FACULTY OF VETERINARY SCIENCE

THE UNIVERSITY OF SYDNEY

DAIRY RESEARCH FOUNDATION

NEWSLETTER

VOLUME 3 ISSUE 2
July 2011

IN THIS ISSUE

DIARY DATES

- DAIRY RESEARCH FOUNDATION COUNCIL MEETING is to be held on Tuesday 2nd August 2011

DIRECTORS' UPDATE

Welcome to another edition of the DRF Newsletter!

We just completed another very successful annual symposium in early July. With keynote speakers from the Netherlands and USA and many professional and farmers speakers from Australia and over 200 delegates, the 2011 DRF Symposium is already the big highlight of the year! You will find more details inside.

At the same time FutureDairy 2 has come to an end in June and FutureDairy 3 has kicked off in July! The new project focuses on AMS systems under the leadership of Dr Kendra Kerrisk. See her update inside.

The issue also contains several interesting technical articles from our researchers and students. As usual, I hope you enjoy reading this newsletter and please do send us your feedback!

Yani Garcia

DRF Director, Assoc Prof Yani Garcia

From the PRESIDENT

The DRF Symposium is one of my favourite events of the Year: some challenging speakers from all around the world, the chance to catch up with some old friends and a bit of time away from the farm to reflect on how and why we do things the way we do. I guess they are some of the reasons why I haven't missed one for over 20 years.

Inside this edition is an update on how this years event went.

Thanks

Bill Inglis

Mr Bill Inglis
President of the DRF

THE 2011 SYMPOSIUM

More than 200 delegates recently attended the Dairy Research Foundation's Annual Symposium in Camden and the conference dinner held at Gledswood Homestead and Winery.

The DRF event was preceded by the Dairy NSW abd NSW Farmers Association-Dairy Section annual meetings which were both very well attended.

Day 1 was held at the Liz Kernohan Conference Centre at Camden and was started with our 2 keynote speakers Dr Kees de Konning (Wageningen University, The Netherlands) and Dr Santiago Utsumi (Michigan University, USA). Both scientists lead the AMS programs at their respective Universities.

The remainder of Day 1 involved talks by Australian farmers and scientists on a variety of topics including AMS on commercial farms, dairy farm profitability and feed conversion.

The annual conference dinner was a great night at which the Milk Marketing NSW Dairy Science Award was presented to George Davey for his excellence and service to the industry. George very kindly donated the $1,000 prize money to the Foundation to support the research of our emerging scientits. Thank you George!

A Q&A panel was part of the Day 1 program. Left are (L-R) speakers Grant Williams, Simon Scowen and Matthew Cahill

Key note speaker Kees de Konning spoke on the latest trends and challenges in AMS

Dairy Science Award recipient George Davey ® with wife Jo and DRF President Bill Inglis

DAIRY RESEARCH FOUNDATION
COUNCIL MEETING
TUESDAY 2nd AUGUST 2011
at USYD CAMDEN CAMPUS

THE 2011 SYMPOSIUM

Day 2 was centred around the Automatic Robotic Rotary (AMR) at Elizabeth Macarthur Agricultural Institute in Menangle. The site was set up with a number of platforms at which both our young and experienced Scientists promoted their research and a selection of farmers gave their perspectives on the technological future of our industry.

The Emerging Scientist Awards were presented at the end of the day with the Best Paper going to Helen Golder (SBS Cibus/ University of Sydney) and the Most Popular Presentation was awarded to Joe McGrath (University of New England).

The weather was kind to us albeit a little gusty but overall the Symposium was an outstanding success!

The DRF would like to thank Esther Price Promotions, and all of our many sponsors and speakers for their invaluable help and support.

Emerging Scientist Joe McGrath is presented with the award for Most Popular Presentation by Dr Paul Ford from the G. Gardiner Foundation, (above L) whilst delegates look on (above R)

Day 2 presenters and organisers (above L) and Dr Karl Burgi demonstrates hoof care practices on Day 2 (above R)

FUTUREDAIRY UPDATE

PRECISION FARMING

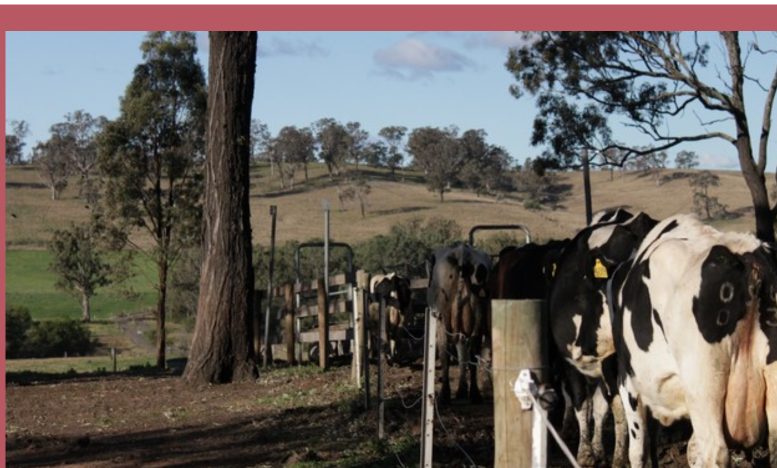
AMS INDUSTRY UPDATE

At my last update we were just 8 days into full voluntary cow traffic with the prototype robotic rotary and were supervising the system 24-hours a day.

Well time has moved on and we've made a considerable amount of progress. We have now been operating for almost 4 months with the prototype robotic rotary after shutting down the single-box robots (in fact we are in the process of removing the single boxes). The cows have adjusted to the new milking technology fantastically and are now trafficking through the dairy extremely well. We generally operate with average voluntary waiting times well below 1 hour but it did take the cows the best part of the three months to fully adjust. This time frame would be similar to the adjustment period that commercial farms experience with cows adjusting to a voluntary cow trafficking and milking system from a conventional milking system.

I am looking forward to the students presenting some of their recent studies at the annual DRF symposium. Of late the two key studies have involved the impact of the presence or absence of "teaser" concentrate feed availability on the voluntary cow traffic onto the platform. Teaser feed is a very small (~250 gram) allocation of feed presented to the cow in a bin as a reward for presenting herself for milking, in this sense it acts as an incentive but certainly not as a feeding solution. The prototype and the first commercial version of the AMR™ do not have in-bail feeding solutions. Controlled feeding of concentrate or grain will be through feeding stations located in the post-milking area. We are currently in the process of installing the feeding stations at Camden to allow us the flexibility of allocating concentrate at an individual cow level.

Automatic Robotic Rotary Research Leader Dr Kendra Kerrisk



PRECISION FARMING

AMS INDUSTRY UPDATE (cont)

However, the initial investigation results suggest that with voluntary cow traffic there may be a need to have a small allocation of feed available on the platform as a reward to cows presenting for milking to minimise the lag between cows trafficking from the waiting yard onto the rotary. The same may not be true for cows that have never received concentrate on the platform or if our cows had an extended (e.g. 3 month) adjustment period to no feeding on the platform. Regardless, it is our expectation that the in-bail feeding with the AMR™ will be developed in time so the post-milking feed station solution (with or without teaser feed) will be a solution for only the initial adopters of the technology.

You may have seen the recent media releases announcing that the first commercial installation of the AMR™ will be as a pilot installation on a family farm in Tasmania. FutureDairy is very excited to be involved with the family as they play a role in the final stages of development and the first stages of commercialisation of the AMR™. Our involvement will be in supporting the family as they progress through the installation and commissioning phases and as they develop their understanding and knowledge of operating this new equipment and the farm system around it. We expect that many challenges will be faced along the way and that some of these will require the Camden team to address some arising research questions to create an increased level of understanding of some of the key management options with the system.

From 1 July 2011 FutureDairy moves into the next phase of the project with the commencement of FutureDairy 3. Over the next three years the focus of the project is in a number of areas of Automatic Milking Systems (AMS) from supporting pilot installations to gain understanding of the challenges associated with the commercial application, capturing knowledge and learning from existing AMS installations to ensure that the industry has a strong understanding of the impact of AMS on aspects including labour, power consumption, reproductive performance, and investigating potential solutions to the challenges that are likely to arise specifically in relation to pushing AMS in large and high producing herds.

For further information contact Dr Kendra Kerrisk at kendra.kerrisk@sydney.edu.au

FUTUREDAIRY

FEEDBASE

APSIM : THE CAPACITY TO SIMULATE AN ANNUAL CYCLE OF A TRIPLE CROP COMPLEMENTARY FORAGE ROTATION UNDER A RANGE OF INPUTS

By Dr Rafiq Islam

Using data from the 2008-09 growing season, we have shown that APSIM (Agriculture Production System Simulator Modelling) model has the potential to simulate an annual cycle of triple crop complementary forage rotation (CFR) of maize in summer, forage rape in autumn-winter and field peas in spring with good accuracy.

The model simulate ~40 t DM/ha under non-limiting N fertiliser (~500 kg N/ha) and irrigation water (~8 ML/ha) conditions which was achieved consistently in a paddock level trial over 3 years at Camden. APSIM showed that similar CFR yields may be achievable in other key dairy regions such as the Hunter Valley and North Coast of NSW.

To further test the model in the 2009-10 growing season we compared model simulated CFR outputs against outputs from a large CFR trial at Camden that included a range of N fertiliser (0 to 523 kg N/ha) and irrigation water (0 to 8 ML).

This modelling simulation was carried out in order to investigate the ability of APSIM to simulate yield and nutrient use efficiencies of CFR from nil to non-limiting N and water inputs.

A field test site was established at May Farm research site, Camden, NSW. A triple crop CFR cycle of maize, forage rape and field pea was grown in small plots under a range of nil to high N and water inputs from October, 2009 to October, 2010.

Dr Rafiq Islam at work on soybean plots at Camden

Maize (Pioneer 31H50) was grown with pre- (0 and 135 kg N/ha) and post-sown fertiliser N (0, 79, 158 kg N/ha). Forage rape (Goliath) was grown without or with 230 kg fertiliser N applied at three splits. Field pea (Morgan) was grown without fertiliser N. In addition, each forage treatment received 4 rates of irrigation water (0, 33, 66 and 100%).

Sowing and harvesting dates for maize were 20 October and 12 February, respectively; for forage rape dates were 18 February and 26 July (3 cuts were made); and for field pea dates were 18 August and 20 October, respectively.

Seeding rates of maize, forage rape and maple pea were 100000 seed, 5kg and 210 kg per ha, respectively.

FEEDBASE (cont)

APSIM :

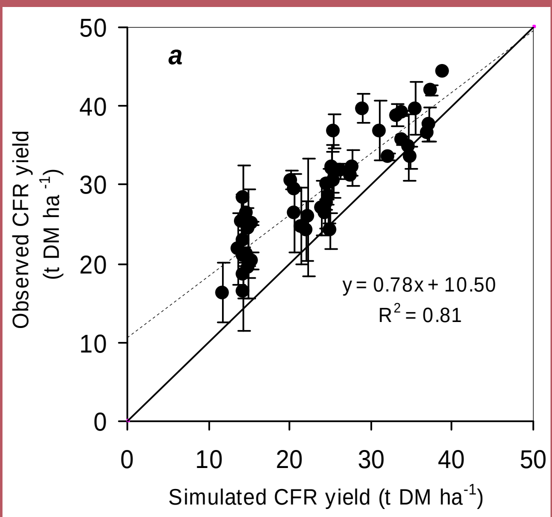
THE CAPACITY TO SIMULATE AN ANNUAL CYCLE OF A TRIPLE CROP COMPLEMENTARY FORAGE ROTATION UNDER A RANGE OF INPUTS (cont)

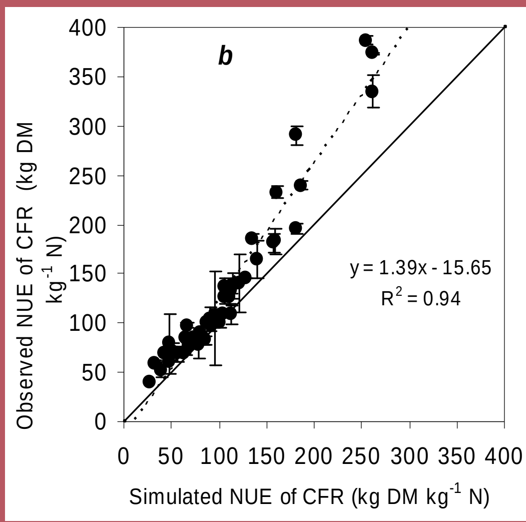
Yield, nitrogen use efficiency and irrigation water used efficiency of whole CFR data obtained from this trial were simulated by APSIM using the same agronomic and management rules described above.

We found that, again in the 2009-10 season, APSIM effectively simulated total dry matter yield (R^2 = 0.81; Figure 1a), nitrogen use efficiency (R^2 = 0.94; Figure 1b) and water use efficiency (R^2 = 0.79; Figure 1c) of CFR with relatively good accuracy.

We concluded that APSIM has the potential to simulate yield and nutrient use efficiency of an annual triple crop CFR under a range of input systems. This is very encouraging and gives us confidence in the model to further evaluate complementary forage options for Australian farmers.

For further information contact Dr Rafiq Islam at md.islam@sydney.edu.au





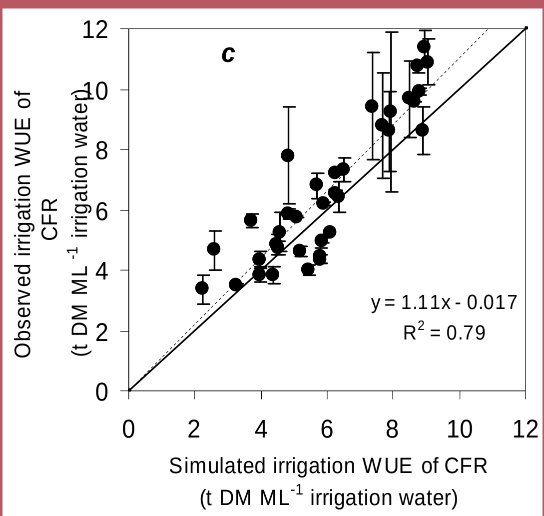


Figure 1. Simulated vs. observed data:

a) total dry matter yield (t ha^{-1}) ($y = 0.78x + 10.50$; $R^2 = 0.81$),

b) b) nitrogen use efficiency (NUE, kg DM kg^{-1} N) ($y = 1.39x – 15.65$; $R^2 = 0.94$) and,

c) c) irrigation water use efficiency (WUE, t DM ML^{-1} water) ($y = 1.11x -0.017$; $R^2 = 0.79$) of a complementary forage rotation at Camden in 2009 - 10.

FEEDBASE (cont)

WATER REQUIREMENTS IN MAIZE GROWN FOR SILAGE

By Dr Rafiq Islam

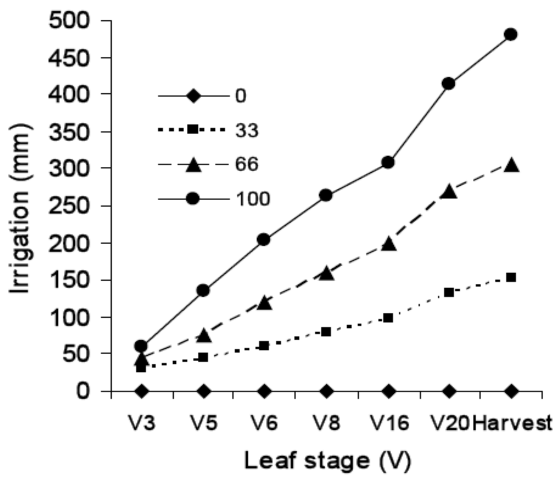
The total number of leaves in a maize plant increases with water availability (see figure below). More live leaves mean more food for the plant and also more nutrients to be mobilised for the formation of grain.

High water content of irrigated maize helps this remobilisation of nutrients, which contributes to the higher yield of irrigated maize crops.

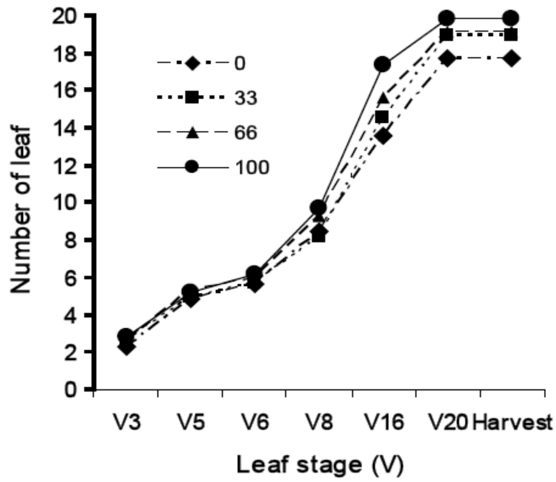
About half of the total number of leaves in maize plants develop between ~46 (V6) and ~78 (V16) days of growth in a ~116-day growth cycle hybrid.

On the other hand, cobs start to initiate at the V8 stage (if not limited by water availability), but about 90% of the cob formation occurs between V16 and harvest, in a span of only 34 days.

This means that water availability is important since early stage of plant development (~V6), but becomes crucial from about V16 (pre-tasselling) to about 2-3 weeks after tasselling.



Rates and amount of irrigation water at different stages of growth of maize



Leaf development of maize plant at different stages of growth of maize depends on rates of irrigation water

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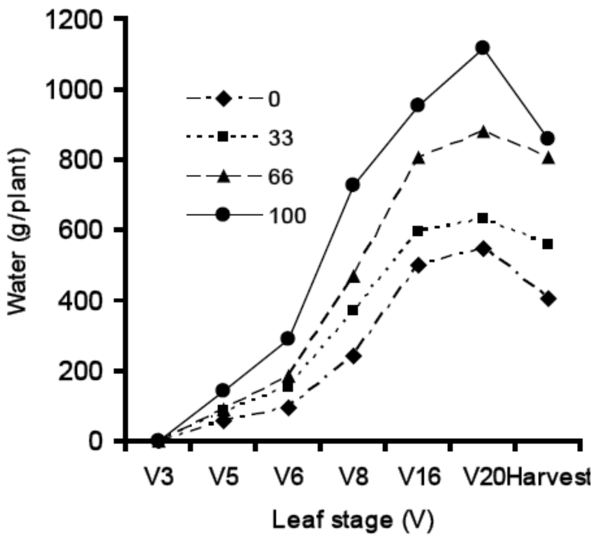
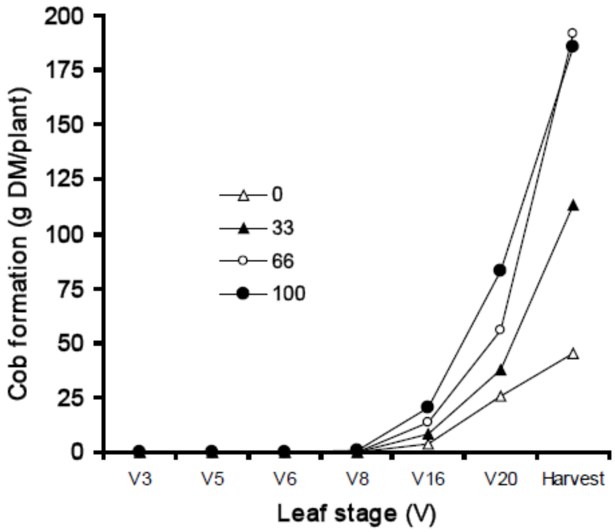
FEEDBASE (cont)

WATER REQUIREMENTS IN MAIZE GROWN FOR SILAGE (cont)

By Dr Rafiq Islam



Water content of maize plant at different stages of growth of maize depends on different rates of irrigation



Cob formation initiates at the V8 stage of growth

Increase in irrigation also increases tillering, plant height and number of full grain cobs per plant (see Table on page 10). In addition, irrigation affects percentage of different fractions of maize plant: percentage of grain increased from 9 to 32% but stover (leaf, stem and cob structure) decreased from 91 to 70% with the increase in rates of irrigation from nil to 100% (see Table 1). As a result, both total dry matter and grain yield of maize increase with the increase in irrigation.

However, both irrigation water and N fertiliser are required to optimize yield, as none of them alone can increase yield to the expected level, as the bar graph on the next page shows.

FURTHER INFORMATION

If you'd like further details on any item in this newsletter please contact us on

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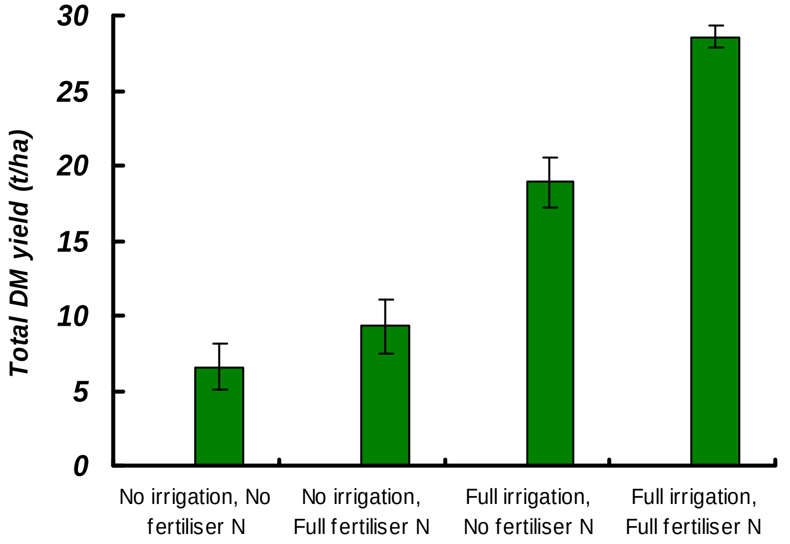
or at

vetscience.dairyresearch@sydney.edu.au

FEEDBASE (cont)

WATER REQUIREMENTS IN MAIZE GROWN FOR SILAGE (cont)

By Dr Rafiq Islam



Both irrigation water and N fertiliser are required to achieve high yield of maize, even on a high fertility soil [high initial N content] like the one used in this experiment

Nitrogen use efficiency also increases with the increase in irrigation (from 69 to 161 kg DM/kg N with an increase in irrigation from 0 to 100%). However, both irrigation and total water use efficiency decrease with the increase in irrigation (see Table 1). *Contact Dr Rafiq Islam at md.islam@sydney.edu.au for more information.*

Table 1: ***Effects of irrigation (% of full irrigation) on different fractions of maize plants***

	Irrigation (%)			
	0	**33**	**66**	**100**
Irrigation water use efficiency (kg DM/mm)	-	96	67	50
Nitrogen use efficiency (kg DM/kg N)	69	103	142	161
Tiller%	7	8	9	14
Full grain cob/ha	45027	75609	94185	95805
Total cob/ha	114120	158490	175230	171180
Plant height at harvest (cm)	165	205	244	264
Plant fractions (%)				
Leaf	44	30	26	27
Stem	25	22	22	21
Cob structure	22	28	23	20
Stover plus cob structure	91	80	71	70
Grain	9	20	29	32

NOT TOO LITTLE WATER - BUT MAYBE TOO MUCH?

By Anthea Lisle (DPI NSW)

Six farms in the Hunter Valley have been sharing their experiences and data with us as a part of the Future Dairy project, as they attempt to increase milk from home grown feed.

Four of the 6 cooperating farms have grown bulk crops of maize for silage on an area dedicated to a Complementary Forage Rotation (CFR), over 2 years. Maximising dry matter production on this area of the farm has the effect of increasing the average DM yield across the whole farm, without having to increase area. The exceptional dry matter yields achieved on this CFR area are shown in the table below.

> Farmers have found the soil moisture monitoring gear useful in scheduling their irrigations.
>
> It has highlighted the risks of overwatering in crops if too much emphasis is placed on maintaining moisture in the soil profile.

	Yield (tDM/ha) from the CFR focus area of each farm	
Farm (Crop cycle on the CFR area from November 2009 – Feb 2011)	CFR area Nov 09 –Oct 10	CFR area Mar 10 – Feb 11
Farm 1 (Maize - brassica and ryegrass - maize)	35.78	34.88
Farm 2 (Maize – ryegrass – maize)	27.20	27.70
Farm 4 (Maize – volunteer maize, brassica and ryegrass – maize)	33.87	34.57
Farm 6 (Two crops of maize – triticale and maple peas – single maize crop)	32.20	22.90

The CFR areas ranged from 15 – 30% of the total farm area, meaning that these high yields have had a significant impact on whole farm production.

After the first crop of maize was harvested in February 2010, farmers raised questions about increasing yields from maize crops – the mark of 25tDM/ha was proving elusive, even under seemingly ideal soil nutrition, crop nutrition and water availability. Consequently, soil moisture monitoring gear was installed on the cooperating farms.

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FEEDBASE (cont)

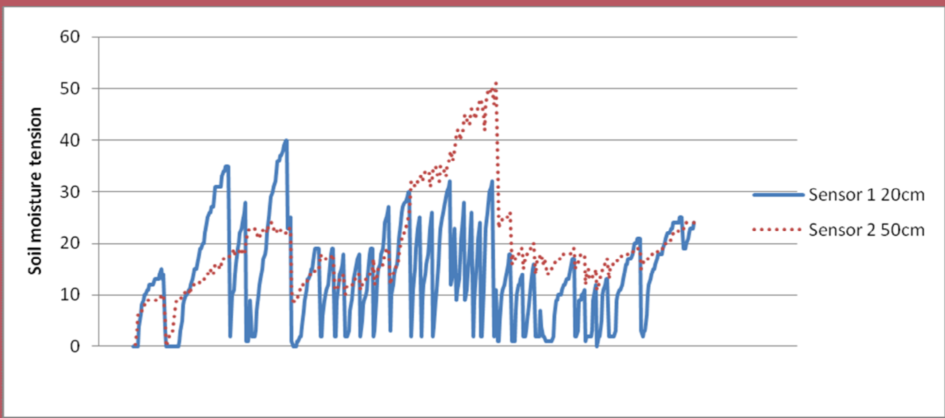
HUNTER VALLEY PROJECT UPDATE (cont)

Four farms had a data logging system installed, with a Hansen data logger and 6 Watermark gypsum block sensors buried at 2 depths (20 cm bellow surface and 50cm below surface) across the CFS area allowing analysis of the soil moisture at different depths. The other two farms were set up with GDot systems from MEA, giving the farmer a visual indication of soil moisture tension, with a "traffic light" system to alert farmers of times when soil was drying out, but did not log the data. For the soil types on which the 6 Hunter farms are growing bulk crops and pastures, the general recommendations for soil moisture tension are between 10 centibars and 60 centibars. If the soil in the root zone is measuring moisture tension of 60 centibars, pasture and forage plants are likely to be experiencing moisture stress. Farmers in the Hunter group with the data loggers installed on farm were aiming to maintain soil moisture tension between 10 and 45 centibars.

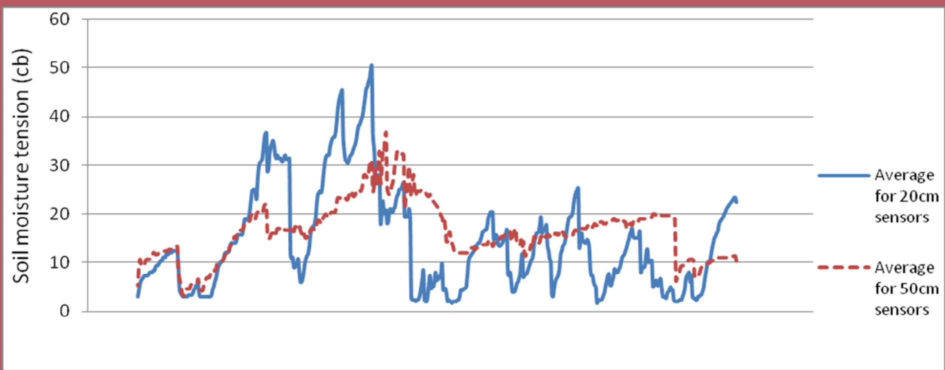
So what did the gear tell us?

Where the sensors were placed under centre pivots, the soil moisture tension varied with irrigations, especially at the 20cm level

These two graphs indicate that, rather than under-watering and causing moisture stress, these crops may have been water logged at critical crop times!



As soil dries out, soil moisture tension increases



Soil moisture tension of less than 10cb will limit oxygen available to the plant roots – water logging!

CAMDEN FARM

Continuing work on the new irrigation system at Corstorphine Dairy in Camden has nearly come to an end.

One hundred and four fixed sprinklers (see photo below) with solenoids have now been installed and are soon to start operating on the farm.

As part of the system, moisture meters were placed into the ground allowing consistent measurements from the upper soil layers down to 1m depth to be taken. This will also result in labour savings of which the management team is very excited.

The entire irrigation system is controlled over the internet which has required the Farms Manager Kim McKean to upgrade to a new iPhone 4. Not being a mobile geek, Kim experienced much angst at the thought but has quickly embraced the technology and is now able to access the system remotely with it!

Labour needs of 5 hours per day are expected to drop to approximately 20 minutes per week.

The effect on water savings is going to be significant although final figures are unknown at this stage.

At Westwood Farm a new lateral system is up and running and an extra pivot has now also been installed.

The advantage of these upgrades has enabled 20 hectares of extra paddock to be irrigated directly from the river source.

All this means the use of less water being used to cover a larger area of land than would be possible with travelling irrigators.

These upgrades have been made with grants from the **WaterSmart** program.

One of the 104 fixed irrigators installed at Corstorphine Farm in Camden

Above, Farm Manager Kim McKean checks the irrigation system
Below: Corstorphine Dairy's upgraded rrigation system being installed.

For further information please contact Farms Manager Kim McKean at kim.mckean@sydney.edu.au

POST-GRADUATE STUDENTS

Masters student Helen Golder

Helen Golder

I am currently in the final stages of preparing a journal article for submission discussing the results of my first acidosis challenge study. This study examined the effect of feeding a grain ration combined with sugar and/or the amino acid, histidine at concentrations representative of pasture on the risk of subclinical acidosis in dairy heifers. The results showed large increases in lactic acid concentrations in sugar fed heifers and increases in rumen fermentation products in all challenged heifers.

Over the past month I have been optimizing a laboratory kit to measure endotoxin concentrations in cattle blood and rumen samples. Endotoxin is a component of bacterial cell walls that is released into the rumen when rumen bacteria die. Reductions in the pH of the rumen during acidosis often cause the death of certain species of bacteria in the rumen because they are not capable of survival in acidic conditions. Species with a higher tolerance to acidic conditions then become dominant. After optimization of the endotoxin testing kit I will be investigating the effect of acidosis challenge on endotoxin concentrations in rumen and blood samples I collected from heifers in my earlier acidosis challenge study. We are hypothesizing that endotoxin concentrations will be increased in the challenged heifers.

PhD student Michael Campbell

Michael Campbell

Michael Campbell is making good progress in Northern Vic despite mostly working alone with the 4 farmers involved in his study. He has already collected monitor data for 5 months/10 fortnights and has been working on the forage plans with the farmers.

Michael is busy finishing the forage plan reports and writing a literature review.

POST-GRADUATE STUDENTS (cont)

Nicolas Lyons

Masters student Nicolas Lyons

As a way to continue analysing the possible management operation required to minimize the occurrence and impact of extended milking intervals on milk production, I have been analysing all the cow traffic and milking data of every cow milking through the AMR since we started operating with full voluntary cow traffic (24-hours/day) on the AMR in early February 2011.

Preliminary data would indicate that even while operating 24/7 with the AMR (and low utilisation levels), there is still a high percentage of milkings occurring above the ideal 18-19hr limit (> 20% of milkings, coinciding with historic data from Camden, NSW). When we analyse cow traffic of cows presenting themselves at the dairy (either voluntary or as a result of fetching), the pattern is not even during the day with a higher number of traffic events occuring during the day than during the night. On average, it took almost 11hs for a cow to return to the dairy (Early lactation cows come back on average almost an hour and a half earlier than late lactation cows), but cows were only granted milking permission at 88% of visits. Cows accepted for milking presented at an average interval of 12 hours after previous milking and had a waiting time in the dairy of 1.5 hours (resulting in an average milking interval of 13.5 hours). Cows that were refused access to the dairy at their gate passing were on average only 3 hours past their previous milking and returned to the dairy after a further interval of 12 hours. This resulted in an average milking interval for these cows of just over 16.5 hours.

Developing a real understanding of the cow traffic has allowed us to realise that the focus for our next phase of work needs to be in minimizing the 11 – 12hs “return to dairy” intervals if we are to minimise the occurrence of extended milking intervals. At this stage we are discussing further incentive or management practices which could be put in place (such as the previous 3 way grazing trial) to create the desired impact on intervals, production and whole system performance.

POST-GRADUATE STUDENTS (cont)

Masters student
Rene Kolbach

Rene Kolbach

It has already been 4 months since we started to operate the Automatic Miling Rotary (AMR™) 24/7. A lot of work has been carried out in this period to understand capabilities and limitations of the system.

In the past months I have been working at a study which focuses at the challenges occurring when operating the AMR™ at a low utilisation level.

At this stage, the AMR™ does not have any auto cleaning functions, this creates challenges when individual bails remain active for an extended period after conducting a milking.

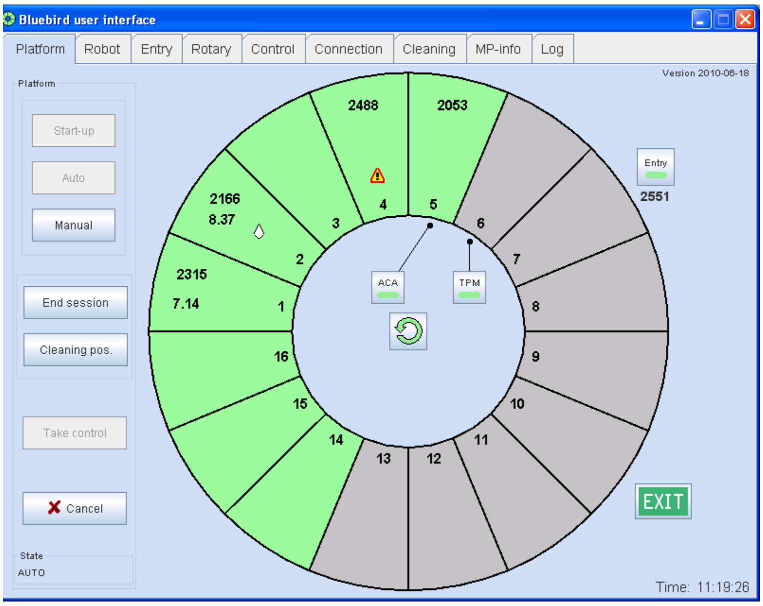
The potential exists for milk to dry in the lines and bacteria counts to increase dramatically. One of the potential solutions to the challenge is to activate only a limited number of bails after a system wash and have additional bails activated at set times until the next system wash.

The effect of different bail activation sequences on the throughput capacity and animal behaviour was studied by activating 50% of the bails after a system wash, in 4 different sequences, with and without a feed reward on the platform. We did not observe a difference on cow trafficking with the different bail configurations however the teaser feed did create a significant impact. We found that the bail activation sequence impacted the system level milk harvesting efficiency.

Consecutive bail activation resulted in more robot operations being conducted simultaneously and more milk harvested per minute of operation time compared to having intermittent bail activation.

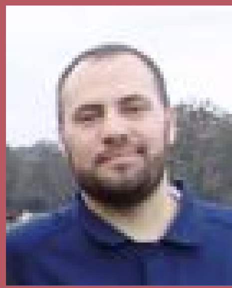
With these results we will be able to generate a more advanced throughput model for the AMR™.

The impact of feed reward will be worthwhile investigating further when we have feeding stations nstalled in the post-milking feeding area.



Prototype user interface DeLaval AMR™ with 8 consecutive bails enabled

Anas Al-Makhzoomi



PhD student
Anas Al-Makhzoomi

Currently I am investigating the relationship between conception rate and: a) age at first service, b) live weight at first service c) year of first service of Australian dairy heifers of a local farm.

Data used in this study were obtained from breeding records of 6376 Holstein-Friesian heifers born between the years 2003 and 2010 on a dairy farm located in NSW, Australia. Preliminary results of analysis have shown that Conception rate declined steadily from 62% in 2003 to 50% in 2008 and rose again to 63% in 2010.

The conception rates in the years 2008 and 2009 were the lowest over the period of study. Conception rate at first service was highest (66%) at age of 19 of months and with live weights of 426/kg. However, conception rate at first service was lowest (50%) at age of 15 of months and with live weights of 396/kg.

In conclusion, further detailed examination and other environmental and management factors will be incorporated in complex statistical analysis to investigate these factors as possible causes for the decline of heifer fertility over the period of study.

Tori Scott

PhD student
Tori Scott

The first few months of my PhD have gone by quickly, and involved large amount of reading and project planning.

In March-April, I conducted my first trial at the AMS farm, Camden.

The trial aimed to investigate the pre-milking voluntarily waiting time of cows upon entry to the dairy. We recorded the time each cow entered the dairy through a smart selection gate and the time milking commenced on the prototype robotic rotary, allowing us to calculate each cows' waiting time.

Preliminary results indicated that when feed was provided on the platform, the voluntary waiting time was reduced by 55% compared to when feed was not provided. Further analysis will include investigation into the impact of production traits including parity, days in milk and yield on voluntary waiting time.

We are also endeavouring to use the number of cows already queuing for milking as a factor to predict estimated waiting times. This will help us to understand the factors that drive voluntary traffic and motivation for milking, and facilitate a higher level of farm and herd management in a voluntary system. Over the next few months, I plan to finish the final analysis of this current trial data, and plan the next step in this area of research.

VISITORS TO CAMDEN

University of Applied Sciences VAN HALL LARENSTEIN PART OF WAGENINGEN UR

Klaas-Willem Nieuwland

Already in Australia for 3 whole months and still enjoying my time here, even though it's one of the sunniest springs ever in Holland and we are here in winter.

Since the last up-date, my project hasfocused not only on kikuyu grazing but also on comparing the effect of grazing of different pasture combinations (kikuyu, lucerne and ryegrass) on milk yield and quality. The project consists of a literature part and an experimental trial at Costorphine farm.

The milk yield and quality data has already been collected, and I am getting ready to start the lab work to do pasture quality analysis.
Hopefully with this project, I will get more insight on the use of grazing different forages and cow nutrition in general. A better understanding of these subjects will certainly help me in the future when I will hopefully be managing a dairy farm back at home.

Klaas-Willen Nieuwland taking pasture measurments on Uni farms in Camden

Dr. Sanat Kumar Mahanta

Dr Sanata Kumar Mahanta at Corstorphine Dairy in Camden

I have joined to FutureDairy team from India on March 16, 2011 under Endeavour Award program of Department of Education, Employment and Work Relations, Australian Government. I am carrying out 4-month award program on 'Forage based rationing of high yielding dairy animals' under the supervision of the Foundations' Director. It has 3 major activities namely: a) Reviewing the key problems on forage/pasture based rationing of dairy animals and their potential solutions; b) Development of proposal for international research collaborative program to the above issues between India and Australia and c) Specific training on research techniques related to evaluation of forages/pasture based feeding systems.

Reviewing the problems in details indicated that dairy animals in India are fed on poor quality forages (cereal straws and stovers), while in Australia it is the quality forage/pasture which predominates. Consequently, average milk production (kg/annum) is low (1200) in Indian dairy animals compared to Australian dairy cows (5450). However, around 30% of Australian milk production comes from the feeding of grains to dairy animals, while it is negligible in India. Thus the key problem in high producing dairy animals with forage/pasture based diets is getting adequate net energy intake to meet the requirements of animals, besides methane emissions. But keeping in view the food security at global level, efforts should be made to improve the human edible feed conversion ratios (FCR) so that a dairy cow can produce more edible milk energy or protein than it consumes as feed, which requires substitution of concentrate feeds/cereal grains by high quality forages.

OTHER NEWS

Dr Ravneet Kaur Jhajj presented a paper at the 2011 American Dairy Science meeting in Lousiana

FutureDairy researcher Dr Jhajj presented an oral paper at the prestigious annual dairy science meeting in USA.

The paper by Garcia, Bargo and Jhajj combined data from FutureDairy and several other studies conducted in New Zealand and Pennsylvania to demonstrate the very large variability in fibre (NDF) intake by individual cows.

The Camden Dairy Science group will show a strong presence at the Eight International Symposium of Nutrition of Herbivores ISNH8) to be held in Aberystwyth, Wales UK, 6 - 9 September 2011.

Dr Jhajj, Dr Islam and Dr Farina from FutureDairy will be presenting 4 papers while Dr Pietro Celi is presenting another 2, one with PhD student Helen Golder.

Photo from Aberystwyth University web site (www.aber.ac.uk)

THE UNIVERSITY OF SYDNEY

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THANK YOU TO ALL THE DRF MEMBERS FOR THEIR CONTINUING SUPPORT

- Mr Greg LINDSAY-OWEN (United Dairies/DairyCorp Ltd)
- Mr Bill INGLIS (Craigend - The Oaks, NSW)
- Mr Rowan MOORE (Glenmore - Camden, NSW)

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