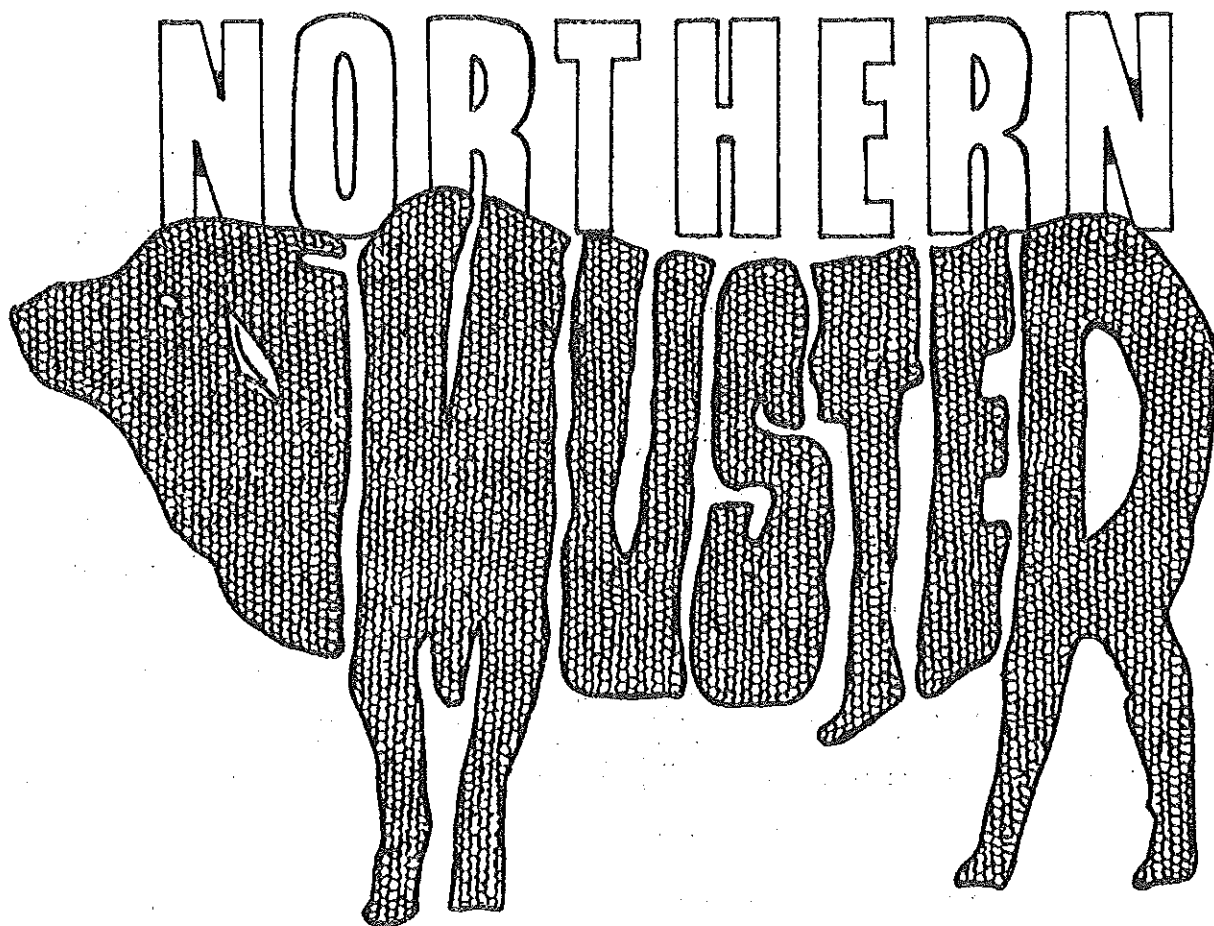




DEPARTMENT OF PRIMARY INDUSTRIES QUEENSLAND GOVERNMENT

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ISSUE NO. 28

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REPRODUCTION OF ARTICLES

The Queensland Department of Primary Industries welcomes reproduction of articles appearing in this newsletter but requests that technical information be confirmed with the Editor prior to publication to ensure that recommendations are still accurate at the time of printing.

BONE CHEWING COUNTRY

North Australian cattlemen on phosphorus-deficient country can significantly increase their incomes, according to three property owners who discuss their management practices.

These cattlemen, David Steel, Darryl McLaren, Peter Marrot all from lower Cape York Peninsula, do not pull any punches in discussing their situations or practices on the video 'Bone Chewing Country'. They have been successful at a time when traditional managers on similar country have been having a hard time.

The improved management has allowed them to at least double their turn-off while increasing their mustering efficiency, but reducing their mustering costs.

Their main practices are weaning of all calves down to three months each time they muster, vaccinating their cattle against botulism and vibriosis, feeding phosphorus in the wet season and feeding horses to have them fit where an early weaning muster is needed at year's end.

These practices result in reduced death rates, higher calving rates, heavier turn-off weights in all classes of cattle and the sale of more females.

Bone Chewing Country will interest all cattlemen in northern Australia, whether their country is phosphorus deficient or not.

"Bone Chewing Country" runs for 27 minutes, is available in VHS video format and costs \$25 postage included.

It can be bought through QDPI Publications, GPO Box 46, Brisbane 4001 (telephone [07] 2393100) or from QDPI Bookshop, Ground Floor, Primary Industries Building, 80 Ann Street, Brisbane.

EDITORIAL

The last few months have seen significant changes in staffing at DPI centres in North Queensland. Phil Anning has left the pastures scene after 21 years. He has taken up a position as a horticultural adviser in the DPI and will remain at Bowen. His replacement is Peter Elliot.

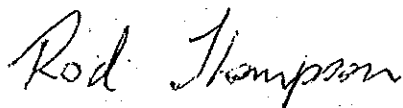
Peter has been a research/development officer with the Burdekin Scheme for the last 4 years. Prior to that he was an adviser with the Victorian Department of Agriculture. Peter can be contacted at the Ayr DPI on (077) 832355.

Alan Laing will be taking over from me as Beef Cattle Officer for the next 5 months while I'm away on study leave. He can be contacted at the Ayr DPI.

The Charters Towers DPI has three new officers appointed. Andrew Hinton, Agricultural Economist, David Mims, Pasture Management Adviser and Joe Rolfe as replacement for Bob Shepherd as Land Conservations Officer. An introduction on these staff is included in this edition.

Peter Elliot will be editing the next issue of the Northern Muster while I'm on leave.

Enjoy your reading.



**ROD THOMPSON,
EDITOR**

LETTER TO THE EDITOR

I read in the Northern Muster No. 26 an article by John Pascoe on "Family Trusts". Who can I contact to get more Information?

I enjoy reading the Northern Muster. Keep up the good work - it is much appreciated.
Yours faithfully,

**DAVID STREAT, WARANG STATION,
TORRENS CREEK**

FAMILY TRUSTS NEED TO BE DESIGNED TO SUIT EACH INDIVIDUALS REQUIREMENT

Dear David,

Family Trusts are a way to reduce tax and they may help in the transfer of land from one generation to the next. They are quite complex especially when you consider that land ownership is going to have a capital gains tax effect when your sons (for instance) transfer the land at some later date.

Initially you should talk with your own accountant and solicitor to get a general idea of the topic. After that, if you wish to go further, contact a large city based firm of accountants and solicitors. Your initial question to an expert in this field is: "Do I need to consider a change to my business structure?"

No one group is recommended, however some firms are Cannon & Petersen or Hall - Chadwick, both of Brisbane or Price Waterhouse in Townsville. Yellow pages are a good place to start for others. Unfortunately, the information required is detailed and will cost for professional services.

**ANDREW BOURNE,
REGIONAL ECONOMIST - AYR**

ANNING'S PARTING TIPS

After 21 years of working with pastures, Phil Anning moved to Horticulture Branch at Easter 1990. In that time he has seen Townsville stylo give way to Seca and Verano, being involved in the selection of the new cultivars and also holding the distinction of being the first collector of anthracnose on stylo in Australia. Phil has been a regular contributor to the Northern Muster. Thanks for your efforts Phil! Following is a few parting comments from the man himself.....Editor.

"I feel privileged to have worked with a large number of cooperative beef producers who are energetically developing their properties. I have found it stimulating to see graziers seeking information and testing it and adapting it to their needs".

Given that costs continue to outstrip returns in most primary industries, long term economic prosperity for beef producers will depend on them taking development opportunities including sown pastures where applicable. To those beef producers who say seed is too expensive, my reply is that in any business you have to spend money to make money.

What do I see in future pastures?

1. Seca stylo and its relatives will cover 10+ times their current area from central Queensland to the Kimberleys by 1995.
2. Indian couch will cover more bared country in northern Australia, reducing the three scourges - erosion, weeds and "lack of tucko".
3. Leucaena and other fodder trees will be widely used, based on a technological breakthrough which improves the reliability of

establishment (no, mate, not a patented rain dance).

4. New Legumes will be widely planted on brigalow and similar country, including Desmanthus and perennial types of Glenn joint vetch.
5. A pangola grass relation with a viable seed will be released (hopefully in 1992), allowing large areas of similar grass to be planted more easily and with more chance of successful establishment.
6. Woody weeds like rubber vine, chinee apple, prickly acacia and parkinsonia will turn large areas of grazing country into thickets useful only for training soldiers in jungle warfare, dispossessing non-treating landholders.
7. Beef producers who have gradually developed their properties with budgeted inputs of energy and finance will weather future beef downturns more successfully than their "cattle hunting" cousins.

Finally if you want advice on pastures, Peter Elliot, at the Ayr DPI will be taking over my duties. He can be contacted at Ayr DPI on (077) 832355.

POSTSCRIPT: Here is Anning's \$15,000 per year (less than 30 bullock) suggestion for easy pasture development. Hire a plane in October to plant 1 tonne of seed (75% Seca, 15% Verano, 10% Wynn cassia). At 3 kg/ha this will cover 300 ha without any labour input or wear and tear on machinery. There are some smiling local producers who have used this simple system successfully.

PHIL ANNING, BOWEN

ARC WELDERS AND CONTACT LENSES - BE CAREFUL!

Acknowledgment to Lions Bulletin for the following article, which is a warning to anyone who may use or intend using welding equipment.

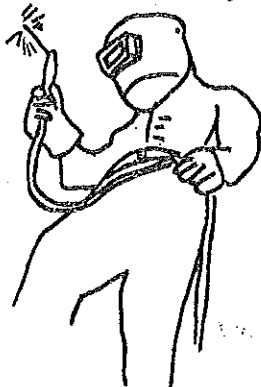
Case 1: An employer threw an electrical switch into the closed position, which produced a short-lived sparking.

Case 2: An employee flipped open the coloured safety lens of his welding mask and inadvertently struck the metal to be welded with his welding rod, producing a momentary arc.

Both men were wearing contact lenses. On returning home from work, they removed their contact lenses and the corneas of the eyes were removed with the lenses. **BOTH MEN WERE PERMANENTLY BLINDED!**

Apparently electric arcs generate microwaves that instantly dry up the fluid between the eye and the lens. This trauma is painless and the person is unaware of any problem until removing the lens. **Contact lenses should not be worn**, even under safety spectacles, by persons who are working in, or who may have to pass by, areas where arc flashes can occur or where welding is done.

In the interest of public safety, please take note of the above and pass on to any of your relatives, friends and workmates who may wear contact lenses. It is recommended that persons who are likely to be exposed to this phenomenon should discuss the potential hazard with their medical specialist.



TRANSIT TETANY "Downer Cow Syndrome"

This condition is a common disease in travelling stock throughout north Queensland. **It can be prevented!**

It is most commonly seen in cattle under stress on long trips. Travelling heavily pregnant cows is one of the most common forms of stress, but also droughted cattle and those left in yards deprived of feed and water for a time are vulnerable.

Blood calcium levels drop and it can be complicated by a decrease in magnesium levels. The condition is similar to Milk Fever or Grass Tetany.

The signs of transit tetany begin either during transit or within 24 hours of unloading. Cattle (sheep and horses may also be affected) appear restless and unsteady on their feet and stiff in the hindquarters to the point of staggering. In a lot of cases the cattle affected will go down, make paddling movements with their limbs, and maybe froth at the mouth.

Fatalities can be high and action must be taken as soon as the signs are observed. Death may occur within minutes.

Treatment in many cases is quite effective and simple. Animals may respond rapidly to a dose of "Calcigol Plus" containing calcium, magnesium and dextrose. Animals should then be left alone with available water and feed.

As in most cases the best form of treatment is prevention. Draft off heavily pregnant cows, supply feed and water and spell them on long trips.

**JOHN FRY, STOCK INSPECTOR,
TOWNSVILLE**

BUFFALO FLY CONTROL

Do you use tickicides for buffalo fly control?. Using tickicides in a low dose as an overspray will give ticks a sub-lethal dose. This encourages the development of strains of resistant ticks.

The synthetic pyrethroids are commonly abused in this manner. Some trade names are Bayticol, Taxafly, Barricade S and Grenade. The products, Nexagan S and Coopathon suffered similar resistance problems in the 1970's.

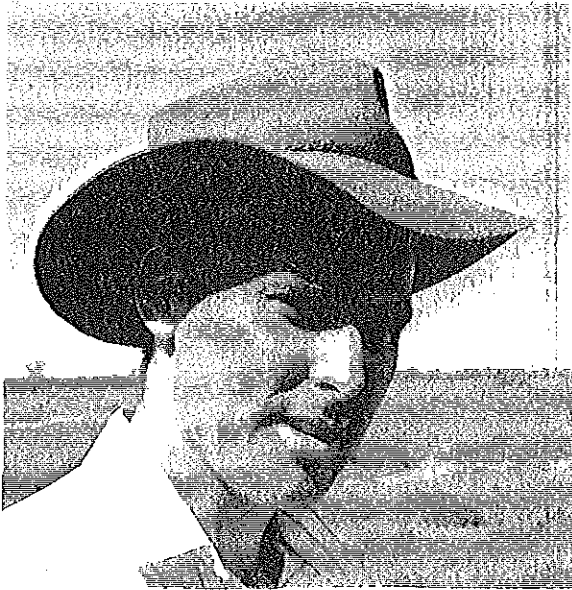
Only chemicals that are registered for Buffalo fly should be used. Listed below are the products currently registered for this purpose.

Trade Name	Pack Size	Retail Price \$	Dilution	Cost/Adult cents
OVERSPRAYS:				
Sumifly	500 ml	93.50	Mix with 100 l water	19
Cypafly	500 ml	79.00	Mix with 125 l water	13
Bayofly	800 gm	126.00		84
DUST BAG:				
Ficam Gold	2 bags per box	140.00 /box	N.A.	100 head/ 2 months
BACKRUBBERS:				
Nucidol 200	5 ltr	92.00	400 ml:100 l water	15
Supona 200	5 ltr	90.00	250 ml: 10 l oil	\$4.50 to fill Sappupo (5 l)
POURONS:				
Coopafly	5 ltr	400.00	Dose/adult 10 ml	80
Takfly	5 ltr	400.00	10 ml	80

* (Provisional Registration for Backrubbers Only)

ACKNOWLEDGEMENT: Thanks to George Watkins from Dalgety Winchcombe, Townsville for supplying prices.

ROD THOMPSON, BEEF CATTLE OFFICER, AYR



**AGRICULTURAL ECONOMIST
APPOINTED TO DALRYMPLE SHIRE**

I have been appointed to work in the Dalrymple Shire to conduct a study on the relationship between grazing management, financial success and land condition.

The funding for the project has come from the National Soil Conservation Program (NCSP).

The project will be divided into two phases.

The first will involve a survey of producers to obtain financial and production data from selected properties.

This information will be processed to derive an economic, financial and management profile of beef production in the Dalrymple shire.

The results from phase one will provide a necessary benchmark for the more detailed information that will be gathered in the second phase, from a smaller sample of producers.

In particular, phase two is designed to obtain economic and production data over a longer period.

A detailed report on the findings will be produced at the end of the project.

This report will be made available to the National Soil Conservation Program, the Landcare Committee and other interested bodies.

A summary report will also be made available to producers in the study region.

**ANDREW HINTON, ECONOMIST,
CHARTERS TOWERS**

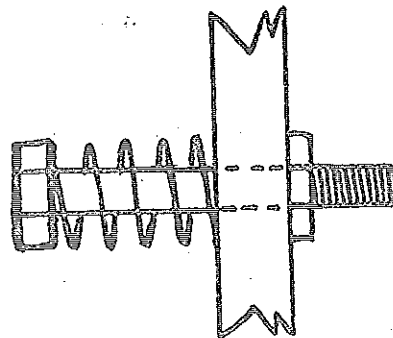
BORING IDEA

This post marker can be easily made and would be a useful addition to the fencing kit.

Use a 1.16 metre (just under 4 foot) length of 25 mm pipe or RHS, drill holes at the required wire spacing to take 9.5 mm bolts, 125 mm long. A soft spring is placed between the head of the bolt and the pipe. When hit with a hammer the bolt will mark the post so wire spacings are accurately bored.

A piece of angle iron welded to the top of the pipe is used to hang the device off each post.

ANDREW LEWIS, DPI LONGREACH



BEEF MARKET SPECIFICATIONS

The following specifications can be taken as a general guide to the main grassfed beef markets available to our export and domestic processors at present.

Producers intending to sell a specification should check with the works they intend to deal with for their exact specifications, as some variation to these guidelines may well exist.

General Market Specifications

Jap 1: Steer 0-8 teeth or Heifer 0-7 teeth grass fed 300-420 kg; Fat 7-22 mm; Shape A B C; No yellow fat; No bruising.

Jap 2: Steer 0-8 teeth or Heifer 0-7 teeth grass fed 340-420 kg; Fat 7-22 mm; Shape A B C; No yellow fat; No bruising.

*Jap 3 cut: Steer 0-8 teeth or Heifer 0-7 teeth grass fed 280-420 kg; Fat 7-22 mm; Shape A B C; No yellow fat; Some bruising allowed.

Korea: Steer or Heifer 0-6 teeth grass fed 180-280 kg; Fat 7-22 mm; Shape A B C; No yellow fat; No bruising.

EEC: Steer or Heifer 0-4 teeth grass fed 200-300 kg; Fat 7-22 mm; Shape A B C; No yellow fat; Some bruising allowed; HGP certified.

Yearling: Steer or Heifer 0 teeth grass fed 170-220 kg; Fat 3-12; Shape A B C; Creamy or white fat; No bruising.

Export: Steer, Cow, Bull 0-8 teeth grass fed. Meat from bruised carcasses is acceptable. Carcasses of any weight and any fat thickness are used. The meat is boned out and used in the hamburgers/smallgoods export trade.

* Three cuts are taken off the carcass. Some bruising of the carcass is allowed, providing the three cuts are not themselves bruised.

KEN WILCOCK, LIVESTOCK AND MEAT AUTHORITY OF QLD

PROFILE

My name is Alan Laing. I'll be relieving Rod Thompson as the Beef Adviser in the Shires of Burdekin, Bowen, Proserpine, Thuringowa and Hinchinbrook during his absence on study leave over the next five months.

I have been with the Department for 22 years, including service at Swan's Lagoon Research Station, Millaroo and Brian Pastures Research Station, Gayndah.

Areas of experience include:- supplementary feeding, irrigated pastures, dryland leucaena, breed comparisons, feedlotting, bull selection on growth rate, fertility in breeders and pasture research.

I am hoping to establish some new research in the Burdekin in beef production from nitrogen fertilized irrigated pastures, and beef production from irrigated leucaena/pangola compared with irrigated nitrogen fertilized pangola.

I have been an active member of School P & C's and local Race Club Committees (currently Ayr and Home Hill).

I am looking forward to meeting and being involved with more people from the beef industry in the next few months.

ALAN LAING

"TAIL TAGS" - WHAT COLOUR?

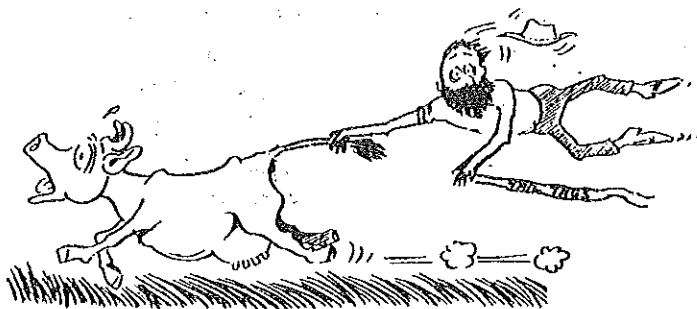
Tail tags used for the identification of cattle have had yet another change to their colour scheme. Fifteen months ago Veterinary Services Branch introduced a colour grading system for the lettering of white tail tags. This was used to differentiate between pesticide suspect properties (having the original black lettering) and those properties deemed safe from pesticide residues (red lettering).

Although this system was operating well at Sale Yards and other points of sale, it appears that the red lettering fades very easily. Inspectors found it sometimes impossible to read tags at slaughter, leaving the industry with no form of disease traceback.

With 92% of cattle herds in Qld now being free of pesticide residues it is hoped that it will be a thing of the past. Therefore it has been decided that producers may return to using the original white tags with black print.

All stocks of red lettered tags may be used up through natural attrition with no penalty.

**RAY NICHOLLS, STOCK INSPECTOR,
TOWNSVILLE**



TAIL TAGS - A STICKY PROBLEM

Correct identification of cattle is essential to maintain Queensland's disease traceback scheme. Cattle sent for slaughter are always checked by meat inspectors. Any diseased animals are traced to the property of origin via the Tail Tag number.

A properly applied tag provides positive identification. Cattle that lose tail tags in the saleyards must have a saleyard tag applied, at the producers expense.

Cattle that lose tags at the meatworks after leaving a saleyard or property may not be traced back to their property of origin in the event of disease being detected.

This is a problem for the producer as well as the industry in general. Most graziers are well attuned to using tail tags but here's my suggested method.

1. Ensure the dispenser is properly threaded and withdraw the tag from the dispenser. The tag should peel from the backing paper, which enables the tag to remain clean and dry.
2. Wrap the tag firmly around the tail, starting just above the brush. The plastic tag should overlay itself. The identification number will then be exposed and the serial number should also be clearly visible.
3. Smooth down wrinkles to ensure a good stick.

If applied in this way, then correct identification is assured and this will avoid the extra expense and inconvenience of lost tags.

**IAN PEACE, MEAT INSPECTOR,
TOWNSVILLE**

SWAN'S LAGOON UPDATE

Like most places, it's a bit wetter than slightly damp. We've had to fit a lot of mustering in between some fairly persistent rain. After only 3 and a bit inches in January and February, we've had over 30 inches since. Our work mainly addresses the problems due to poor dry season nutrition - but we are currently having a patch of extreme "dry season deficiency". Great for the cattle, but not so flash for drought research!!

The breeder herds

The good seasons are reflected in our branding rates. The first round in our continuously-mated herd this year has yielded about 780 calves. Not bad from 960 breeders mated last year (81% weaning rate so far) with another round to get the late calves in late August. We've also just weaned about 430 calves from the controlled-mated herd (86% weaning rate).

We have low-level, but effective management of our breeders. The main strategies are botulism vaccine for the whole herd, vibrio vaccine for the bulls, weaning down to three months of age at both rounds, segregating heifers until they are first mated in early February at 2 years of age, culling of heifers and cows which have low fertility, and culling all cows by 9 years of age.

This dry season, the fertility research team (Geoff Fordyce, Ian Kendall, Bernie O'Leary and Neil Cooper) have trials examining cost-effective nutritional methods to improve short-term and long-term fertility in cows and heifers. The two major experiments will look at spike feeding in first-calf cows and at feeding weaner heifers.



Swan's Lagoon Advisory Committee Member Andrew Rea, "EtonVale" Bowen; David James "Oakley" Torrens Creek; Greg Ryan "Green Hills" Georgetown during a recent Advisory Meeting at Lansdown Research Station, Woodstock.

Cow-calf separator

David Hirst recently won the Farm Inventor's Award in the under \$500 category at the North Queensland Field Days in Townsville with the cow-calf separator. David has put together a great unit using his ideas and a few others, particularly from Les Wicksteed and Rod Thompson.

The next stage in the work with the separator is to have it incorporated into management wherever it may be applicable. We believe that there is great potential for it in the northern beef industry. You are sure to hear a lot more about it. Other industries also see potential. The dairy people are interested in using it to separate baby calves from their mothers after post-milking suckling. If your interested in trying the separator on your property give David a call!



Swan's Lagoon Advisory Committee members studying the new varieties of Stylo's under evaluation at CSIRO's Lansdown Research Station. Left to Right: David James; Graeme Brabon; Ray Byrnes (DPI Brisbane); Lyle Winks (Director Beef Cattle Husbandry Branch); Dale Smith "Koonandah", Bowen; and Ian Rebgetz "Thalanga", Balfes Creek.

Beef Industry Representatives on the Swan's Lagoon Advisory Committee

Dale Smith	"Koonandah" Bowen	Phone (077) 852257
Andy Rea	"Eton Vale" Binbee	Phone (077) 853490
Ian Rebgetz	"Thalanga" Balfes Creek	Phone (077) 876687
Graeme Brabon	"Granite Vale, Townsville	Phone (077) 788777
David James	"Oakley" Torrens Creek	Phone (077) 417204
Greg Ryan	"Green Hills" Georgetown	Phone (070) 625365

IDENTIFYING SLOW BREEDERS

An important part of maintaining satisfactory weaning rates is culling cows and particularly heifers which have low fertility. If a heifer has low fertility, she is likely to be slow for the rest of her career.

So how do you keep track of a cow's fertility?

Controlled-mated herds. Cows which are dry at weaning are identified (e.g., with an ear tag). These cows are then preg tested 2 months after mating. Alternatively, lactation status can be checked after the following calving season. The marked cows are culled if they are empty when preg tested or dry at the end of the following calving season.

Continuously-mated herds. This is more of a challenge. A simple system of tagging breeders which fail to rear a calf in any year, can be used. This system does not entail record keeping.

Very simply: At the first round, tag all dry cows. If they turn up wet later in the year, remove the tag. Use a different-colour tag every year. The tags certainly show up the slow breeders.

In more detail:

First round:

- Tag all dry cows
- Bang tail all cows

Subsequent rounds, other than the last:

- Assess only tagged cows and those which have not been bang tailed.
- If wet, remove the tag if the cow has one, or bang tail if the cow does not have a tag.
- If dry - leave tag in if the cow has one.
 - tag if not bang tailed.

Last round:

- Assess only tagged cows and those which have not been bang tailed.
- If wet, remove the tag if it has one.
- If dry - leave tag in if it has one or tag if it is not been bang tailed. or - preg test.
- If empty, cull.
- If pregnant, leave tag in if it has one or tag if it has not been bang tailed.

First Round:

- Tag all untagged dry cows with a different colour tag.
- Check lactation status of previously-tagged cows.
- If wet, leave in herd.
- If dry, cull.

The best tags to use are probably plastic button tags; an example is the Aussie Tag or Allflex Tag with the female part the same size as the male part. Flag tags or swivel tags are much more likely to be lost. Metal tags are too difficult to remove and are not reusable.

At Swan's Lagoon, we looked at the Bonsma technique for identifying slow breeders. There was no relationship of the Bonsma traits to fertility. However, the basic approach is still a good one; that is, critically assess cows visually and use any objective data you have (such as tags for failing to rear calves) to help make your decision.

All these ideas were discussed at the recent Australian Veterinary Association conference in Townsville. Preg testing heifers or cows which fail to rear a calf in any year, can greatly improve the efficiency of culling; it can help to identify slow breeders up to a year earlier.

GEOFF FORDYCE, SWAN'S LAGOON RESEARCH STATION

HORSE PERMITS: A THING OF THE PAST!

Recent changes to the Stock Act have done away with the need for horse permits in many instances. A PERMIT is NOT REQUIRED to move horses when travelling from one property to another within the same area (subject to the conditions below).

A PERMIT is compulsory to move horses when:

- (i) travelling from one cattle tick area to any other cattle tick area;
- (ii) travelling from an area to a border crossing place (exemptions may be given);
- (iii) travelling from any area to a Restricted Area (eg. Brisbane Exhibition Grounds); and
- (iv) travelling to or from properties restricted or quarantined for disease control purposes.

A WAYBILL must be completed for all horses moving within the State except for:

- (i) horses being ridden, provided travel is confined to places within the same tick area. This does not include travel to and from properties restricted or quarantined for disease control purposes.

If you are uncertain contact your Stock Inspector.

NOTE: Penalties up to \$1000 or 6 months imprisonment exist for persons transporting stock from tick infected to tick free areas without authorisation of an Inspector.

**JIM FINUCANE, DISTRICT
INSPECTOR OF STOCK, AYR**

SPAYING - AS EASY AS TWO NEEDLES!

Last week saw the commercial release of the product "VAXSTRATE" by Websters vaccines. This vaccine will immunize the animal against its own reproductive hormones thus preventing the cow from conceiving. The benefits of "needle spaying" are obvious to cattlemen. Eliminating unwanted pregnancies in cull cows, more efficient management of the breeder herd, better dressing percentage and no mortalities as a result of surgical spaying are just a few.

HOW MANY DOSES?

Like most vaccines two doses are required to provide the animal with the desired level of immunity. VAXSTRATE will only work if two doses are given 4-16 weeks apart. DO NOT try one dose only. Two doses will give up to nine months control of reproduction.

WHAT'S THE COST?

VAXSTRATE cost \$5.50 per dose and two doses are required. Therefore \$11/head.

IS VAXSTRATE FOR YOU?

If your herd is control mated or cows are segregated on age, then there is probably no need to use VAXSTRATE or spay surgically. However, many extensive properties will find "the needle" an easy way of selecting the cull cows that will be sold as fats nine months later.

**ROD THOMPSON,
BEEF CATTLE
OFFICER,
AYR**



THE INTEREST RATE JUNGLE

The impact of the de-regulation of the Banking Industry some years ago has meant that the rules for borrowing money have changed. Sometimes it may seem easier to borrow, but the cost of it has grown considerably and those costs are not as uniform as they used to be. You may hear of cheap rates at times but you never seem to get them!

Interest is usually quoted at the Nominal rate per annum. Unfortunately interest is not paid or charged annually but quarterly or monthly. Paying interest more frequently increases the effective interest rate.

e.g Nominal Rate % p.a.	Effective Annual Rate When Interest Paid	
	Six Monthly	Monthly
15.00	15.56	16.08
18.00	18.81	19.56

Interest can also be paid at the end or the start of the period. Interest at the start of the period, or in advance, means that you should pay less (the quoted rate should be less). Interest on Bill Finance is one form of this where the interest was deducted from the money borrowed when you took out the Bill.

Banks are now quoting interest rates in advance or in arrears (pay at the end of the period). An example of such a quote follows:

FIXED RATE FULLY DRAWN ADVANCE INTEREST RATES as at 8/5/90.

Index Rate. - the bank may (will !!) add a margin to these quoted rates.

Term (rate fixed)	Monthly		1/41 y		1/2 yearly		Annual	
	Adv.	Arr.	Adv.	Arr.	Adv.	Arr.	Adv.	Arr.
1 yr	16.4	16.7	16.2	16.9	15.8	17.3	15.2	18.1
2 yr	16.4	16.6	16.1	16.8	15.8	17.2	15.1	18.0
3 & 4 yr	16.3	16.6	16.1	16.8	15.7	17.2	15.1	18.0
5 yr	16.2	16.5	16.0	16.7	15.6	17.1	15.0	17.8

Note: Adv. = paying interest at the start of the period.

Arr. = paying interest at the end of the period.

Fixed Rate Fully Drawn Advances are interest only loans with interest fixed for a term. At the end of the term the loan can be re-negotiated or repaid in full.

There may be some tax advantages paying interest in advance.

For borrowers the jungle of interest rates seem to be getting more difficult to get through. Some suggested guides:

- know that there is a whole range of ways to pay interest and repay loans;
- for your own situation compare possible sources of finance by comparing the total repayments for the whole loan and the total interest component of those repayments. This information combined with your cash flow requirements should help you decide.

At the moment there is no short cut through that decision process nor is there any one recommended way to select the best finance for your business.

ANDREW BOURNE, REGIONAL ECONOMIST, AYR



JOSEPH ROLFE

- Soil Conservation Officer,
Charters Towers

I was born and raised on a merino sheep property on the Southern Tablelands in NSW.

While studying at Hawkesbury Agricultural College, I was involved in a project funded by the National Soil Conservation Programme which investigated effective extension strategies to implement the State policy of Total Catchment Management in the Hunter Valley. Other activities included

evaluating soil conservation projects which involved major earthworks on cropping and grazing enterprises. Towards the later stages of this Project I was involved in setting up a landcare group in the district. I graduated from Hawkesbury in 1989 after completing a degree in agriculture.

I started with the DPI's Soil Conservation Services Branch in February and spent three months in Mareeba. I look forward to working in the Charters Towers district and being part of the Grazing Land Management Unit. My activities in the district will include:

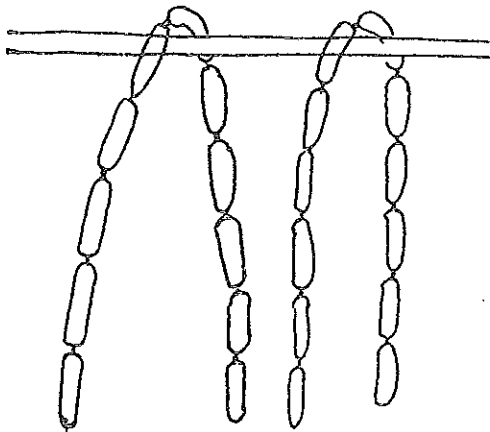
- * Developing extension and study tour programmes for local schools
- * "Self Help" property planning
- * Ponded pasture systems
- * Shallow water pondage and claypan reclamation
- * Offering support to Landcare groups in the region

JOSEPH ROLFE

THE USE OF BRUISED BEEF TISSUE FOR SMALLGOODS MANUFACTURE

Studies of the microbiological quality of bruised beef tissue and smallgoods (for example barbecue sausages, devon and salami manufactured with the incorporation of bruised beef tissue) have been conducted by the D.P.I.

To date, approximately 40 samples each of bruised and normal beef tissue have been collected from three different abattoirs. Growth rate of organisms in minced tissue and of smallgoods manufactured with and without the incorporation of bruised meat has been studied.



The results have confirmed that there are no differences in the initial level of contaminating organisms between bruised and normal tissue. Microbes had a slightly higher growth rate in the mince made from bruised meat (this difference is not great enough to produce significant differences in the shelf life of mince made from bruised or normal tissue). No differences were found in the microbiological quality on storage times of smallgoods manufactured with or without the incorporation of bruised meat.

These results indicate that there are no microbiological reasons for rejecting the use of bruised beef tissue in smallgoods manufacture. Bruised carcasses and wasted meat is currently valued at \$24m per year in

Queensland alone. These results indicate potentially large savings for the Queensland beef industry.

REPRINTED FROM DPI FOOD NEWS



DAVID MIMS: AN INTRODUCTION

My appointment is as Pasture Information Officer with the departments newly formed Grazing Land Management Unit (GLMU) in Charters Towers. This position entails a broad range of activities aimed primarily at improving communications between research groups and graziers and interpreting research findings for extension to beef and wool producers in north and north west Queensland.

I was born and raised on 'Tucson' station in the Winton shire and as such have a capable working knowledge of rural life and affairs. I've just completed studies at Queensland Agricultural College and I am looking forward to developing my newly created position and servicing graziers in the north and north west.

GRAZING LAND MANAGEMENT **UNIT - Charters Towers**

The DPI has established a Grazing Land Management Unit to service the primary producers in the Charters Towers district. Concerned local graziers formed the Dalrymple Land Care Committee in 1988 and requested an increase in local DPI staff. One of their major concerns was the dramatic changes in pasture condition in the region during the last ten years.

The function of the Grazing Land Management Unit (GLMU) is to develop and promote integrated management options for beef producers that are sustainable and profitable. Three key areas have been identified.

1. Description of the natural resources of the region.

A team of 4 Townsville-based people (DPI and CSIRO) will be working throughout the Dalrymple shire over the next 4 years to describe the basic resources - soil, pasture and trees. This will give an up-to-date picture of the current resources and their condition, and will provide the basis for evaluating proposed land use.

2. To identify management practices that are profitable over the long term.

One of the ways this will be done is by finding out what practices graziers are using and identifying those which are both profitable and sustainable.

3. Strengthen the communication between the grazing industry and the DPI. This two-way flow will improve the availability of existing information to producers. To aid this communication flow, GLMU staff will be convening meetings at various locations in Dalrymple shire in the near future. It is hoped that these meetings will provide

producers and GLMU members with a better appreciation of what is known, what is not and what we need to find out.

It is very important for the GLMU to get that feedback from industry as both groups want to ensure the long-term productivity and profitability of our grazing lands.

The GLMU is located at 109 Hodgkinson Street. The phone number is still 872155 and postal address PO Box 183, Charters Towers, 4820. GLMU staff in Charters Towers have knowledge and experience in many specialist fields including cattle production and disease control; soil, land and pasture management; and economics.

Existing staff: Peter Smith, Felicity Hill, Bob Shepherd, Joe Scanlan, Mardi Rendall

Recent arrivals: Mark Lewis, John Fry, Joe Rolfe, Andrew Hinton, David Mims, Glenn Donnelly

QUOTABLE QUOTES

Epitaph on an old Irish grave: "To the memory of Denis O'Neil who was brutally slain while lying peacefully in ambush".

A friend is a person who knows all about you but likes you just the same.

W.G.P.

An expert is a man who has made all the mistakes that can be made in a very narrow field.

Niel Bohr

THE JOYS OF TEACHING

During my twenty-five years as a secondary school teacher, I had my share of traumas, but I also had my quota of laughs.

I was teaching English in a large suburban high school in Melbourne. The Year 9 lesson for the day was writing sentences distinguishing between the meanings of groups of homophones. One of the groups was "gorilla" and "guerrilla".

The girl who produced the following had obviously forgotten her dictionary. Her first sentence read: "A gorilla is a large ape found in the jungles of Africa". Sentence No. 2: "The toast was burnt under the guerrilla".

Teaching secondary boys brings one into contact with some brilliant excuses for misdemeanours, particularly lateness. However, for sheer originality the following, given to me by a Year 11 youth excels:

I had been giving a Modern History lesson for about twenty minutes when our tardy class member walked in. "G.....", I said. "You are twenty minutes late, why?" (As the boy concerned was an inveterate smoker, I had a pretty fair idea what he'd been up to). The boy replied: "Well, Mr D., if I told you, you wouldn't believe me".

With a sneaking feeling that I was going to be had, I said: "OK, I'll be a mug, try me". G....., with a completely straight face, and all the aplomb of Sir Lawrence Olivier, proceeded to tell me that just before the bell, nature called, so he went to the toilet, sat down, and fell asleep.

The sheer cheek, originality and brilliance of G.....'s excuse sent the class into an uproar. For myself, I told the offender to get to his seat, then turned my back on the class and struggled to control my own mirth.

PETER DONNOLLY, reprinted from
"Blue's Country"

WORMS IN CATTLE

During the past few months a number of cases of surprisingly high worm burdens have been discovered. Despite what was a hot dry start to the year it appears conditions have been favourable to allow a build-up of high levels in susceptible stock.

Generally, the weaner is the animal at greatest risk of being severely affected by stomach and intestinal worms.

Suckling calves and older cattle have been shown to have high worm infestations lately. Immunity against worms is related to previous exposure. Older cattle may still be affected in certain circumstances.

If evidence of worm is present at weaning, then treatment at this time is recommended. Further treatments may be required.

Where worm burdens are moderate, treatment may be delayed until 1 or 2 months after weaning.

Treatment with an effective injectable anthelmintic will cost between \$0.75 and \$1.50. Pour-on preparations, which are equally effective, cost approximately \$1.06 per head (150 kg).

The cost-benefit studies often do not show worth-while returns to worm treatments of cattle in "normal years". However, under current prolonged wet season conditions that will change.

JOHN ROBERTS,
DIV. VETERINARY OFFICER,
TOWNSVILLE

RURAL LANDS PROTECTION BOARD

RECOMMENDED RETAIL PRICES OF WEEDICIDES COMMENCING 1 APRIL 1990
CURRENT UNTIL 30 JUNE 1990

2,4-D AMINE 50	Amicide 500	20 Litre Drums 5 Litre Tins	\$100.00 \$30.00
2,4-D AMINE 50 (REDUCED ODOUR)	LO-500A	20 Litre Drums 5 Litre Tins	\$109.00 \$32.50
2,4-D ACID	AF-300	5 Litre Tins	\$41.50
2,4-D ACID (PRE MIXED)	Basalcoat	5 Litre Tins	\$19.00
2,4-D ESTER 80	Estercide 800	20 Litre Drums 5 Litre Tins	\$196.00 \$54.50
2,4,5-T ESTER 40	T-400	20 Litre Drums 5 Litre Tins	\$350.00 \$90.00
2,4-D + 2,4,5-T MIXED ESTERS 20	Dt-400 (DT 20/20)	5 Litre Tins	\$59.00
2,4,5-T ESTER 80	Five T (T-800)	20 Litre Drums 5 Litre Tins	\$620.00 \$160.00
DP DICHLORPROP 60	DP-60	20 Litre Drums 5 Litre Tins	\$138.00 \$40.00
NOPALMATE		250 gm Pkts	\$8.50
AMITROLE-T		20 Litre Drums 5 Litre Tins	\$123.00 \$33.50
CALDEC	AF-100	5 Litre Tins	\$26.00
DICHLORPROP ACID	AF-302	5 Litre Tins	\$43.00
ATRAZINE + 2,4-D SODIUM SALT (MIXED FLOWABLE)	Nutra-D (AF-420)	20 Litre Drums 5 Litre Tins	\$93.00 \$32.00
DIURON FLOWABLE		20 Litre Drums	\$132.00
SURFACTANT	Wetting Agent	5 Litre Tins	\$19.00

All of the above mentioned weedicides can be purchased direct from the Weedicide Store, 104 Lavarack Avenue, Eagle Farm. Telephone No. (07) 2687632.

CHAPTER 10. THE HILBERT SPACE

10.1. The Hilbert space H is a complete inner product space. The inner product is denoted by (\cdot, \cdot) and the norm by $\|\cdot\|$.

10.2. Let $\{e_n\}_{n=1}^{\infty}$ be an orthonormal basis for H . Then any element $x \in H$ can be written as

$$x = \sum_{n=1}^{\infty} (x, e_n) e_n.$$

10.3. The Parseval identity states that for any $x, y \in H$,

$$(x, y) = \sum_{n=1}^{\infty} (x, e_n) (y, e_n).$$

10.4. The orthogonal projection of x onto a closed subspace M is denoted by $P_M x$.

10.5. The orthogonal complement of a subspace M is denoted by M^\perp .

10.6. The orthogonal decomposition theorem states that for any $x \in H$, there exists a unique element $y \in M$ such that

$$x = y + z, \quad \text{where } z \in M^\perp.$$

10.7. The adjoint of a bounded linear operator T is denoted by T^* .

10.8. The spectral theorem states that for a self-adjoint operator T , there exists a spectral measure E such that

$$T = \int \lambda dE(\lambda).$$

10.9. The spectral radius of an operator T is denoted by $r(T)$.

10.10. The spectral theorem for normal operators states that for a normal operator T , there exists a spectral measure E such that

$$T = \int \lambda dE(\lambda).$$

10.11. The spectral theorem for compact self-adjoint operators states that for a compact self-adjoint operator T , there exists an orthonormal basis $\{e_n\}_{n=1}^{\infty}$ such that

$$T e_n = \lambda_n e_n, \quad \text{where } \lambda_n \rightarrow 0.$$

10.12. The spectral theorem for compact normal operators states that for a compact normal operator T , there exists an orthonormal basis $\{e_n\}_{n=1}^{\infty}$ such that

$$T e_n = \lambda_n e_n, \quad \text{where } \lambda_n \rightarrow 0.$$

Contact: Rod Thompson, ODPI AYR, Ph 832355

Last price update:270390

Phosphorus Intake: 10 gm/hd/day

PRODUCT	PACK SIZE	PACK COST	CPE %	P %	Ca %	SALT %	UREA %	BLOCK gm/day	INTAKE gm/day	** gm/day	CPE per block	BEAST days	DAYS cents	COST/hd/day 100hd/mth
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PRODUCT	PACK	PACK	CPE	P	Ca	SALT	UREA	BLOCK	INTAKE	**	CPE	BEAST	DAYS	COST/hd/day	COST
	SIZE	COST	‡	‡	‡	‡	‡	gm/day	**	gm/day	per block	cents	100hd/mth		
