

Katherine Rural Review

DEPARTMENT OF PRIMARY INDUSTRY AND FISHERIES



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Testing the Longevity of CGMMV in NT Soils

David Lovelock, Molecular Scientist, Darwin

In September 2014, Cucumber Green Mottle Mosaic Virus (CGMMV), a virus of cucurbits (including melons), was first detected in watermelon crops in the Venn near Katherine and subsequently found on other properties near Katherine, Ti Tree and Darwin. The response to these detections was a two-year quarantine period on all 25 Infected Premises (IPs) on the growing of melons and other cucurbits. The virus was mainly detected in host crops, but it was also found in a range of other plants, mostly weeds, on infected and adjacent properties. The virus can remain viable in soils for a number of months.



Figure 1: Plant pathologists (from left) Nadine Kruz Sharl Mintoff and David Lovelock visit one of their field trials

Department of Primary Industry and Fisheries (DPIF) is conducting research to determine the longevity of CGMMV in soils where host plants have been removed. Research conducted overseas has suggested CGMMV may remain viable in host free soils for a period of 6-8 months.

A research project using glasshouse trials at Berrimah Farm and field trials on four IPs commenced in August 2015. The four infected premises include one property in Darwin, two properties in Katherine and one property near Ti-Tree. These sites were selected based on geographic location and differences in soils, temperatures and daylight period. At each site, eighty soil samples were collected from a GPS location where a host plant had tested positive to CGMMV. The samples were taken to Berrimah Farm for pot trials where susceptible watermelon/cucumber plants were planted into the contaminated soil. Using normal crop practices, eighty susceptible watermelon/cucumber plants were also planted at each site, within 10-15cm of where the soil samples were taken.

Plants from both trials were left for a period of 5-6 weeks, after which point they were bulk sampled and tested for CGMMV. Results suggest that the virus is still present in three of the tested properties, but its viability is not yet determined. This will be explored further in pot trials to be conducted later this year.

The DPIF Plant Pathology team would like to thank the farmers for allowing us to use land to conduct field trials and to Greg Owens (NT Farmers Association), Northern Territory Quarantine and DPIF staff for their support and help throughout these trials.

New Quarantine Officer for KRS

In the New Year, the Biosecurity and Animal Welfare team welcomed a new team member, Rod Freeman. Rod joins Katherine Research Station after spending a number of years working in various roles in the health, conservation, education and horticulture industries of Katherine. He has previously worked at Katherine Research Station for twenty years when the Weeds Branch was operating under the Department of Primary Industries and Fisheries banner.



Figure 2: Rod Freeman returns to Katherine Research Station

Rod's role is Quarantine Officer, which includes doing fruit fly runs to monitor any Australian and exotic potential pest species of fruit fly and conducting National Plant Health Surveillance, which Rod says "involves checking high risk sites for specified target pests and diseases" that are not known to occur in the Northern Territory.

Although much time is spent out and about on fruit fly runs and surveillance from Pine Creek to Mataranka and everywhere in between Rod looks forward to working within the Katherine Research Station team and getting to know everyone better.

Cool Season Production of Tropical Grasses

Arthur Cameron, Principal Pastures Agronomist, Darwin

There is interest in growing fodder under irrigation during the Top End dry season to supply hay to live cattle export yards and cubing/pelleting plants.

Tropical grasses generally do not grow well under irrigation during the cooler months of the year in the Top End. Sugargrass forage sorghum (*Sorghum* sp) and Finecut Rhodes grass (*Chloris gayana*) have been shown to produce commercial yields of 25 to 35 tonnes per hectare per year at Douglas Daly Research Farm. Both of these options for fodder production under irrigation have limitations. The Forage sorghum generally needs to be re-sown every year to maintain a productive stand. In the Top End, the Finecut Rhodes grass is not liked by cattle as a fodder, and it has a high tensile strength, which makes it difficult to grind and make into fodder cubes and pellets.

There are a number of other tropical grasses which have cold tolerance and may be suitable as alternatives to Forage sorghum and Finecut Rhodes. The cool season growth of seven other tropical grasses is being compared with that of Finecut Rhodes at Coastal Plains Research Station to select one or more cultivars, which have equivalent or better cool season growth, better acceptance by cattle and better grinding characteristics.


Seven of the grasses were sown by seed in December 2014. The eighth grass, Strickland finger grass, was planted by runners in February 2015. The first year's yield results are presented in Table 1 (below). The establishment was good except for the Premier digit grass, which was attacked by Crab grass leaf beetle larvae. While Strickland finger grass and Premier digit yields were lower overall, the yields were similar for all of the grasses at the final harvest.

The trial will continue this year to get a full dry season's results. Samples from each harvest will be submitted for nutrient and quality analysis.

Table 1. Dry Matter yields of cool season grasses

Grass	DM kg/ha (2015)					Total DM Kg/ha
	6 May	25 Jun	11 Aug	29 Sep	17 Nov	
Finecut Rhodes	5980	5500	3000	6900	7080	28450
Gulfcut Rhodes	6980	4720	2690	7350	6990	28720
Reclaimer Rhodes	7730	4990	2850	6570	7500	29640
Premier digit	940	1540	2110	4940	7120	16640
Strickland finger Grass	4690	4360	2450*	6030	6770	24370
Gatton panic	7340	6510	2230	4930	6340	27350
Nucal panic	8980	4630	3590	6538	7880	31320
Splenda setaria	9280	5870	2290	6210	6320	29980
Mean	6490	4760	2660	6180	7000	27100

*Strickland finger grass yield was decreased by selective grazing by wallabies prior to the 11 August harvest

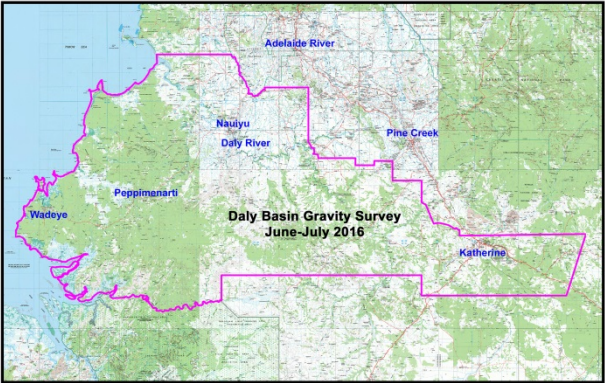

DEPARTMENT OF MINES AND ENERGY

Daly Basin Gravity Survey June – July 2016

The Northern Territory Government will be doing a Gravity Survey across the Daly Basin between June and July 2016. The survey will involve a helicopter landing every 4 kms and taking a reading with a gravity meter. Each reading takes approximately **five minutes**.

There will be NO ground disturbance.

Further advice will be forwarded to all land holders prior to the survey beginning.



For immediate enquiries contact Peter Campbell or Ken Satour on 8951 8176.
minerals.nt.gov.au






Figure 3: Hand digging the peanut variety trial for collection of yield data (L to R: Callen Thompson, Ian Biggs, Teagan Alexander, and Johnny Cooper).

Peanut variety trial harvested at Katherine Research Station

Kae Wegman, Technical Officer, Katherine

November 2015 was harvest time for peanuts at the Katherine Research Station (KRS) concluding the second year of peanut variety trials.

DPIF Plant Industry Development team at KRS managed the trial in collaboration with Peanut Company of Australia (PCA). After a period away from the NT, PCA are looking to revive interest in peanut agriculture in the Top End. The trial consisted of 18 varieties including breeding lines and released varieties. Eight varieties were early maturing (approx. 100 day crop) and 10 were full season (approx. 140 day crop).

The trial was planted in April 2015 but a mix of cold weather and irrigation difficulties resulted in slow crop development. This pushed the crop length out to 196 days for early maturing and 210 days for full season varieties when maturity testing indicated the crops were ready for harvest. The team are keen to understand the reasons for this slow development, when normally tropical conditions speed up crop development. Even allowing for the apparent slow growth, good yields were achieved, ranging from 4 T/ha up to 6.42 T/ha. Post-harvest analysis will reveal the quality grade for the kernels.



The Plant Industry Development team at Katherine (Callen Thompson, Kae Wegman, Teagan Alexander, Johnny Cooper, Karl Bourne, Mike Kahl and Ian Biggs) conducted the hand sampling and processing of the trial. We revived some peanut harvesting and processing equipment from Douglas Daly Research Farm (DDRF) and linked this up to a new tractor for its first outing. Hand sampling at Katherine was a new experience for Callen and Ian, and boosted Callen's resolve to trade the digging fork in for the tractor.

Following on from two years of promising variety trials at KRS, 2016 will see PCA and NT DPIF undertake a larger wet season peanut trial at KRS and a commercial scale dry season peanut trial at DDRF.

Karl Starts Traineeship with Plant Industry Development

Teagan Alexander, Technical Officer, Katherine

For years traineeships have been used for introducing people to the workforce. It's a way for people to be employed and at the same time gain a qualification. Many employers use traineeships as a way of finding employees and the financial incentives that go with utilising trainees. For Plant Industries team member Karl Bourne it's a way to continue employment within the Department of Primary Industry and Fisheries.

Over the next three years Karl will be completing a Certificate III in Rural Operations through CDU. The course will cover tractor maintenance and operation, learning about plants and cultivation, and some aspects of construction.

"Traineeships are an entry point into employment and provide an amount of on and off the job training and other support that is not typically provided in conventional employment. It enables employers to access support that they might not otherwise be able to access," says Teresa Cummings of NARMCO, a small business assisting Indigenous landholders and pastoralists who want to increase the economic return from their lands.

Traineeships are available in a wide range of occupations including administration, Indigenous health, trades and rangers. Institutions such as Charles Darwin University (CDU) and Group Training NT can provide the necessary qualifications, and opportunities for trainees may be sourced through the Community Development Fund together with Jobfind and Kalano Farms.

According to John Jansen, also of NARMCO, pastoral industry traineeships have been used to fill employment short falls however not without some kinks. Issues such as low retention rates have been addressed through foundation training, resulting in more productivity more quickly and the establishment of a support base for trainees through formal training sessions and mentors.

Together with the Plant Industries team, Karl's mentor will be tracking his progress towards qualification and is looking forward to continuing working with Karl over the course of his traineeship.



Fusarium wilt in watermelons in the Top End

Cassie McMaster, Senior Plant Pathologist, and Lucy Tran-Nguyen, Senior Molecular Scientist

The NT Department of Primary Industry and Fisheries (DPIF) Plant Pathology group has been involved in a three-year project investigating Fusarium wilt in watermelons, funded by Horticulture Innovation Australia Limited with co-investment from NT DPIF, Monsanto Australia and Rijk Zwaan, and funds from the Australian Government.

Fusarium wilt in watermelons caused by *Fusarium oxysporum* f. sp. *niveum* (Fon) is a serious disease of watermelons, first detected in the NT in May 2011. It causes leaf necrosis (death), necrotic blotching and seedling death in triploid watermelons.

Project leader Dr Lucy Tran-Nguyen, research plant pathologists Barry Condé and Cassie McMaster, and Victor Puno (PhD student, University of Sydney) have been investigating several key research areas for the management of Fon.

The first aim of the project was to determine which race of Fon is present in the NT and nationally. There are four known races of Fon worldwide (0, 1, 2, and 3). Race can only be determined by conducting glasshouse trials involving inoculating specific watermelon varieties with known susceptibility to Fon and assessing their susceptibility to two samples of Fon isolated from watermelons in the NT.

Lucy is investigating ways to improve the current diagnostic test using Fon isolates from the US which were provided by Dr Kate Everts, University of Maryland. Kate visited Berrimah Farm in August 2015 as part of the collaboration on Fon research. Hopefully this will mean that molecular methods could be used to determine race in the future.

Other key research areas investigated in the NT trials include the effect of temperature on disease symptom expression and the use of resistant grafted rootstocks as a disease management tool for growers.

Research trials for the project are now completed and results are being compiled for the final report. Dr Tran-Nguyen presented the research findings to industry when she attended the Australian Melon Industry Conference & Field Days in Mildura, Victoria in March.



Figure 6: Fusarium wilt affecting watermelon.

Weaner Management DVD

Trudi Oxley, Extension Officer, Katherine

As with people, the younger cattle are the easier it is to educate them about 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 conducted by 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 was \$25/head (after costs) over cattle weaned into the paddock with no handling. The improved growth rates came about because the animals were preconditioned to handling and less stressed as they moved through the supply chain.

In view of the importance of weaner management and education to beef producers, the Department and Primary Industries and Fisheries has developed the Weaner Management DVD, a series of training videos aimed at improving lifetime productivity, animal welfare and staff safety.

The DVD covers three key areas:

Overview of weaning and weaner management

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

Stockhandling

This section covers the basic principles and terminology of stockhandling such as flight zones, pressure and release, positioning and demeanour, and intent. It highlights the importance of good stockhandling to ensure animal welfare, production outcomes and staff safety.

Weaner education program

This section provides an overview of a weaner education program. It demonstrates practical exercises for stockpeople responsible for training weaners.

Case Study: John and Helen Armstrong, Gilnockie Station, Katherine, NT

In the following case study, John and Helen Armstrong of Gilnockie Station outline how they have used the Weaner Management DVD in their staff training program. We encourage producers to have a look at the video to see how they could use it, either on property or as a follow up to formal livestock handling training courses. In the next edition of the KRR we will hear from Gilnockie Station staff about how they benefited from the weaner training video.

John and Helen Armstrong run Gilnockie Station south of Katherine. This year they put 8,800 head through the yards. They're confident that their Brahman Droughtmaster-cross animals will enter the supply chain in a calm and collected manner, and to their credit, in the best condition possible for the export market.

As far as the Armstrongs are concerned, it all starts with understanding and educating livestock.

"Spend the time to educate your livestock and learn how to handle them calmly and confidently. The results for us have been improved health and safety outcomes for both staff and animal, machinery and labour savings and less shrink in the handling phase across the herd," John said.

The Armstrongs bring on new workers for about six months of every year. Most are “green and keen”. This season, John and Helen used the Weaner Management DVD to introduce workers to the weaning process and effective cattle handling techniques.

“John used to spend hours training staff on the ground in animal handling, this season he had them watch the weaner management DVD,” said Helen.

“After 30 minutes staff understood the basic principles of cattle behaviour and stockmanship. They were ready to trial what they’d learnt on the ground with our support.”

On the third day of educating 500 weaners in the yard, staff walked the cattle out to an open paddock in a calm and collected manner. No rushing, no hustling, no “yee haaa-ing”.

The DVD has also assisted John and Helen to equip workers with the skills to load cattle with minimum stress to the animals. Helen says this is one of the hardest tasks to teach new workers.

“The DVD teaches workers to read the animals and apply the right amount of pressure at the right spot at the right time. Workers are quickly able to recognise the animals reactions and understand why they are reacting the way they are,” Helen said.

The DVD follows the same principles that John and Helen have been advocating and putting into practice for most of their career in the pastoral industry.

John said, “When I muster with a helicopter, I allow cows to gain confidence and trust in me, and they gather up and wander off in the general direction of the yard. It’s not a matter of floating them or bombing them off water. In fact you take the opposite approach. Slowly apply pressure on-pressure off and in their own time the cows will gain confidence, gather themselves, their calves and away they’ll walk. It takes time and patience but the returns are worth it.”

According to John, the key benefits of ‘low stress stock handling’ are lower OH&S incidents, less wear and tear on machinery, reduced labour costs, and calm and tractable animals who handle pressure better and thus lose less weight. It’s not uncommon after a muster to see the lead of Armstrong cattle standing at the gate, chewing cud while the tail walks past and yards up.

“Long gone are the days of cattle busting through yards,” John reflected. “If you’re doing it right, there’s no reason you shouldn’t get this result every time.”

John’s final advice is to “get the animals’ attention, then their confidence. Only then are cattle ready and happy to comply with pressure.”

The DVD is just one tool in a pastoral manager’s weaner training program aimed at increasing overall enterprise and industry productivity and profitability.

Helen would like to see more training delivered in simple formats. “No one these days has the time to sit down and watch Bud Williams for a day. This DVD is simple, short and can be applied by staff immediately. I think there should be more industry initiatives like it.”

You can find the training video’s on the Department’s [YouTube](#) Channel. If you have trouble viewing the videos we can send you a USB copy, please contact trudi.oxley@nt.gov.au

Bruce Sawyer says farewell to DPIF

On January 29, a farewell gathering for Bruce Sawyer was held at the Bark Hut Social Club, Berrimah Farm. After 42 years with the department, Bruce has left on extended leave as a precursor to his retirement.

From tramping the flood plains and rice fields in the wilds of Tortilla Flats in the 1970s through to his roles as Director Agriculture and Director Research Farms, Bruce said he found his responsibilities both challenging and rewarding. A highlight of his time with the department was “working alongside the NT’s primary industry producers, and working with our researchers and farm staff.”

“Looking back, it is pleasing to see how far our pastoral, agricultural and horticultural industries have developed and grown, and become so much more sophisticated over the years,” he said.

Bruce and Dianne plan to stay in Darwin for a few more years at least, as long as the build-ups and Wet seasons are kinder. They have grandkids to spoil and plenty of travel destinations to keep them occupied.

Bruce is confident the Department of Primary Industry and Fisheries will continue to help NT primary industries grow and improve.

“So, best wishes to you all and thanks to those who joined me for that final beer at the social club. I wish you well for the future.”



Figure 8: Friends gather to farewell Bruce

New Chief Veterinary Officer for the NT

In February, Dr Kevin de Witte returned to the Territory to fill the role of NT Chief Veterinary Officer (CVO). Following 10 years with Animal Health Australia (AHA), Kevin will lead and manage the Animal Biosecurity Program within the Department of Primary Industry and Fisheries.

Many pastoralists will remember Kevin from his time with the department in the 80s and 90s when he was based in Katherine. Kevin has significant experience in disease control and management working with the NT

cattle industry during the eradication of Bovine Tuberculosis and Brucellosis, the investigation and management of various disease syndromes, and the extension of optimum herd management including spaying.



Figure 9: Kevin de Witte

As Executive Manager Market Access Support, AHA, Kevin spent the last 10 years overseeing management of several key national programs relevant to the cattle industry including:

- General disease surveillance programs including nationally significant subsidised disease investigations
- National Arbovirus Monitoring Program (NAMP) for bluetongue virus
- National Johne's Disease Control Program (BJD)
- Transmissible Spongiform Encephalopathy Freedom Assurance Program (TSEFAP)
- Development of the land transport and cattle welfare standards and guidelines
- Co-ordination of the Foot and Mouth Disease (FMD) vaccine bank and FMD research

Kevin looks forward to rousing old and new friendships, and working with the NT cattle and other livestock industries again to manage biosecurity risks, maximise market access and optimise productivity.

Notifiable Diseases in the NT

Did you know that some diseases are listed as notifiable under the Northern Territory's Livestock Act? This means that if owners, managers and/or veterinarians suspect or have confirmed cases of these diseases in their animals, they must be reported to the Chief Veterinary Officer of the NT.

By reporting notifiable diseases as quickly as possible, you are ensuring a quick response to the disease. This not only potentially saves a large number of your stock, but could also prevent the spread onto other properties and assist the livestock industry as a whole.

There are three categories of notifiable diseases in the Territory:

- Endemic refers to those diseases that exist within Australia but are either not found in the NT or found only in certain parts of the NT. For example, cattle tick found in the tick free area is an endemic disease.
- Exotic diseases are those that have not occurred in Australia before.

- Emergency diseases are based upon the national Emergency Animal Disease Response Agreement (EADRA) between industry, Commonwealth, State and Territory governments. This list includes mostly exotic diseases that would have a significant impact upon Australia, livestock industries, trade agreements for Australia, public health and the environment.

To ensure that compensation is available in the event of a large-scale outbreak under the EADRA, emergency animal diseases (EADs) must be reported to the Australian Chief Veterinary Officer within 24 hours of notification.

Who to report to

If you suspect any animals to have any of the diseases listed below, you should do one of the following:

- Phone your DPIF Field Veterinary Officer or Livestock Biosecurity Staff
Regional Field Veterinary Officers:

Darwin	(08) 8999 2035
Katherine	(08) 8973 9716
Alice Springs	(08) 8951 8181
- Call the Emergency Animal Disease hotline – 1800 675 888 – which is monitored 24 hours a day.

Endemic Diseases

- | | |
|---|---|
| <input type="checkbox"/> Avian tuberculosis | <input type="checkbox"/> Equine herpesvirus 1 |
| <input type="checkbox"/> Bovine anaplasmosis in a tick free area | <input type="checkbox"/> Equine viral arteritis |
| <input type="checkbox"/> Bovine babesiosis in a tick free area | <input type="checkbox"/> Hydatid disease (<i>Echinococcus granulosus</i>) |
| <input type="checkbox"/> Cattle ticks (Parkhurst strain) | <input type="checkbox"/> Liver fluke (<i>Fasciola hepatica</i>) |
| <input type="checkbox"/> Cattle ticks (<i>Rhipicephalus microplus</i>) in tick free areas | <input type="checkbox"/> Malignant catarrhal fever (wildebeest associated) |
| <input type="checkbox"/> Cattle ticks (Ulam strain) | <input type="checkbox"/> Paratuberculosis (Johne's disease) |
|
 | |
| <input type="checkbox"/> Cattle ticks (Ultimo strain) | <input type="checkbox"/> Porcine brucellosis (<i>Brucella suis</i>) |
| <input type="checkbox"/> <i>Cysticercus bovis</i> (<i>Taenia saginata</i>) | <input type="checkbox"/> Porcine myocarditis (Bungowannah virus infection) |
| <input type="checkbox"/> Devil Facial Tumour Disease | <input type="checkbox"/> Pullorum disease (<i>Salmonella pullorum</i>) |
| <input type="checkbox"/> Enzootic bovine leucosis | <input type="checkbox"/> <i>Salmonella enteritidis</i> infection in poultry |
| <input type="checkbox"/> Equine infectious anaemia | |

Exotic Diseases

- | | |
|--|--|
| <input type="checkbox"/> Any disease of Stock not reported to occur in Australia | <input type="checkbox"/> Fowl typhoid |
| <input type="checkbox"/> Avian Paramyxovirus (Type 1) | <input type="checkbox"/> Leishmaniasis |
| <input type="checkbox"/> Bovine virus diarrhoea (Type 2) | <input type="checkbox"/> Louping ill |
| <input type="checkbox"/> Camelpox | <input type="checkbox"/> Post-weaning multi-system wasting syndrome |
| <input type="checkbox"/> Chagas disease | <input type="checkbox"/> Porcine cysticercosis (<i>Cysticercus cellulosae</i>) |
| <input type="checkbox"/> Chronic wasting disease of deer | <input type="checkbox"/> Salmonellosis (<i>Salmonella abortus equi</i>) |
| <input type="checkbox"/> Contagious agalactia | <input type="checkbox"/> Salmonellosis (<i>Salmonella abortus ovis</i>) |

- | | |
|--|---|
| <input type="checkbox"/> Contagious caprine pleuropneumonia | <input type="checkbox"/> Tularaemia |
| <input type="checkbox"/> Crimean Congo Haemorrhagic fever | <input type="checkbox"/> Turkey rhinotracheitis (avian metapneumovirus) |
| <input type="checkbox"/> Duck virus enteritis (duck plague) | <input type="checkbox"/> Trypanosomiasis (tsetse fly associated) |
| <input type="checkbox"/> Duck virus hepatitis | <input type="checkbox"/> Warbly-fly infestation |
| <input type="checkbox"/> Epizootic haemorrhagic disease (clinical disease) | <input type="checkbox"/> West Nile virus infection - clinical |
| <input type="checkbox"/> Enzootic abortion of ewes | <input type="checkbox"/> Feline spongiform encephalopathy |

Emergency Diseases listed under Emergency Animal Disease Response Agreement (EADRA)

- | | |
|---|--|
| <input type="checkbox"/> African horse sickness | <input type="checkbox"/> Jembrana disease |
| <input type="checkbox"/> African swine fever | <input type="checkbox"/> Lumpy skin disease |
| <input type="checkbox"/> Anthrax | <input type="checkbox"/> Maedi-visna |
| <input type="checkbox"/> Aujeszky's disease | <input type="checkbox"/> Menangle virus infection |
| <input type="checkbox"/> Australian bat lyssavirus | <input type="checkbox"/> Nairobi sheep disease |
| <input type="checkbox"/> Avian influenza | <input type="checkbox"/> New World screw-worm fly (<i>Cochliomyia hominivorax</i>) |
| <input type="checkbox"/> Bluetongue (clinical disease) | <input type="checkbox"/> Newcastle disease (virulent) |
| <input type="checkbox"/> Borna disease | <input type="checkbox"/> Nipah virus infection |
| <input type="checkbox"/> Bovine brucellosis (<i>Brucella abortus</i>) | <input type="checkbox"/> Old World screw-worm fly (<i>Chrysomya bezziana</i>) |
| <input type="checkbox"/> Bovine spongiform encephalopathy | <input type="checkbox"/> Pulmonary adenomatosis (<i>Jaagsiekte</i>) |
| <input type="checkbox"/> Caprine and ovine brucellosis (<i>Brucella melitensis</i>) | <input type="checkbox"/> Peste des petits ruminants |
| <input type="checkbox"/> Classical swine fever | <input type="checkbox"/> Porcine reproductive and respiratory syndrome |
| <input type="checkbox"/> Contagious bovine pleuropneumonia | <input type="checkbox"/> Porcine Enterovirus encephalomyelitis (Teschen disease) |
| <input type="checkbox"/> Contagious equine metritis | <input type="checkbox"/> Potomac fever |
| <input type="checkbox"/> Dourine | <input type="checkbox"/> Rabies |
| <input type="checkbox"/> East Coast Fever and Mediterranean theileriosis | <input type="checkbox"/> Rift Valley fever |
| <input type="checkbox"/> Encephalitides (tick-borne) | <input type="checkbox"/> Rinderpest |
| <input type="checkbox"/> Epizootic lymphangitis | <input type="checkbox"/> Scrapie |
| <input type="checkbox"/> Equine encephalomyelitis (Eastern, Venezuelan and Western) | <input type="checkbox"/> Sheep pox and goat pox |
| <input type="checkbox"/> Equine encephalosis | <input type="checkbox"/> Sheep scab |
| <input type="checkbox"/> Equine influenza | <input type="checkbox"/> Surra (<i>Trypanosoma evansi</i>) |
| <input type="checkbox"/> Equine piroplasmiasis (<i>Babesia equi</i> , <i>Babesia caballi</i> and <i>Theileria equi</i>) | <input type="checkbox"/> Swine influenza |
| <input type="checkbox"/> Foot-and-mouth disease | <input type="checkbox"/> Swine vesicular disease |
| <input type="checkbox"/> Getah virus disease | <input type="checkbox"/> Transmissible gastroenteritis |
| <input type="checkbox"/> Glanders | <input type="checkbox"/> Trichinellosis |
| <input type="checkbox"/> Haemorrhagic septicemia | <input type="checkbox"/> Tuberculosis (<i>Mycobacterium bovis</i>) |
| <input type="checkbox"/> Heartwater | <input type="checkbox"/> Vesicular exanthema |

- | | |
|---|---|
| <input type="checkbox"/> Hendra virus infection | <input type="checkbox"/> Vesicular stomatitis |
| <input type="checkbox"/> Infectious bursal disease (hypervirulent form and exotic antigenic variant form) | <input type="checkbox"/> Wesselsbron disease |
| <input type="checkbox"/> Japanese encephalitis | |

Swill Feeding: What is it and why is it illegal?

Swill is the name given to food products that contain, or have been exposed to, meat products. Examples of such products include:

- Kitchen/restaurant scraps
- Bakery waste
- Untreated used cooking oils and fats

Swill is considered to be a prohibited pig feed. It is illegal to feed swill to pigs and strong penalties apply. Strict regulations are in place in every state and territory in Australia. These restrictions apply to everyone, regardless of whether the pigs are bred commercially or as pets.

Australia is fortunate enough to be relatively disease free and imported meat products from other countries may contain viruses that are not found in Australia. It is believed that feeding swill to pigs was the cause of the FMD disease outbreak in the UK in 2001.

Diseases that are associated with swill feeding are:

- Foot and Mouth Disease (FMD)
- Classical and African swine fever
- Transmissible Gastroenteritis

If you have any queries, please contact your local Livestock Biosecurity staff.

Animal Biosecurity Branch - NT Contacts

Livestock Biosecurity Officers

Darwin Region Fax: 08 8999 2146 Acting Regional Livestock Biosecurity Officer Ph: 08 8999 2034 M: 0401 115 802 GPO Box 3000, Darwin NT 0801	Alice Springs Region Fax: 08 8951 8123 Regional Livestock Biosecurity Officer Ph: 08 8951 8125 M: 0401 118 125 PO Box 8760, Alice Springs NT 0871
Tennant Creek Region Fax: 08 8962 4480 Regional Livestock Biosecurity Officer (RLBO) Ph: 08 8962 4458 M: 0401 113 445 Livestock Biosecurity Officer (LBO) Ph: 08 8962 4492 M: 0457 517 347 PO Box 159, Tennant Creek NT 0861	Katherine Region Fax: 08 8973 9759 Regional Livestock Biosecurity Officer Ph: 08 8973 9767 M: 0467 740 233 Livestock Biosecurity Officer (LBO) Ph: 08 8973 9765 M: 0427 604 002 PO Box 1346, Katherine NT 0851

www.nt.gov.au
<http://pic.primaryindustry.nt.gov.au>

Tetanus – are you and your staff prepared?

What is it?

Tetanus is an acute disease of mammals characterised by muscular spasms and increased sensitivity to stimuli. Tetanus occurs in humans and has also been reported in all domestic animals, except the cat. In the Northern Territory, the disease has been recorded in horses, cattle, sheep, pigs and dogs. Horses are reported to be the most susceptible to the disease. Tetanus can be a common cause of death in weaners after castration and dehorning.

How is it caused?

Tetanus is caused by the bacterium *Clostridium tetani* when it enters the animal's body through traumatic wounds, or during parturition (e.g. calving) or management procedures. Procedures such as castration and dehorning can provide suitable anaerobic sites for the bacterium. After entering the body, the bacterium begins to multiply and produce a toxin, which causes the clinical signs of tetanus.

Spores of this organism commonly occur in soil and in the faeces of most animals and can survive for many years in the environment. It is for this reason that people who have contact with soil and animal faeces are at greater risk of contracting this disease.

What are the signs?

Signs of tetanus for cattle and horses are:

- Body stiffness
- Reluctance to move
- Muscular spasms
- Locking of the jaw
- Difficulty opening mouth, unable to eat and drink
- Rigid extended limbs (saw horse stance)
- Difficulty in breathing and swallowing
- High sensitivity to noise or touch
- Protrusion of the third eyelid
- Drooling saliva
- Convulsions or fits
- Immediately before death: convulsions occur, respiration is laboured and body temperature rises

Note: In affected dogs, there is a characteristic elevation of the ears, wrinkling of the forehead and protrusion of the third eyelid.

What can we do to prevent / reduce risk?

Prevention and reduced risk can be achieved by a few quick management steps:

- Wet down the yards prior to marking and move weaners out of the yards as soon as possible
- Procedures requiring the skin to be broken, such as injections and castration are carried out as hygienically as possible
- Reduce contamination of surgical instruments by placing them in antiseptic whilst not in use
- Prevent wounds from becoming infected by applying an antiseptic to the wound
- Weaners and calves should be castrated and dehorned just before leaving the yards and not before trucking
- Vaccinate weaners with a 5 in 1 or 7 in 1 followed by a booster shot 4-6 weeks later (where possible) especially on properties with a history of tetanus.

Adopt best practices for branding, castration and dehorning as per the MLA manual, 'A Guide to Best Practice Husbandry in Beef Cattle: Branding, Castrating and Dehorning' (MLA 2007) and start a 5 in 1 vaccination program at branding, followed by a booster 4-6 weeks later or at the next weaning muster.

Animal Biosecurity Branch NT Waybills – Pink Copies

Have you sent your PINK copies in to your Regional Livestock Biosecurity Officer Recently?

It is a mandatory requirement for cattle, buffalo, sheep, goats, camelids (including camels, alpacas and llamas), deer and pig owners to complete a Waybill whenever stock are moved outside the boundaries of a property. Pink copies must be sent within 28 days

It is an offence under the Livestock Regulations not to complete a Waybill correctly and may incur a penalty of up to \$14,100 and \$7050 for not submitting the Waybill pink copies to the Registrar in 28 days after completion.

NT PICs – use the NT PIC Search database - <http://pic.primaryindustry.nt.gov.au/>

National PIC Registers using your NLIS account - <https://www.nlis.mla.com.au/> Search the PIC register

NOTE: Post PINK copies within 28 days to Regional Livestock Biosecurity Officer

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Katherine Region

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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

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Figure 7: Rainbow over Katherine Research Station, submitted by Ian Biggs

Pastoral Market Update

DEPARTMENT OF PRIMARY INDUSTRY AND FISHERIES



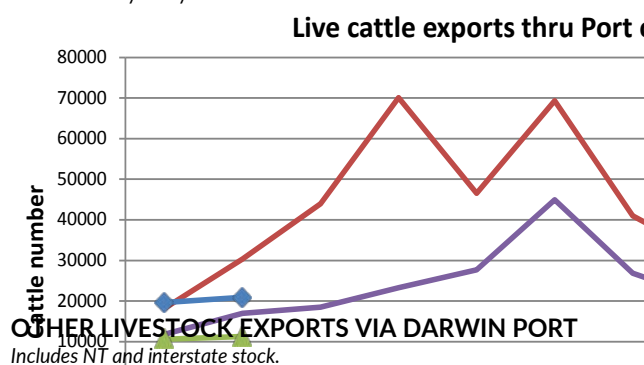
Live Cattle Exports via Darwin Port – February 2016

Please note: figures are for cattle exported through the Port of Darwin only; some NT cattle are exported through interstate ports.

Destination	Export of ALL CATTLE (including interstate) from Darwin Port							Export of NT CATTLE from Darwin Port (estimate only)						
	2014	2015	Last year to 28/02/15	YTD to 29/02/16	February	Last month	Difference	2014	2015	Last year to 28/02/15	YTD to 29/02/16	February	Last month	Difference
Brunei	4,925	4,122	1,029	0	0	0	0	4,925	2,069	0	0	0	0	0
Indonesia	386,183	341,759	37,866	36,760	19,730	17,030	2,700	251,232	197,155	20,883	19,850	10,654	9,196	1,458
Philippines	16,080	23,611	0	0	0	0	0	11,221	13,559	0	0	0	0	0
Sabah	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sarawak	0	300	300	0	0	0	0	0	0	0	0	0	0	0
Malaysia	22,309	11,503	270	0	0	0	0	15,708	7,499	218	0	0	0	0
Vietnam	64,461	100,119	8,142	3,785	1,185	2,600	-1,415	41,391	63,998	7,138	2,044	640	1,404	-764
Egypt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thailand	0	6,154	924	0	0	0	0	0	3,610	516	0	0	0	0
TOTAL	493,958	487,568	48,531	40,545	20,915	19,630	1,285	324,477	287,892	28,755	21,894	11,294	10,600	694

February at a glance

- 20,915 cattle through the Darwin Port during February; 1,285 more than last month and 9,444 less than during February last year.
- 11,294 NT cattle through the Darwin Port during February; 694 more than last month and 5,690 less than during February last year.



Destination	Buffalo		Goat		Camel	
	YTD	February	YTD	February	YTD	February
Brunei	0	0	0	0	0	0
Indonesia	0	0	0	0	0	0
Philippines	0	0	0	0	0	0
Sabah	0	0	0	0	0	0
Sarawak	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0
Vietnam	213	213	0	0	0	0
Egypt	0	0	0	0	0	0
Thailand	0	0	0	0	0	0
TOTAL	213	213	0	0	0	0

NT CATTLE MOVED INTERSTATE

Destination	Number
NSW	461
QLD	4,629
SA	562
VIC	164
WA	9
Total	5,825

NATIONAL CATTLE PRICES

www.mla.com.au/prices-and-markets

CURRENCY EXCHANGE RATES

www.oanda.com/currency/converter

Total Cattle, Port of Darwin								NT Cattle, Port of Darwin							
2008	2009	2010	2011	2012	2013	2014	2015	2008	2009	2010	2011	2012	2013	2014	2015
364,944	347,314	295,605	269,617	246,990	359,616	493,958	487,568	295,539	304,818	272,749	253,797	234,249	308,784	324,477	287,892

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**NORTHERN
TERRITORY
GOVERNMENT**

www.nt.gov.au

Katherine region events calendar

Event	Location	Date	
Farm and Garden Day	Katherine	16 April	Jodie.Ward@nt.gov.au
Katherine Beef Up Forum	tbc	tbc	Trish.cowley@nt.gov.au
Beetaloo Rotational Grazing Field Day	Beetaloo	23 May	Jane.Douglas@nt.gov.au

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

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Katherine NT 0851

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