



# TOP PADDOCK

NEWSLETTER No. 14

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## EDITORIAL

The wet is well and truly with us this year, with record or near record falls around the Top End. A big wet can be beneficial or detrimental.

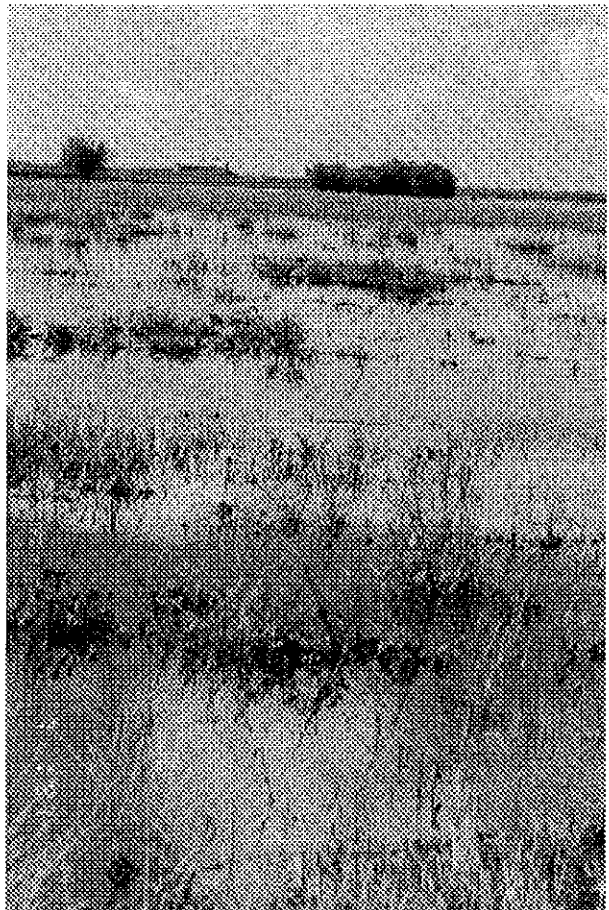
On the floodplains, the high flood levels have drowned a range of problem weeds, but on the upland areas, the wet conditions have promoted a different suite of weeds and leached fertilisers and herbicides out of the soil.

Fertiliser prices have noticeably increased this year. This appears to be a more widespread increase with fertiliser prices rising in the USA and high demand suggesting potential further price rises there.

Changes to Agriculture Division staffing have continued, with David Zuill departing for Brisbane, and Paul Graham and Kandiah Thiagalingam (Thiaga) taking 12 months leave to recharge their batteries.

A re-organisation of the Department has seen the current Agriculture Division become a Branch of a new Pastoral Division, which also includes the former Animal Health and Katherine, Tennant Creek and Alice Springs Pastoral Divisions. This new

Division should not alter the way the Agriculture Branch interacts with the public and other Departments. The changes are designed to co-ordinate activities of the new Branches for the benefit of the NT pastoral industries.



*Water on the floodplains near Beatrice Hill.*



*Flooded approaches to the Adelaide River Bridge*

## TOP END AGRICULTURE

Maybe it's the big wet we've just had, but there has been an influx of potential investors into the Top End in the last few months. While the weather has played havoc with the activities of the live exporters, it seems to have stimulated the interest of overseas and interstate business people and farmers.

The live export trade continues to dominate activities in the region and the demand for fodder and land is affecting the choice of enterprise for Top End producers. The market for live cattle in Asia shows no sign of waning and prospects are bright for the future. Total cattle numbers shipped through Darwin in 1996 were very close to 400,000. This is a 30% increase on the number shipped in 1995.

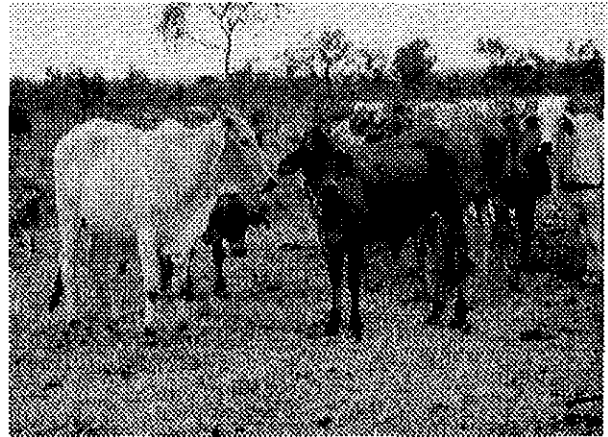
One heartening sign in this trade is the increase in Territory cattle being exported. The 1996 total for local cattle was 189,000, a 40% increase on the 1995 figure. Does this mean the Territory pastoral industry is becoming more efficient? There are certainly changes in the productive efficiency of pastoral herds, meaning our turn-off figures are improving.

The demand for fodder is a direct result of this trade. In the last season, the production of good quality hay from Top End properties was close to 20,000 tonnes. This is a significant level of production, but far short of the estimated 50,000 tonnes of lucerne cubes brought in for the export trade. With three cubing plants about to come on stream, there is an obvious opportunity for the expansion of hay production to provide raw material for the cubers.

Despite the problems with making more land available for intensive production in the Top End, the prospects are bright for expansion for agricultural production within the constraints of Native Title issues. Producers in

the region are in a unique position to capitalise on the needs of Asian customers. The recent visitors to the Territory have given some indication of the opportunities opening up for an increase in trade, with interest expressed in a variety of crops which can be successfully grown in the area. The supply of high value seed for export is particularly attractive.

Jack Peart  
Director Agriculture Branch



*Live Export Steers*



*Cavalcade hay production has good potential.*

## LEY FARMING SYSTEMS PROJECT - CATTLE PRODUCTION

### Background

The Ley Farming Project at DDRF aims to evaluate the sustainable production of an agricultural system which integrates a pasture phase in rotation with a cereal crop phase, and incorporates cattle production.

The livestock aspect particularly examines cattle production over the Dry Season - a time when cattle historically lose liveweight on native pastures. Cattle are grazed at 3 stocking rates - 1, 2 or 3 head per hectare, on either Cavalcade pasture, Cavalcade/sabi mixed pasture or sorghum stubble. The rotation is based on a pasture phase for two years, followed by the cereal crop phase for one year. There is one paddock under continuous sorghum for comparison.

The pasture phase is sown in Dec-Jan, and allowed to become established and set seed before the cattle - ideally, weaners coming off their mothers May-June, are introduced. Weight gains are then measured monthly to evaluate Dry Season productivity. The paddocks were not stocked until August last year. Cattle were removed from all paddocks by early December, and put into another paddock for Wet Season grazing. This regime will be altered this year - cattle will graze the Dry Season pastures earlier, and the second year pasture will be continually grazed over the Wet Season.

The trial consists of plantings in 3 phases. In any one season, there is a phase of 1st year pasture (sown that year), a phase of a second year pasture (established the previous year), and a sorghum crop phase (planted after 2 years of pasture). This will enable evaluation of crop or pasture production over different seasons.

This Dry Season will see the completion of the first full 3 year rotation - sorghum is currently growing in paddocks which have been under either Cavalcade or sabi / Cavalcade

pasture for the previous 2 years. The Cavalcade is regenerating well from the hard seed built up during the pasture phase. It is unknown at this stage how well the Sabi will re-establish after the sorghum phase from dormant seed in the mixed pasture paddocks.

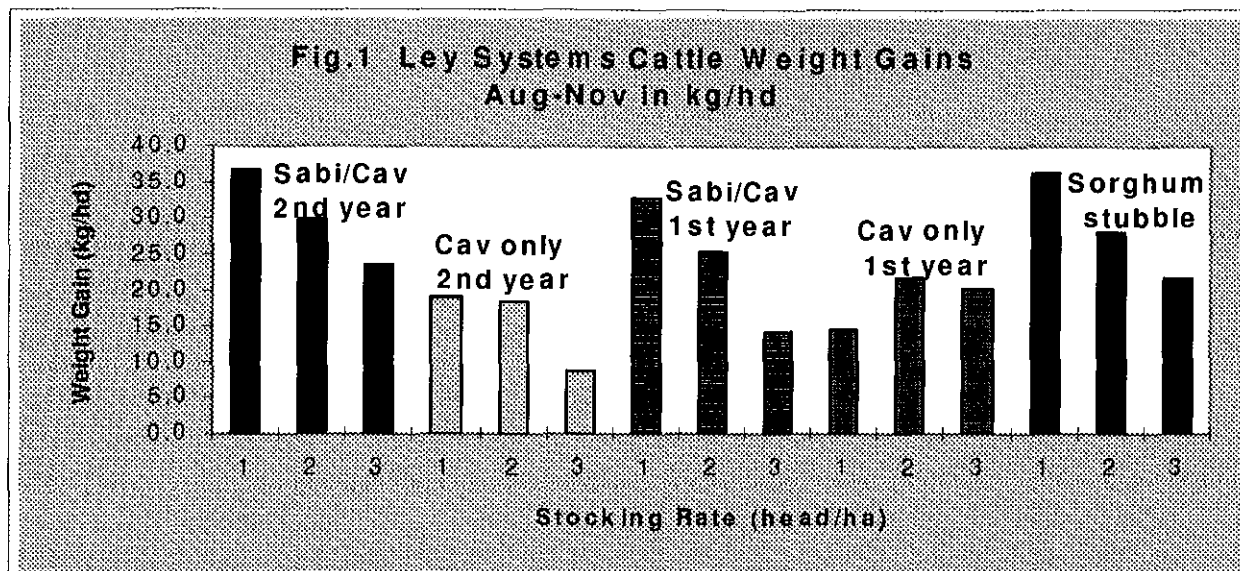
The dynamics of the pasture populations - the change in the proportions of grass, legume and weeds is assessed at the beginning and the end of the Wet Season. Vegetation monitoring is necessary to examine the effect that cattle grazing and crop rotation have on the plant population dynamics of the paddocks. Grazing manipulation is a vital tool in management of the amount of biomass necessary for desirable mulch levels for the no-till cropping phase. Results from the vegetation monitoring - changes in pasture composition, weed invasion, dry matter and sorghum yields will be discussed in a later issue of Top Paddock.

### Results

Cattle were introduced onto the Ley Systems paddocks in mid-August 1996. Figure 1 shows the average cattle weight gains from the time of introduction to when they were removed from the trial paddocks in November, for the first and second year pasture, and the sorghum stubble treatments.

There is an obvious stocking rate effect with 1 head /ha producing the best liveweight gain in all of the grazing treatments, except for the first year Cavalcade. This discrepancy may have been due to the high weed burden in this particular paddock. Weight gain over these 90 days at 1 hd/ha ranged from 14 kg/hd for the first year Cavalcade, to 40 kg/head for the sorghum stubble.

For the similar period at 3 head/ha weight gains ranged from 9 kg/hd for the 2nd year Cavalcade, to the highest again on



the sorghum stubble at 28 kg/hd.

Overall, the sorghum stubble produced the best weight gains, with Cavalcade producing the least. Whether the Cavalcade paddocks offset this low cattle production by producing higher yielding sorghum crops in the rotation, due to increased soil N levels has yet to be determined.

The high stocking rate (3 hd/ha) resulted in the greatest weight gain on a kg liveweight per hectare basis for the August to November period, ranging from 26.5 kg/ha for the second year Cavalcade to 83.5 kg/ha on the sorghum stubble. However, it was the deterioration of the high stocking rate paddocks which determined that the pasture paddocks were destocked by mid-November. The sorghum stubble paddocks were not destocked until early December. The Ley Systems Project aims to find the optimum rate to give the best weight gains, as well as being able to keep the cattle in the paddock - either for the entire year in the case of second year pasture, or up to sowing time for the crop phase with required mulch levels.

Figures 2 and 3 illustrate the trends in cattle weights for the second year pasture and the sorghum components of the project. The weight gain trends for the Dry Season grazing on the Ley Systems paddocks are indicated up to the arrow. After this, cattle were

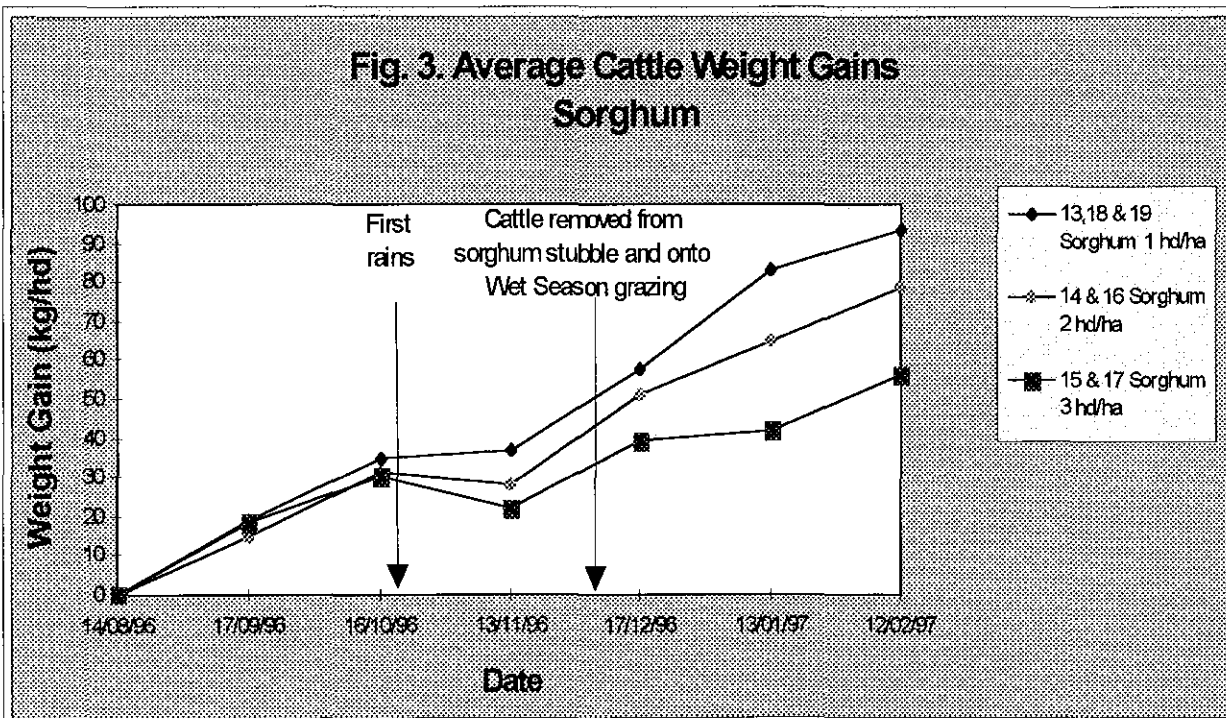
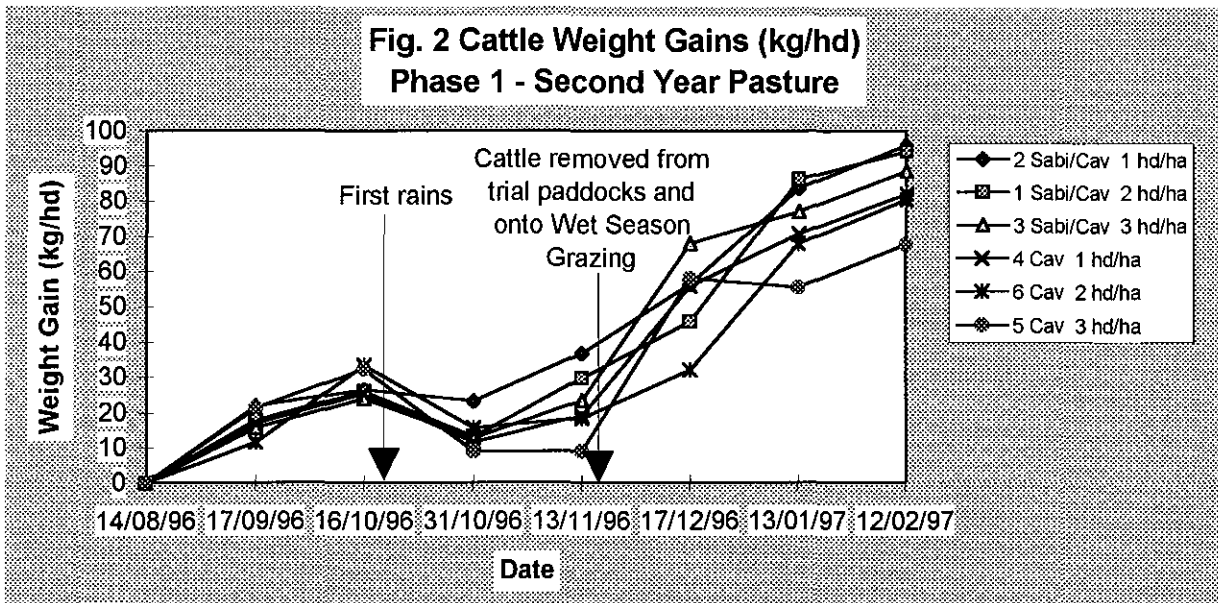
removed from these paddocks and put onto improved (sabi) and some native pasture for the Wet Season. Individual paddock numbers are not applicable for the Wet Season grazing, but will be useful in determining if cattle compensate for the stocking rate and pasture treatments imposed over the Dry Season grazing. So far, there is no evidence of compensatory gain - the poor doers from the high stocking rate treatments have not yet caught up with the better achieving cattle from the low stocking rates. The legend indicates the paddock number (there are 19 paddocks in total), the pasture treatment (mixed, legume only, or sorghum), and the stocking rate. The sorghum stubble paddocks produced the best weight gains for a longer period of time (60 kg/hd over approx. 110 days for the low stocking rate) than either of the two pasture treatments (only grazed for @ 90 days). It is expected the sorghum stubble weight gains should again be the highest this season, with stubble plus regenerating pasture as the feed source.

As expected, the break in the season, indicated by the arrow, caused cattle weights to slump - particularly in the legume paddocks, with cattle at the high stocking rate needing to be removed early to avoid dramatic weight loss and degradation of the paddock.

Differences in grazing intensity did cause some difficulties in mulch levels for planting this season. The integration of pastures, cattle and crop production requires careful management. Paddocks have to be monitored to obtain optimum mulch levels when required for planting, without jeopard-

ising cattle weight gains. The Ley Systems Project will continue to evaluate the integration of crop, pasture and cattle production, and how production will vary with season.

Rowena Eastick  
Systems Research



## REDCLAW FOR AQUACULTURE

Redclaw (*Cherax quadricarinatis*) is a tropical freshwater crayfish native to rivers of northern Australia and south east Papua New Guinea. The male of the species can be recognized by the distinctive red membrane on their claws. Its Australian distribution is the river systems which drain into the sea from the Daly River across the Northern Territory, around the Gulf of Carpentaria and includes some rivers on the eastern side of Cape York. If anyone has seen them south of the Daly River I would appreciate them dropping me a line. Redclaw is regarded as a promising candidate for aquaculture because it has a fast growth rate and will grow at high densities. In contrast to its southern cousin the yabby, redclaw are relatively non-aggressive.

While redclaw have shown promise, their production has not grown in to a major industry as yet. A major problem is that yields achieved in research trials have not been duplicated in commercial practice. Yields in commercial sized ponds at DPI's Walkamin Research Station (North Queensland) have yielded as high as 5 tonnes/ha. In commercial enterprises, however, yields of 1 - 3 tonnes/ha seem to be the rule. A check in the early history of the redclaw and yabby industries was the collapse of some highly publicised 'tax haven' type schemes. Marketing in a small and developing industry was also a problem, though much progress has been made.

Redclaw in their native state feed on decaying organic matter. In aquaculture, their feed can be supplemented by grain based pellets, raw grain, hay or some combination of these. Unlike many other organisms, redclaw have been found to get much of their protein requirements from the bacteria which feed off decaying vegetation or feed pellets. Ponds are fertilized to create algal blooms to promote natural food supply. Care should be taken to avoid pesticide contamination.

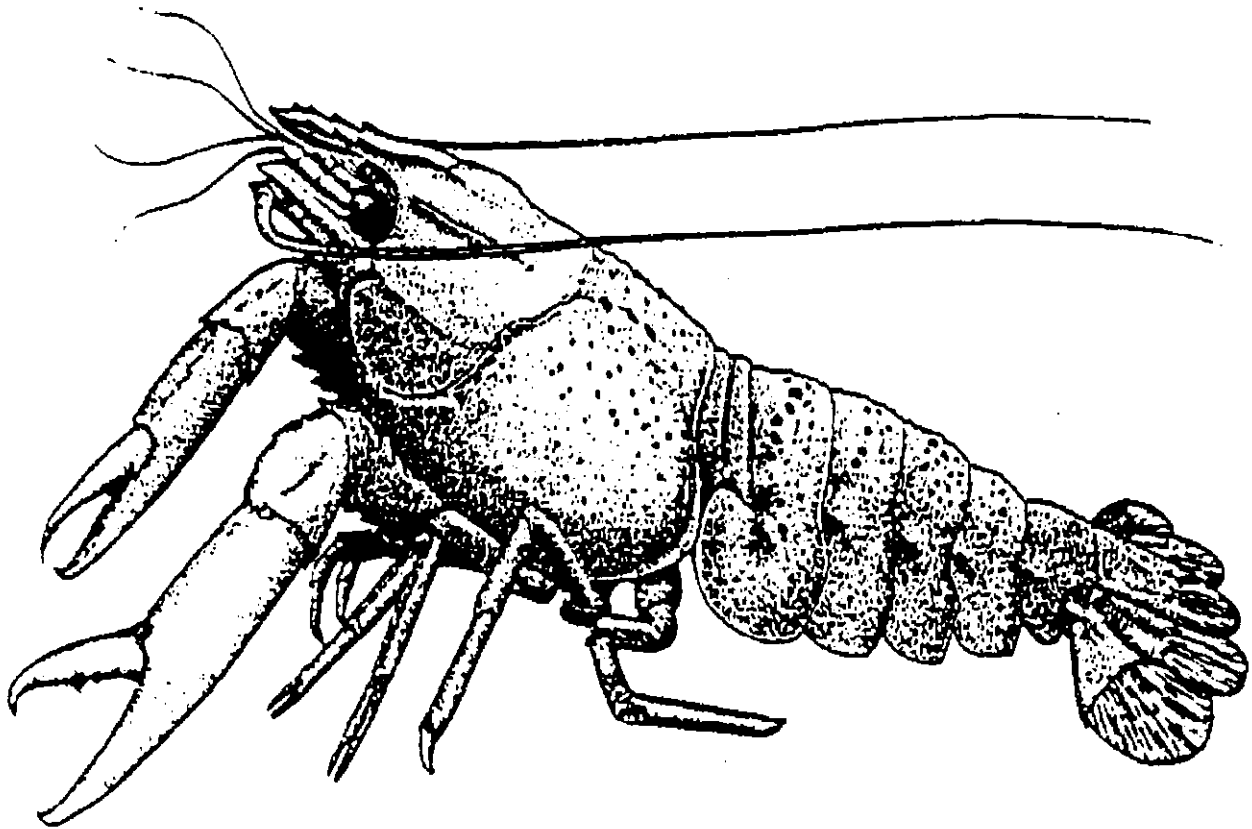
Crustaceans are closely related to insects, so are susceptible to small doses of pesticides in feed, from spray drift or in run-off water.

Aeration is an essential component of intensive redclaw rearing. While they are less susceptible to low levels of dissolved oxygen than many other aquaculture species, supplementary aeration is needed for enhanced production. Aeration can be supplied via paddle wheel aerators, injectors or blowers. The capital and operating costs of supplying electricity to power these can be a major cost to a redclaw enterprise.

Despite the fact that redclaw are relatively non-aggressive, they require artificial shelters for intensive production. Crustaceans are typically vulnerable during and soon after moulting, particularly juveniles. Even at other times, the continual stress of interactions with other redclaw can depress growth. Commercially, a number of different types of shelters have been tried. Bundles of onion bags or shadecloth-like material seem to be a good idea. Some growers use car tyres but these hinder harvesting.

Predation can be a major problem in redclaw culture. Cormorants, night herons and water rats are the main problem in Queensland but there could be others here. Water monitors are one predator that springs to mind. Predators that walk in are usually discouraged by low barrier fences and electric wires, while the predators that fly in to dine are discouraged by netting or wires/twine strung across ponds.

One of the newer concepts for redclaw culture is the stocking of males only, as growth rates are significantly higher than mixed sex and female only stocking. There also appears to be great potential for breeding programs to improve growth rate via hybridisation, and selection of fast growers for



broodstock. The recommended ratio of males to females in broodstock ponds is 1:4. To facilitate harvesting of juveniles, a large number of onion bag or shade cloth hides are provided in broodstock ponds. These are periodically lifted and shaken to dislodge the juveniles into a collecting container.

Enterprises will need an aquaculture licence before they can legally sell their product. An aquaculture licence currently costs \$508/year. Securing an aquaculture licence involves gaining approval from a number of government departments/authorities but this is done via the Aquaculture Branch of DPIF. Fortunately this process is one of the most streamlined of its kind in Australia. Landholders should be aware that there are restrictions and penalties which apply to dam and pond building on anything but a small scale. One of the advantages of the licencing system is the advice that investors can receive on the design of their aquaculture system prior to commencing. One of the important factors for commercial

scale enterprises is site selection. Often people have a block of land and think, 'what can we do with it'. Sometimes this leads to people establishing primary production enterprises on land which is economically marginal for the purpose. Serious investors who have decided on an organism to culture should devote considerable effort to finding a site with attributes favourable to that type of aquaculture.

Farm dams are suitable for stocking red claw but the results will be variable, depending on factors such as natural food supply, predators, mortalities caused by low levels of dissolved oxygen, etc. Farm dams should be stocked with red claw caught in the same river catchment (eg Daly River catchment, Adelaide River catchment) so as to avoid contamination of the genetics of the wild stock. A permit is required to move aquatic life between catchment areas.

Brian Cann  
Economics

## **CATHORMION UMBELLATUM: A USEFUL NATIVE FODDER TREE?**

During an extension visit in September 1995 to Murwangi Station near Ramingining in Arnhem Land, we noticed a distinct grazing line (by cattle) on a grove of a native leguminous tree. The cattle had grazed all the leaf that they could reach, and had eaten the pods and had apparently licked up the dead leaf from the ground under the trees.

The tree was *Cathormion umbellatum*, a native shrub or tree which grows to 7 m high. It can be found in coastal monsoon vine-thickets, monsoon forests along freshwater streams, lowland wetlands, along streams, and around billabongs, floodplain fringe country and on shallow black soil plains. It is commonly found on seasonally inundated heavy clay soils. It has been found in a number of districts between and including the Victoria River District and Arnhem Land.

This small tree has glossy leaves which are a shiny bright green when new. The tree is deciduous, shedding its leaves in September - October and producing a new crop of leaves soon after shedding. Cream flowers are also produced at this time of the year.

Young plants have thorns, but cattle still eat the leaves as shown in the photograph below.

Samples of green leaf and twigs have contained 2.4-2.5% N (15-15.6% crude protein) and .11-.24% P. Dead leaf contained 1.4% N (8.8% CP) and .04% P while seed and pods contained 2.7% N (16.9% CP) and .15% P. This tree obviously provides a good quality protein supplement for cattle or buffalo where it occurs. There are stories by the late Don Tulloch of fat buffalo bulls camping under *Cathormion* trees on the floodplains and chasing other starving buffalo away to protect their food source in a prolonged dry season.

Don Reilly has included *Cathormion* in his tree evaluation on the Blain soil at Douglas Daly Research Farm. So far, it has shown slow growth but good survival.

*Cathormion* can be grown from seed. After some more testing, it may be used as a planted fodder tree or as a shade tree or as a screening plant. Whether it will grow well in drier habitats than where it is usually found, remains to be seen.

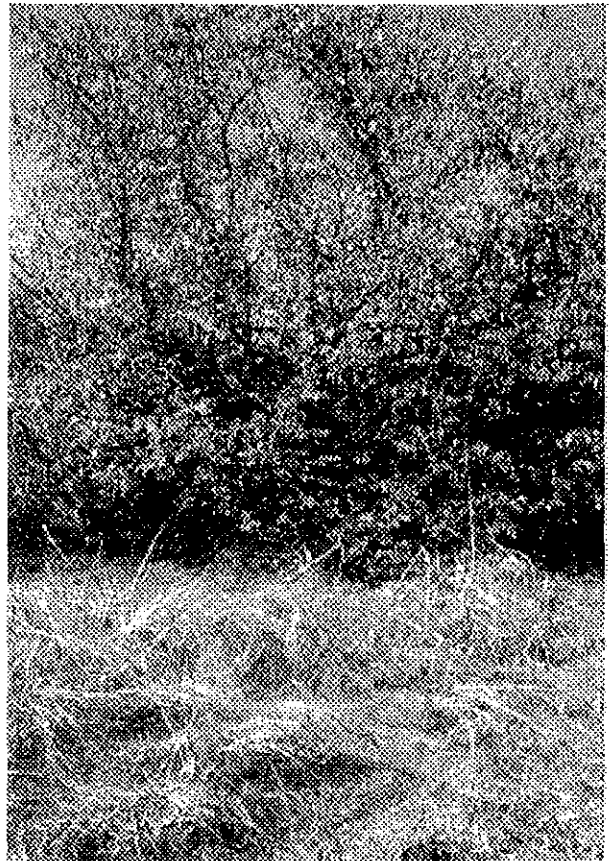
Arthur Cameron  
Principal Pastures Agronomist



*Cathormion* leaves and flowers



*Grazing line on Cathormion trees*



*Ungrazed trees nearby.*



*Small trees defoliated by cattle.*



*Small tree showing floodline at 1 m on foliage.*

## ACCESS TRACKS, FIREBREAKS AND FENCELINES - PRIME CANDIDATES FOR EROSION

Access tracks, firebreaks and fencelines are three things that you will find on most farms and stations and in most cases there will be soil erosion involved, some minimal and some severe.

Severe erosion can be drastically reduced by thoughtful planning and correct constructions of drains and banks for water removal.



*Erosion of farm tracks can severely limit access.*

The following factors should be given careful consideration when planning an access track:

- a) purpose of the track
- b) type and volume of traffic
- c) soil erosion hazards present along the track (see opposite)
- d) drainage line crossings
- e) topographic restrictions e.g. rocky outcrops, swamps
- f) vegetation types, plant density and size

Once these have been considered and you are ready to locate a track, further points to consider are:

- 1) follow the contour of the land avoiding steep slopes
- 2) use topographical maps to locate obstacles to be avoided
- 3) select a route and walk it to ensure it is the best option
- 4) use natural features such as flat benches and shelves on hillsides
- 5) keep the track far enough from a stream

to allow an effective vegetation buffer to contain any sediment flowing from the track

- 6) avoid physical features which may indicate the possibility of mass movement e.g. soils with very high erodability
- 7) avoid crossing long, steep, unstable slopes
- 8) minimise disturbance to trees, scrub, or any other flora when working in sensitive areas such as National parks. Where Aboriginal and other historical artefacts are known to exist, particular care should be taken to preserve them.

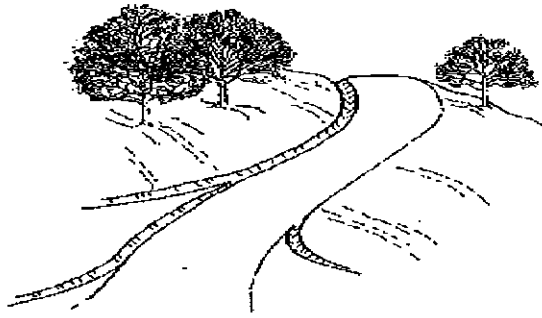
Effective surface drainage is required on tracks to control runoff, preventing it from concentrating and reaching erosive speeds. A number of techniques can be used to provide surface drainage, one of which is to provide crossfall drainage - crowning, infall and outfall.

1. crossing - tracks constructed on ridges or gentle slopes should be crowned which will allow water to be shed to both sides of the track
2. outfall - occurs when the surface of the track is built sloping away from the hillside
3. infall - occurs when the surface of the track is built sloping into the hillside.

Outfall drainage is preferred to infall and should be used except when (a) fill batters are poorly consolidated and likely to erode (b) fill batters exceed 1.5 m in height.

### **Tabledrains**

Tabledrains are the side drains of a track and run parallel with the shoulders of the track. They are usually parabolic in shape and drained at pre-determined intervals by culverts, cross banks or mitre drains.



Mitre drains carry runoff away from the track

### Mitre Drains

Mitre drains carry water from the table drains of a track to a safe disposal area and are so called because of the angle they usually make with the direction of the track. Spacing intervals for mitre drains should not exceed 50 m and the drainage slope not exceed .5% i.e. 5 cm drop over 10 m.

### Cross Banks

Where runoff cannot be controlled simply with outfall drainage, banks can be constructed across the track to intercept runoff and direct it across the track. Cross banks, if correctly built, are easily negotiated by vehicles and achieve long-term and low maintenance drainage.

### Spoon Drains

Spoon drains are similar to cross banks and are built by dragging a small depression across the track and thinly spreading the excavated earth along the track. Spoon drains can be used on any slope, especially where the slope is too high to successfully construct cross banks.

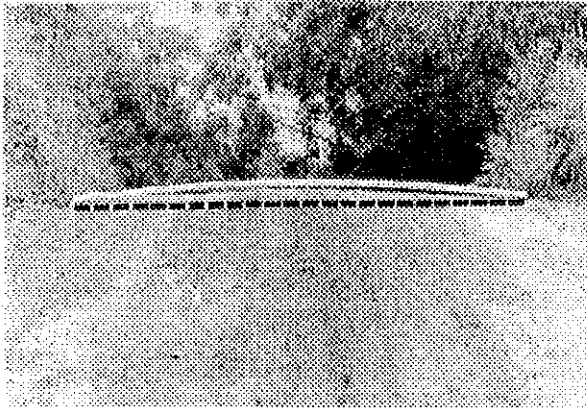
### Erodibility according to Soil Type

Soil Type	Soil Characteristics	Erodibility
Class A	Brown & Red Soils derived from fine sediments	Low Soil Erodibility
Class B	Red soils on fine granites fine sandstones and basalt	High soil erodibility
Class C	Grey and yellow soil derived from granites, sediments and metasediments, especially coarse grained types	Very high erodibility
Class D	Unconsolidated sediment	Extreme soil erodibility

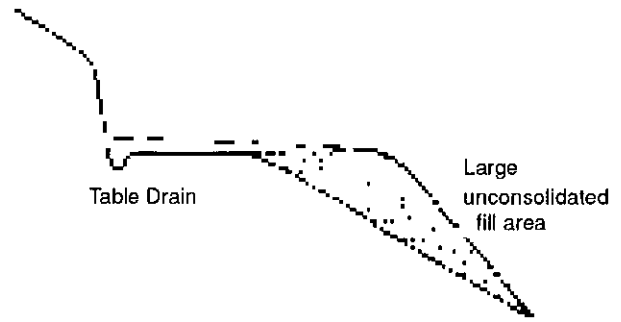
### Cross Bank Spacing

Road Grade	Soil Class A	Soil Class B	Soil Class C
Up to 14% (8°)	70 to 90 m	60 to 70 m	20 to 30 m
14% to 21% (8°-12°)	60 to 70 m	50 to 60 m	*
21% to 28% (12°-16°)	40 to 60 m	*	*
28% to 36% (16°-20°)	30 to 40 m	*	*
36% to 40% (20°-22°)	20	*	*

Note: \* indicates that tracks should not be constructed on these soil types within the slope range.  
 Note: Where tracks are constructed on slopes exceeding 21% (12 deg), only light and infrequent traffic should be allowed.



*Crowning of a track on a ridge*



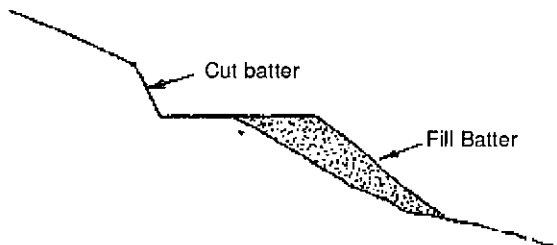
*Infall drainage*

## Road Batters

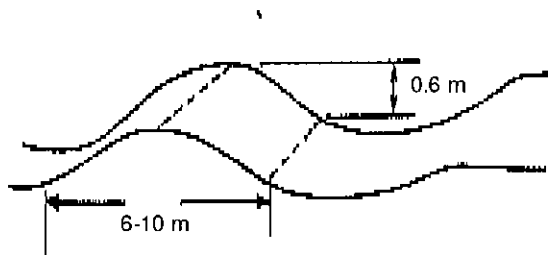
A road batter is a constructed earth slope either of placed fill material or cut into the natural hillside.

To minimise the area of exposed soil cut batters to 1.5 m should be cut vertically. Cut batters higher than 1.5 m may require special stabilisation measures including laying back, revegetation and drainage.

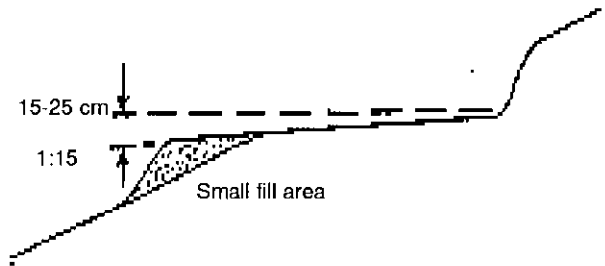
Fill batters on all soil classes should be no steeper than 1:2 and flatter where possible.



*Road Batter*



*Typical cross bank dimensions.*



*Outfall drainage.*

## Maintenance

Frequent maintenance of access tracks and associated banks and drains is essential especially for the first year or two after construction to ensure soil consolidation and establishment of vegetation. If rilling occurs on the track surface, then there may be insufficient crossfall or cross banks are spaced too far apart. This should be noted and modifications made to remedy the problem.

In the next addition of Top Paddock, I will explain constructing cross banks, drainage line crossings and fence line maintenance.

Text and illustrations provided courtesy of NSW Dept. of Land and Water Conservation.

Ben Beumer  
Extension Officer

**TAILTAGS OR EARTAGS FOR INTERSTATE CATTLE MOVEMENTS**

Cattle travelling to abattoirs and saleyards in other states require to be identified by tag with the tailtag number or property identifier number (PIN).

For all states except Western Australia :  
 - EARTAG or TAILTAG

To Western Australia  
 - TAILTAG

NT tailtags for TB free cattle are yellow with black printing, or pink with black printing (if HGPs free).

**HGP FREE**

In order to be eligible as HGP free a pink HGP free eartag or tailtag is required.

**AGNOTE**

An agnote on the movement of cattle from the Northern Territory to interstate destinations is being prepared and should be available during April.

**TAILTAGGING CATTLE MOVING WITHIN THE NT**

Cattle moving within the NT may have to be tailtagged. The following provides a summary of the requirements.

**Stranger cattle** - all stranger cattle must be tailtagged.

**Live Export** : - no tailtagging required

**NT cattle moving to NT properties** - no tailtagging required (movement permitted only from properties at CF2, CF3, MN and TN TB status)

**NT cattle moving to NT abattoirs or saleyards** - all cattle from properties with **any part** of the property at IN, RD, PC, SU or CF1 TB status **must** be tailtagged.

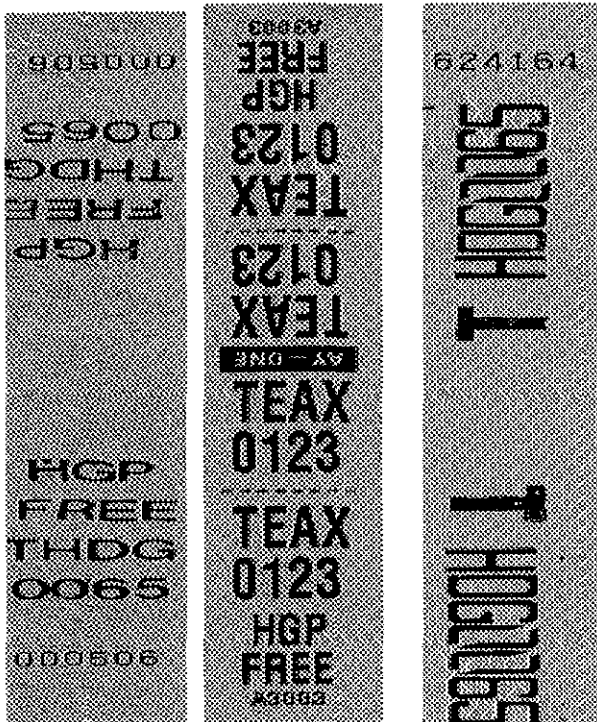
**NOTE:** Cattle at IN, RD, PC or SU TB status may only move to abattoirs for slaughter or for export (if eligible) and must also be painted on the back with yellow paint.

However, cattle sent to the Alice Springs yards should be tailtagged or eartagged to be eligible for movement Interstate.

**REMEMBER:** Write the correct tailtag number on the Waybill, even if the cattle don't have to be tailtagged.

There is a penalty of \$1,000 and an on-the-spot fine of \$200 for offences. There will be regular compliance monitoring at saleyards and abattoirs.

Brian Radunz  
 Deputy Director, Animal Health



Tailtags

## CROCODILE MEAT FOR HUMAN CONSUMPTION

Crocodile meat has been consumed by the aboriginals in Australia since their existence. It is thought by many people that consumption of crocodile meat is illegal and unhealthy. In fact, it is legally sold all over the world and is one of the healthiest meats that can be eaten.

All meat that is used for human consumption has to be manufactured to a code of practice. Crocodile meat is no exception, it is produced in abattoirs that meet the "Australian Code of Practice for Veterinary Public Health".

There are six standard meat cuts produced. They are leg meat, body meat, jowls, tail fillets, backstrap and tail eye cuts. Whole body carcasses are also produced upon request. The potential for crocodile meat in the commercial environment is promising and there are already ideas of potential meat cuts, such as rack of ribs, neck fillets, and leg with the bone.

Crocodile meat is white and is usually served lean. The fat surrounding the meat has an unpleasant flavour. The meat has a higher nutritional composition than traditional meats, although the cholesterol levels tend to be slightly higher. Crocodile meat has a rather gentle flavour, and in most instances can be enhanced by addition of various herbs and spices sparingly to taste.

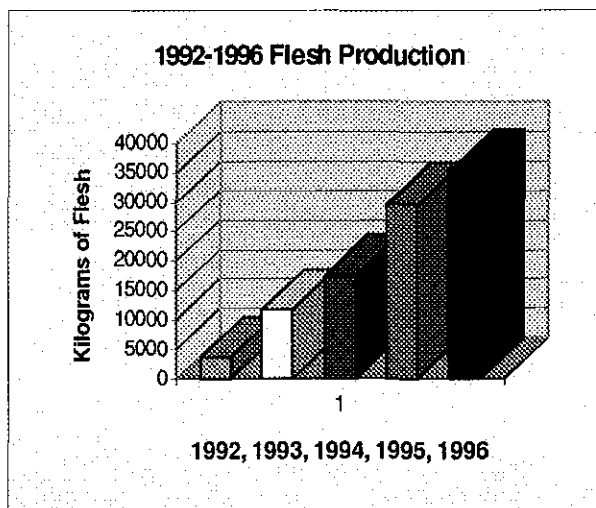
It can be grilled, stir-fried, BBQ'd and smoked. Basically crocodile meat can be prepared like any other white meat and similarly to most red meats. Preparation is easy and takes no more than most other meats.

Although widely accepted in many other countries, crocodile meat still has a long way to go in Australia, before it is accepted as a regular every day meal. One day in the near future we could be serving leg of crocodile, instead of leg of lamb! Crocodile tail is al-

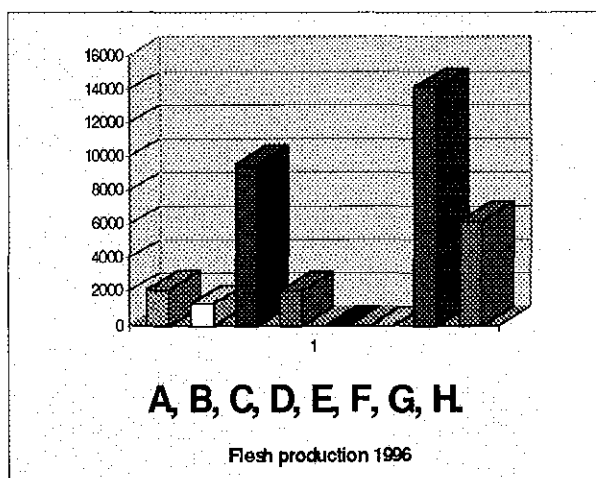
ready proving popular with seafood outlets.

A recipe booklet for cooking crocodile meat is available. "Never Smile at a Crocodile - An Australian Culinary Adventure" by Klemens Hedenig 1994. (Lecturer) NTU School of Tourism & Hospitality - Little Gem Publications.

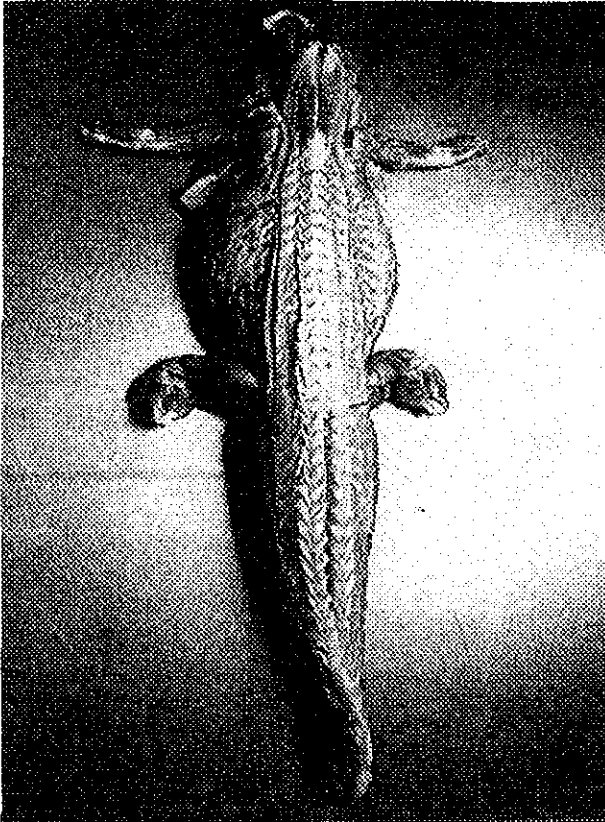
Vicki Simlesa  
Crocodile Section



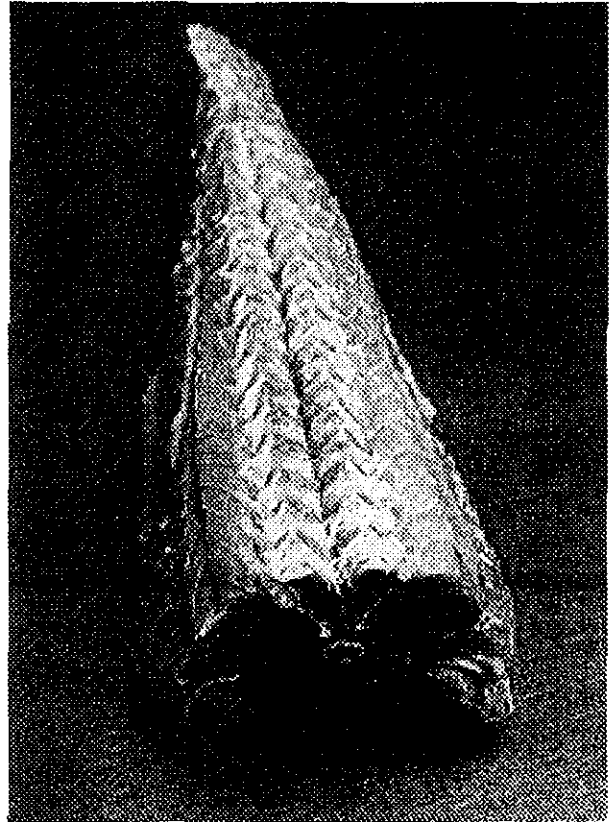
*Crocodile flesh production 1992-1996..*



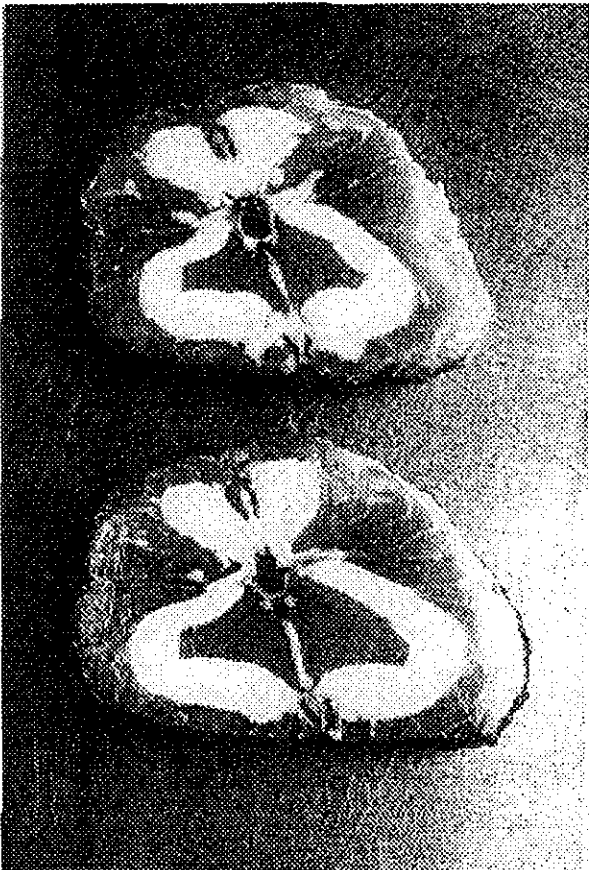
*Meat production from NT Crocodile Farms*



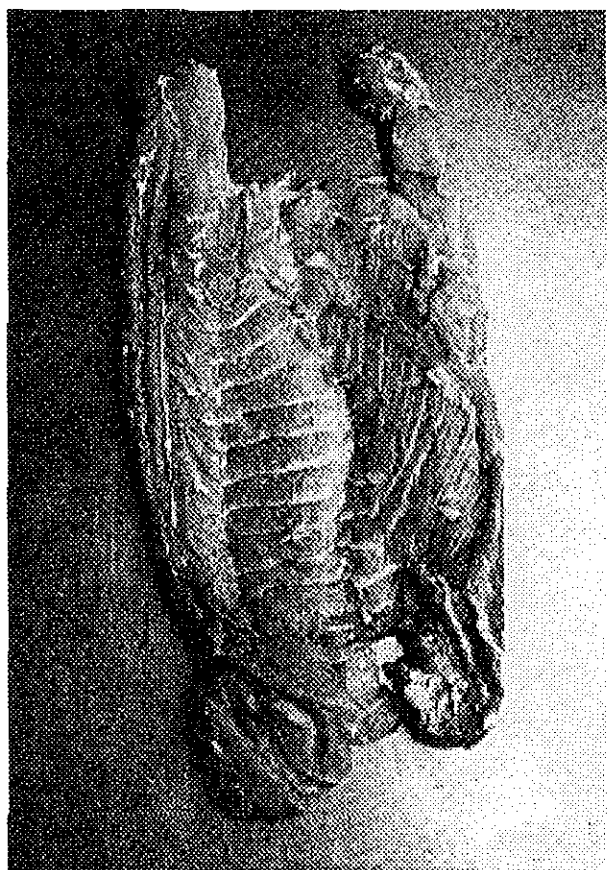
*Whole Body*



*Tail*



*Tail Cutlets*



*Crocodile Body Meat*

## PROPERTY MANAGEMENT PLANNING EVENTS FOR THE NEXT FEW MONTHS

Activity for property Management planning has picked up pace after the festive season break with 9 events held since New Year and more events planned. Tho on-going industry support has been excellent and continues to point towards PMP being viewed as a worthwhile process.

**April 12<sup>th</sup>**- Katherine Research Station Farm and Garden Day

**Week of April 14<sup>th</sup>** - Follow-up of Harvestable Resources Forum for the Lower Mary River Landcare Group.

**May 2<sup>nd</sup>** - Local Consensus Data Group meeting at Stirling to discuss Property Management Planning.

Other events that are in the pipeline but have not had dates finalised at the time of writing this article are:

Business Planning in Katherine and Tennant Creek

GPS operation and map reading for Ramingining

Aerial surveying (monitoring) of wetlands for indigenous people - Maningrida

Succession planning for Alice Springs area

Access track and property layout for Julalikari group - Tennant Creek

For any information on the above events please contact Narelle Campbell, Daryl Parker, Andy McMillan or your local DPIF Office.

Narelle Campbell  
Property Management Planning.

## HOW SAFE IS THE FARM BUSINESS?

You know how far it is to the back paddock or the depth of the house bore or the height of your favourite horse. However, how do you measure your business performance? Or you may like to ask the question "How safe is the business?"

In this article I will look at Equity as one measurement of business performance and safety.

For most people, physical measurements are easy. The speedo on the Toyota still worked when you took it out to the back paddock for the first time. The driller knew how many lengths went down the hole when he was drilling and you got the details. As for horses ..... they don't have hands in any case.

Now everyone knows Equity, or more specifically not enough of it, is the excuse the bank manager uses to refuse a larger overdraft or loan. But there is more to it than that. Consider the following:

*"Your equity in your business is the amount that you would receive if all of the business was sold and after all debts were paid off".*

In other words it's what you **own** less what you **owe** and is normally expressed as a percentage of the total value of the business. It involves not only land and improvements, but also livestock and machinery. It may also include produce which you still have on hand to use yourself or which you intend to sell at some future time. For the moment I won't consider other "off-farm" assets such as the penthouse on the Gold Coast.

Consider the case of Jack Ringer.

Land & Improvements	\$300 000
Livestock	\$350 000
Plant & Equipment	\$50 000
Total Assets (A)	\$700 000

Bank Loan	\$100 000
Total Liabilities (L)	\$100 000
Equity (E = A - L)	\$600 000
Equity % (E/A x 100)	86%

Having established what Equity is, the next question is "Why is it important?" Equity is a measure of the "safety" of the business and its ability to survive with low returns. For primary producers this generally comes about through low prices or low production, factors which are often beyond the direct control of the producers.

This has two important aspects to it. Firstly, with lower returns, a higher proportion of the business income is required to cover the finance costs. Secondly, from the Bank's point of view a higher equity level means a safer loan.

General rules of thumb on Equity are:

> 90%	usually very safe
80 - 90%	only risky with low returns
70 - 80%	only safe with high returns
< 70%	risky, returns may not cover debt.

Consider Jack again. He figured that by borrowing an extra \$300,000 and expanding his production he could improve his profit by 70%. He is looking at borrowing funds at 11.5%p.a. over 15 years.

	Before	After
Total Assets (A)	\$700 000	\$1 000 000
Liabilities (L)	\$100 000	\$ 400 000
Equity (A-L)	\$600 000	\$ 600 000
Equity %	86%	60%
Profit (before finance costs)	\$ 55 000	\$ 93 000

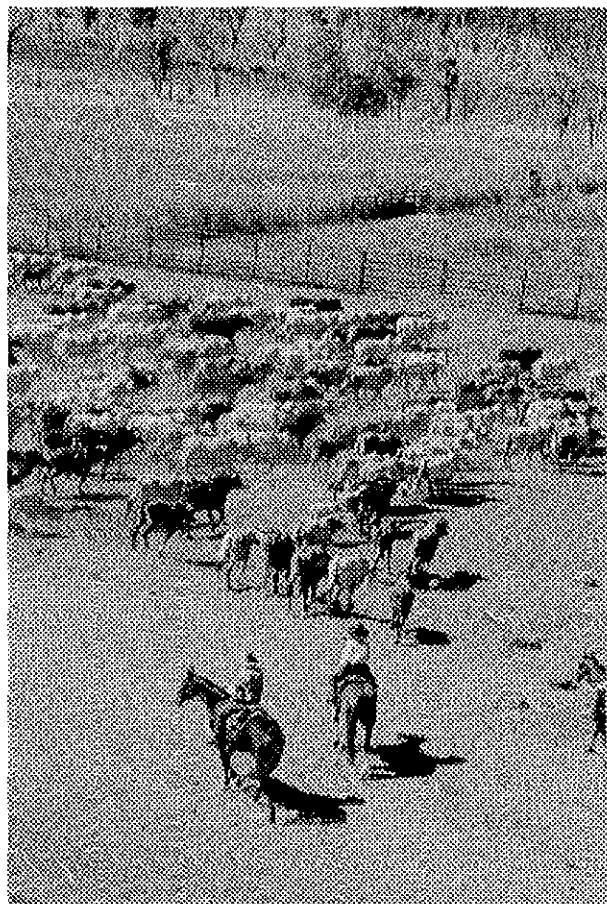
Finance costs	\$ 14 800	\$ 58 800
Profit (after finance costs)	\$ 40 000	\$ 34 700
Family drawings	\$ 30 000	\$ 30 000
Surplus	\$ 10 800	\$ 4 700

(Finance costs include interest & principal). In this case Jack has reduced his final surplus even though he significantly improved his profit before finance costs.

To come back to the original proposition of "How safe is the Farm?" Has Jack's position improved or does he just have more work and worry? How would a 10% drop in returns affect him?

In future articles I will look at other measures which can be used to assess business performance, and will follow Jack's performance.

Daryl Parker  
Property Management Planning



*Is your equity high enough?*

## WORLD MARKET FOR SESAME SEEDS

Sesame seeds (*Sesamum indicum*), also known as benniseed, gingelly, sim sim, and til, are supplied to markets in North America, Europe, and East Asia by countries in Africa, Latin America, and South Asia. The main use of sesame in Asia is to extract the oil for use in cooking. In North America and Europe, raw sesame seeds generally are used for toppings on breads such as hamburger buns, bagels, bread sticks and other baked goods. Restaurants and natural food store customers purchase sesame seeds for use in ethnic dishes. Middle Eastern countries use sesame seeds for tahini paste and halvah, as well as for oil.

There are different types and qualities of sesame seeds. White seeds are a white to golden colour and receive a higher market price than mixed seeds, which range from yellow to dark brown. White seeds are used primarily in raw form because of their aesthetic value, whereas mixed seeds are generally crushed into oil.

The value of sesame seeds depends on their purity, expressed as a percentage, and oil content, which should exceed 50 percent. Hulling seeds, or removing their thin husk, increases their value as does bleaching hulled (husk removed) seeds. Moisture content and free fatty acid content are also important in assessing value. The highest-quality sesame seeds are produced in Central America, primarily in Guatemala.

Sesame seeds are harvested like most other grains. Seeds must not be stored in very hot conditions after harvesting because heat can render the oil rancid. If stored at 18 degrees Celsius and at a relative humidity of 50 percent, sesame seeds will keep for a year.

### World Production

Sesame seeds are produced in relatively hot and dry regions because the seeds are

adaptable and drought resistant. In 1994, world production of sesame seeds was 2.5 million metric tons. India, China, Sudan and Myanmar (Burma) were the world's top producers that year (see Table).

China is the world's largest exporter of sesame seeds and continues to increase exports, however, it is also a very large importer. India is the largest producer of sesame seeds. The primary importers are Japan and Korea.

Because of the prevalence of sesame seed oil in Asian cuisines, this region is by far the largest importer of sesame. In 1993, Asian imports amounted to 72.6 percent of world sesame imports. In that year, Japan, Korea, China, and Singapore were among the top six sesame seed importers, with Japan accounting for almost one quarter of total world imports. Japan imports most of China's exports and the prices Japan pays for these exports act as a benchmark for the international price of sesame.

China also imported 4315 metric tons of sesame seeds in 1995 worth US\$1.7 million. Myanmar supplies almost all of China's sesame imports, which are then coupled with China's domestic production to be exported to Japan.

### Australian Production

Australia currently imports 10,000 tonnes of sesame seeds per year which is valued at \$11 million. At present very little of Australia's sesame requirements are produced domestically. In 1993 / 94 Australia produced an estimated 50 tonnes of sesame which received between \$1000 and \$1300 per tonne. This is a similar price to that paid for imported sesame seeds. Seed which had been hulled (husk removed) commanded \$1850 / tonne.

By way of comparison, the United States pays AUD\$1900 to \$3200/metric tonne for

hulled sesame seeds. Both Australia and the US, along with Europe and New Zealand, are seen as good markets for top quality, clean sesame seed.

The bulk of this article has been reproduced from "Market Asia" vol 3, issue 5, 1996. The Australian data is sourced from "Proceedings of First Australian Sesame Workshop" 21 - 23 March 1995, M.R. Bennett & I.M. Wood (eds), Published by Betta Concepts, NSW.

Collated by Meredith Sullivan, Trade & Business Services, DPIF.



*A good crop of sesame pods.*



**Table 1: Leading Producers and Exporters of Sesame Seeds**

Country	Production 1994 MT (000)	% of World Production	Exports 1993 MT (000)
India	800	28	52
China	540	19	130
Sudan	221	8	49
Myanmar	187	7	62
Uganda	75	3	8
Nigeria	50	2	4
Mexico	50	2	18
Vietnam	28	1	28
Guatemala	26	1	28
Tanzania	25	1	9

## NT LIVE CATTLE EXPORTS, 1996

### Total Live Cattle (NT & Interstate) Exports via Port of Darwin

Year	No of head	change	% change
1995	295,814		
1996	383,535	87,721	29.7%

### NT Live Cattle Exports via Port of Darwin

Year	No of head	change	%change
1995	135,014		
1996	189,918	54,904	40.7%

### Interstate Live Cattle Exports via Port of Darwin

Year	No of head	change	% change
1995	160,800		
1996	193,617	32,817	20.4%

### Total NT Live Cattle Exports via Port of Darwin & Wyndham

Year	No of head	change	% change
1995	143,321		
1996	199,044	55,723	38.9%

### Total Value of NT Live Cattle Exports \$'000

Destination	1995	1996
Brunei	3,164	2,123
Indonesia	27,187	47,995
Philippines	28,296	29,024
Malaysia	7,006	5,643
Egypt	0	285
<b>TOTAL</b>	<b>65,653</b>	<b>85,070</b>

### Total Australian Live Cattle Exports Overseas

Country	Total Australia	NT	NT%
Japan	15,039	-	-
Singapore	100	-	-
Malaysia	44,842	13,253	29.6%
Brunei	4,041	3,467	85.8%
Philippines	203,010	73,505	36.2%
Indonesia	377,131	108,819	28.9%
Thailand	1,292	-	-
Other Asia	260	-	-
Middle East	11,173	-	-
Egypt	49,310	527	1.1%
All Other Countries	16,887	-	-
<b>TOTAL</b>	<b>723,085</b>	<b>199,571</b>	<b>7.6%</b>

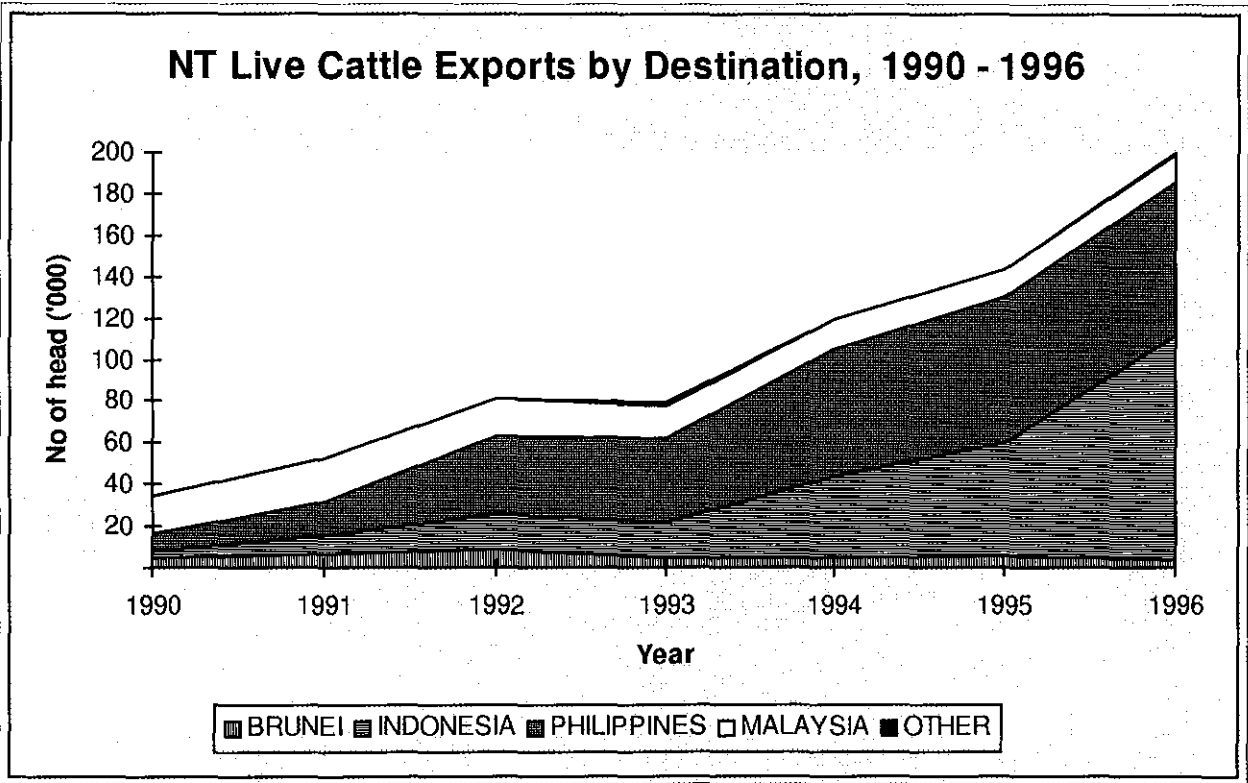
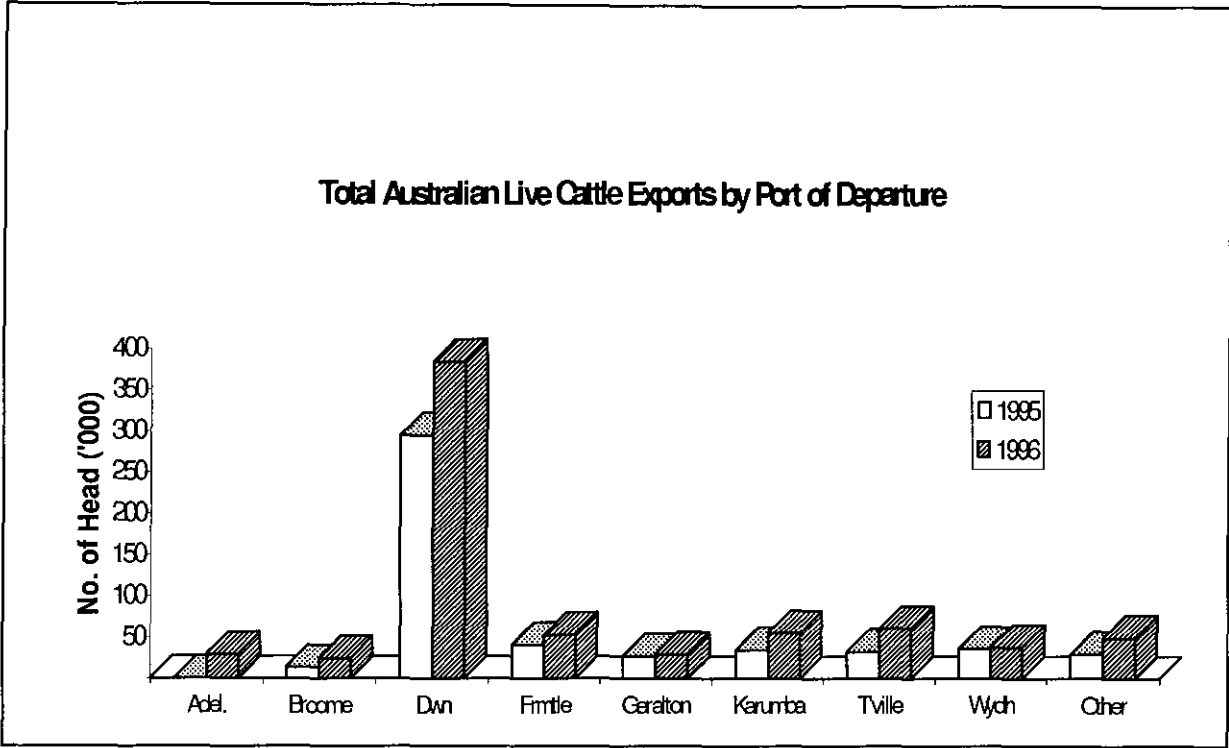
### NT Live Exports via Darwin ,Wyndham & Adelaide Ports

Destination	1989	1990	1991	1992	1993	1994	1995	1996
Brunei	5,731	4,433	6,624	8,235	4,661	4,740	5,693	3,467
Indonesia	272	3,089	8,960	17,972	17,278	38,870	54,163	108,819
Libya	0	0	0	0	1,211	0	0	0
Philippines	21,377	8,990	15,582	36,569	40,193	61,791	70,311	73,505
Malaysia	17,749	17,901	21,855	18,577	15,132	14,191	13,154	13,253
Egypt	0	0	0	0	0	0	0	527
Thailand	0	0	0	0	764	0	0	0
<b>TOTAL</b>	<b>45,129</b>	<b>34,413</b>	<b>53,021</b>	<b>81,353</b>	<b>79,239</b>	<b>119,592</b>	<b>143,321</b>	<b>199,571</b>

### Total Live Exports (incl. Interstate) through Darwin Port

Destination	1989	1990	1991	1992	1993	1994	1995	1996
Brunei	5,856	4,477	6,422	8,235	7,776	5,153	6,008	4,041
Indonesia	787	3,599	8,674	16,085	33,780	66,329	129,208	232,207
Libya	0	0	0	0	1,291	0	0	0
Philippines	18,404	6,953	15,143	47,971	77,194	89,529	143,884	124,284
Thailand	0	0	0	0	1,269	0	0	820
Malaysia	9,735	9,424	14,872	13,439	8,455	9,774	16,714	22,183
<b>TOTAL</b>	<b>34,782</b>	<b>24,453</b>	<b>45,111</b>	<b>85,730</b>	<b>129,765</b>	<b>170,785</b>	<b>295,814</b>	<b>383,535</b>

Shiw Murti and Chris Kraus  
NT DPIF Economics



## **RIVERINE CROSS BUFFALO PERFORMANCE EXCEEDS EXPECTATIONS.**

There have been two Tenderbuff shipments now through Litchfield Abattoir in recent months of 1995 crossbred buffalo and swamp progeny from CPRS and we are absolutely astounded by the quality of these Riverine crossbred carcasses compared with the swamp. Customers have also been contacting the wholesale butcher and remarking on the improved quality of current offerings.

The Crossbred appears to be presenting many advantages that will accrue to the producer, the wholesaler and the consumer.

In recent months (October '96 - February '97) the 1996 progeny crossbreds have shown exceptional growth performance in comparison with their contemporary swamp buffalo mates.

Over this time, growth performance by the crossbred weaners (October weaning) has been almost at twice the rate (781 g/day of 395 g/day - which works out at a 98% higher growth rate).

The mean liveweights in mid February 1997 (9-13 months age) are 292 kg compared with 212 kg for the swamp. At this rate of growth and at this time of the year, it will be possible to turn off Tenderbuff animals at 16-18 months of age provided the quality of feed on offer is maintained. This will be possible by using floodplain pastures and ponded pastures later in the year. These ponded pasture areas have been fully filled with water since early January.

So far, 20 head of Riverine cross animals have been slaughtered at Litchfield abattoir with none over 18 months of age. Normal turnoff with swamp progeny starts at minimum 26 months up to 32 months of age. This will create a significant improvement in the economics of buffalo production for

the industry just on this factor alone. Other advantages are also being revealed at the abattoir and also in the market place.

Some of these improvements are:

1. Higher dressed weights at a much younger age with sufficient fat levels to pass the Tenderbuff specifications - this will improve tenderness for the consumer.
2. A significant increase in eye muscle area which is a good indicator of a higher meat yield in the carcass - this will please the butcher in getting more edible meat and less waste for their money. This yield increase of saleable cuts as a proportion of the carcass appears to be around 2-3% higher. (74% vs 71% on initial figures).
3. A higher dressing percentage. This is of advantage to the producer who sells on a dressed weight basis, or the butcher who buys on a liveweight basis. In one group killed in February 1997, the difference was 3.5% 48.4% c.f. 44.9% on full non fasted liveweight off lush green pastures. Two heifers in top condition with carcass weights of 211 and 240 kg dressed out at 51.6% and 52% recently. They both were near maximum fatness allowable for Tenderbuff specifications and had been on a pangola grass paddock at Berrimah Farm.

The only disadvantage I can see at this stage is that in an extensive situation where there is minimal human contact, that these F1 animals may be more temperamental and will definitely need good weaner training to ensure their muscle pH when slaughtered is not too high to miss out on the Tenderbuff brand.

I would suggest that these crossbred Riverine buffalo will have a huge impact in those operations where good quality feed

(e.g. improved pasture is available) and good handling and training practices are carried out.

We now know that the use of purebred Riverine Bulls over swamp cows will produce excellent performing progeny for the

trade. (A terminal sire situation). It will however, be several years before we have fully assessed the performance of back crosses and their progeny.

Barry Lemcke  
Principal Livestock Management Officer



*Shots of Bill (Imported USA 1995) - Riverine Buffalo. Both photos show improved conformation of the Riverine compared with the Swamp type, particularly in the hindquarter.*

## SPOT CHECKS OF CATTLE MOVEMENTS

Stock Inspectors will be checking cattle trucks, at saleyards, abattoirs, export depots and export yards, as well as on the road.

They will be checking Waybills and interstate Health Certificates.

Industry representatives requested these checks.

Breaches of the legislation can result in prosecutions. In future, on-the-spot fines will also be used.

Owners, carriers and agents all have legal responsibilities. To avoid difficulties make sure trucks carry a properly completed Waybill and, if moving into or out of the Territory, the appropriate interstate Health Certificate.

Stock Inspectors will advise drivers about any minor problems with Waybills, brands or Health Certificates.

For further information, contact your Regional Stock Inspector.

Brian Radunz  
Deputy Director, Animal Health

### Sesame Contracts now Available

Huile Trading Co of Melbourne are interested in establishing forward Marketing contracts for all varieties of sesame seed.

They are also able to consider part financing of cropping operations on normal commercial terms.

Contact Lawrie Raymond on:  
Telephone: (03) 96 873 374  
Facsimile: (03) 96 896 185  
or  
Ian Quin  
Department of Primary Industry  
& Fisheries  
Telephone: (08) 89 992 242

## NATIONAL GRANULOMA SUBMISSION PROGRAM

The NGSP is an important adjunct of the Brucellosis and Tuberculosis Eradication Program (BTEC). It involves the submission of granulomatous lesions from cattle and buffalo slaughtered at abattoirs in order to monitor for tuberculosis (TB). Australian Quarantine and Inspection Service officers are responsible for detecting and collecting the lesions which, in the NT, are sent to Berrimah Veterinary Laboratories for histology and bacteriology.

During 1996 there were **65** granulomatous lesions submitted through the NGSP from the four domestic or export NT abattoirs. Five of these were TB - four from buffalo (one property) and one from cattle. The cattle lesion was particularly interesting - the histological diagnosis was 'indeterminate', and the bacterial culture grew *Mycobacterium bovis*. This demonstrates the benefit of culturing lesions, as well as examining them microscopically. The buffalo herd has been destocked, and the cattle herd will undergo destocking and TB testing once there is access after the wet season.

There is a good submission rate from NT abattoirs.

In addition to NGSP submissions, there are also samples from animals being destocked for TB as part of BTEC (where TB infection is known, lesions are not included in the NGSP). This contributed a further 20 lesions during 1996 - of which 16 were TB from the buffalo property.

Diana Pinch  
Veterinary Officer