Editorial

Welcome back to another year – firstly we would like to advise everyone of our Departmental Name change to the Department of Resources.

Cheers from the Editorial team:

Arthur Cameron & Doriane Rout (April 2010)

TABLE OF CONTENTS

Editorial................................................................. 1
Department Name Change........................................ 1
Star Award 2009...................................................... 1
Hendra Virus.......................................................... 2 & 4
Tick Fever in Northern Australia / Re-Assessing the Risk..... 5
Hay Production on 20 Acres....................................... 6
Improved Pastures on 20 Acres................................... 7
NT Fodder & Seed Production 2008.............................. 8
Katherine Pastoral Industry Advisory Committee............... 9
Plants of the Northern Australian Rangelands................... 10
Perennial or Plume Sorghum....................................... 11
AussieGRASS – Jan 2010 update.................................. 12
Australian Red Meat Uses Less Carbon........................ 13
The Value of Phosphorus Still Outweighs Cost.................. 15
Bellyache Bush....................................................... 16
Pastoral Market Update............................................. 19

STAR AWARDS 2009

Cassie Duggan and Sarah Streeter from Tennant Creek Pastoral Production were awarded the Department’s annual Star Award for their great work in organising and running the 2009 Barkly Herd Management Forum. Head stockmen across the Barkly are responsible for the day to day management of many thousands of head of cattle and managing large numbers of staff in their stock camps. Often these headstockmen are quite young and have little formal training for these roles and the decisions they have to make with the majority of their training being picked up on the job. The Barkly Herd Management Forum (see a report in the September 2009 Barkly Beef newsletter) aimed to provide training for head stockmen relevant to their work but not easily developed on the job. Cassie and Sarah organised a number of guest speakers for the Forum who are experts in various fields relating to management of cattle and rangelands. It was great for the head stockmen to have access to these experts and be able to hear their views and pick their brains. The course was highly successful as well as being enjoyable for the participants and speakers. Cassie and Sarah did a great job in delivering and developing the course. On behalf of the Pastoral Production team I would like to congratulate Cassie and Sarah on winning the annual star award.

Scott Wauchope
Director, Pastoral Production

Above: Tim Schatz (Manager of Research, Pastoral Production) accepts the award from CE Richard Galton on behalf of Sarah and Cassie
What is Hendra virus?

- Hendra virus is a virus of flying foxes (fruit bats) that on very rare occasions may cause respiratory and neurological disease in horses and people which can be fatal.
- Flying foxes are the natural host for Hendra virus.
- Four species of Australian flying foxes (grey-headed flying fox, black flying fox, little red flying fox and spectacled flying fox) carry the virus but do not show symptoms of disease.
- Only the little red flying fox and the black flying fox are found in Northern Territory.
- The virus was first identified during an outbreak in horses in Hendra, Queensland in 1994.

How is it spread?

- Hendra virus is believed to be spread between flying foxes through faeces, urine and saliva in colonies.
- On very rare occasions horses can become infected with Hendra virus. Scientists believe infection may occur through ingestion of grass or partially eaten fruit contaminated with bat urine, saliva or other body fluids, such as birthing fluids.
- Hendra virus has only been transmitted to people through very close contact with secretions or body fluids of infected horses.
- There is no evidence of spread between flying foxes and humans or human to human spread.
Occurrence in the Northern Territory
- There have been no known cases of Hendra virus infection in horses or people in the Northern Territory.
- In all cases where Hendra virus was suspected as the cause of illness in horses, Hendra virus infection has been excluded.

Hendra virus in horses
- Horses are the only domestic animal that are known to be naturally infected with Hendra virus.
- The virus causes respiratory and/or neurological symptoms in horses.
- The incubation period from infection to onset of symptoms may vary between 5 - 16 days.
- Symptoms usually develop rapidly with increased temperature, increased heart rate, depression, and discomfort shown by shifting weight between legs.
- Horses infected with Hendra virus deteriorate quickly and most die within two days of developing symptoms.

Protection of horses
Horse owners can take the following steps to reduce the risk of infection to horses:
- Do not place feed and water containers under trees where flying foxes are known to feed and roost.
- Do not use feed that might be attractive to flying foxes.
- Avoid leaving fruit/vegetables or anything sweet in feed containers where flying foxes are known to be in the area.
- Remove flowers/fruit from trees in horse paddocks, or remove horses from paddocks where flowering/fruiting trees have resulted in a temporary surge in flying fox numbers.
- Temporarily remove horses from the paddock during times of peak flying fox activity.

- Reduce contact with items that may be contaminated with body fluids of flying foxes.
- Clean and disinfect gear exposed to body fluids of a horse before it is used on another horse. This includes things like halters, ropes and twitches.
- Wash your hands thoroughly with soap and water before and after handling horses.
- Isolate sick horses from other horses, animals and people and seek veterinary advice.
- Apply good hygiene and general biosecurity measures.

More information on managing flying foxes on your property is available at www.nt.gov.au/nreta/wildlife

Protection of people
Horse owners can take the following steps to reduce the risk of infection to humans:
- Contact a veterinarian to examine sick horses.
- Avoid human contact with the horse until the veterinarian has completed the examination.
- Seek medical advice if you are concerned about your health.
- There is no evidence to suggest that Hendra virus is spread directly from flying foxes to humans, however it is advisable that people do not handle flying foxes due to the risk of other potentially fatal zoonotic diseases such as Australian bat lyssavirus.

Who do you contact?
- Contact your local veterinarian if your horse is sick.
- Your veterinarian will contact the department if Hendra virus is suspected.

For more information on Hendra virus contact your Regional Biosecurity Office

<table>
<thead>
<tr>
<th>DARWIN</th>
<th>KATHERINE</th>
<th>TENNANT CREEK</th>
<th>ALICE SPRINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph: 08 8999 2035</td>
<td>Ph: 08 8973 9716</td>
<td>Ph: 08 8962 4490</td>
<td>Ph: 08 8951 8181</td>
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</tbody>
</table>

Hendra virus is a notifiable disease and all suspect cases should be reported to the Chief Veterinary Officer.

www.nt.gov.au/d/Primary_Industry
**Hendra Virus**

Following the recent cases of Hendra virus infection in horses in Queensland in 2009 and the death of a veterinarian, the Department organised a series of Hendra virus workshops for horse owners in the Darwin and Katherine regions, and vets in Darwin, Katherine and Alice Springs regions. Although the Northern Territory has not had any known cases of Hendra virus in horses or people, two species of flying foxes (little red flying fox and black flying fox) present in the Territory are known to be a reservoir host of the virus. Infected flying foxes do not show symptoms and but can excrete the virus for approximately one week before developing immunity. On very rare occasions the virus can be transmitted to horses. Horses are believed to be infected through the ingestion of feed contaminated with body fluids of flying foxes containing the virus. In the past 15 years, seven people in Queensland are known to have been infected with Hendra virus through very close contact with acutely sick horses infected with the virus.

The aim of the workshops was to increase horse owner’s awareness of Hendra virus and to provide information of the way the virus is transmitted, symptoms in horses, and ways to reduce the risk of infection. The sessions for vets outlined how to assess and investigate a suspect case, samples required for diagnosis and personal protective equipment to be worn during examination to reduce the risk of exposure to infection.

Representatives from the Department of Health and Natural Resources and the Environment were also present to discuss the issues relating to flying foxes and people in contact with an infected horse.

Hendra virus information is available on our website at [www.nt.gov.au/d/Primary_Industry/](http://www.nt.gov.au/d/Primary_Industry/)

**Information for Horse owners**

- Information sheet

**Information for Veterinarians**

- Information sheet
- Guidelines for Veterinarians handling potential Hendra virus infection in horses

**Information for managing flying foxes (fruit bats)**

- Information sheet
Tick Fever in Northern Australia / Re-Assessing the Risk

The Department of Resources will be working with Biosecurity Queensland’s Tick Fever Centre this year on a project to gain current information on diseases transmitted by the cattle tick. Cattle will be tested for exposure to tick fever organisms including Anaplasma, Babesia and Theileria. The information will be provided to producers in Northern Australia to assist with making decisions relating to managing the risk of disease.

The project will include:

1. A breed susceptibility trial to look at the risk of tick fever developing in particular breeds of cattle including composites of these breeds. This will be conducted at Tick Fever Centre.
2. A serosurvey to look at the exposure to tick fever. This will be conducted in northern Queensland, Northern Territory and hopefully also in Kimberley region of WA.
3. Identifying the risk of tick fever on properties and in cattle moving to other properties and options to manage the risk.

The only survey to examine Anaplasma and Babesia exposure in Northern Territory was conducted in 1992-1994 on 19 properties (Pinch and Radunz, 1994).

Since then there have been a number of changes in northern operations that could potentially impact on the risk of tick fever including changes in cattle tick distribution, breed composition, cattle tick control strategies and movement associated with market access. The project will be enlisting the help of producers, veterinarians, exporters, and agents to explore various factors that contribute to the change in risk status.

The serosurvey will involve the collection of blood from 30 unvaccinated homebred cattle aged 12-18 months and the completion of a questionnaire relating to some basic management and movement practices.

In addition, the blood will be tested for exposure to three other diseases; Enzootic Bovine Leucosis (EBL), Bovine Viral Diarrhoea Virus (BVDV or pestivirus) and Infectious Bovine Rhinotracheitis virus (IBR). These results can be used to support the declarations made by Northern Territory Veterinary Officers and Livestock Biosecurity Officers and producers on the animal health status of properties for consignments of cattle for live export.

Further information:
Dick Morton
Senior Field Veterinary Officer Darwin
(08) 89992035
Hay Production on 20 acres

A twenty acre or 8 hectare block is really only a maximum of 7 hectares for hay production, when living and infrastructure areas are taken out.

Hay can be made from a range of improved pastures, forage crops or other crops, with improved pastures being the easiest to manage. While an improved pasture can be a pure grass, a pure legume or a mixture of grass and legume, a pure grass pasture is generally easier to manage.

The main pasture legume grown for hay in the Top End is Cavalcade (higher quality), and the main grass is Jarra (higher yield).

The most suitable hay species for small blocks in the Top End are pangola grass, Tully (humidicola), Jarra finger grass and Strickland finger grass. These are all perennial grasses and do not have to be sown each year.

To remain productive, a hay crop needs to be fertilised every year as hay removes large quantities of nutrients from the soil, and weeds will need to be monitored and controlled if necessary.

A good grass hay crop will yield 8 to 10 tonnes of hay per hectare, equivalent to 32 to 40 large round bales or 320 to 400 small square bales of hay. A baling contractor will be needed to cut and bale the hay as it is expensive to purchase haymaking equipment.

Arthur Cameron
Principal Pastures and Extension Agronomist
Pastoral Production Division
Improved Pastures on 20 acres

If you wanted to keep livestock on your block (remembering you need room to live), how long do you think your animals would survive with just native pasture?

A native pasture block of this size will not even support one horse, cow or steer for one year. Grazing would quickly reduce the block to bare ground and weeds, which would lead to erosion during the wet season.

If well developed to improved pastures, the block could support about 4 cows or steers or about 3 horses for a year.

While an improved pasture can be a pure grass, a pure legume or a mixture of grass and legume, a pure grass pasture is generally easier to manage.

The most suitable grasses for small blocks in the Top End are pangola grass, Tully (Humidicola), Jarra finger grass and Strickland finger grass. Pangola grass is the most persistent and reliable option but has to be planted from runners. Tully is best suited to wetters areas.

To remain productive, improved pastures need to be fertilised regularly, every year if possible, and weeds will need to be monitored and controlled if necessary.

Arthur Cameron - Principal Pastures and Extension Agronomist
Pastoral Production Division
NT Fodder and Seed Production 2008

Primary Industry Group of DoR (DRDPIRF) conducted a survey to estimate fodder (hay and silage) and seed production in the Northern Territory during 2008. These figures include the significant amount of mulching hay made in the Darwin Rural area, and the silage made on a number of Top End properties. The figures are tabulated below.

Hay and silage both declined this year, while seed production increased. The decline in fodder production was the result of below average seasons in some districts, and the change of ownership, management and enterprise focus of a number of properties. The value of the hay and silage produced is estimated at $9.61 m and the seed at $0.656 m.

These figures represent the majority of the production in the NT in 2008.

The districts listed in the table below are the Australian Bureau of Statistics districts.

**Hay, silage and Seed Production in the NT by District (tonnes)**

<table>
<thead>
<tr>
<th>District</th>
<th>Feed Hay</th>
<th>Silage</th>
<th>Mulch Hay</th>
<th>Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alligator</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barkly and Central NT</td>
<td>4620</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daly</td>
<td>9930</td>
<td>4000</td>
<td>130</td>
<td>45</td>
</tr>
<tr>
<td>Litchfield Shire</td>
<td>6060</td>
<td>2300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Top End</td>
<td>19160</td>
<td>40</td>
<td></td>
<td>97.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40310</td>
<td>4040</td>
<td>2430</td>
<td>142.50</td>
</tr>
</tbody>
</table>

Arthur Cameron
Principal Pastures and Extension Agronomist

*These figures were compiled with the assistance of Departmental Officers Coral Allan (Alice Springs) and Harmony James (Tennant Creek).*
Katherine Pastoral Industry Advisory Committee

The Katherine Pastoral Industry Advisory Committee (KPIAC) has recently extended its duties to represent the Top End of the NT as well as the Katherine region in its role as a regional beef research committee who provides advice about what projects should be funded by Meat & Livestock Association (MLA) and guides how they are undertaken.

Tony Searle is the representative on the committee for the Top End, and he has kindly answered a few questions about his involvement with the committee.

Can you give us a quick overview on your business and the area you represent?

Melaleuca is located on the Mary River floodplains, 200kms east of Darwin. We run an agistment and breeding operation, running 1500 breeders and progeny all year round, and agist approximately 5000 head through the dry season. The country is a mixture of 150 km² of floodplain that is semi improved with hymenachne, allaman and para grass. The remaining fifty percent is native upland country, with eucalypts and ironwood, with soil types ranging from red earths through to white rubbish!

Can you describe KPIAC in your words?

KPIAC is an organisation which helps to initiate, fund and guide the research requirements of producers, and ensures research work that is conducted is relevant to producers. It’s a very good tool to be able to relate the results back to the producers in my area.

What has your role in KPIAC been?

My role in KPIAC is taking the research requirements of producers in the Top End and promoting them through KPIAC, getting support and funding to carry this research out. Hopefully in the near future we will be able to get some more research projects happening in the Top End.

What has been the most memorable achievement of KPIAC during your period of involvement?

Seeing research projects such as Cashcow and the Selection Index projects being successfully funded by MLA and DoR.
What have you gained personally from being KPIAC member?

You find out different methods that people use across a variety of country for management. Representing the Top End is a real highlight, and being able to relay information back and forth between the producers, this area is very different and being able to bring the researchers up to speed with what is required is pretty good too.

Why is KPIAC important?

We have got have an organisation that is out sourcing funds for research in the region. There are a number of buckets of money floating around and it is a good way of tapping into these. It’s important that we identify weak areas within the production chain and initiate research to overcome the.

Any other comments?

I look forward to continuing on with KPIAC and the representation of Top End issues in the future.

If you have any Research, Development or Extension issues that need to be raised from the Top End, just contact your local KPIAC representative who will put it to the committee.

Contacts Trudi Oxley 89739763 Tony Searle 89788969

Plants of the Northern Australian Rangelands

Knowledge of plant species in Northern Australian rangeland pastures is a key element in understanding changes and trends in pasture conditions in the quest for sustainable land use.

The book describes and illustrates 140 key plant species important to the pastoral industry in rangeland management with the view to assisting plant identification in the field.

The book will be of interest not only to pastoralists, but to conservation interests, park and conservation reserve managers, tourists, rangeland management agencies, the general community and educational interests.

The book can be accessed at the link below:

http://www.nt.gov.au/d/Content/File/p/Tech_Bull/PlantsNorthernAustralia_Screen.pdf

The following page is an example at how information is presented in the book.
Perennial or Plume Sorghum
*Sorghum plumosum*

A Moderately Desirable Native Perennial Grass

**Plant Description**

*Habit:* A leafy tussock forming perennial grass to 3m high with robust woody stems, and root system.

*Leaves:* The green to blue-green, flat or folded leaves, 10-30cm long, 4-12mm wide, have rough edges and fine pointed tips.

*Seedheads:* The open, light brown seedheads, 12-40cm long, 2-5cm wide, are made up of dense spikelike branches covered with prominent dark brown awns 5-10cm long. Flowers January to May.

**Habitat and Distribution**

Occurs widely throughout the higher rainfall zones of the region. Found in a wide variety of habitats on loamy, alluvial and black soil types.

**Forage and Indicator Value**

Grazed for much of the season, palatability and nutritive value is moderate. Becomes less palatable and nutritious with maturity. An important fodder species by virtue of its bulk and its dominance in many northern savannas and woodlands.

A key deacreaser under moderate grazing pressure. Its presence indicates fair to good range condition and its absence indicates poor range condition.
A study undertaken by the University of New South Wales, to be published in the Environmental Science & Technology Journal, has revealed that Australian red meat production is much more efficient than often reported.

The three year Life Cycle Assessment (LCA) study across three production systems in Victoria, New South Wales and Western Australia has shown that the carbon emissions from sheep and cattle meat production were amongst the lowest in the world.

Based on figures from the research, eating red meat three times a week results in between 164kg* to 258kg** of carbon dioxide equivalent emissions a year - vastly different to figures quoted that claim up to 1.5 tonnes.

Meat & Livestock Australia’s (MLA) Managing Director, David Palmer said that this credible and reliable data gave an accurate reflection of carbon emissions for Australia’s unique production systems.

“Most Australian cattle and sheep are raised in a natural environment feeding on pastures with little or no use of fertilizers and it is unfortunate that until now inaccurate and exaggerated figures have been used”.

“These Australian figures enable us to start having a more meaningful discussion about the industry’s environmental impact”.

The LCA process is a form of cradle-to-grave analysis that attempts to quantify the important environmental impacts of all processes involved in a production system; however it does not take into consideration the ability of soil and trees on farms to absorb carbon. A recent report released by the Queensland Government looked at the total carbon balance on grazing lands in Queensland (47% of Australia’s cattle production) and found they were close to carbon neutral and may in the near future be a net carbon sink.

The United Nations, Food and Agricultural Organisation (FAO) also released a report earlier this month that found grazing lands have the potential to help minimise net greenhouse gas emissions through specific practices, especially those that build soil and biomass carbon.
David Palmer said that the LCA figures were useful to provide a benchmark.

"Importantly the figures give us a baseline from which to continue to improve the industry's performance in regards to emissions, however they do not paint a complete picture and should never be looked at in isolation of other environmental factors such as water and biodiversity".

"Most people are not aware that livestock is the only production industry in Australia to have reduced greenhouse emissions since 1990. According to the Australian Greenhouse office we have reduced our emissions by 7.5%, compared to increases in other industries such as transport and electricity, up 26.9% and 54.1% respectively; we now have a better basis to track improvement in the future".

“The study shows that when you look across the supply chain from paddock to processing, more than 80% of the carbon emissions come from the natural process of digestion of feed by the animal, which is why MLA has co-invested with the Federal government and other partners in a $28 million program with 18 research projects that are looking at how to reduce emissions from livestock”.

**About the Life Cycle Assessment**

Life cycle assessment (LCA) is a form of cradle-to-grave or cradle-to-gate systems analysis that attempts to quantify the important environmental impacts of all processes involved in a production system using detailed input data for that system.

The University of NSW LCA showed that sheep meat was estimated to be 7 to 8 kg CO2-e per kg HSCW (unit of product used for red meat) while for beef values ranged from 8 to 11 kg CO2-e per kg HSCW.

* Based on lower figure from UNSW LCA (7kg per kg for sheep meat) and a 150g serve

** Based on highest figure from UNSW LCA (11kg for beef) and a 150g serve

Released by: Pip McConachie, MLA Environment Communications Manager, ph. 02 9463 9156.
The value of phosphorus still outweighs cost

22/12/2009

Australian agriculture is on course for a dramatic change in its relationship with phosphorus (P), with fewer livestock-suitable sources of P now driving lower availability and higher prices in the feed supplement market.

Wayne Hall, MLA’s manager, northern beef research said productivity in many areas of the north is no less dependent on phosphorus than the P-dependent production systems of the south.

“Phosphorus deficiency in cattle is a significant productivity issue for many northern producers, as it is essential for metabolic activity, and a basic requirement for any animal to reach its genetic potential," said Dr Hall.

“In the north, 68% of soils are classified as deficient or acutely deficient, 12% are marginally deficient and 20% are classified as adequate.

“Breeders with inadequate P levels can have remarkably reduced reproductive performance – in acute deficiency areas, pregnancy rates can be reduced by 15-20%. Similarly, growing animals can have reduced liveweight gain of up to 40kg over the wet season when on acutely deficient pastures.”

The production benefits from supplementing P in northern grazing systems have been proven to outweigh the current associated costs.

“When P prices peaked in 2008, an economic analysis of supplementing cattle on P-deficient properties in northern regions of Queensland showed that this management strategy was still a profitable option,” said Dr Hall.

“More efficient use of P to treat animal deficiencies can be easily achieved by providing supplements during the wet when the demand for P is at its highest, rather than the dry, when protein is overridingly the limiting nutrient. Lactating cattle will also require P during the dry.’

Producers should also determine the herd’s dietary status and which nutrients should be targeted before they begin to provide supplements.

MLA’s EDGEnetwork workshop – the Nutrition EDGE gives producers a comprehensive look at ruminant nutrition and assist in better matching pasture and feed options to livestock needs.

For more information phone MLA’s EDGEnetwork on 1800 993 343 or email edgenetwork@mla.com.au

Released by: Belinda Roseby, MLA media affairs manager; 02 9463 9269
Bellyache bush (Jatropha gossypiifolia) Updated February 2010

Bellyache bush is a declared weed in accordance with the Weeds Management Act. The class of declaration varies according to the location in the NT.

- Class A – to be eradicated (all areas of the NT except where it is classified as Class B);
- Class B – growth and spread to be controlled (in the area roughly described as the Aroona, Mathison and Scott Creek subcatchments in the upper Daly River catchment, and the Greenant Creek subcatchment in the lower Daly River catchment). Please see map; and
- Class C – prevent new entry (all areas of the NT)

In all instances Class A and B areas are also classified as Class C. This results in the mixed declaration classes A/C and B/C.

Areas identified as Class A/C (the eradication zone) generally have lower density infestations which are considered to have a high feasibility of eradication and control.

Areas identified as B/C (the management zone) generally have higher density infestations which have a lower feasibility of eradication or control.

The problem

Bellyache bush seedlings are particularly hardy and competitive; they have been observed to reduce the recruitment of native species in both disturbed and undisturbed areas. Native riparian plants are particularly susceptible to bellyache bush invasion. High rates of opportunistic succession by bellyache bush have been observed after natural disturbance events such as flooding. By excluding native flora, and subsequently fauna, bellyache bush can reduce local biodiversity and ecosystem functioning. Thickets of bellyache bush may be used as refuges by feral animals, hindering their control.

Bellyache bush can spread into pastoral land, forming dense thickets which render land unsuitable for grazing, hinder mustering and obscure fence lines. Direct stock losses have been attributed to poisoning, particularly when viable food sources are scarce.
Habitat and distribution

Bellyache bush, a native of Central and South America, has been recorded in at least 30 localities across the Northern Territory (NT). These sites range from extensive well established infestations in the Daly river catchment, through to isolated, less established sites elsewhere in the Darwin, Katherine and Gulf regions. Bellyache bush is an opportunistic coloniser of disturbed sites, rapidly forming dense monocultures in areas where native vegetation has been compromised. It thrives in riparian zones and can also spread into intact savanna woodland and grassland habitats.

Preventing spread of bellyache bush

In optimal conditions a single bellyache bush plant may produce up to 12 000 seeds per year, with the initial seeding occurring as early as 55 days after germination. Growth can also occur from stem and root segments, including dumped cuttings, slashed plants and plants damaged in events such as flooding.

Spread prevention is the most successful and cost effective way of managing weeds. Bellyache bush seed can be spread via water, ants, livestock and other animals (e.g. feral pig and buffalo) and machinery contaminated with seed. It can also be spread inadvertently if any fill, gravel or bailed hay contains seeds. By implementing the following recommendations potential seed spread can be significantly reduced:

- map infestations to enable the development of a coordinated and planned management approach;
- design and implement a seed spread prevention program;
- follow strict hygiene regimes to prevent spread into clean areas;
- where attempting to eradicate or contain bellyache bush infestations schedule works prior to seed maturation;
- spray/destroy any plants that establish on fence lines, fire breaks and roadsides or outside paddocks;
- ensure any gravel, sand, livestock, hay or any other product is free of seeds; and
- where possible integrate weed management into a broader natural resource management program. Weeds often thrive in degraded areas, such as those impacted by erosion, wild fire and feral animals.

Bellyache bush control

All control methods should be undertaken prior to seeding events to minimise the risk of spread and regeneration. Flowering generally correlates with the wet season (Feb-Apr), and seeding follows (May-July), although these times may vary depending on the availability of water.

Chemical control

<table>
<thead>
<tr>
<th>Chemical &amp; concentration</th>
<th>Rate</th>
<th>Situation, method &amp; comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluroxypyr 200 g/L</td>
<td>500 ml / 100 L or 3 L / ha (boom)</td>
<td>Seedling (individuals or infestation)  Foliar spray – apply when actively growing  Adult (individuals)  Cut stump or basal bark – all year round  Adult (infestation)  Foliar spray</td>
</tr>
<tr>
<td></td>
<td>3 L / 100 L (diesel)</td>
<td></td>
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<tr>
<td></td>
<td>500 ml / 100 L or 3 L / ha (boom)</td>
<td></td>
</tr>
<tr>
<td>Metsulfuron-methyl 600 g/L</td>
<td>10g / 100 L</td>
<td>Seedling (individuals or infestation)  Foliar spray - apply when actively growing, need wetting agent  Adult (infestation)  Foliar spray</td>
</tr>
<tr>
<td></td>
<td>10g / 100 L</td>
<td></td>
</tr>
</tbody>
</table>

Optimum treatment times – Darker colours represent preferred months for foliar treatment

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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</table>

Non-chemical control

Individual plants (seedlings and juveniles) can be removed by hand or by using a mattock. The entire root mass should be removed and excess soil shaken off the root system to ensure regrowth does not occur. Physical removal is very laborious and may therefore only be effective and/or feasible where plant numbers are limited.

Slashing will not eradicate bellyache bush however slashing will kill most plants, reduce the biomass, provide easy access for other treatment options and create opportunities for more desirable species to establish. Slashing can be undertaken at any time of year. Ensure equipment and machinery is cleaned prior to moving to new sites.
Grazing should be minimised after any control efforts to encourage the growth of any perennial grasses. The competition from many pasture species can reduce bellyache bush germination and seedling growth.

Bellyache bush is sensitive to fire, providing there is enough grass or other vegetation to carry a fire. Young plants tend to be more susceptible than mature plants. A large portion of the seed bank will usually survive, as many are buried beyond the reach of lethal temperatures.

The creation and management of a buffer zone free of bellyache bush which isolates all infested areas from adjoining properties will reduce the amount of seed transferring into clean areas.

Follow up

It is vital that follow up works are carried out to control seedling recruitment and regrowth after a site has been treated. Treatment areas must be revisited no less than four weeks after spraying, but prior to seed-set. Seeds in the soil can remain viable for at least four years, and up to seven years under dry conditions, so follow-up control to kill any regrowth or new germinants should be done for at least four years after treatment. Areas should be checked for two years after eradication. If left uncontrolled, seedlings and regrowth may develop into a bigger problem than the initial infestation.

Disclaimer

In the Northern Territory, a registered product must only be used in situations consistent to those appearing on the label, unless authorised under a permit; and a person:

- must not have in their possession or use a chemical product unless the product is registered in Australia (exemptions apply);
- may use a registered product at a concentration, rate or frequency lower than that specified on the label unless this is specifically prohibited on the label. This does not apply to herbicide use occurring under an APVMA permit;
- may use a registered product to control a pest not specified on the label provided the pest is in a situation that is on the label and use on that pest is not specifically prohibited on the label; and
- may also use a registered product using a method not specified on the label unless this is specifically prohibited on the label.

Users of agricultural (or veterinary) chemical products must always read the label and any permit, before using the product and strictly comply with the directions on the label and any conditions of any permit. Users are not absolved from compliance with the directions on the label or conditions of the permit by reason of any statement made in or omission from this publication.

Further information

For further information on weed management planning, integrated control, herbicide application techniques and monitoring please refer to the NT Weed Management Handbook. Information is also available on our website at www.nt.gov.au/weeds or contact the Branch directly at weedinfo.nretas@nt.gov.au.

The Weed Management Branch can be contacted on ph. 8999 4567
January & February at a glance

- 23,834 head of cattle through the Port of Darwin during February, 240 more than January and 4,280 more than February last year.
- 2010 total cattle figures indicate 15,962 head more than last year. NT cattle 687 less than last year.

2009 v 2010

Total Cattle Export Thru Port of Darwin

NT Cattle Export Thru Port of Darwin
OTHER LIVESTOCK EXPORTS VIA DARWIN PORT (includes NT and Interstate Stock)

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NATIONAL CATTLE PRICES - W/E 5/3/10

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<td>NSW QLD SA AV (Aust)</td>
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</tr>
<tr>
<td>Last week</td>
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CURRENCY EXCHANGE RATES

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Prepared by the NT Department of Resources

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