Katherine Rural Review

DEPARTMENT OF **PRIMARY INDUSTRY AND RESOURCES**

EDITION #342 MAY 2020

Inside this issue:

From the editor

Welcome to issue # 342 of the Katherine Rural Review (KRR).

Moving forward, the Department of Primary Industry and Resources (DPIR) is looking to an exciting new format for delivering Northern Territory (NT) pastoral industry news – watch this space!

The end of the wet season in Katherine was no more exciting than the beginning, with very disappointing and patchy falls. Katherine experienced the driest wet season to date with only 457mm falling at the Tindal rain gauge. This compares with around 800mm of rain in the 2018-19 season and equates to just 41.9% of the long term Katherine average rainfall of 1103mm.

Staff in the Livestock Biosecurity Branch continued to be busy with preparedness activity in the exotic disease control and quarantine space. In the last quarter, this has involved dump and swill-feeding audits as part of African swine fever preparedness, and training workshops for producers, veterinarians and livestock industry staff around ongoing vigilance and surveillance in animal health. The outbreak of a novel coronavirus this year has lately taken all of our attention, and has brought the work of animal health professionals into sharp focus. There is currently specific and urgent attention towards work done in the One Health space, which looks at links between human and animal diseases. Read on to find out more in the Livestock Biosecurity News.

Producers will be aware of the important role played by DPIR staff, in supporting the pastoral industry to help solve business continuity issues posed by COVID-19 movement restrictions. Rapid development of protocols, management plans and permits was achieved through the hard work of a number of key DPIR staff in collaboration with other NT and national agencies, to find solutions and enable work to go on. At the time of writing, an important change has been made to limits on in- and outdoor gatherings, such that NT primary producers with an approved COVID-19 property management plan, are exempt from the 10-person limit. This is an important move towards protecting and supporting these vital industries and employers, and allowing your work to continue. As this pandemic continues to play out, we are all hoping for continued reassurance that the NT is the safest place to be on earth.

Read on to find out more about weed control, uncover the mysteries of the Madden-Julien Oscillation, meet Katherine's new research agronomist and more.

Cheers,

Megan Pickering

Editor

www.nt.gov.au
ISSN: 0394-9823

NORTHERN TERRITORY GOVERNMENT

Managing bellyache

While we gardeners like to pride ourselves on our deep connection to the natural world, we actually have a somewhat sketchy record when it comes to caring for country.

Australia has a pretty shameful number of weeds. Some arrived recently as fodder plants gone wild, some are part of our collective history, having arrived many years ago on the saddles of cameleers. A saddening number of weeds have been introduced by illegal dumping of green waste or through gardeners planting 'a new little pretty' to add to their collection. Some garden escapees were even introduced by the big players. A couple of the NT's worst weeds were first introduced well before the 1950s into the George Brown Darwin Botanic Gardens as interesting or beautiful specimens.

There have been multiple deliberate introductions of bellyache bush, or Jatropha indica, in Australia. By the 1920s it was considered naturalised and here to stay. It is likely the bellyache bush originally arrived in the NT via plantings of a variety of Jatropha species at the botanic gardens around 100 years ago.

Bellyache bush is very much one of Snow White's apples. All parts of the plant are poisonous to people and the fruit really does give animals a bellyache with the plant linked to a fair number of stock deaths. Bellyache bush forms dense thickets and, in ideal conditions, reaches up to four metres in height, shading out native vegetation and pasture species. It seeds prolifically and can also grow from stem and root cuttings moved around in floods or by dumping of green waste.

It doesn't matter if you own your patch or rent it, if you have a few tomatoes down the back or a pastoral lease the size of a small European country, we all have a legal responsibility to manage weeds on our land. Bellyache bush is a Class A weed over much of the NT. This means we must control it wherever possible and stop it spreading to other properties.

Bellyache bush is one of the most aggressive and poisonous weeds in the dry tropics of Northern Australia. Whether you choose to spray it, burn it or pull the dreadful stuff out, controlling bellyache bush on your patch today will mean it doesn't become a pain in the neck tomorrow.

You'll find everything need to know about controlling bellyache bush online at Bellyache bush.

Image: Bellyache bush, *Jatropha indica.*

New project to explore broadacre cropping options in the NT

The largest Cooperative Research Centre for Developing Northern Australia (CRCNA) research collaboration to date, could deliver a boon for new broadacre cropping developments across the NT.

The two year, $1.4 million project is being co-funded by the CRCNA, the Grains Research and Development Corporation (GRDC), the Cotton Research and Development Corporation (CRDC) and fourteen other partners.

Researchers from the NT DPIR will lead a project team of experts from CSIRO, universities, natural resource groups, industry associations, seed distributors and ten producers from across the Territory.

Dr Ian Biggs, Senior Research Agronomist at the DPIR, said the project is focused on developing a complete cropping system for growers by building on earlier studies about the agricultural potential across the Katherine/Douglas Daly region, southern and central NT, and CSIRO's Northern Australian Water Resource Assessment study for the Darwin regions.

"This means undertaking trials that target high value crops like cotton and peanuts, and developing a farming system that incorporates crop rotations like sorghum, maize, pulses or pasture.

"Our physical small-scale trials will be complimented by larger, commercial demonstration trials and supported by crop simulation tools like APSIM (Agricultural Production Systems sIMulator) and OZCOT.

"Advances in these crop simulation programs provide a powerful tool which can be used to extend learnings from field research, build an understanding short and long term risk profiles, identify key management decisions, determine irrigation water demands and incorporate grower experience while developing an overall picture of the cropping potential of a region," he said.

Data collected as part of the trials will be added to the APSIM, OZCOT applications and the University of Southern Queensland's CROPARM website to ensure producers, agronomists and investors have access the latest information about the various growing regions.

CRCNA Chief Executive Officer, Jed Matz said this information will help these stakeholders decide which crops to grow and when and where to grow them.

"This collaboration is about gathering the brightest minds in northern Australia cropping systems and setting the starting points for the development of NT broadacre cropping systems by giving producers, investors and development decision-makers the information they need to realise the region's potential and all the economic benefits that flow from realising that potential," he said.

The NT Farmers Association predicts that over the next decade development of a broadacre cropping industry in the NT will see a dramatic increase in the production of crops like sorghum, soybean, pulses and peanuts (current production for soybeans and peanuts is zero). While cotton is likely to have an exponential increase in the number of producers growing the crop and the number of bales produced annually.

Avoiding the devil

It's the stuff of nightmares. Stumbling through the bush, you wind your way through thick, sticky undergrowth, seeing nothing but hairy shapes with pink and red eyes. In the darkness something reaches out and grabs you!

This may seem melodramatic but it is a risk faced by critters whenever they come across a patch of devil's claw.

First discovered in the Pine Creek area in the early gold mining days, by WWII this particularly nasty weed could be found throughout the Pine Creek, Katherine and Victoria River regions. Devil's claw, *Martynia annua*, grows well in disturbed areas along roads, buildings and stockyards and, despite many years of active management, can still be found around Katherine and Timber Creek.

Devil's claw is a shrub that grows up to 2m tall and has spiky-hairy leaves similar to those of pumpkin vines. The flowers of this noxious weed are actually quite pretty. White, pink or lavender bell-shaped blooms are decorated with red throats and yellow spots. Unfortunately the seed pod that follow the flowers is not as nice. When mature, these woody capsules have two sharply hooked spines or claws. These are able to dig deep into fur and flesh, or into the clothing, equipment or vehicle of anyone passing by. This is great for the devil's claw as it means that its seeds are easily transported from place to place but it would be incredibly painful for whatever critter they are clinging on to.

Devil's claw seeds are long-lived and can sprout after a number of years spent sitting inside the woody pod, waiting for the right conditions. This makes eradicating devil's claw very difficult. Land managers must be prepared for 10 years of weed control before they can be certain that nothing remains.

Image: Devils claw, *Martynia annua*

Help keep Katherine free of devil's claw. Don't drive through weed patches, the seed pods will stick to just about anything! If you have devil's claw on your property, isolation fencing that keeps stock and wallabies out of the area will protect both your investment and the environment.

Keep an eye out for those distinctive leaves and colourful flowers. If you see them give the Weed Management Branch a call on 89 738 857. They'll get you up to speed on the best way to deal with devil's claw.

The Madden-Julien Oscillation for beginners

The Madden-Julien Oscillation (MJO) is a key climate driver for Northern Australia. Although it receives far less media attention than its cousin, the El Niño Southern Oscillation (El Niño/La Niña), the MJO plays a more significant role in determining the quality of the northern wet season.

The diagram below shows the area of Australia directly impacted by the MJO and the period in which it is active (October to April with the most impact being felt between late December and March).

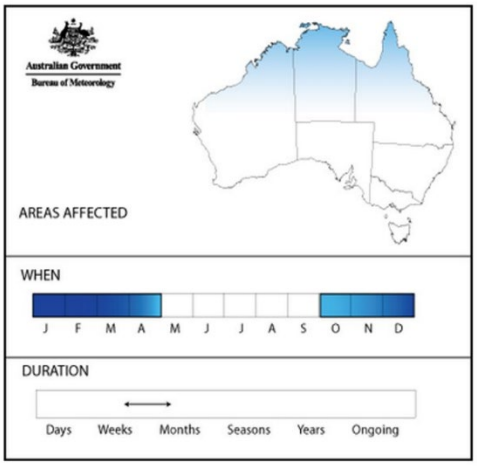


Image source: Bureau of Meterology

What is the MJO?

The MJO is a pulse of cloud and rainfall that travels around the globe from west to east, close to the equator. It can take between 30 and 60 days to complete its circuit. Depending on where it is located, the MJO can increase the chance of rainfall but can also decrease the chance of receiving rain, effectively increasing the likelihood of sunny conditions.

Active in summer, the MJO coincides with the northern wet season. The MJO is largely responsible for determining the timing of rain within the wet season, that is, why some periods are wetter or drier than others.

How can we track it?

The Bureau of Meteorology (BoM) tracks the progress of the MJO and this information can be found on the BOM website

Figure 1. MJO track for January to March 2013

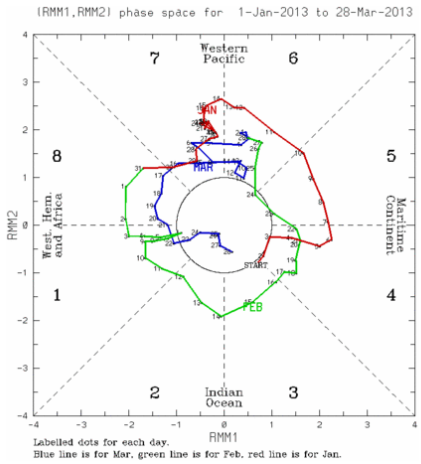


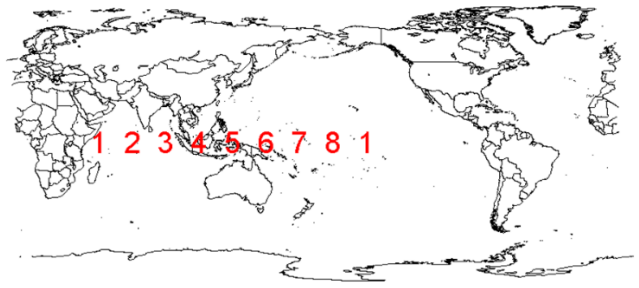
Image source: Bureau of Meterology

While MJO charts look confusing at first glance, it is fairly easy to read once you know what you are looking at. The coloured lines track the physical location of the MJO on its journey around the globe. The different colours signify the different months. In Figure 1 the red line represents January, the green line is February and the blue line is March. The numbers beside each line are the dates within the month.

The numbered sections one to eight represent a geographic location in relation to the earth's surface.

Figure 2 shows how these numbered sections correspond to the physical location of the MJO.

Figure 2. Map of MJO locations



The MJO's strength can be determined by the distance between the tracking line and the circle in the centre of the plot. The further the line is from the circle, the stronger the MJO signal. When the line is inside the circle, the MJO is very weak to indiscernible and its effect on our weather is lessened.

What does this mean for me?

When the MJO is in sections four, five and six there is an increased chance of rainfall in northern Australia. When the MJO is sections eight, one and two there is a decreased chance of rainfall. Sections two and seven are neutral in terms of rainfall.

The ability to predict the MJO's progress and strength has improved in recent years and BoM incorporates this information into its seasonal forecasts.

MJO and cyclones

Cyclones are still very much a wild card and can occur anywhere at any time. Although they are notoriously hard to predict, observations suggest that cyclones are more likely to generate out of the tail of the MJO, rather than the lead.

A short video with more explanation about the MJO (and other important climate drivers) can be found at the Climate Kelpie website

New research agronomist at KRS

Millie Lamprecht commenced work with DPIR Katherine as a research agronomist working on the Cooperative Research Centre for Developing Northern Australia (CRCNA) CRCNA project: Potential for broadacre cropping in the NT.

The objectives and work program of this two year project include cotton in the Top End wet season and peanuts in central and southern NT.

An NT local for the past 18 months, Millie previously worked on remote communities managing community stores and collecting bush foods. With a Bachelor of Science degree (with honours) from the University of Tasmania, Millie also has experience in field, laboratory and glasshouse work in the hops industry.

Passionate about the environment and sustainable land management, Millie is eager to broaden her knowledge within the agricultural industry. She is excited to have a job where she will be working to develop a sustainable cropping industry for the NT.

Millie will be involved in collecting data to validate crop simulation models and will then work with CSIRO and university researchers to apply the validated models to test broadacre cropping across the NT.

Bringing enthusiasm to learn, Millie looks forward to working with researchers from CSIRO, University of Southern Queensland, Queensland Department of Agriculture and Fisheries, and the NT Department of Environment and Natural Resources, as well as local farmers and the NT Farmers Association.

Image: Millie on the first soil sampling trips to the

project's Douglas Daly region cotton cropping sites.

Millie Lamprecht. Research agronomist, Katherine Research Station

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NT Soil symposium in Katherine

Territory Natural Resource Management (TNRM) held the final leg of its NT Soil Symposiums at Godinymayin Yijard Rivers Arts and Culture Centre in Katherine on 5 March 2020, with more than 35 people attending. Previously held in Alice Springs and Darwin and coordinated by Jacob Betros of TNRM, the NT Soil Symposiums focused on the importance of healthy soil in agricultural and natural ecosystems.

The presenters covered topics including soil carbon, biology, fertility, soil erosion and climate change, along with current initiatives and activities being undertaken nationwide and in the NT to improve soil health and condition. The symposium speakers included award-winning presenters and with local speakers.

Rob Hinrichsen (AUSVEG Grower of the Year 2016) talked about his journey in adopting a number of industry-leading initiatives, including a sophisticated composting program, controlled traffic farming, use of biologicals, integrated pest management and cover cropping. Colin Seis (2014 Bob Hawke Landcare Award Winner) talked about his pasture cropping technique that has been adopted both across Australia and internationally. The technique contributes to building topsoil and reducing soil erosion, and provides great potential for restoring grasslands, increasing soil carbon levels, improving soil health and growing nutrient-dense, healthy food.

Two local pastoral farmers, Moira Lanzarin from Mataranka and Karen McGrath from Katherine, were graduates of TNRM's 2019 Digging Deeper program and shared the learnings and insights they gained from the training. They described how soil health is key to maintaining ground cover to increase soil organic matter, increasing soil nutrients and water-holding capacity, and the role of cattle in nutrient cycling in pastures. Digging Deeper is an educational program covering soil function, soil testing, and benchmarking and monitoring the physical and chemical properties of soil. The program enables participants to understand the mix of soil inputs and amendments available to enhance crop production.

Other speakers

- Simon Goodhand talked about the National Soils Strategy.
- Sue Bestow (Office of the National Soils Advocate) talked about the Soils for Life program, initiated by retired Major General Michael Jeffrey.
- Angela Hammond (Meat and Lamb Australia) encouraged the audience to get involved in their Profitable Grazing Systems program.
- Anika Molesworth (far western New South Wales) helped organise Farmers for Climate Action to connect growers to researchers through her platform, Climate Wise Agriculture, to help build resilience into farming communities.
- Jason Hill and Patrick Burly (Department of Environment and Natural Resources (DENR)) discussed accessing soil information for sustainable land use planning in the Katherine area.

Highlights of the symposium were the opportunity for the audience to view the NT's major soil types and a demonstration of DENR's hydraulic soil sampling drill to collect soil samples.

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Image: Attendees viewing the NT's major soil types

Image: Patric Burly demonstrating DENR's hydraulic soil sampling dril