reports from teachers and students - in particular any feature which makes your operation unique or successful should be emphasised.

The association and 'The Land' hope this initiative will broaden the exposure of school agriculture to the community and encourage the development of communication skills in our students.

Look out in the Land from about mid October on. It is hoped to have a couple of issues this year with the hope that next year this will become a fortnightly feature.

Dr Rod Francis
President

Minister for Transport

NEW SOUTH WALES

FCP 43399

Ms S Bannerman
President
Sydney Branch
NSW Agriculture Teachers Assn.,
Pennant Hills High School
Lawrence Street
PENNANT HILLS NSW 2120

Dear Ms Bannerman

The Minister has asked me to reply to your representations regarding the transport of small livestock by rail within New South Wales.

In 1986 the State Rail Authority amalgamated its parcels and less than container goods traffic in to a "Small Freight" service. This was brought about by the removal of brakevans from freight and country passenger trains. This limited the amount of space previously available for movement of small parcels and small consignments of livestock.

The small freight service receives transit from the Trackfast Centre at Chullora to the various freight centres throughout the State by Small Freight Expresses providing a next day service to most centres.

Due to climatic conditions which prevail between 1 October and 31 March the Authority has restricted the carriage of small livestock to locations where delivery is ensured by 8.00am the following day. This is necessary to ensure compliance with the Prevention of Cruelty to Animals Act.

For information on acceptance of livestock during the remainder of the year and to ensure you meet the requirements for the prebooking of all small livestock consignments, it is suggested you telephone the Authority's Livestock Officer on Sydney 642 9546.

I trust this information has clarified the position for the members of your association.

Yours sincerely

Robert Webster

Assistant Minister for Transport

Level 20, Aetna Tower, 227 Elizabeth Street, Sydney 2000. Telephone. (02) 268 2997. Facsimile: (02) 268 2971.

NOTES ON POULTRY GENETICS FROM THE AGRICULTURE TEACHERS INSERVICE

(11. 4.89)

by Dr. Percy Wong

These are some notes for agriculture teachers who wish to use poultry to demonstrate Mendelian principles to their pupils. Table 1 lists the symbols of some poultry genes that were discussed.

Sex - linkage (sex-linked cross)

In poultry, the male has 2 sex chromosomes (XX) while the female has only one (X-).

(1) Barred gene (B) X non-barred (b)

(a) bb x B -

non-barred barred

Bb b -

barred non-barred

(b) BB X b -

Bb B -

All barred

Suggested breeds

Barred Plymouth Rock (B)

Black Australorp (b)

Light Sussex (b)

(2) Silver (S) x Gold (s)

(a) ss X S -

Ss s -

Silver gold

(b) SS X s -

Ss S -

All silvers

Suggested breeds

Light Sussex (S)

Columbian Wyandotte (S)

Rhode Island Red (s)

Brown Leghorn (s)

The value of the cross between the male with the recessive genes with the female with the dominant gene is that the chicks may be sexed at hatching. Thus, for the barred cross, the male chicks have a white spot on the head while the female chicks do not have the white spot and are black. For the silver-gold cross, the male chicks are creamy white in down colour while the female chicks are buff-brown in colour.

TABLE 1: Symbols of some poultry genes

B	Sex-linked barring	b	non-barred
Bl	Blue pigmentation	bl	black feathers
br	Brownish black eye	C	coloured feathers
Co	Columbian pattern	co	non-columbian
Cp	Creeper (short legged)	cp	normal legged
Cr	Crested	cr	non-crested
dw	bantam	DW	large fowl
F	Frizzled feathers	f	normal feathers
h	Silkie feathers	H	normal feathers
I	Dominant white	i	coloured feathers
Mb	Muffs and beards	mb	plain faced
Na	Naked neck	na	normal feathers
O	Blue eggshell	o	brown or white
P	Pea comb	p	single comb
R	Rose comb	r	single comb
S	Silver plumage	s	gold plumage
W	white skin and legs	w	yellow skin and legs

Autosomal Dominance

1. Rose comb (R) x Single comb (r)

P RR x rr

F1 Rr (all rose comb)

F2 1RR : 2 Rr : 1 rr

3 rose : 1 single comb

2. White legs (W) x Yellow legs (w)

P WW x ww

F1 WW (all white)

F1 Ww x Ww

F2 1WW : 2 Ww : 1 ww

3 white : 1 yellow legged

Suggested Breeds

1. Wyandotte (R)
   Light Sussex (r)
   Rhode Island Red (r)
2. Light Sussex (W)
   Rhode Island Red (w)
   Wyandotte (w)
   Plymouth Rock (w)

Autosomal Incomplete Dominance

1. Dominant White (I) x Coloured (i)

   P. Ii x ii

   F1 Ii (mainly white)

   F1 Ii x Ii

   F2 II : 2 Ii : 1 ii

   1 White : 2 mainly white : 1 coloured

Examples

a. White Leghorn x Brown Leghorn
   (II) (ii)

   F1 progeny will be mainly white but with reddish-orange wings

b. White Leghorn x Black Australorp
   (II) (ii)

   F1 progeny will be almost white with a few black feathers scattered over the body. This is the common "battery hen".

   The dominant white gene (I) suppresses black pigment to a greater extent than red pigment.

Back Cross (Test Cross)

This cross is to test for the homogeneity or otherwise of a gene in one parent. The other parent must be homozygous recessive. Thus, taking rosecomb (R) -

Rr x rr
(heterozygous)

1 Rr : 1 rr
(rose) (single)

or

RR x rr

(homozygous)

Rr

(all rose)

If one offspring is homozygous recessive (rr) then the parent in question is heterozygous for the gene.

This test cross may be carried out for any of the genes listed in Table 1. It may be possible for some schools to loan their heterozygous. F1 progeny to other schools to caryy out this test cross.

Diallele Cross (2 genes)

a) Autosomal

WW rr X ww RR

Light Sussex (white legs, single comb)

Columbian Wyandotte (yellow legs, rose comb)

F1 Ww Rr (all white legs, rose comb)

F2	WR	Wr	wR	wr
WR	WWRR	WWRr	WwRR	WwRr
Wr	WWRr	WWrr	WwR2	Wwrr
wR	WwRR	WwRr	wwRR	wwRr
wr	WwRr	Wwrr	wwRr	wwrr

9 rose, white legs

3 single, white legs

3 rose, yellow legs

1 single, yellow legs

Diallele Cross

b) one sex-linked gene (S)

P. RR SS X rrs -

Columbian Wyandotte Rhode Island Red

F1 Rr Ss Rr S -

all silver, rose comb.

F2	RS	Rs	rS	rs
RS	RRSS	RRSs	RrSS	RrSs
R-	RRS-	RRs-	RrS-	RrS-
rS	RrSS	RrSs	rrSS	rrSs
r-	RrS-	RrS-	rrS-	rrs-

9 rose, silver
3 single, silver
3 rose, gold (only females)
1 single, gold (only females)

Bantam gene (dw)

This is a sex-linked gene which reduces the size of homozygous males by about 40% and females by 30%. It is thought that another bantamising genes may also be involved. Since the dw gene is sex-linked, the use of a bantam male with a large fowl female will reduce the size of all the progeny.

dw dw ♂ X Dw - ♀

Dw dw ♂ dw - ♀

In the reverse mating, only the male progeny will be reduced in size.

Dw Dw ♂ X dw - ♀

Dw dw ♂ Dw ♀

bantamised large fowl

From this knowledge, it will be more effective for breeders who wish to bantamise a large fowl breed to use a bantam male with a large fowl female rather than the reverse.

References

1. Bantam Chickens by F. Jeffrey.
2. Creative Poultry Breeding by C. Carefoot.
Both these books are available from the Bantam Club of N.S.W.
c/- Mr. R. Harris, 291 Galston Road, Galston, N.S.W. 2159

Other Books

"Pure Breed Poultry Raising"
"Exhibition Poultry Breeder's Handbook" both by Rick Kemp and published by Kangaroo press.

Both books contain lists of Breed Clubs and Poultry Clubs that could be used as contacts for obtaining breeds mentioned in this article by Percy Wong.

BOOK LIST - MARCH 1989

MANAGING POULTRY FOR EXHIBITION	$16.00
PRACTICAL POULTRY KEEPING	$14.00
POULTRY HOUSES & APPLIANCES	$18.00
PICTORIAL POULTRY KEEPING	$18.00
INCUBATION BOOK (Anderson Brown)	$28.00
LEWIS' WRIGHT'S POULTRY - reprint hardcover	$55.00
LEWIS WRIGHTS' POULTRY - reprint softcover	$45.00
POULTRY COLOUR GUIDE - Batty - New edition	$35.00
RACES OF DOMESTIC POULTRY (Brown)	$42.00
A GUIDE TO BETTER HATCHING (Thear)	$12.00
SEXING ALL FOWL	$12.00
EXHIBITING POULTRY FOR PLEASURE	$12.00
COLOUR POULTRY BOOK (Stromberg)	$ 9.00
SALSBURY MANUAL OF POULTRY DISEASES	$20.00
POULTRY DISEASES - Coutts	$25.0
AN INTRODUCTION TO EXHIBITION POULTRY - Volume 1 (Ian Kay)(colour photos)	$16.00
AN INTRODUCTION TO EXHIBITION POULTRY - Volume 2 (Ian Kay)(colour photos)	$16.00
BRITISH POULTRY STANDARDS	$85.00
BRITISH WATERFOWL STANDARDS	$15.00
AMERICAN BANTAM STANDARDS (colour)	$30.00
AMERICAN STANDARD OF PERFECTION (colour)	$50.00
BANTAM DUCK STANDARD (American)	$12.00
BANTAMS & MINATURE FOWL (Silk)	$26.00
BANTAMS IN COLOUR (coloured photographs)	$15.00
BANTAMS FOR EVERYONE	$20.00
BANTAMS (Entwisle)	$30.00
BANTAMS (Batty)	$ 8.00
BANTAMS (David Kay)	$22.00
BOOK OF BANTAMS (American)	$15.00
BANTAM CHICKENS-GENETICS-(Jeffrey)	$25.00
UNDERSTANDING OLD ENGLISH GAME (Batty) reprint	$20.00
ATKINSON'S OLD ENGLISH GAME	$30.00
ATKINSON'S GAME FOWL & COCKFIGHTING	$65.00
COCKFIGHTING ALL OVER THE WORLD (Finsterbusch)	$35.00
BALDWIN'S BOOK OF MODERN GAME BANTAMS	$12.00
BALDWIN'S BOOK OF OLD ENGLISH GAME & MODERN GAME	$12.00
THE STORY OF OLD ENGLISH GAME. LARGE & SMALL (Crellen)	$17.00
UNDERSTANDING MODERN GAME	$24.00
KING OF FOWLS (Australian Pit & Australian Game Standards)	$27.00
THE ROYAL FOWL (Australian)	$23.00
UNDERSTANDING JAPANESE BANTAMS (Palin)	$20.00
JAPANESE BANTAMS (Vogelpool)	$12.00
FAVEROLLES	$ 8.00
SEBRIGHT BANTAM	$15.00
FRIZZLE BOOK	$12.30
RAISING YOUR OWN TURKEYS	$18.00
BELGIAN BANTAM HANDBOOK	$16.00
GUINEA FOWL BOOK	$12.00
PEAFOWL OF THE WORLD	$24.00
QUAIL MANUAL	$12.00
QUAIL (Robbins)	$26.00
PHEASANT - The Breeding and Management	$28.00
SUCCESSFUL DUCK & GOOSE RAISING	$14.00
ORNAMENTAL WATERFOWL	$14.00
DOMESTICATED DUCKS & GEESE (Batty)	$24.00
DUCKS & GEESE IN YOUR BACKYARD	$18.00
MODERN WATERFOWL MANAGEMENT (Grow)	$35.00
CALL DUCK BOOK	$35.00
DUCKS AND GEESE (Bartlett)	$20.00
DOMESTICATED DUCKS & GEESE IN COLOUR (80 coloured photographs)	$15.00
THE ANCONA FOWL	$12.00
BANTAM CLUB YEARBOOK 1980	$ 5.00
BANTAM CLUB YEARBOOK 1981-82	$ 5.00
POULTRY - A GUIDE TO MANAGEMENT (Twinch)	$20.00
DUCKS & GEESE AT HOME (Roberts)	$15.00
HARRISON WEIR - GAME FOWL	$50.00
GUINEA FOWL OF THE WORLD	$30.00
OLD POULTRY BREEDS (Hans)	$ 6.00
INCUBATION BOOK (Thear)	

Poultry Clubs

New South Wales

All Feathered Clubs Advisory Council of N.S.W.
Rod Harris
291 Galston Road
Galston 2159

Bantam Club of N.S.W.
Rod Harris, Sec.
291 Galston Road
Galston 2159

List of Clubs Affiliated with the A.F.C.A.C. of N.S.W.

Ancona Club of Australia
M.A. O'Connor
P.O. Box 219
Muswellbrook 2333

Bega District Poultry Club
V.C. Connolly
2 Poultry Ave
Bega 2550

Belgian Bantam Club of Australia
B. Dukes
1/3 Caldarra Ave
Engadine 2233

Bantam Club of New South Wales
R. Harris
291 Galston Road
Galston 2159

Camden Haven Poultry Club
S.W. O'Neill
P.O. Box 31
Kendall 2439

Canberra Orpington Poultry Club
R. Spiller
13 Ashburton Circuit
Kaleen 2617

Central Coast Poultry Club
Mrs H. Coles
P.O. Box 127
Ourimbah 2258

Cessnock Poultry Club
Mrs B. Logue
32 Mills Cres
Cessnock 2325

City of Parramatta and District Poultry Society
Mrs S. Moody
11 Hawkesbury Road
Westmead 2145

Dapto Poultry Club
H. Meaker
77 Marshall Street
Dapto 2530

Fairfield Poultry Club and Rare Breed Society
W. Mason
42 Charles Street
Smithfield 2164

Grafton Dist. Poultry Club
Mrs B. Wilcox
Levenstrath
via Grafton 2460

Gloucester Poultry Society
F. Beggs 'Pindara'
Ward River Road Stub
Gloucester 2422

Inverell Poultry Club
Mrs I. Purcell
2 Hindmarsh Street
Inverell 2360

Kandos-Rylstone Poultry Club
J. McKay
P.O. Box 75
Rylstone 2849

Lake Macquarie Poultry Club
Mrs C. Upton
4 Moira Park Road
Morisset 2264

Maclean Poultry Club
D.G. Watson
RMB 340
Bushgrove 2460

Macksville and District Poultry Club
E.F. Harrey
Reid Street
Macksville 2447

Maitland Poultry Club
N. Notley
6 Wentworth Street
Telarah 2320

Mudgee Poultry and Pigeon Club
Mrs D. Birchall
Lions Drive
Mudgee 2850

National Japanese Bantam Club
R. Towner
10 Victoria Street
Unanderra 2280

Newcastle Poultry Society
Mrs Lin Pegg
RMB 2361 Fullerton Cove Road
Fullerton Cove 2318

Nowra Poultry Club
E. Whitty
P.O. Box 616
Nowra 2541

Old English Game Fanciers Assoc. of Australia
W. Hunt
58 Taralga Road
Goulburn 2580

Pekin Bantam Club of New South Wales
D. Plant
46 Newcastle Road
East Maitland 2323

Plymouth Rock Club of Australia
P. Hayes
RMB 110
Tamworth 2340

Rhode Island Club of Australia
Mrs B. Clark
288 Eight Ave
Unanderra 2760

Rosecomb Bantam Club of Australia
G. Hart
46 Hide Street
Caringbah 2229

Silkie Club of Australia
L. Huntingdon
245 Kingsway
Caringbah 2229

Sutherland and St George Poultry Club
B. Dukes
1/3 Caldarra Ave
Engadine 2233

Tenterfield Poultry Club
H.A. Murray
East Lynne
Mount 2370

Tumut and District Hackney and Cage Bird Club
P. Donnelly
71 Broughton Street
Tumut 2720

Wyandotte Club of Australia
L. Mumford
5 Wilford Street
Carlingal 2518

Young and District Poultry Club
E. Maier
35 William Street
Young 2594

Other Breed Clubs

Australian Pit Game Club

Federal Society of Game Fanciers
The Chairman
P.O. Box 330
Goulburn 2580

Indian Game Club of Australia
P. Ptolemy, Hon. Sec.
58 Church Street
Cessnock 2325

Langshan Club of Australia
Cec Denney, President
Church Street
Boondanoon 2578

The Leghorn Club of Australia
John Arnett, President
South Boambee Creek Road
Coffs Harbour 2450

Modern Game Club of Australia
Dale Ashton, Sec.
Lot 18, Binalong Street
Murrumburrah 2595

Orpington Club of Australia
Bob Lavender, Sec.
'Wirrimbirra'
Lahey's Creek 2852

Other Clubs

Albion Park Poultry Club

Albury Poultry Club
Andrew Semmonell
151 Bowella Road
Albury 2640

Barlow Poultry Club

Bellingen District Poultry Club
E. Vaughan
Elizabeth Street
Raleigh 2454

Bulli Poultry Club
Mrs A. Harriott
17 McMahon Street
Lake Meadow 2519

Cessnock District Poultry Club

Copper City Poultry and Pigeon Club
D. Maident, Sec.
Cobar 2835

Deniliquin and District Poultry Club
Gunnain Poultry Club

Goulburn Poultry Fanciers Society
R. Wilkinson, Sec.
Goulburn 2580

Kyogle Poultry Club

Lismore Poultry Club
Ray Heaton, President
65 Dalley Street
Lismore 2480

Macksville and District Poultry Club
L. Joynton
110 Pierce Street
Wellington 2820

Moss Vale Poultry Club
Mudgee Poultry and Pigeon Club
Parrabri Poultry Club
Newcastle Poultry Club
Parkes Golden West Poultry Club

Penrith Poultry Club
Sharlene Pearson, Sec.
1 Petrel Place
Tregear 2770

South Coast Game Society
Taree Poultry Club
Tenterfield Poultry Club
Western Districts Handfeeders Club

THE PROPOSED ENVIRONMENTAL EDUCATION POLICY

The Metropolitan West Region is to be used to pilot the implementation of the proposed Environmental Education Policy. The vehicle of implementation is to follow the K to 12 English writing model where reference teachers will be used to assist with the implementation of the policy. The actual writing of individual school policies and the methods of implementation will be up to the individual schools. Each inspectorate within the Region will have a primary and secondary reference teacher. Some secondary teachers within specific areas of speciality will assist across the Region.

I wish to bring to the attention of your readers the fact that I have been asked to take on the job of a reference teacher in this Region. My association with Environmental Education goes back many years and includes membership of the Association of Environmental Education. Some years back I was given a Schools Commission grant to undertake a compost recycling program on a school farm. The compost was used to regenerate a badly degraded soil area resulting some time later in clear evidence for undertaking such an activity. This program was also the subject of a workshop for an Annual Conference of the Association of Environmental Education titled "Replenishing the Earth".

It is fortunate that in our subject many environmental issues already form part of the way our subject is presented so we should be in a leadership role to realistically and effectively implement this policy.

from Rick Kemp

St. Clair High School

AMENITY HORTICULTURE...GOAT FARMING...SHEEP...BEEF AND DAIRY CATTLE
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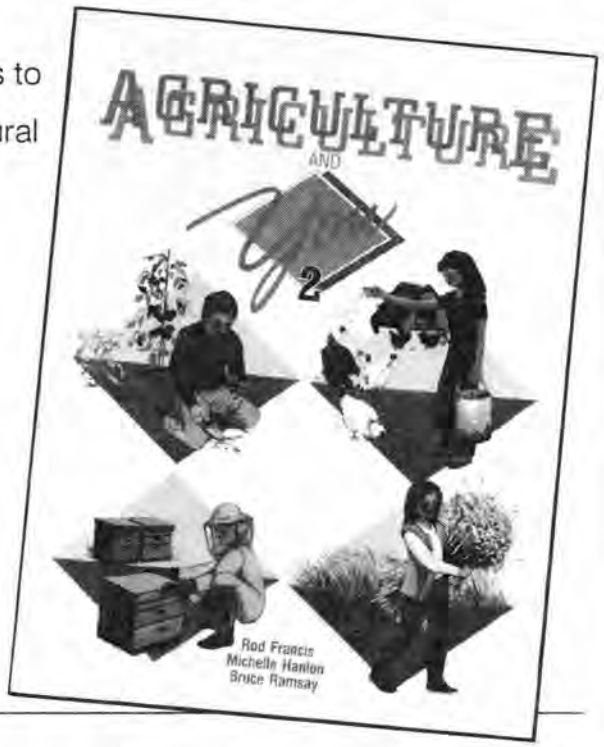
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Dear Colleagues,

At a recent Metropolitan West Inservice of Agriculture Teachers it became apparent that some teachers are working from the 2U/3U Syllabus as issued in 1983. Since then the Board has made many significant changes to both the 2Unit Syllabus and the 3Unit Elective choices. I have included all of these changes in the following pages so that you can easily up date your syllabuses by "cutting and pasting"

Jenny Wilkins
Muirfield

BOARD OF
SENIOR SCHOOL STUDIES
35-51 Mitchell Street, Box 460, P.O., North Sydney, N.S.W. 2060
Telephone: (02) 925 8111

Our reference:

BSSS 4011
JdeM:ZH

Date of Issue: August, 1987

ADMINISTRATIVE CIRCULAR NO. 54, 1987

ATTENTION: Principals and All Teachers of Agriculture

SUBJECT: Amendments to the 2-3 Unit Agriculture Syllabus, Years 11-12

In response to a state wide survey of agriculture teachers undertaken in 1986 following the introduction of the new syllabus, a number of amendments and revisions have been made to the syllabus. These amendments do not constitute any significant change in the philosophy of the syllabus and are designed to clarify problems with depth of treatment and ambiguity.

The following changes are to be implemented in Year 11, 1988:

PRACTICAL WORK

Under "Practical Work" following the paragraph ending "...not an additional discipline imposed when the experiment has been concluded", the following is inserted to replace everything down to the "Farm Case Study" :

> "As a consequence Biometry should not be seen as a separate discipline to the student as a result of studying this syllabus. It is expected that the following ideas, under the heading of Biometry, should be developed continuously throughout the course. All the objectives should be achieved as a result of students being involved in designing, carrying out and analysing experiments during the course."

Major Ideas

1. A common characteristic of agricultural material is variability.

2. Variability can be assessed during statistical techniques.

3. Biometry plays an essential role in the design, analysis and interpretation of agricultural experiments.

4. Computers can be used to calculate and organise statistical data.

Objectives

During the study of this syllabus, students should carry out experiments which allow them to be able to:

1. collect data demonstrating the variability of soil, plant, animal, microbial and economic material;

2. define the terms 'data', 'variable', 'population' and 'sample';

3. use measures of central tendency such as 'arithmetic mean', 'median' and 'mode';

4. recognise that 'range' and 'standard deviation' can be used to estimate the variability of a population;

5. recognise that many agricultural variables follow approximately normal distributions;

6. explain the role of control, randomisation and replication in designing experiments;

7. analyse and interpret data by graphic, tabular and diagrammatic methods;

8. realise that the differences that arise in an experiment could be due to chance or experimental variables;

9. recognise the way computers can be used in design and analysis of experiments.

FARM CASE STUDY

Under "Farm Case Study", replace old Objectives 3 and 4 with:

3. be able to describe the routine management procedures for production and explain why each exists;

4. examine the relationship between inputs and outputs in farm production and make some assessment of the economic performance of this production unit.

THE RESOURCE SYSTEM

Under "Resource System", replace old Objectives 2, 3 and 4 with:

2. how management practices may influence soil fertility and relate these to an agricultural system which is being studied.

3. (a) that only a small proportion of the total energy arriving at the earth's surface is used by plants;

(b) the terms 'solar radiation' and 'net radiation';

4. that fluctuating temperature patterns of air and soil affect the growth rate of plants on a short term and a seasonal basis.

PLANT PRODUCTION SYSTEMS

Under "Plant Production Systems" replace the old Objectives 9 and 16 with:

9. and monitor the phases of development of an agricultural plant;

16. and be able to describe an experiment they have carried out to measure the effect of interference on plant growth and development (eg. density trial, alleopathy test, weed competition).

ANIMAL PRODUCTION SYSTEMS

Under "Animal Production Systems" replace the old Objectives 9, 16 and 17 with:

9. the general role of hormones in the regulation of animal physiology and behaviour through the study of the reproductive hormones in farm animals;

16. and demonstrated that they have monitored the growth and development of a farm animal in their region;

17. the relationship between the nutritional needs, growth and development and market requirements for a farm animal in the region.

SOCIO-ECONOMIC SYSTEMS

Under "Socio-economic Systems" replace the old Objectives 2, 7, 13 and 15 with:

2. how agricultural production systems interact with socio-economic forces such as demand, market prices, government regulations, changing community values and customs;

7. that the relationships among subsystems operating within a farm can be competitive, complementary or supplementary;

13. the types of farmer organisations and their political influence.

15. the ways governments can directly or indirectly control aspects of agricultural production and marketing.

NEW 3-UNIT TOPIC

In addition, there is a new 3 unit topic to replace the old E1: "Market Applications." This is in line with the stated policy in the syllabus of replacing topics with new up-to-date areas of study. The new topic "International Marketing of Australian Agricultural Commodities" is of particular relevance to Australia. This topic would be for study by Year 12 in 1989, following the introduction of the already approved 2 new topics in 1988.

Proposed New 3 Unit Elective for Study by Year 12 in 1989

Name: International Marketing of Australian Agricultural Commodities

Major Four Ideas

1. Trade in agricultural products provides significant economic benefit to Australians and people in the rest of the world.

2. Significant barriers exist to the free flow of international commodities.

3. Various policy instruments are used by Governments to intervene in agricultural markets.

4. International agreements are necessary to ensure the benefits from International Trade are fairly disturbed.

Objectives

Students should understand:

1. the contribution of Australia's agriculture exports to the domestic and world economies and the benefits gained from trade;

2. the nature of price supports, export subsidies, storage policies, exchange rate policies and common markets;

3. the effects of agricultural policies of other countries and groups (eg. EEC, USA and developing countries), on international trade, Australian agriculture and individual farms;

4. the basic rules of General Agreement on Tariffs and Trade (GATT) and multinational negotiations;

5. the significance of:

   (a) non-tariff barriers such as trade regulations and quality control;

   (b) the role of market forces and promotion;

   (c) the influence of lobby groups.

ACTION REQUIRED: For the immediate attention of teachers of Agriculture.

J. L. Lambert
Executive Officer

BOARD OF SECONDARY EDUCATION

BSSS 3501

Date of Issue: November 1987

MEMORANDUM NO. 6/87

ATTENTION: Principals and Teachers of Agriculture, Years 11-12

SUBJECT: Amendments to 3-Unit Agriculture Assessment Guidelines

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In response to requests for clarification of the differences between assessment of the 3-Unit Electives and Research Project, the additional information set out below should be included in the 3-Unit section of the Agriculture Assessment Guidelines for implementation in Year 12, 1988:

For the assessment of:

(i) Electives – 50% knowledge and understanding

50% skills

(ii) Project – the design, conduct and recording of the research is to be taken into consideration as well as the written report.

Note: The weightings of the components remain unchanged.

ACTION REQUIRED: For the immediate attention of teachers of Agriculture.

John Lambert

J. L. Lambert
Executive Officer

Statutory Board's Directorate, 35-51 Mitchell Street, North Sydney, 2059
(PO Box 460), Telephone (02) 9258111

BOARD OF SENIOR SCHOOL STUDIES

35-51 Mitchell Street, Box 460, P.O., North Sydney, N.S.W. 2060

BSSS

Telephone (02) 925 8111
Our reference

BSSS 4011

Date of Issue: December 1986

ADMINISTRATIVE CIRCULAR NO. 58, 1986

ATTENTION: School Principals and Teachers of Agriculture

SUBJECT: Deletion and Substitution of Electives in the 3 Unit Agriculture Course

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The Board has agreed to the following:

Deletion: Elective "E2" Farm Development Budgets and "F2" Living off the Land

Inclusion: New Electives "E2" Computers in Agriculture and "F2" Trees on Farms

"Farm Development Budgets" and "Living off the Land" are to be examined for the final time in 1987.

"Computers in Agriculture" and "Trees on Farms" may be studied by Year 12 students in 1988 when these 2 new electives will be examined for the first time.

Attached to this Circular are 3 pages of information concerning the new electives detailing major ideas and objectives for each topic.

In subsequent years one new 3 Unit Elective will be rotated on a regular basis in order that the study of current issues in Agriculture can be facilitated.

ACTION REQUIRED: For the immediate attention of all Teachers of Agriculture.

John Lambert

J. L. Lambert,
Director,
Statutory Boards Directorate

COMPUTERS IN AGRICULTURE

MAJOR IDEAS

1. Computers are useful agricultural tools.

2. Computers can be used as: processors of information about plant, animal and budgetary performance; providers of rapid feedback information for better decision making.

3. Computers can improve the flow of information from local, national and international markets to the farmer.

4. Computers and related technologies affect rural lifestyles and employment opportunities.

5. Farmers require information and advice to allow them to evaluate their computing needs.

OBJECTIVES

Students should understand:

1. the function of computers in storing, processing and retrieving information.

2. the role of computers in agriculture as processors of information for better decision-making e.g. by:

   a) keeping records of farm-performance, such as:

      * monitoring soil moisture for improved irrigation scheduling;
      * monitoring plant performance for improved fertilizer and pesticide management;
      * monitoring animal performance for improved breeding and production.

   b) improving accounting and budgeting procedures.

   c) using computer broadsheets in developing models for farm management, e.g. economic projections based on various parameters of input and output.

   d) using computers to obtain access to remote data base systems (e.g. Videotex, Information Express).

3. the use of electronic communication systems to obtain immediate access to local, national and international market information and the influence this is likely to have on marketing strategies.

.../2

4. sale by computer (e.g. CAIM) and the advantages and disadvantages of such marketing systems (e.g. requirements for computer sale by description).

5. the influence computers have on lifestyles e.g. the farm, office, labour requirements, rural accounting and merchandising, entertainment and education.

6. the costs, benefits and limitations of personal micro-computers, remote data bases and computer bureau services

TREES ON FARMS

MAJOR IDEAS

1. A significant proportion of the estimated original area of forest and woodland in N.S.W. has been partially or totally cleared of trees. This causes changes in the total eco-system.

2. Trees are part of the farm eco-system. They influence soil fertility and stability: produce oxygen during photosynethsis: provide habitat to birds and other wildlife: provide shelter or windbreaks for livestock, crops and pastures.

3. A knowledge of the benefits of trees on farms may encourage farmers to incorporate the management of trees into their whole-farm programs.

OBJECTIVES

Students should understand:

1. rural tree decline and its causes.

2. the benefits of trees on farms e.g.:-

   protection for stock and crops

   control of soil erosion

   control of water quality

   control of salinity

   timber resources

   draught fodder

   habitat for birds and other wildlife

   aesthetics

.../3

3. the role of trees in whole farm planning. This involves integrating trees and tree planting into the management strategy of crops, pastures and livestock, such as:

   (a) windbreak design and location.

   (b) factors influencing shade and shelter.

   (c) species selection and establishment.

   (d) agro forestry potential.

4. the influence of trees on the productivity of pastures, crops and livestock.

5. regeneration of forest and woodland areas and the establishment of trees on farms.

6. the economics involved in a "tree-on-farms" program.

BOARD OF SECONDARY EDUCATION

Date of Issue: September 1988

MEMORANDUM NO. 91/88

ATTENTION: School Principals and Teachers of Agriculture

SUBJECT: Deletion and Substitution of Electives in the 3 Unit Course in Agriculture

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The Board has agreed to the following:

Deletion: Elective B1 - Hydroponics and Elective C1 - Some Issues in Animal Production.

Inclusion: New Electives B1 - Horticulture and C1 - Alternative Animal Production.

"Hydroponics" and "Some Issues in Animal Production" are to be examined in 1989 for the last time.

"Horticulture" and "Alternative Animal Production" may be studied by Year 12 students in 1990 when these two new Electives will be examined for the first time.

Attached to this Memorandum are 2 pages of information detailing major ideas and objectives for each new Elective.

In subsequent years one or two new 3 Unit Electives will be rotated on a regular basis so that the study of current issues in Agriculture can be facilitated.

ACTION REQUIRED: For the immediate attention of all teachers of Agriculture.

J. S. Cook
Acting Executive Officer

35-51 Mitchell Street North Sydney 2060 PO Box 460 North Sydney 2059 Tel: (02) 925 811 Fax: (02) 929 2557

ELECTIVE B1 - HORTICULTURE

MAJOR IDEAS

1. Horticulture is an important component of the Agricultural System.
2. In any horticultural system, there is great diversity in production, management and marketing.
3. Some horticultural products are of high economic value.
4. There is potential for the further development of horticulture and for the marketing of its products.

OBJECTIVES

Students should be able to:

1. briefly review the major components of horticulture.
2. investigate the social and economic significance of horticulture in Australia.
3. conduct a case study of a horticultural activity, studying:
   * the reasons for carrying out this horticultural activity;
   * how location affects production methods;
   * the major management practices and the reasons for them;
   * the range of products and how this is influenced;
   * the interaction between the type of product and consumer demand;
   * the alternative ways of marketing the project.
4. assess the potential for new developments in horticulture and the marketing of their outputs.

ELECTIVE C1 - ALTERNATIVE ANIMAL PRODUCTION

MAJOR IDEAS

1. Alternative animal production includes major changes in existing animal systems and the development of production from a wider range of animal species.

2. Specialised markets require animal products not supplied by existing animal systems or in a form different from that of existing animal systems.

3. Market size dictates economic viability of alternative production systems.

4. Alternative animal production systems require innovative management and marketing.

OBJECTIVES

Students should be able to:

1. describe and evaluate examples of changes in existing animal systems and the development of production from a wider range of animal species.

2. explain why existing animal production does not meet the needs of all markets.

3. identify specialised markets for alternative animal products.

4. describe the technical information and management expertise needed for the management of an alternative animal production system. Evaluate to what degree the lack of such information and expertise is limiting to production.

5. use examples to describe biological and environmental factors which may limit alternative animal production system.

6. understand that expertise and information in alternative syste s develops through the application of general animal production principles, operator experience and research activities.

NATIONAL ASSOCIATION OF AGRICULTURAL EDUCATORS

SIXTH NATIONAL CONFERENCE

"Sustainable Agriculture"

SUNDAY, JANUARY 14th
– FRIDAY, 19th, 1990



Burnie College of T.A.F.E.
Agricultural Studies Department
Mooreville Road, Burnie 7320

Fly to Tasmania with

Ansett.

Your official airline.

REGISTRATION FORM AND PAYMENT
SHOULD BE FORWARDED
BY 30TH AUGUST, 1989

to the

TASMANIAN ASSOCIATION OF
AGRICULTURAL TEACHERS
C/– MR. DAVID NETTLETON
ELLIOTT, TASMANIA 7325
Telephone: (004) 36 3183

PLEASE NOTE: Meals (apart from breakfast and the Dinner) have not been costed. They will not be expensive. Some will be donated others subsidised. The few that you will have to pay full price for will be a' la carte or low cost menus. $20.00 per day per person will cover their cost.

Whilst the programme as outlined in this brochure is, at the time of printing, confirmed, we do reserve the right to alter parts of it should circumstances dictate.

N.A.A.E.
SIXTH NATIONAL CONFERENCE

THE VENUE

Burnie College of TAFE is the home of Tasmania's Agricultural Apprenticeships courses. The Agricultural Studies Department offers a wide curriculum, and has excellent facilities.

The college itself is a very modern building, with all the latest equipment and facilities.

It makes an ideal venue for the conference. All the more so because the standard of the accommodation is first rate.

Burnie, Australia's newest city, is the commercial and industrial hub of the North-West Coast of Tasmania.

The surrounding countryside is beautiful, fertile and productive. A wide diversity of agricultural practices are to be found, as well as forestry.

The Conference will take you out and about, and delegates will get to see a lot of lovely countryside as well as the interesting and informative venues.

How about combining the conference with a Tasmanian holiday? Bring the family along!.

Contact David Nettleton and he will arrange a package to suit your situation if you wish to stay longer and at a different venue.

Families are welcome to stay at the college (although there is limited accommodation available — Book early!)

Ansett.

Ansett are pleased to have been chosen as the official airline for your conference.

To ensure that you benefit from any discounts which may apply to economy class travel, please contact **Convention Travel Department** at your nearest Ansett office and quote the following reference and file numbers.

Similarly, if you book through a travel agent, please insist they contact the **Ansett Convention Travel Department** for maximum benefits that may apply to your conference.

Ref. No. 28X8EW

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Wollongong
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Ansett believes that the contents of this brochure are correct at the time of printing but all prices and services described herein are subject to change or withdrawal without notice.

Advocate Printers (Burnie) Pty. Ltd.

N.A.A.E. NATIONAL CONFERENCE

REGISTRATION FORM

SURNAME: ..... (Mr./Mrs)

GIVEN NAME: .....

ADDRESS: .....

.....

.....Postcode .....

Telephone: .....

NAME OF SCHOOL, COLLEGE, INSTITUTION: .....

.....

I will be accompanied by (no) .....of family members for whom I require accommodation.

REGISTRATION

Number of conference participants .....
@ $30 each. (If received by 30th September)
@ $50 each. (Late Registrations)

ACCOMMODATION

Bed and breakfast $17.00 each. (share room)

Sunday	$17.00
Monday	$17.00
Tuesday	$17.00
Wednesday	$17.00
Thursday	$17.00

Conference Dinner — Wednesday evening $20.00 each.

TOTAL $

Registration and payment before 30/9/89

Please enclose cheque for full amount made payable to:—

Tasmanian Association of Agricultural Educators
C/— Mr. David Nettleton,
Elliott, Tasmania 7325

CONFERENCE OUTLINE

Sustainable Agriculture has become not an option, but a necessity. Unless we can SUSTAIN OUR AGRICULTURE we cannot sustain our living standards.

TASMANIA is the right place to hold such a Conference as it is leading the nation in the political pursuit of putting the environment at the forefront of all considerations.

This Conference will focus on techniques that are being used to enhance sustainability. Whilst there will be some lectures, the aim is to get delegates out into the field to see for themselves, and, through workshops, to experience some new techniques.

The forum will give you a chance to put your view to a panel of experts who have been especially chosen to represent a broad spectrum of perspectives.

In his opening address, The Premier will give an insight into the political realities and problems of being at the leading edge of putting conservation into practice.

The J. A. SUTHERLAND MEMORIAL LECTURE will give you a chance to hear Mr. KERIN speak about his agricultural and environmental philosophies.

Our panel of speakers is well qualified to address the problems facing agriculture, and come up with ideas for possible solutions. They include:

Mr. R. E. HUGHES, Managing Director of a company involved in land management and upgrading in England.

PROFESSOR LOVETT, Professor of Agronomy at the University of New England.

Mrs. CHRISTINE MILNE, M.H.A. a leading conservationist, and independent member of the Tasmanian House of Assembly.

Dr. MIKE TEMPLE-SMITH, of the Tasmanian Agriculture Department. As well as leaders of agriculture and related industries in Tasmania.

PROGRAMME

SUNDAY, 14th January, 1990

Delegates met at airport.

Registrations.

Tour of College.

B.B.Q.

Social Evening, Introductions.
Informal address by President of N.A.A.E., Mr. Greg White.

MONDAY, 15th January
Theme: Sustainable Agriculture
Sponsor: Websters Pty. Ltd.

10 a.m. **Welcome to Delegates**
10.15 a.m. **LECTURE** — Sustainable Agriculture in Tasmania, Dr. M. Temple-Smith.
11.15 a.m. **LECTURE** — Sustainable Agriculture - a World Perspective, Professor Lovett.
12.15 a.m. Administration.
12.30 a.m. Smorgasbord of Tasmanian food and drink.
2.00 p.m. Official Opening by the Premier of Tasmania, Michael Field, M.H.A.
2.30 p.m. Tour of Table Cape farming district
or
Workshop at the College
6.00 p.m. Evening Meal.
8.00 p.m. **LECTURE** — Soil conservation and alternative land uses, Mr. R. E. Hughes, U.K.

TUESDAY, 16th January.
Theme: Sustainable Animal Production
Sponsor: Lactos Pty. Ltd.

9.00 a.m. **LECTURE** — T.B.A.
10.00 a.m. Tour of Lactos Cheese Factory
or
Tour of Hawkridge Meat Works.
12 noon Elliott Research Farm
B.B.Q.
Workshop
Elliottdale Carpet Wool Sheep
Dairy Research Unit
5.00 p.m. Bass View Dairy Farm
Rotary Dairy
Grazing Management
Herd Management
7.00 p.m. Evening Meal
8.00 p.m. **Forum** — Sustainable Agriculture the future.
PANEL Mr. B. Farquhar, Tasmania's Largest landowner.
Mrs. C. Milne, M.H.A., Leading Conservationist.
Dr. T. Kingston, Department of Agriculture.
Mr. P. Gillam, Managing Director, Vecon Pty. Ltd.
Professor Lovett, Mr. Hughes.

WEDNESDAY, 17th January
Theme: Sustainable Forestry.
Sponsor: APPM

This day will be spent with officers from APPM. Activities will include:— A tour of the company's Burnie's Pulp Mill, a visit to the company's tree nurseries where a workshop will be conducted, a tour of some plantations and forest areas.

7.30 p.m. Conference Dinner.
J. A. SUTHERLAND MEMORIAL LECTURE
It is anticipated that this lecture will be given by The Hon. J. A. Kerin, M.H.R., the Federal Minister for Primary Industries.

THURSDAY, 18th January
Theme: Sustainable Crop Production.
Sponsor: Tasmanian Hop Farms.

9.00 a.m. EITHER Tours of Forthside Research Station and Vecon vegetable farm and processor
or
Tour of Sheffield High School Farm.
12.30 p.m. B.B.Q. at Leven Canyon.
2.00 p.m. Tour of Gunns Plains Hop Farm.
6.00 p.m. Evening Meal.
8.00 p.m. N.A.A.E. General Meeting
Election of Officers
State Reports
General Business

FRIDAY, 19th January
Theme: Whole Farm Systems
Sponsor: T.B.A.

9.00 a.m. Lecture and Workshop by Mr. L. Bonney and staff of Agriculture Department at the College of TAFE, as an introduction to the concept of Whole Farm Systems.
12.30 p.m. B.B.Q.
1.30 p.m. Conference close.
2.00 p.m. Departures.
Delegates transported to airport.