Improving the performance of northern beef enterprises

Trudi Oxley, Beef Industry Development Officer, Katherine

Meat and Livestock Australia (MLA) have recently released a producer version of the Northern Beef Report; Situation Analysis 2013. This producer guide draws on the key findings of the report to give producers an overview, and most importantly how the information can be used to improve their own business.

The producer guide is intended to assist readers to:

• assess and understand their business and its strengths and weaknesses
• focus efforts by identifying important factors which have a big impact on performance
• remove distractions, by identifying factors which do not have a big influence on business performance
• develop their own roadmap to becoming a ‘good business’, or a better business.

The document provides some insights into what constitutes a “good” beef business. It describes definitions and considerations around key performance indicators (KPIs) such as profit and profitability, total business return, costs of capital and debt.

In order to assist producers in where to focus their efforts to make improvements in their business, the report demonstrates how key performance indicators such as income/Adult Equivalent (AE), operating expense/AE and profit/AE can be used as a road map to identify where the best opportunities for herd improvement can be found.

A particularly interesting aspect of the report is the breakdown in performance, and an explanation of the characteristics of the average performance across northern producers versus the Top 25%. The report highlights that “superior performance is largely a function of management, which is difficult to measure and quantify, but its impact is clear.”

An analysis of two comparable herds’ performance is used to illustrate how small differences in KPIs can lead to large differences in earnings, and therefore the potential for small tweaks in management to result in significant improvements to business performance. The report recommends using other tools such as the Cost of Production Calculator and Breedcow.

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Katherine Rural Review
Dynama, and workshops such as the MLA EDGENETWORK workshops (Business, Nutrition, Breeding and Grazing Land Management) in order for producers to identify changes that may assist in increasing their profits.

**Conclusions from the Producer Guide to the Northern Beef Report**

A ‘good business’ needs to generate significant after-tax profits to fund the needs of the owners and to be considered economically sustainable in the long term.

What it costs a business to produce a kilogram of beef (cost of production $/kg live weight) determines its profit, through all market levels. Cost of production is a function of both productivity and costs, usually in that order of importance.

Differences in income usually explain more of the difference in profits between businesses than differences in costs.

The income of a business is determined primarily by its productivity, with price received being a secondary issue. Small productivity changes in the herd can transform the whole business performance.

It is critical to spend the right amount of money on the herd in the right places. Spending too much for no return erodes profit.

Scale has a very big influence on overhead costs per adult equivalent (AE) for businesses less than 3,000 AE. Herds below this can still make reasonable profits, however there is a point where the scale constraint is insurmountable.

How efficiently a business uses labour has a big influence on its overhead costs, regardless of scale.

Addressing the key areas that can be improved independent of scale (kg beef/AE, enterprise expenses and labour efficiency) will benefit most businesses more, at least initially, than an increase in scale will.

The reasons why top performers are doing better is they think independently, have a business focus, stick to their plan and get the simple things right.

As a result the top producers achieve:

- higher income through better productivity
- lower and better targeted enterprise expenditure
- better labour efficiency contributing to lower overhead expenses
- a more effective cost base (more income for every dollar spent).

The key to increased profit is not complex; identifying the important components of your business and addressing them will provide results. The good news is this provides you with control, however the bad news is there is no silver bullet, quick fix or magic system that will achieve results. Business success will require focus, discipline and attention on the areas that matter.


Producers interested in learning more about how to calculate these KPIs, how to use the relevant tools and analyse their business, are invited to register their interest for a BusinessEDGE course to be held in Katherine in the last week of July. If there is sufficient demand, a course could be organised for Alice Springs in this week also. One of the authors of the report, Ian McLean of Bush Business Consulting will be the lead presenter of the course.

A minimum of 12 participants is required to run the workshop, and so we ask for expressions of interest to be provided to trudi.oxley@nt.gov.au by 31 May in order to ensure the training goes ahead.

If you would like to know more about the BusinessEDGE workshop, or the other tools available to better understand your business and assess the benefits of planned changes, please contact Beef Enterprise Development Officer, Trudi Oxley on the email above, or phone 8973 9763.
Fertiliser responses of native pastures

Arthur Cameron Principal Pastures Extension Agronomist, Darwin

I am regularly asked about the value of fertilising native pastures to improve productivity. There has been no recent work on the subject because of an evaluation conducted at Katherine by CSIRO between 1956 and 1959. This work was reported by Mike Norman in 1966.

Norman concluded that the application of fertilisers to native pastures is inefficient, that recovery of the fertilisers is low and increases in nutrient yields were low. He also reported that the native grasses responded differently to the fertilisers. Plume sorghum responded positively and independently to both of the fertilisers trialled and Kangaroo grass was favoured by a balanced nutrient supply. The Golden beard grass did not respond to either fertiliser.

The native pasture was typical for a Tippera soil, the major components being a mixture of Golden beard grass (**Chrysopogon fallax**), Kangaroo grass (**Themeda triandra**) and Plume sorghum (**Sorghum plumosum**).

Nutrients were applied to native pastures as Ammonium sulphate (Sulphate of ammonia) as the nitrogen (N) source and Superphosphate as a phosphorus (P) source. Both of these fertilisers however also supply significant amounts of sulphur (S). The fertilisers were applied over three years at all combinations of nil, low and high rates (nine treatments in total).

The fertilisers applied to the native pastures over the three years 1956 – 1959 are presented in Table 1 below.

**Table 1. Fertilisers applied (kg/ha)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Ammonium sulphate</th>
<th>Superphosphate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>1</td>
<td>37.8</td>
<td>74.8</td>
</tr>
<tr>
<td>2</td>
<td>37.8</td>
<td>74.8</td>
</tr>
<tr>
<td>3</td>
<td>37.8</td>
<td>74.8</td>
</tr>
<tr>
<td>Total</td>
<td>113.4</td>
<td>224.4</td>
</tr>
<tr>
<td>Average</td>
<td>37.8</td>
<td>74.8</td>
</tr>
</tbody>
</table>

These fertiliser mixes were not balanced. The amount of sulphur applied was too high compared to the nitrogen and phosphorus, but as the sulphur was not limiting, it was unlikely to have influenced the nutrient responses of the native grasses.

The average yields of the nine treatments are presented in Table 2 below.

**Table 2. Pasture yields of all fertiliser treatments**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Average Fertiliser applied kg/ha/yr</th>
<th>Average Dry matter yield kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>P</td>
</tr>
<tr>
<td>0 N 0 P</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0 N Low P</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>0 N High P</td>
<td>0</td>
<td>21.7</td>
</tr>
<tr>
<td>Low N 0 P</td>
<td>37.8</td>
<td>0</td>
</tr>
<tr>
<td>Low N Low P</td>
<td>37.8</td>
<td>11</td>
</tr>
<tr>
<td>Low N High P</td>
<td>37.8</td>
<td>21.7</td>
</tr>
<tr>
<td>High N 0 P</td>
<td>74.8</td>
<td>0</td>
</tr>
<tr>
<td>High N Low P</td>
<td>74.8</td>
<td>11</td>
</tr>
<tr>
<td>High N High P</td>
<td>74.8</td>
<td>21.4</td>
</tr>
</tbody>
</table>

The results show that there was little response to the nitrogen and sulphur in the absence of phosphorus, and to phosphorus and sulphur in the absence of nitrogen. Highest yields were achieved with the highest level of both fertilisers applied.
At the fertiliser levels applied in the work reported by Norman, an introduced grass would be expected to yield the amounts in the table below (Cameron 2008).

**Table 3. Expected introduced grass pasture yields with the fertilisers applied to the native pastures**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Average Fertiliser applied kg/ha</th>
<th>Expected Dry matter yield for an introduced grass kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>P</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0 N Low P + S</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Low fertiliser</td>
<td>37.8</td>
<td>11</td>
</tr>
<tr>
<td>High Fertiliser</td>
<td>74.8</td>
<td>21.7</td>
</tr>
</tbody>
</table>

(N/A: introduced grasses are generally grown with at least some basal P and S fertiliser)

While the High fertiliser treatment applied to the native grasses doubled the yield of the pasture, the yield is only similar to that expected from an introduced grass without nitrogen fertiliser.

References:


Why make a big noise about quiet cattle?

Jane Douglas, Pastoral Production Officer, Tennant Creek

As more and more emphasis is being placed on Work Health & Safety (WH&S), the temperament of cattle is becoming increasingly important. In addition to the obvious reduction in the risk of injury, there are also many other production benefits from having quieter animals.

Temperament influences the way in which an individual animal reacts to things. There are genetic (inherited) and environmental (handling and training) components to temperament. The important difference between the two is that while the genetic component is inherited, the environmental component can be improved through good handling or training. Training can improve reactions in a familiar setting (e.g. drafting in home yards) and may also help animals become better at handling new things. However some animals are always more “highly strung” than others due to the genetic component of their temperament and as a result will react worse in unfamiliar environments. The genetic component of temperament can be improved over time by genetic selection. Temperament is a moderate to highly heritable trait, and Estimated Breeding Values (EBVs) are being developed and trialled to assist with selection for temperament.

“Flight time” is used as an indicator of temperament and it is measured by a flight speed test in Bos indicus cattle and their crossbreds. Flight time is the time taken (in seconds) to travel approximately 2m when released from a crush. This is measured using laser timers (similar to those used for barrel racing). A longer time taken to cover the distance equates to a slower flight time. It is considered that docile animals have greater flight times as they are not rushing to escape from the crush. So animals with longer flight time EBVs are considered to have quieter temperaments.

When we think of the advantages of quiet animals, we tend to immediately think of the reduced risk of injury and stress to both the handlers and the animals, which can be beneficial in terms of WH&S compensation claims and animal welfare concerns. There are also other efficiency benefits of handling quieter animals as they are easier to muster and handle and tend to cause less damage to infrastructure (fences, yards etc.).

In addition to WH&S and efficiency benefits, studies have also shown that temperament can affect production and meat quality. It has been demonstrated that animals with lower flight times, or a “flightier” temperament are more prone to stress, and therefore more inclined to react in stressful situations.

Docile animals have been shown to lose less weight when in transit, and once at their destination, take less time to recover that lost weight.

In feedlot situations, it has been demonstrated that docile animals have higher average daily gains and better body condition scores than the temperamental animals, which also coincides with higher feed intakes and feed conversion rates. This could be explained by the tendency of nervous animals to use more energy and reduce eating time by being in a high state of arousal and exhibiting avoidance-type behavior.
behaviour e.g. pacing fence lines or running away. Meanwhile the calm animals tend to spend more
time relaxed, eating and ruminating, i.e. conserving energy for growth. In Beef CRC research, the
nervous animals repeatedly showed higher cortisol levels (a stress indicator). Cortisol also has a
negative effect on immunity. One study noted that while 42% of a “nervous” mob of cattle in a feedlot
were treated for illness or injury, none of the “calm” mob required treatment. It has also been shown
that there is a higher chance of mortality in the less docile animals.

Once the animals reach the abattoir, it has been observed that cattle with calm temperaments tend to
have better meat quality and higher dressing percentages. This can be seen as reduced carcase
bruising, better tenderness and marbling scores and reduced risk of dark cutting, all of which have an
impact on the value of the meat.

These effects on meat quality and dressing percentage are important as, regardless of the truck’s
destination when cattle leave your property, they will all eventually end up in an abattoir of some sort,
irrespective of the path taken to get there (e.g. live export, backgrounding, feedlot).

Producers from areas with high calf losses as a result of wild dog attacks may argue
that a flightier temperament in females could be an indication of a more protective mother. However, studies have
indicated that pre-calving temperament appears to be unrelated to post-calving defensiveness, and
thus, selecting for a docile temperament is not likely to have a negative impact on the ability of a cow to
protect her calf from predators.

It’s commonly known that an individual handler can have an impact on an animal’s temperament. One
person may walk into a yard and have cattle move in the required direction quietly, while someone else
can walk into the same yard of cattle and stir up the majority of the mob. Studies have shown that while
training animals (and handlers) may improve the animal’s reactions in familiar situations, it may not
prevent an animal’s inherent reactions to unfamiliar situations. While it is tempting to say that those
stirred up cattle were not at fault and that they may settle with training and/or better handling, they are
more inclined to have a negative reaction in a feedlot or abattoir situation due to their inherited
temperament.

Also, it is worth remembering that simply because an animal appears to be docile does not necessarily
mean that all of its progeny will be docile. This is because of the difference between hereditary and
trained temperament i.e. it may appear to be docile in a familiar environment due to training but actually have a
poor inherited temperament. Therefore, where EBVs are available, they are the most accurate method of selection,
as they take into account the individual animal along with all of its relatives.

Selection for animals with a docile temperament is
considered to be more effective than simply culling
individual animals with poor temperament. It is therefore,
worth taking note of the potential replacement heifers as
weaners, and keeping records on their temperament or
potentially drafting off a selection of the quietest animals.
Also, if they are available for your breed, look for
Temperament EBVs when purchasing new bulls.

Keep in mind that selection on temperament alone is not
sufficient to improve the bottom line. Selection for
temperament is just another addition to the suite of
Selection criteria for other traits such as fertility, growth,
confirmation etc.

Further information can be found at www.futurebeef.com.au or www.beefcrc.com
Weaner DVD now available online

As with people, the younger they are, the easier it is to educate cattle about both good and bad behaviour. Weaning is an ideal time to consolidate the education process by exposing cattle to the stresses they will need to handle later in life.

Research undertaken through the Beef Co-operative Research Centre into the effects of yard weaning and feeding on subsequent feedlot performance found that after 90 days on feed, the estimated added value of yard weaning, even after deducting costs, was $25/head over cattle just weaned into the paddock with no handling. This benefit was mainly attributed to increased growth rates when on feed.

In view of the importance of weaner management and education to improve lifetime productivity, animal welfare, and work, health and safety outcomes for staff, the Northern Territory Department and Primary Industry and Fisheries have developed a series of videos for beef producers to use as a training aid for staff.

The videos cover three key areas:

1. **Overview of weaning and weaner management**
   This provides a basic background to the importance of weaning as a herd management tool, and the basics of weaner management in the areas of health and nutrition, and importantly, the considerations for station staff involved in the feeding and care of weaners.

2. **Stock handling**
   This section highlights the importance of stock handling to good animal welfare and production outcomes and ensuring the safety of our people.

   The footage covers the basic principles and terminology of stock handling such as flight zones, pressure and release, positioning and demeanour and intent

3. **Weaner education program**
   This section provides an overview of a weaner education program. It demonstrates practical exercises for stock people responsible for training weaners.

   If you are having difficulty viewing the YouTube videos you can order a USB stick copy of the video from the Katherine Research Station on 8973 9739.

   The videos can be found here: [https://plus.google.com/collection/ghd2Y?hl=en](https://plus.google.com/collection/ghd2Y?hl=en)

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**Applications for 2016 Nuffield Australia Farming Scholarships are open**

The 2016 round of farming scholarships is now open. Nuffield are offering more than 20 scholarships to primary producers and managers, which includes a Contemporary Scholars Conference (CSC), Global Focus Program (GFP) and individual study program.

A $30 000 bursary is available for successful applicants to study a topic relevant to their business and industry. The tenure is 16 weeks over two years with flexibility provided.

Entec Urea reduces nitrous oxide emissions by 25% over conventional urea when applied to Sabi grass (*Urochloa mosambicensis*) in northern Australia

*Dr Ali Sarkhosh, Research Scientist (Horticulture & Agronomy), Katherine Research Station*

The chemical 3,4-dimethyl pyrazole phosphate (DMPP) is mixed with urea fertiliser that suppresses the bacteria that convert nitrogen in the urea to be lost as nitrous oxide gas. There may be some benefits for farmers in using urea treated with DMPP over normal urea, as less nitrogen is lost to the atmosphere, meaning more is available for plants.

A field experiment was carried out at Katherine Research Station (KRS) in the 2013/2014 wet season to quantify the effect of the nitrification inhibitor 3,4-dimethyl pyrazole phosphate (DMPP, trade name Entec when mixed with urea) on nitrous oxide ($N_2O$) emissions from soil. The fertiliser was tested on one hectare of Sabi grass (*Urochloa mosambicensis*) sown in December 2013 at the start of the wet season (Photo 1).

These treatments were applied: control (0% N), Entec Urea (46% N) 80kg/ha, Entec Urea (46% Urea) 160kg/ha, and Urea (46% N) 160kg/ha.

The experiment was arranged in a randomized block design with three replications for each treatment. Twenty-four 22 cm diameter chambers (2 per plot) were used to measure nitrous oxide escaping from the soil. Gas samples were taken three times over 60 minutes to determine $N_2O$ flux 1, 2, 3, 4, 5, 8, 10, and 15 days after fertilisers were applied.

The initial results showed the majority of $N_2O$ emissions occurred 2, 3 and 4 days after treatment application (Figure 1). Cumulative $N_2O$ emissions for each of the treatments for 2, 3 and 4 days after application were: Control 1040 µg/m²/h; Entec Urea at 80 kg/ha 1158 µg/m²/h; Entec Urea at 160 kg/ha 1435 µg/m²/h; and Urea at 160 kg/ha 1900 µg/m²/h (Figure 2). The initial results indicated $N_2O$ emissions produced by Entec Urea (treated with DMPP) at 160kg is 25% less than the same rate of applied urea.

As a result, the major outcome of this experiment is:

- $N_2O$ emissions are reduced by 25% if Entec Urea (treated with DMPP) is used compared to the same rate of untreated urea.
Figure 1. Mean N₂O flux measured on days 1, 2, 3, 4, 5, 8, 10 and 15 after treatment application (DAT) for each of the applied treatments: Control (no applied N), Entec urea at 80kg/ha (E80), Entec urea at 160kg/ha (E160), and Urea at 160kg/ha (U160).

Figure 2. Cumulative N₂O emission on days 1, 2, 3, 4, 5, 8, 10, and 15 after treatment application (DAT) for each of the applied treatments: Control (no applied N), Entec urea at 80kg/ha (E80), Entec urea at 160kg/ha (E160), and Urea at 160kg/ha (U160).

Acknowledgment: The author is grateful to Khamla Mott, Teagan Louise Alexander, Grant Cutler, Savitha Boopathiraju, Johnny Cooper, Marije ten Napel for their help with this experiment.
Fodder beet demonstration at Katherine 2014

Grant Cutler, Former Senior Technical Officer Katherine and Arthur Cameron, Principal Pastures and Extension Officer, Darwin

Fodder beet (*Beta vulgaris* subspecies *vulgaris*) is a biennial plant with a large root. It has been used as a fodder in Europe for hundreds of years.

A preliminary demonstration to determine the suitability of fodder beet as a dry season fodder in the Katherine District was planted at Katherine Research Station (KRS) on 6 August 2014.

The variety planted was SF Brigadier, which has a high yield potential and is very palatable. The seed was supplied by Seed Force from New Zealand.

Four 200 square metre bays in the netted area at KRS were planted, two with coated seed and two with uncoated seed.

Prior to planting the bays had been cultivated, sprayed with glyphosate to kill emerged seedlings and fertilisers (150 kg/ha of DAP and 100 kg/ha of muriate of potash) had been incorporated into the soil.

For best results, fodder beet should be planted early in the dry season into a moist fine seedbed with a precision planter. This did not happen with this planting. The planting was delayed by a number of external factors. The soil was dry on 6 August because of problems with the irrigation system, and there were some Cavalcade (*Centrosema pascuorum*) and Sabi Grass (*Urochloa mosambicensis*) seedlings present. The bays were scarified twice with diamond harrows before planting. The seed was planted with a precision lettuce planter borrowed from local producer Matt Dennis. This lettuce planter was configured for planting beds, so the seed was planted in 2 beds of 4 rows at about 40 cm spacing in each bay.

The bays were irrigated for 1 hour after planting and 45 minutes later that day. The bays were irrigated for 30 minutes twice daily for the next 4 days, and for 45 minutes daily for the remainder of the demonstration. The Fodder beet’s performance was not limited by moisture.

Establishment was fair to good. There was no obvious difference in establishment between the coated and uncoated seed. Weeds which emerged after planting were mainly Cavalcade and Sabi grass. The bays were sprayed with Verdict at 250 ml/ha. This gave good control of the Sabi grass. As Cavalcade has not been found as a weed in fodder beet previously, there was no herbicide option for control. The Cavalcade was competing strongly with the Fodder beet in November. Taller weeds were hand weeded from the bays.

The Fodder beet plants grew well, but tended to wilt during the hotter afternoons.

In mid-October, cluster caterpillar (*Spodoptera litura*), Heli oathis (*Helicoverpa* sp) and beet webworm (*Spoladea recurvalis*) were starting to attack the fodder beet leaves. The fodder beet had been completely defoliated by mid-November.

Six randomly selected well-grown fodder beet plants were harvested on 10 November, divided into tops and beets, weighed and dried at 60 °C. After 24 hours of drying, the beets when checked were found to be still quite moist. The beets were sliced into sections to

A healthy fodder beet 18 September 2014
allow them to dry properly.
While slicing the beets, it was obvious that some of the beets had been infected with a root rot. There were black streaks though some of the beets. The taproots of some of the plants in the field had also rotted. No other disease problems were noticed in the fodder beets.
The average and ranges of fresh weight, dry weight and moisture content of the SF Brigadier tops, beets and whole plants are presented in the table below.

**Table 1. Average and ranges of fresh weight, dry weight and moisture content of the fodder beet**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Tops</th>
<th>Beets</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average fresh weight (g)</td>
<td>524</td>
<td>2769</td>
<td>3292</td>
</tr>
<tr>
<td>Fresh weight range (g)</td>
<td>308 - 717</td>
<td>1553 - 3499</td>
<td>2113 - 4216</td>
</tr>
<tr>
<td>Average dry weight (g)</td>
<td>53</td>
<td>121</td>
<td>174</td>
</tr>
<tr>
<td>Dry weight range (g)</td>
<td>26 - 91</td>
<td>83 - 153</td>
<td>124 - 211</td>
</tr>
<tr>
<td>Average moisture %</td>
<td>10.1</td>
<td>4.4</td>
<td>5.3</td>
</tr>
<tr>
<td>Moisture % range</td>
<td>5.0 – 13.9</td>
<td>3.4 – 5.4</td>
<td>4.0 – 6.5</td>
</tr>
</tbody>
</table>

Assuming a recommended plant population of 80 000 plants per hectare, this plant size yield equates to dry matter yields of 4.2 t/ha of tops and 9.7 t/ha of beets with a total yield of 13.9 t/ha. This yield is lower than the predicted yield of 20 to 40 t/ha for a number of good reasons. The yield in this demonstration was reduced by the late sowing and shorter than expected growing season, the competition from weeds, the damage by insects and possibly heat stress late in the dry season.

The fodder beets produced this 13.9 t/ha yield in 52 days after the establishment period, at a rate of 267.7 kg/ha/day. With a mid-April sowing, and harvest in mid-September, at that growth rate, SF Brigadier fodder beets could potentially produce dry matter yields of between 30 and 40 t/ha over a 138 day growing period.

Some of the tops, and beets cut into sections were provided to cattle in an adjacent paddock at KRS. The cattle readily ate the fodder beet tops, but only one animal ate a portion of a beet.

The conclusion from this demonstration is that SF Brigadier fodder beet is capable of growing well and producing good yields of dry matter under irrigation in the dry season at Katherine. More work will need to be conducted on the agronomy of the crop and to determine how to control Cavalcade in fodder beet crops. How the crop is used also needs to be considered. The crop can be grazed in the field or harvested and stored for later use. Storage may be a problem in the hot humid climate of the Top End. The value of the fodder beet as a feed, and the economics of production would need to be evaluated before fodder beet could be recommended as a viable option for Top End producers.

_Fodder beet establishment 5 September 2014_
Questioning the benefit of vaccinating with 5-in-1?

Why not participate in the 5-in-1 vaccination study?

We are calling for stations in the Katherine and Barkly regions interested in being involved in a 5-in-1 calf/weaner study. The aims of this study are to investigate potential mortality and cost benefits from vaccinating young cattle for clostridial diseases under commercial conditions.

We require five stations each in the Katherine/VRD and Barkly regions. At the moment, one station in the Katherine region and two within the Barkly region have come on board. Therefore, potential to be involved in this study currently exists if interested.

Summary of project method:

- A minimum of approximately 400 calves/weaners able to be enrolled in the study. However larger numbers are welcomed.
- Every second calf/weaner will be systematically allocated to either the vaccinated group or the comparison (not vaccinated) group at either the time of separation from breeders or at the time of branding/castration etc.
- Study calves/weaners will be identified using a NLIS tag and a trial tag
- Sex, dehorning and liveweight (optional) recorded at processing.
- Following processing, animals to graze secure paddocks to reduce the number of cattle lost to follow-up and to enable a better estimate of mortality rates.
- Post procedure data will be captured prior to (Nov/Dec) and after (Apr/May) the following wet season. The pre-wet season muster is open for discussion if animals are not routinely mustered at this time.

Funds (a MLA producer demonstration study)

- Owner to provide NLIS tags; project can provide project tags
- Project can assist with data collection and recording requirements.

Criteria for participation in the project

- Committed to managing and monitoring the study group for approximately 1 year.
- Interested in weaner management

If you are interested in participating in the project or would like to know more information please do not hesitate to contact Kieren McCosker, Beef Production Scientist, Katherine; phone: 08 8973 9771 or email: kieren.mccosker@nt.gov.au

Non-Pastoral use – where are the opportunities?

On 1 January 2014 amendments to the non-pastoral use (NPU) provisions of the Pastoral Land Act were enacted. The NPU amendments enable the Pastoral Land Board to issue permits for NPU activities on pastoral land for a term of up to 30 years and to register the permit to the lease, allowing transfer with change of ownership.

NPUs promote opportunities to diversify activities on pastoral properties. These opportunities could include tourism, horticulture, forestry, aquaculture and broad scale agriculture activities.

In this issue you will find information on “Where are the opportunities” then over the coming issues there will be further information on “Land Suitability”, “Pastoral Business Development”, “NPU and Native Title”, “Pastoral Land Act Amendments” and “Frequently Asked Questions”.

If you would like further information or a copy of the fact sheets please contact the Department of Land Resource Management, Director Pastoral Lease Administration and Board, Annette Duncan, on 0400 576 418, or email: annette.duncan@nt.gov.au or visit www.nt.gov.au/npu
The Australian Government funded Action on the Ground project “Reducing greenhouse gas emissions through improved nitrogen management on Northern Territory farms” is full steam ahead for 2015, its third and final Wet season trial.

This year the trial is taking place in a paddock of Jarra grass at Maneroo Station in the Douglas Daly with thanks to the Howie family. Four different fertiliser rates have been applied (60kg/ha Entec urea, 80kg/ha Entec urea, 80kg/ha Urea and zero fertiliser) and replicated three times. The Entec urea contains DMPP, a nitrification inhibitor that cuts down on emissions of the greenhouse gas nitrous oxide.

The wet season was not without a rocky start. We had some technical difficulties with the Automated Manual Sampling System (AMSS) equipment as well as some kind of critter chewing on the seals while the AMSS chambers were out in the paddock! As much as we were excited at the prospect of using the AMSS the wet season was getting away from us which resulted in us using our trusty, old manual chambers instead. After applying the fertiliser we got enough rain for it to wash in and after two weeks the colour difference between the different fertiliser rates was noticeable.

With the trial nearing the end we look forward to the results of which fertiliser type and rate are the most cost effective with the least emissions for hay crop production in Jarra grass.
Welcome Lil Stedman

Welcome to the newest member of the Animal Biosecurity Team, Veterinary Graduate Lil Stedman. Lil grew up in Darwin, before moving to New South Wales to start her veterinary degree. You may have met Lil in May 2013, when she spent some time in Darwin and Katherine for her uni practical placement.

After graduating from Charles Sturt University, NSW in 2013, Lil moved back up to Darwin to start work at Howard Springs Vet Clinic. As Howard Springs is a mixed practice, Lil was able to work on a number of different animals during the 18 months she worked there, including racehorses.

Lil is currently located in Darwin; however she will be spending time in all of the regions throughout the year. Lil is looking forward to getting out to properties to meet people and take part in numerous disease investigations. Please remember to report any suspicious livestock illnesses or deaths to your Regional Veterinary Officers or Livestock Biosecurity Staff for investigation.
A new disease? Drooling, diarrhoea and death – the 3D Syndrome

The Department of Primary Industries in New South Wales has advised that pastoralists in the Mossgiel, Hay and Ivanhoe areas of New South Wales have been reporting cattle deaths from what has come to be known as “3D Syndrome”. Since first reports were received in 2006, combined losses across properties where the disease is known to have occurred are reported to be significant.

So far all samples have tested negative for exotic viruses and the cause of 3D syndrome has yet to be identified. The pattern of disease which has been seen on the affected properties combined with the negative results indicates that the disease is not caused simply by an infectious agent. At present there is no evidence of property-to-property spread, so there is no justification in placing restrictions on cattle movements, though investigations are ongoing.

Cases of 3D syndrome typically occur between November and January in cattle older than 5 months—although on properties where the syndrome has been recognised, cases in calves up to 3 months of age have also been reported. Affected animals usually present as a mild illness but deteriorate quickly with death occurring in nearly all affected animals (95 – 100%) about 72 hours after signs were first recognised. Stock are usually in good condition and exhibit diarrhoea, drooling, tear flow and in some cases noisy breathing. Affected animals feel hot (temperature between 40° - 42°C) and are frequently reported to be found close to water.

On post mortem, the main findings are erosions and ulcerations in the oesophagus and reddening and haemorrhages in the large intestine.

Cases of 3D syndrome have been reported in 2006, 2009 and 2013 and usually cease following decent rainfall.

Property managers in the Katherine Region are asked to make themselves aware of the signs of 3D syndrome and report suspect cases to their Regional Veterinary Officer or Livestock Biosecurity Officer. Information on the presence of this condition will help to determine if it is confined to NSW or is more widespread through Central Australia.


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John Eccles, Veterinary Officer, Katherine
Requirements for moving horses

The start of a new season seems an opportune time to remind everyone of the requirements for moving horses within, out of and into the NT.

All horses entering the NT are required to be accompanied by an NT health certificate (For horses only) which can be found on the DPIF website:
http://www.nt.gov.au/d/Primary_Industry/index.cfm?header=Moving%20horses%20into%20NT.

The health certificate needs to be endorsed by a stock inspector or equivalent from the state of origin and sent to the Regional Livestock Biosecurity Officer of the destination property (contact details are on page two of the health certificate).

Horses moving within the Territory are subject to requirements only if they are moving into the Free Zone from the Parkhurst infected or Infected Zone. In which case they are required to have a clean inspection and supervised treatment from a livestock biosecurity officer. There are no requirements for horses moving within the Parkhurst and Infected Zones.

Horses travelling to Queensland or Western Australia are required to be accompanied by a Queensland or WA health certificate. Health certificates will need to be authorised by a livestock biosecurity officer, even if no treatment is required. Horses travelling through Alice Springs to South Australia, Victoria or New South Wales will not require a health certificate; however they will be required to have a clean inspection and supervised treatment from a Livestock Biosecurity Officer.

Charges are now in place for endorsement of health certificates. The cost of $32.19 is per health certificate, not per horse. A charge per horse is only incurred if horses are sprayed on a weekend. The cost of spraying horses on a weekend is $144.30 call out fee plus $1.11 per head, as well as the fee for the health certificate.

To find out more information about fees, please visit our website:
http://www.nt.gov.au/d/Primary_Industry/index.cfm?header=Animal Biosecurity Services - Fees or call your local Livestock Biosecurity Staff.
Selenium poisoning

Sudden illness and mortality were noticed in a mixed mob of 250 yearling Brahman cross cattle south of Darwin in early February. The mob was given an injection of a common trace mineral injection for cattle, however the vaccine gun had broken and delivered the wrong dose to approximately 60 head. Three heifers died over the next four days, while 12 more were noticed to be depressed and lethargic, but these recovered over the next week. Minimal signs were seen on post-mortem however lab samples showed severe liver damage and high levels of selenium. Selenium is a component of many trace mineral injections and can be fatal if dosed incorrectly.

This case highlights the potential for even non-prescription products such as vitamin and mineral supplements to be dangerous when administered in the wrong circumstances. Before using any injection, drench or backliner, always read the labelled instructions.

- **Dosage:** check the volume each animal is to receive. If scales are available, weigh stock instead of estimating weight. Always have another person double-check dosage calculations before administering to stock.
- **Route:** check if the medication should be given under the skin, in the muscle, by backlining or by mouth.
- **Equipment:** check drench and vaccine guns are working properly before using them on stock. Ensure the correct volume is being delivered. Have spare equipment on hand.
- **Hygiene:** ensure that all equipment is clean and dry (leftover soap and water can stop some vaccines from working), and that clean, sharp needles are used and changed as needed. To minimise the risk of tetanus, never leave needles on the ground.
- **Product:** ensure the product is within the expiry date, kept at the correct temperature and is mixed well so it doesn’t settle. Some products are sensitive to light so check the label.

Always consult your vet before using any new medication or supplement. If you have any suspicious livestock deaths or illnesses please contact your Regional Veterinary Officer or Livestock Biosecurity Staff.
While the sale of a property may include the stock, the brand cannot be sold to the new owners.

1. If an agreement is made in the sale contract to transfer the brand to the new owners, an application to Transfer Brand must be lodged with the Registrar.

or

2. If the registered owner of the brand no longer wishes to use the brand, it may be cancelled. An application for Cancellation of Brand must be lodged with the Registrar.

or

3. If registered owner of the brand wishes to keep the brand, but move it to a new property, a Request to Change of Run must be lodged with the Registrar, together with original certificate/s for amending. If not registered owner of new property, Owners Permission to Use Run form is required and must be lodged with the Registrar.

BRANDS ARE NOT TRANSFERRED AUTOMATICALLY BY A PROPERTY SALE OR BY A WILL
Check out our websites [www.dpif.nt.gov.au/animalhealth](http://www.dpif.nt.gov.au/animalhealth) or contact your RLBO for assistance

Darwin Region
Ian Doddrell (RLBO)
Ph: 08 8999 2030

Katherine Region
Josh Haigh (A/RLBO)
Ph: 08 8973 9767

Tennant Creek Region
Tom Haines (RLBO)
Ph: 08 8962 4458

Alice Springs Region
Greg Crawford (RLBO)
Ph: 08 8951 8125

Further animal health information

Want information on a particular animal health topic?

Requests for articles on topics of interest are invited. Please send requests to:

Renae McLean
Ph: 08 8973 9765
E: Renae.McLean@nt.gov.au
Live Cattle Exports via Darwin Port – March 2015

Figures are for cattle exported through the Port of Darwin only; some cattle are exported through interstate ports.

<table>
<thead>
<tr>
<th>Destination</th>
<th>ALL CATTLE (including from interstate)</th>
<th>NT CATTLE (estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>BRUNEI</td>
<td>4,043</td>
<td>4,925</td>
</tr>
<tr>
<td>INDONESIA</td>
<td>292,022</td>
<td>386,183</td>
</tr>
<tr>
<td>PHILIPPINES</td>
<td>22,403</td>
<td>16,080</td>
</tr>
<tr>
<td>SABAH</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SARAWAK</td>
<td>830</td>
<td>0</td>
</tr>
<tr>
<td>W-MALAYSIA</td>
<td>14,952</td>
<td>22,309</td>
</tr>
<tr>
<td>VIETNAM</td>
<td>35,390</td>
<td>64,461</td>
</tr>
<tr>
<td>EGYPT</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>THAILAND</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>359,816</td>
<td>499,959</td>
</tr>
</tbody>
</table>

MARCH at a glance
- 43,922 cattle through the Port of Darwin during March; 9,201 less than March last year and 13,563 more than February.
- 18,487 NT cattle through the Port of Darwin during March; 25,246 less than March last year and 1,503 more than February.

Live cattle exports thru Port of Darwin 2015

Other Livestock Exports via Darwin Port

<table>
<thead>
<tr>
<th>Destination</th>
<th>Buffalo</th>
<th>Goat</th>
<th>Camel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YTD March 2015</td>
<td>YTD March 2015</td>
<td>YTD March 2015</td>
</tr>
<tr>
<td>BRUNEI</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INDONESIA</td>
<td>0</td>
<td>0</td>
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<tr>
<td>PHILIPPINES</td>
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<tr>
<td>SABAH</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>SARAWAK</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>W-MALAYSIA</td>
<td>182</td>
<td>182</td>
<td>0</td>
</tr>
<tr>
<td>VIETNAM</td>
<td>0</td>
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</tr>
<tr>
<td>EGYPT</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>THAILAND</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>182</td>
<td>182</td>
<td>0</td>
</tr>
</tbody>
</table>

NT Cattle Moved Interstate

<table>
<thead>
<tr>
<th>Destination</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>993</td>
</tr>
<tr>
<td>QLD</td>
<td>4,636</td>
</tr>
<tr>
<td>SA</td>
<td>3,092</td>
</tr>
<tr>
<td>VIC</td>
<td>801</td>
</tr>
<tr>
<td>WA</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>9,484</td>
</tr>
</tbody>
</table>

National Cattle Prices

Currency Exchange Rates
[www.oanda.com/currency/converter](http://www.oanda.com/currency/converter)

Previous 5 Years

<table>
<thead>
<tr>
<th>Total Cattle, Port of Darwin</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>308,528</td>
<td>321,329</td>
<td>317,032</td>
<td>314,219</td>
<td>307,874</td>
<td>273,784</td>
<td>253,786</td>
</tr>
<tr>
<td>2010</td>
<td>285,539</td>
<td>304,818</td>
<td>273,749</td>
<td>253,786</td>
<td>234,289</td>
<td>230,786</td>
<td>253,786</td>
</tr>
</tbody>
</table>

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[www.dpif.nt.gov.au](http://www.dpif.nt.gov.au)
# Katherine region events calendar

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Date</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber bush Field Day</td>
<td>Katherine</td>
<td>30 May</td>
<td><a href="mailto:Naomi.Wilson@territorynrm.org.au">Naomi.Wilson@territorynrm.org.au</a></td>
</tr>
<tr>
<td>Business EDGE Workshop</td>
<td>Katherine</td>
<td>28-29 July</td>
<td><a href="mailto:Trudi.Oxley@nt.gov.au">Trudi.Oxley@nt.gov.au</a></td>
</tr>
<tr>
<td>Barkly Herd Management Forum</td>
<td>Barkly Tablelands</td>
<td>27-29 July</td>
<td><a href="mailto:Jane.Douglas@nt.gov.au">Jane.Douglas@nt.gov.au</a></td>
</tr>
</tbody>
</table>

Please email us with updates of events happening in your area: Jodie.Ward@nt.gov.au

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