Invigorating date research

Vivek Bhat and Glen Oliver, Sustainable Plant Industry, Alice Springs

The Australian date industry is still in its infancy despite the palms’ introduction into the country more than a century ago. Dates need hot, dry conditions to thrive and are amongst the most salt tolerant horticultural crops known. There are only few major producers in the country, with approximately 50 hectares of land under date cultivation, producing around 500 tonnes. Importation is still required to meet domestic demands (between five to seven thousand tonnes). This provides an opportunity for those who are involved in the industry to increase their knowledge, capacity and fill the gaps locally.

Fig 1. Showing date palm with good bunches of developing fruits in *kimri* stage
Dear Reader

In this first edition of the Rural Review for 2012 our feature article is on date production. Vivek and his team have been rejuvenating the date orchards at the Arid Zone Research Institute and have been very successful from the taste of things. This orchard contains top germ plasma from all over the world and is indeed a jewel in the desert.

Over the past two weeks the Pastoral Production team, ably assisted by farm staff, have been hard at work at Old Man Plains to develop a new watering point with yards. This infrastructure enables the final implementation of the long-term grazing trials where both the Grazing Land Management principles, with fixed stocking rate, and the Northern Grazing Systems principles, with variable stocking rate, can be tested over time in an extremely variable climate. These trials are a first of its kind in central Australia and the findings should contribute valuable information to industry regarding sustainable and profitable cattle production in years to come. As with any grazing trial the information from these trials will become more valuable as time goes on.

An article of particular interest to me is dealing with the ‘ideal size’ for breeders in a specific environment. DoR are using the Droughtmaster herd in determining benchmarks for a type of animal adapted to the local conditions. With the herd almost at full capacity in terms of animal numbers we will also compare profitability of different production systems and taking it further to compare options available for marketing.

The pastoral industry surveys have now been completed and I wish to thank all those who gave up of their time to participate. It was a great opportunity for our staff to visit stations and especially for relatively new staff, like me, to meet pastoralists. During these visits a number of areas were identified where the department can provide a service. One such area is in business management and I am pleased to inform you that a business EDGE course is being offered by MLA in the Alice from 20 to 21 March. This course has been conducted with great success in Queensland and has been adapted to cater for the needs of central Australia. Please find more information in this newsletter and feel free to contact Sally Leigo or myself if you want to discuss the relevance to you.

I was told an annual staff turnover of approximately 25 per cent is quite natural for the Territory. Fortunately there are a core group of staff members that maintain continuity and provide corporate knowledge. Such stalwarts at AZRI are Bryan ‘Gilly’ Gill and Greg ‘Crawf’ Crawford who are both celebrating 30 years of service. In this edition of the newsletter we asked Gilly a few questions about his time with the Department and in the next edition we will talk to Crawf.

Enjoy the read.
Pieter Conradie
Manager, Pastoral Production
Alice Springs and Tennant Creek
Potential strength of the date industry

Australia has accumulated a wealth of date palm genetic material from several importations of offshoots and tissue cultured plants from different sources all over the world including California, England and France over the decades and into central Australia and South Australia in the recent times. Currently, the Arid Zone Research Institute farm (AZRI) in Alice Springs has 151 palms, representing nearly 50 female varieties and the majority are of international reputation. There are 31 male palms representing three known varieties: Fard #4; Jarvis#1; Boyer #1 and the Indian sugar palm (P. sylvestris) and some local selections— all at the right age for production and suitable for testing.

What was done at AZRI during Spring 2011?

In August, the maintenance program was implemented to rejuvenate the palms at AZRI. To begin, the orchard was pruned (Figs. 2a & 2b). This was followed by rotary hoeing along the tree lines, which incorporated the weedy grasses to create circular basins to facilitate the nutrition and irrigation (Fig. 3). Trees were fed with an initial dose of combined fertiliser mixtures to supplement potassium, nitrogen, phosphorous, along with calcium in the form of gypsum. Pruned fronds were chipped and incorporated along with the horse and cattle manure into basins to increase the soil organic content and to help maintain the soil moisture. The irrigation pipes were also upgraded to reduce salt build up and to ensure adequate irrigation (Fig.4).
Since September, we have started investigating the effects of different pollen parents on known female palms, an exhausting but instructive exercise for testing productivity and combining abilities (Fig.5). In the process, we did a quick, effective test to determine viability of collected and stored AZRI pollen as well as pollen obtained from a South Australian grower.

The fluorescein diacetate (FDA) staining method employed here tests the presence of an enzyme which cleaves the stain into the pollen grains producing a fluoresced product. If the pollen is viable the stain is retained in pollen grains while in the dead ones the stain leaches out.

The results highlighted the potential deficiency of pollen management. There were significant differences among the samples tested. Interestingly, the grower-supplied pollen was the least viable (Fig. 6) and the AZRI pollen tested very potent and highly viable (>90%).

Effective cross pollination is a must.

Pollination is the most significant process of date production due to its unique reproduction biology. Date palms (*Phoenix dactylifera* L.) are dioecious (trees have separate sexes). Assisted cross-pollination is a must for commercial production. One male palm can supply sufficient pollen to set fruit on 50 female palms. It is also well documented that dates exhibit the phenomenon of “metaxenia” where the pollen parent affects the size, the time of maturity and eating quality of the fruit. These factors emphasise the importance of selecting the best male palms, looking after them well, ensuring the adequate pollen collection, storing the pollen in proper conditions, and verifying their viability prior to mass pollination.

**Future plans.**

- We have proposed a detailed study investigating:
  1. the various compatibility combinations between the known female varieties and pollen sources;
  2. the adequacy of pollen supply for pollination;
  3. protocols for appropriate pollen storage; and
  4. pollination techniques
- Setting up a system for testing the pollen viability and extending the service to the industry stakeholders
- Adding new genetic materials to enrich the range of qualities
- Establishing a healthy block of male palms to develop a pollen bank that can supply the required viable pollen for compatible combinations
- Enhancing quarantine measures to ensure the least pest infestation and/or their eradication by accessing effective newer chemicals through APVMA registration for date industry
- Developing descriptors for the best Australian dates and promoting them to domestic and international markets
- Developing organic production techniques for dates.
- Assisting growers to create a forum for coordinating the production, processing and marketing activities for the industry.

For further information contact Dr Vivek Bhat, Research Horticulturist, AZRI 8951 8168 or on mobile 0418 455 225 - vivek.bhat@nt.gov.au

Bibliography


A tasty visit to AZRI

AZRI has emerged as a travel destination for international tourists after a group from Switzerland dropped by in January to take a tour and sample some dates and asparagus. The Swiss tourists were part of a tour organised by Sydney based KN Travel Australia. Research Horticulturist Vivek Baht says the Swiss were extremely impressed and raved about the flavour of the dates, and were also very impressed by the asparagus.
Mature Cow Weight: The Balancing Act

Recent analysis of some 67,000 mature cow weights that have been recorded with BREEDPLAN during the past 10 years for the Angus, Hereford, Shorthorn, Charolais & Limousin breeds has revealed that the mature weights of animals have increased on average by approximately 30 kg. Whilst this increase can be attributed to changes in both management and genetics, the clear message is that the weight of mature cows in southern Australia has increased quite considerably during this period. Reports also suggest similar changes have occurred in northern Australia.

One question worth asking is “what impact is this increase in the mature weight of cows having on the overall profitability of commercial beef businesses in southern Australia?” To answer this question, it is important to consider how the weight of mature cows influences the costs and returns in a commercial beef enterprise. Primarily, mature cow weight will affect:

- **Cow Feed Requirements** - In general, heavier cows will eat more, have higher feed requirements and be more expensive to maintain. The effect of increasing mature weight in a commercial enterprise is therefore either an increase in the amount of feed that needs to be produced to meet the requirements of the female breeding herd, or a decrease in the number of females that can be carried from the same amount of feed.

- **Cull Cow Values** - The income from the sale of surplus females can make up a significant proportion of the total income of a beef breeding business with the major determinant in the value of surplus cows being live weight. Heavier cows will produce higher income from surplus cow sales, but at what cost?

- **Relationship with Progeny Weight** - In general, heavier cows will tend to have calves that have higher growth genetics, particularly if progeny are being turned off at older ages (eg. greater than 24 months). However, this relationship is not 1:1 and producers will be aware of females within their herd that “bend the growth curve” and consistently produce heavy calves but only have moderate mature weight themselves.

- **Relationship with Weaning Rate** - While heavier cows tend to have heavier progeny, there is some evidence to suggest that the number of calves weaned decreases with an increase in mature weight, particularly when combined with a decrease in fat levels.

Achieving an appropriate balance in the weight of the female breeding herd is consequently an important consideration for cattle producers. In a commercial situation in which the objective is to maximise profit, the optimal cow weight (light, moderate or heavy) will depend on the long term cost of producing or purchasing additional feed, the long term value (c/kg) for surplus cows and the advantage of having more or heavier progeny at sale. In situations where there is limited feed (or the cost of producing additional feed is high) and surplus cow values are low, a breeding objective of moderating or reducing average cow weight is most likely to be more profitable. In situations of abundant, low cost feed and high cull cow values, the most profitable breeding objective may be to breed for heavier weight cows.

Given the impact that mature cow weight has on the profitability of a commercial beef enterprise, BREEDPLAN currently produces Mature Cow Weight EBVs. Mature Cow Weight EBVs are an estimate of the genetic difference in cow weight at 5 years of age and are calculated within the GROUP BREEDPLAN analysis that is conducted for each breed in Australia, except Belmont Australia.
Mature Cow Weight EBVs enable producers to carefully monitor the genetics of their animals for mature weight, while selecting for increased growth and therefore an earlier age of turnoff in their sale progeny. Irrespective of what is the desired cow weight, it is important to be mindful that if mature weight is not considered and selection is focused simply on increased growth (ie. high 200, 400 or 600 Day Weight EBVs) then the mature weight of the female breeding herd will increase due to the relationship between these traits.

Breeders interested in having Mature Cow Weight EBVs calculated for their animals need to collect weight information of their cow herd, with BREEDPLAN currently analysing mature cow weights if the cow has a calf with a weight recorded within 2 weeks of when the mature weight was taken and further, the calf was between 80 – 330 days of age when it was weighed. Therefore, in layman’s terms, seedstock producers interested in Mature Cow Weight EBVs should take a weight on their cows when they are recording the 200 day weights for their calves. BREEDPLAN currently analyses up to 4 mature weights on an individual cow and so cows should be weighed each year. Recording mature cow weights is also a good way of increasing the accuracy of 600 Day Weight EBVs in a herd if a significant proportion of calves have already left the herd by 20 months of age (eg. sale bulls, steers, surplus heifers).

Mature cow weight information should be submitted directly to the BREEDPLAN office at ABRI in a similar fashion to other performance information.

Key Points for NT Producers
Although parts of this article may not suit the beef cattle enterprise of NT producers, there are some relevant key points:

- **Interpreting a Mature Cow Weight EBV** - A large estimated breeding value (EBV) for Mature Cow Weight means that cows will be larger and have a higher sale value when culled. However they will also require more feed and will be harder to keep in good body condition.
- **Mature Cow Weight and Cow Feed Requirements** - If cows have above average size stocking rates may have to be reduced to allow for their greater feed intake. It may be better to consider stocking rates in terms of ‘kilograms of cows’ rather than numbers of cows.
- **Relationship of Mature Cow Weight to Weaning Rate** – Because it is harder to keep bigger cows in good body condition, they may have reduced fertility and wean fewer calves. Body condition has a big effect on fertility.
- **How to Manage Mature Cow Weight** - If average mature cow size is increasing in the herd, it can be addressed by using bulls with a lower EBV for Mature Cow Weight.

**What When & Where**

**2012**

**March 24th**
General council elections

**April 14th**
Australian Inland Mission centenary, Adelaide House & John Flynn Memorial Church

**April 25th**
ANZAC day.

Contact azri.library @nt.gov.au or 8951 8114 if you’d like to add a coming event.
"Excellent 2011/12 ‘growing season’ for some, but at worst average”

AussieGRASS – February 2012 Update
Chris Materne, Pastoral Production, Alice Springs

Past – Exceptional!
Present – At worst average!
Future – Mixed!

Future (Pasture Growth Predications)

**Figure 1:** Chances of exceeding Median Growth over March, April and May 2012

**Figure 2:** Prediction Skill based the SOI in Phase 2 over February 2012

Figure 1 represents the chance of exceeding median pasture growth over the coming three month period based on the Southern Oscillation Index (SOI). The current soil moisture and nutrient estimates indicate that above average pasture growth is predicted over much of the southern Alice Springs district in the next three months but generally below average over the Tanami district.

Figure 2 indicates the likely hood of the predictions in figure 1 eventuating. Generally at present a moderate to high signal exists across the Alice Springs region, becoming slightly stronger to the north and north-east where a “wet/dry” seasonal pattern is more defined.
Present (TSDM)

At present widespread standing dry matter is of over 1000kg/ha, and up to 4000kg/ha, which remain over areas not affected by 2011 fires. Country that was burnt in 2011 is generally showing less than 1,000kg/ha of biomass (Figure 3).

Figures 4 and 5 presents the median pasture growth for the Plenty, North-western and Southern Alice Springs districts, and tracks the progress of the 2011/12 “growing season” (red line) in comparison to the previous 2010/11 “growing season” (green line).

Past (2011/12 Pasture Growth)

Figure 7: Past 6 month pasture growth relative to historical records since 1957 (1st September 2011 to 29th February 2012) and indicates above average to exceptional growth has again been experienced over the Alice Springs region with the exception of the central and northern areas.

PERSONALISED PROPERTY MAPS

Are you interested in obtaining detailed AussieGRASS maps for your property?
If so get in touch with Chris Materne DoR Alice Springs (89518135) chris.materne@nt.gov.au.
General NT and Australia scale maps are available on line at:
**BusinessEDGE Workshop for Northern Beef Producers**

**Why a Business Workshop?**
- The northern beef industry is, overall, in poor shape financially.
- There is too much debt, cashflows are thin and good profitability is hard to come by.
- Land prices are static or falling and the banks are at best, very nervous.
- The live export trade has some serious issues and beef prices have been falling in real terms.

**What is the Workshop all about and what will I learn?**
In short, you will almost certainly go home and do things very differently, because...
- You will keep more accurate records on the information that really matters.
- You will know why you cannot rely on your tax return to make good business decisions.
- You will know if your business is economically sustainable in the long term or not.
- You will really understand how to interpret the critical numbers in a set of business accounts.
- Your will know the key profit drivers of the business, and herd, and how to improve them.
- You will know how to allocate capital effectively for the best result.
- You will know how to tell if your debt is productive or unproductive and how to manage it.

**BusinessEDGE Spreadsheet Tools**
There are a number of critical decisions that must be made every year in any beef business. Most of these decisions are complex and benefit from the use of a spreadsheet tool that simplifies the process and saves time. Examples are, calculation of stocking annual stocking rate, updating annual management accounts, calculating debt safety, allocating capital for the long term and prioritising capital allocation for productivity improvement. Course participants are provided with a USB stick containing purpose-built spreadsheet tools that answer all these questions. During the course, participants are shown how to use them and adapt them to their own individual business needs.

**Plus...**
- Workshop presenters are experienced industry professionals.
- FarmReady 65% rebate available for producers.
- Cost of the workshop is $1850 per business (for two people) + $200 per additional people from the same business. (maximum of two people at $200).
- This is a tax deductible expense. Cost includes workshop notes, morning/afternoon tea and lunch each day.
- You will have to get there and find a bed, breakfast and evening meal at your expense.
- You will need to bring an open mind, a sharp pencil and a calculator.

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**Register NOW!**

$1,850*
(incl GST) per business
for 2 people + $200
per additional attendee
Minimum of two people at $200.
Places are limited so register early to secure a place for your business.

**BusinessEDGE Workshop for Northern Beef Producers**

Arid Zone Research Institute, South Stuart Highway, Alice Springs
Tuesday 20 March and Wednesday 21 March 2012
8.30 am to 5.30 pm

Presenters: Steve Petty and Ian McLean

Who should attend this workshop?
- All northern beef producers, family and corporate, but especially...
- Producers who want to make their businesses financially resilient.
- Producers who feel their business skills could do with some fine-tuning.
- Young producers who want to set out on the right business path.
- Producers who want to reduce business risk, make better business decisions and grow wealth.

For more information and to register: Contact JK Connections on
T: 07 5482 4368 or M: 0488 599 033 or E: businessedge@jkconnections.com.au
Places are strictly limited so register early to secure a place for your business.

FutureBeef is a joint initiative of:
Bryan Gill, or Gilly as he is known, has worked for the Department of Resources for 30 years. He’s seen a lot of changes in that time, and worked with a lot of people. We managed to pin him down and ask a few questions about his time with the Department.

**Tell us a bit about yourself**
I was born in Perth, W.A. and moved to Adelaide when I was ten. My family used to come up to Alice for holidays; it was where my mother came from and I loved the place. I left home at 17 in 1972 and went to work as a stockman on Undoolya and Deep Well Stations with the Hayes families. After a few years I travelled overseas for a couple of years and then returned to Alice. I was lucky enough to meet Maurie Johns in the Feds club one night, and as a consequence ended up getting a job as a stock inspector with what was then called the Department of Primary Production. I went to all the cattle properties in the Alice Springs District, testing cattle for TB and brucellosis, and later destocking the Simpson Desert. We worked from helicopter and on motorbikes, tracking the last animals down. I also worked on the Barkly and in Darwin during BTEC (Brucellosis, TB Eradication Campaign). In 1998 BTEC finished and I started in a Extension role. I learned to Preg test and AI, and have done a lot of preg testing around the district and at AZRI. It keeps me pretty busy to this day. I spend a lot of time at Old Man Plains, but I can be asked to go anywhere in the Alice Springs region for work.

**Any highlights?**
One pretty amazing experience was going to the UK, along with Greg Crawford and Bob Smith during the Foot and Mouth Disease outbreak in 2001. We went over as guests of the British government for a 6 week stint, assisting vets monitor stock. I was assigned as a clean team (one that had no contact with the disease) and got to drive around some beautiful farming regions in Britain checking on the stock.

**Best part of the job?**
Breeding the droughtmaster cattle.

**Any memorable characters you’ve worked with?**
I have worked with some interesting characters over the years and have been lucky enough to enjoy the different people I’ve met and the places I’ve worked at. If I had to name a few, Maurie Johns, Dennis Morgan, Bryden Ganley and Tony Moran come to mind.

**Outside of work what do you do for fun?**
I’m keen on cricket, playing it recreationally and at the Masters games for quite a few years now. I’m also in the Alice Springs Rural Volunteer Fire Brigade, but I wouldn’t call fighting fires fun.

**Any last words?**
The job has always been challenging and fun, with great people to work with at the Department and in the industry. That’s why I have been here for 30 years!
Live Cattle Exports via Darwin Port – FEBRUARY 2012

Please note that the “NT CATTLE” figures are NT cattle exported through the Port of Darwin only, some NT cattle are exported through interstate ports.

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|              | 2010 | 2011 | Last year 28/2/11 | YTD 29/2/12 | 1-29 FEB 0 | Previous Month |
|              |      |      | 800 | 737 | 0 | 737 | 737 | +737 |
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| INDONESIA    | 250,540 | 223,526 | 45,342 | 42,541 | 24,483 | 19,058 | +5,425 |
| PHILIPPINES  | 12,784 | 16,068 | 0 | 0 | 0 | 0 | 0 | 0 |
| SABAH        | 982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SARAWAK      | 1,615 | 1,197 | 0 | 0 | 0 | 0 | 0 | 0 |
| W-MALAYSIA   | 3,975 | 2,535 | 0 | 1,533 | 0 | 1,533 | -1,533 |
| VIETNAM      | 0 | 945 | 0 | 0 | 0 | 0 | 0 | 0 |
| EGYPT        | 0 | 5,363 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL        | 272,749 | 253,797 | 46,242 | 44,811 | 24,483 | 20,328 | +4,155 |

FEBRUARY at a glance

- 26,693 head of cattle through the Port of Darwin during February, 3,865 more than January and 7,148 more than February last year.
- 2012 total cattle figures indicate 3,279 head more than last year. NT cattle 1,431 less than last year.

**TOTAL Live Cattle Exports thru Port of Darwin 2011 v 2012**

**NT Live Cattle Exports thru Port of Darwin 2011 v 2012**
### OTHER LIVESTOCK EXPORTS VIA DARWIN PORT (includes NT and Interstate Stock)

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### NATIONAL CATTLE PRICES - W/E 9/3/2012

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#### LIVE EXPORT QUOTES

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<td>Broome</td>
</tr>
<tr>
<td><strong>This week</strong></td>
<td>185</td>
<td>Nq</td>
</tr>
<tr>
<td><strong>Last week</strong></td>
<td>185</td>
<td>Nq</td>
</tr>
<tr>
<td><strong>Year ago</strong></td>
<td>215</td>
<td>Nq</td>
</tr>
</tbody>
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### CURRENCY EXCHANGE RATES

<table>
<thead>
<tr>
<th>Key Currencies</th>
<th>1AUD =</th>
<th>Current 15.3.2012</th>
<th>Previous month 1.2.2012</th>
<th>3 months ago 1.12.2011</th>
<th>1 Year ago 1.3.2011</th>
<th>Pre-devaluation 01.07.1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Dollar</td>
<td>1.34523</td>
<td>1.34604</td>
<td>1.33903</td>
<td>1.31001</td>
<td>1.076</td>
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<tr>
<td>Indonesian Rupiah</td>
<td>9,656.95</td>
<td>9,542.74</td>
<td>9,346.23</td>
<td>6,956.85</td>
<td>1830</td>
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<tr>
<td>Philippine Peso</td>
<td>45.08015</td>
<td>45.56410</td>
<td>44.96092</td>
<td>44.39949</td>
<td>19.84</td>
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<tr>
<td>Malaysian Ringgit</td>
<td>3.19984</td>
<td>3.23262</td>
<td>3.25009</td>
<td>3.10274</td>
<td>1.9</td>
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<tr>
<td>Euro</td>
<td>0.80410</td>
<td>0.80470</td>
<td>0.76369</td>
<td>0.73731</td>
<td>N/A</td>
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</tr>
<tr>
<td>US Dollar</td>
<td>1.04971</td>
<td>1.05829</td>
<td>1.02231</td>
<td>1.01630</td>
<td>0.752</td>
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