

DIRECTORS' UPDATE



Welcome to our second edition of 2013!

We are very excited with our DRF Symposium at Kiama next week (4th and 5th July)! We will even take a robot to the symposium this year!

See the program and more information inside.



*Assoc. Prof. Yani Garcia
Director of the DRF*

Although the AMR project at EMAI has been cancelled, we are already in the search for dairy farmers who want to go robotic and install an AMR on their farms! The successful farm will convert to automatic milking with lots of support from FutureDairy and will collaborate on AMS research. See the ad on page 9. As usual, there are also research and students updates to keep you entertained! All feedback welcome!

Yani Garcia

FROM THE PRESIDENT



*Mr. Bill Inglis,
President of the
DRF*

The cancellation of the AMR project at EMAI has been an immense disappointment, but I have been impressed with the resilience of the Future Dairy research team as they have quickly moved on to reshape their plans.

Whilst research will hopefully find new ways forward, the opportunity for the NSW Dairy Industry to create a hub of RD&E around the project may well be lost.

Bill Inglis

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THE DAIRY RESEARCH FOUNDATION'S

2013 SYMPOSIUM

JULY 4-5 KIAMA, NSW

TAKING CONTROL



PUT THESE DATES
IN YOUR DIARY **AND**
SEE YOU IN KIAMA!

INCORPORATING THE DAIRY NSW
INDUSTRY MEETING JULY 3



Your Levy at Work



Dairy
Australia

JULY 4

THE KIAMA PAVILION, KIAMA

JULY 5

SURROUNDING FARMS

PROGRAM AND MORE INFO AT
WWW.DRFSYMPOSIUM.COM.AU

DRF 2013 SYMPOSIUM PROGRAM

WEDNESDAY JULY 3 - PRE SYMPOSIUM EVENTS

10am DAIRY NSW INDUSTRY MEETING at The Pavilion Kiama

6.30pm DAIRY NSW WELCOME TO KIAMA FUNCTION

THURSDAY JULY 4 - TAKING CONTROL OF BUSINESS BY OPTIMISING SCIENCE & ATTITUDE

8.00am ARRIVAL

8.45am OFFICIAL OPENING

SESSION 1

9.00am RETHINKING THE POWER OF AGRICULTURE

Steve Jones - Perth, WA

9.45am RESHAPING ATTITUDES TO GAIN GREATER DAIRY INFLUENCE

Joe Delves - East Sussex, UK

SESSION 2 WHAT ARE AUSTRALIAN RESEARCHERS DOING ABOUT HELPING FARMERS TAKE CONTROL OF DAIRY NUTRITION?

11.00am VOLATILE MILK PRICE, SUPERMARKET WAR, RISING INPUT COSTS, CARBON TAX AND THE LIST GOES ON!

11.05am IS PARTIAL MIXED RATION THE ANSWER FOR VICTORIAN SYSTEMS?

Bill Wales - Department of Primary Industries, Victoria

11.20am MORE MILK FROM FORAGE. INDIVIDUAL COW TRACKING TAKES PASTURE X GRAIN INTERACTION TO A NEW LEVEL!

Richard Rawnsley - Tasmanian Institute of Agriculture

11.35am TMR IN QLD: Total Mixed Ration or Total Missed Ration?

Dave Barber - Queensland Department of Agriculture Forestry & Fisheries

11.50am DO GENETICS REALLY MATTER IN ALL FEEDING SYSTEMS, FROM LOW BAIL TO TMR?

Steve Little - for ADHIS

12.05pm AND THE FUTURE IS?

Cameron Clark - Future Dairy, University of Sydney

12.20pm DISCUSSION PANEL Chaired by Yani Garcia

DRF 2013 SYMPOSIUM PROGRAM

SESSION 3

TAKING CONTROL OF HERD AND FINANCIAL HEALTH

1.45pm PREPARING FOR THE JOURNEY AHEAD

Trish Lewis - Independent consultant nutritionist, NZ

2.15pm THE AUSTRALIAN PERSPECTIVE ON TRANSITION FEEDING

John House - University of Sydney; Col Thompson - Cowra

2.45pm CHALLENGING THE TIER 2 PRICING IN SPRING

Neil Moss - SBS Cibus; Con Watts - Pyree

SESSION 4

THE SOCIAL SCIENCE OF TAKING CONTROL

3.45pm BUILDING A BUSINESS BRAIN

Greg Mills - Go Ahead Business Solutions

4.20pm PUTTING IT TO THE TEST

Graham Finlayson - Brewarrina; Mike Jeffrey - Kempsey

6.30pm THE DAIRY RESEARCH FOUNDATION SYMPOSIUM DINNER at The Pavilion
Kiama

FRIDAY JULY 5 - ON TOUR

7.30am BUSES DEPART KIAMA for John and Andrea Henry's robotic farm at Pyree

8.30am WELCOME AND OVERVIEW

SPEAKERS: Andrea Henry, John Henry, Peter Williams, Cameron Clark

EMERGING SCIENTISTS: William Tang, Alex John, Tori Scott

12.00pm WELCOME AND OVERVIEW

SPEAKERS: Lynne Strong, John House, Phil and Craig Tate, Neil Moss, Alison Gunn

EMERGING SCIENTISTS: Saranika Talukder, Marion French, Bronwyn Edmunds, Matt Reynolds, Shahab Ranjbar, Jo Coombes

2.30pm YOUNG FARMING CHAMPIONS PRESENTATION

2.45pm ANNOUNCEMENT OF THE EMERGING SCIENTIST FOR 2013 AND CLOSE

2013 DRF SYMPOSIUM

ROBOTS ARE COMING TO KIAMA

With increasing numbers of Australian dairy cows now being milked by robots, researchers are looking at a range of exciting ways to use robots on farm, and one that has already shown promise is the use of robots to herd cattle from the paddock to the dairy.

Delegates at the Dairy Research Foundation's symposium, to be held at Kiama on 4, 5 July will get a sneak peak of Rover, a prototype robot, in action.

Researchers from the University of Sydney's Dairy Science Group and the Australian Centre for Field Robotics, have used an unmanned ground vehicle (robot) to herd dairy cows out of the paddock.

Dairy researcher Associate Professor Kendra Kerrisk said the team was amazed at how easily the cows accepted the presence of the robot.

"They weren't at all fazed by it and the herding process was very calm and effective," Dr Kerrisk said.

"As well as saving labour, robotic herding would improve animal wellbeing by allowing cows to move to and from the dairy at their own pace."

Cows at the University of Sydney's Corstorphine farm were unfazed by the presence of a robot which herded the cows out of the paddock calmly and efficiently.

Rover will be on show at the 2013 DRF Symposium at Kiama on 4, 5 July





ROBOTS ARE COMING TO KIAMA (cont)

The robot was developed by researchers at the University of Sydney's Australian Centre for Field Robotics for tree and fruit monitoring on tree-crop farms. It was used in the initial trial with very little modification for the dairy paddock.

We are keen to explore further opportunities with the Australian Centre for Field Robotics. They have a range of robotic technologies which could have exciting applications on dairy farms," Dr Kerrisk said.

"While the robot showed exciting potential for use on a dairy farm, it would need to be adapted to operate autonomously on the terrain of dairy farms and its programming would need to be customised for dairy applications."

In addition to robotic herding, some of the possible applications include collecting pasture and animal data in the paddock; monitoring calving and alerting the manager if attention is needed and identifying and locating individual cows in the paddock.

"The research is in its very early stages but robotic technologies certainly have the potential to transform dairy farming, in terms of reducing repetitive work, increasing the accuracy of data that farmers collect and making data available that we currently can't capture.

"Robotic technologies will have a role in increasing the productivity, sustainability and competitiveness of Australia's dairy farms," Dr Kerrisk said.

To register for the Dairy Research Foundation Symposium visit www.drfsymposium.com.au or contact Esther Price Promotions, esther@estherprice.com.au or 1800 177 636.

For more information about Rover the robot, contact Associate Professor Kendra Kerrisk, ph 0428 101 372, email kendra.kerrisk@sydney.edu.au or www.futuredairy.com.au



RESEARCH UPDATES

WHY INCREASED IRRIGATION WATER DECREASES NUTRITIVE VALUE OF MAIZE SILAGE

By Rafiq Islam

In an earlier study we found that an increase in irrigation water (0–480mm) increased proportion of grain and consequently total dry matter yield of maize from 9 to 24 t/ha. However, despite an increase in proportion of grain, metabolisable energy (ME) content of maize silage decreased from 9.8 to 8.8 MJ/kg DM with increased irrigation. It was not clear why increased irrigation decreased ME content despite an increased grain proportion.

Thus, a study was conducted to in order to better understand the impact of irrigation on maize plant fractions so that a better management strategy of irrigation can be adopted to make quality silage from maize.

Hybrid forage maize (Pioneer 31H50) was grown at Camden with 3 rates of N fertiliser (0, 158 and 293 kg/ha) and 4 levels of irrigation water (0, 153, 305 480 mm). Maize plants were harvested at physiological maturity, fractionated into leaf, stem, cob structure and grain and analysed chemically.

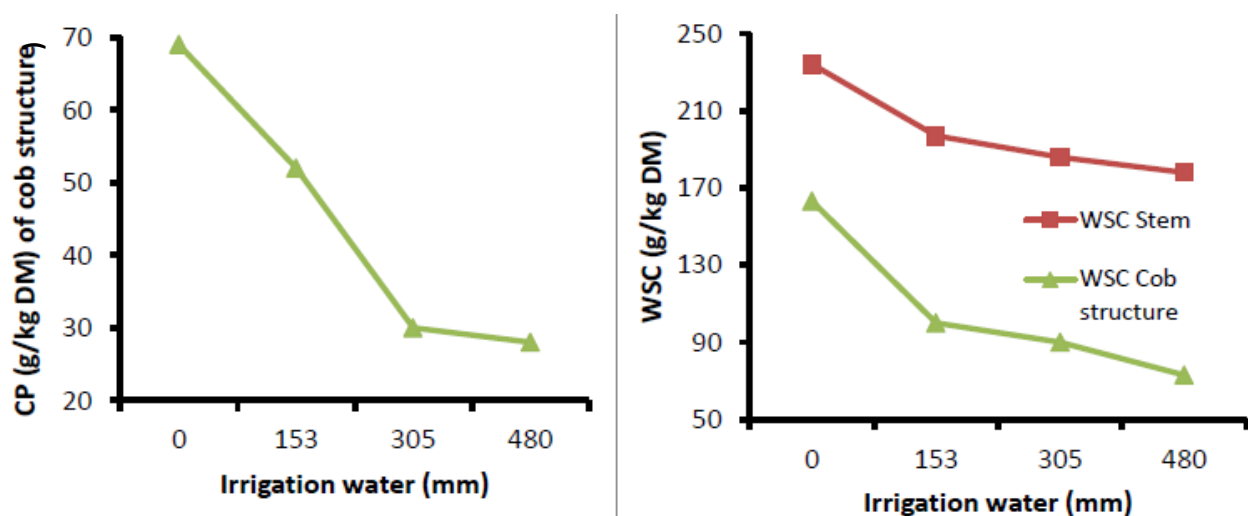


Figure 1. Increased irrigation decreased crude protein (CP) and water soluble carbohydrate (WSC) in stem and cob structure

WHY INCREASED IRRIGATION WATER DECREASES NUTRITIVE VALUE OF MAIZE SILAGE (cont)

Our results showed that increased irrigation decreased crude protein (CP) and water soluble carbohydrate (WSC) contents in cob structure and stem (Figure 1), and consequently increased fibre content in cob structure and stem (Figure 2).

As a result of increased fibre in stem and cob structure due to increased irrigation, digestibility of stem and cob structure of maize decreased (Figure 3), and ultimately decreased ME content of maize silage.

Thus, varietal or management factors that decrease proportion of stem and cob structure are likely to increase nutritive value of maize silage.

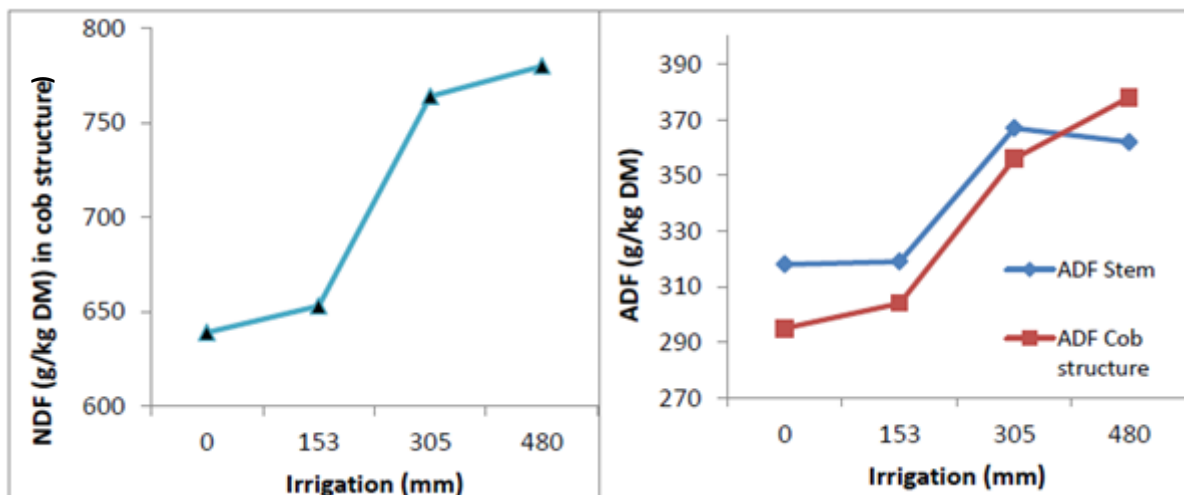


Figure 2. Increased irrigation increased fibre content in stem and cob structure

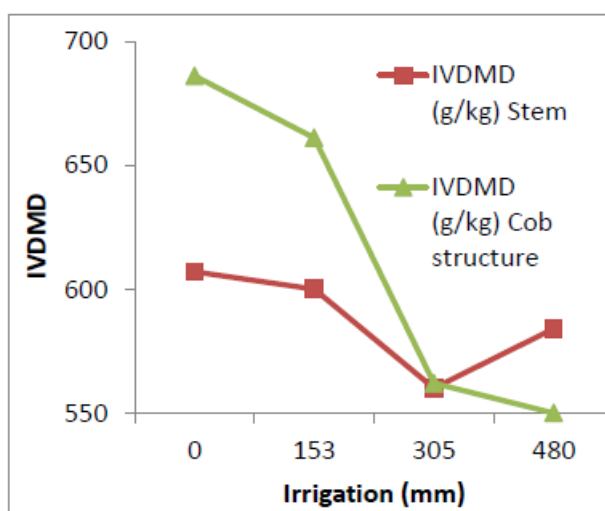
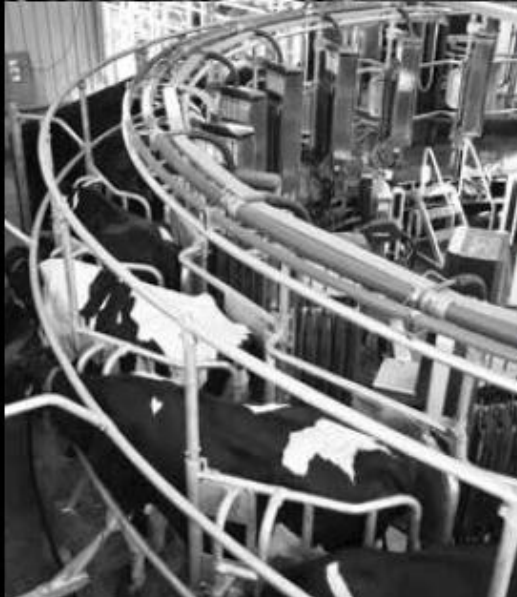


Figure 3. Increased irrigation decreased in vitro digestibility (IVDMD) of stem and cob structure

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

WANTED!



Dairy farmers to install robotic milking rotary.

FutureDairy is seeking farmers interested in installing an automatic milking rotary (AMR) to collaborate on automatic milking research.

Participating dairy farmers will be able to convert to automatic milking for a *reduced capital outlay* and will receive intensive training and support in adapting their farming system to automatic milking.

To express your interest, complete the online form.

For further information, visit: www.futuredairy.com.au or contact:

Assoc Prof Kendra Kerrisk (Project Leader)

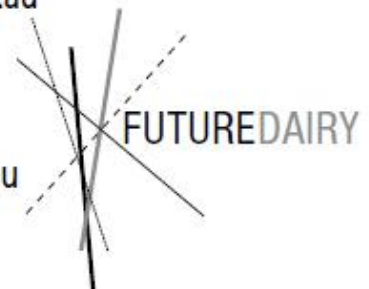
E: kendra.kerrisk@sydney.edu.au

T: 0428 101 372

Shirley Harlock (Chairman)

E: jsh@wollastonfarms.com.au

T: 0439 800 117



Closing date: Friday 19th July 2013 www.futuredairy.com.au/EOI.php

CALL FOR DAIRY FARMERS TO INSTALL ROBOTIC ROTARY

FutureDairy is seeking farmers interested in installing an automatic milking rotary (AMR) to collaborate on automatic milking research.

Chairman, Shirley Harlock said participating dairy farmers would be able to convert to automatic milking at a reduced capital outlay and would also receive intensive training and support in adapting their farming system to automatic milking.

"This is a very attractive offer for dairy farmers who are prepared to be involved in cutting edge research and share their experiences with the FutureDairy team and the industry," Mrs Harlock said.



FutureDairy has led the world in automatic milking research for pasture-based herds, particularly the automatic milking rotary which was developed specifically for larger herds and Australian conditions.

"Collaborative on-farm research is the vital next step. It will enable us to test and refine recommendations so that the industry can adopt sustainable farming systems to support voluntary milking," Mrs Harlock said.

To be eligible, farms need to be capable of milking at least 600 cows and preferably up to 800 cows.

Farmers interested in participating should fill in the form at www.futuredairy.com.au/EOL.php. Applications close Friday 19 July.

For more information, contact Dr Kendra Kerrisk, FutureDairy project leader ph 0428 101 372, email kendra.kerrisk@sydney.edu.au or Shirley Harlock, FutureDairy Chairman ph: 0439 800 117 email: jsh@wollastonfarms.com.au or www.futuredairy.com.au/EOL.php.

BREEDING COWS TO BE MILKED BY ROBOTS



Dairy farmers considering automatic milking systems (AMS) frequently ask what percentage of their herd will need to be culled as having udders that are unsuitable for robotic cup attachment.

FutureDairy and Australian experience shows that very few cows have udders that are unsuitable for robotic cup attachment.

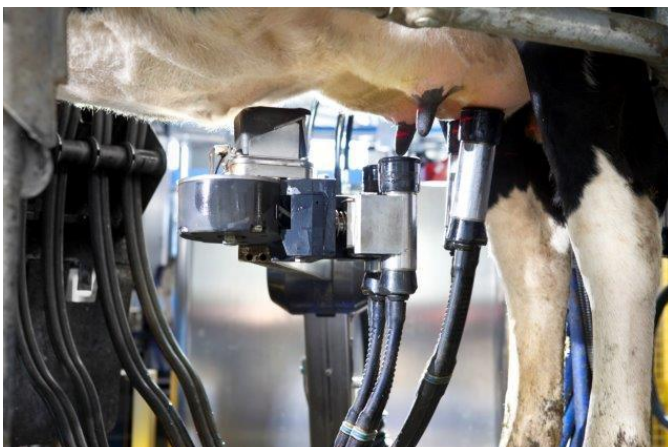
However, when making breeding decisions, AMS herd managers may place more emphasis on some traits that influence the robot's ability to attach cups and the cow's ability to walk voluntarily around the farm, for example cow size and conformation of udder, legs and rump.

Peter Williams, from the Australian Dairy Herd Improvement Scheme, will explain how automatic milking may influence breeding decisions at this year's Dairy Research Foundation annual symposium, to be held at Kiama on 4-5 July.

"I would encourage farmers with AMS to pay more attention to teat placement," said Mr Williams.

"Over many years there has been an industry-wide trend to bring the rear teats closer together, resulting in the potential for rear teats to angle and cross over. This would make robotic cup attachment difficult."

"AMS farmers who want to widen the distance between rear teats should select bulls from *The Good Bulls Guide* with a Rear Teat Placement ABV of less than 100," he said.



To hear more about breeding cows for automatic milking, register for the Dairy Research Foundation Symposium visit www.drfsymposium.com.au or contact Esther Price Promotions, esther@estherprice.com.au or 1800 177 636.

SUPPLEMENTARY FEED LOCATION AND COW BEHAVIOUR

By Nicolas Lyons

In an automatic milking system (**AMS**) feed is used as an incentive to encourage voluntary and distributed cow traffic to the milking unit.

Therefore the timing, placement and size of feed allocations need to be managed in order to achieve targeted milking events per day.

A behavioural study was conducted at the Camden AMS research farm in spring

2011, where a herd of 175 mixed age and breed cows received supplementary feed either prior to (**PRE**), or immediately after (**POST**) milking.



It was hypothesised that as PRE cows would have spent comparatively more time than POST cows since they ate their respective allocation of supplementary feed (at the time of exiting the dairy), they would be more motivated to go to the paddock in search of additional feed. Thus they would graze more intensively once they entered their pasture allocation.

On average, 60% of daily DMI was supplied as grazable pasture (predominantly Ryegrass - *Lolium perenne* and *Lolium multiflorum*) in 2 allocations per day. The remaining 40% of the daily allowance was offered as supplementary feed in a feeding area at the dairy, consisting of pelleted concentrates offered through 4 automatic feed stations, and a partial mixed ration.

Cows accessed each allocation for a consistent 12 h period of time and had an additional 10 h in which they were expected to voluntarily exit the allocation. Any cows that did not voluntarily exit a paddock were fetched and encouraged from the paddock to the dairy 2 h prior to the subsequent allocation closing for access.

SUPPLEMENTARY FEED LOCATION AND COW BEHAVIOUR (cont)



Fifteen cows within each group were randomly selected as observation cows. Every 15 min during 24 h, trained observers recorded *Presence* (presence or absence of each observation cow at the time of each observation in a particular pasture allocation) and *Grazing* (animal with head close to forage sward, and actively searching or removing pasture from the canopy). Additionally, *bite rate* was recorded hourly by counting the number of bites taken per minute for at least 5 cows that were actively grazing.

The PRE cows started exiting the paddock 6 h after entering a defined allocation, whereas the POST cows started exiting 8 h after entering (Figure 1a). There was no difference between treatments in the proportion of cows 'grazing' in relation to the time since exiting the dairy (Figure 1b). A higher proportion of cows grazed during the first hour after exiting the dairy. There was neither an effect of time nor of treatment on bite rate. The average bite rate was 40 ± 1 bites/min.

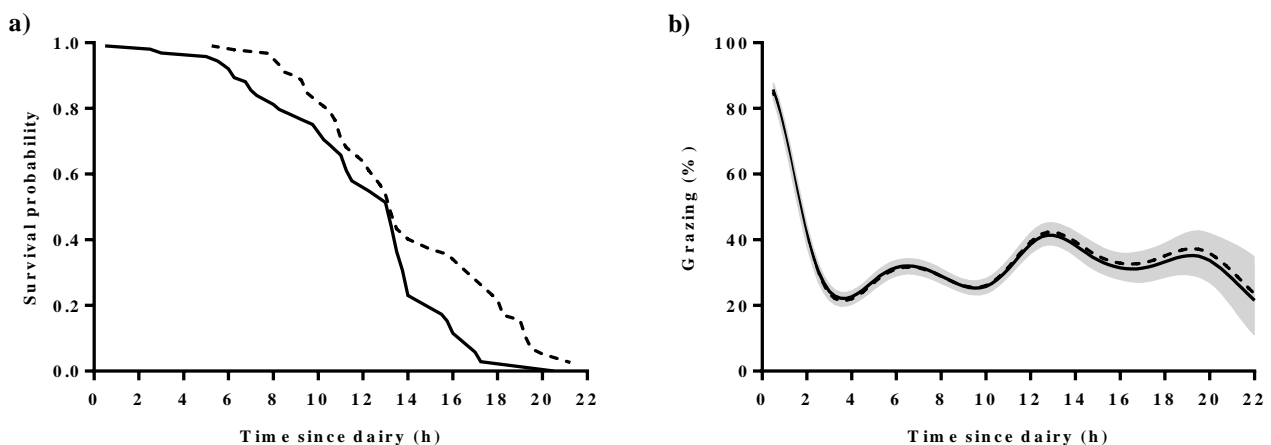


Figure 1. Curves for cows present (1a where survival probability was the likelihood that a cow that had entered the paddock was likely to remain in the paddock through time) and that are grazing (1b) in the pasture allocation (at time since exiting the dairy) in a pasture-based automatic milking system when supplementary feed is provided either prior to (PRE; solid line) or immediately after (POST; dashed line) milking

SUPPLEMENTARY FEED LOCATION AND COW BEHAVIOUR (cont)



The higher proportion of cows grazing during the first hour confirms previous studies in which access to fresh pasture acted as stimuli that were strong enough to initiate grazing. The higher proportion of cows grazing at 6 h, 12 h and 19 h after entering the allocation, also confirms the likelihood of cows to perform grazing in bouts, separated by periods of ruminating or idling. The behaviour observed whilst cows were in an allocation, together with the rate at which cows exited the paddock confirms that PRE feeding is a strong incentive to encourage cows to traffic from pasture to the dairy. However, cows' response to feed availability and behaviour whilst on pasture is influenced more by pasture cover than supplementary feed location and resultant time since previous feed consumption.

In conclusion, cows in both treatments spent at least 6 to 8 h in the pasture allocation and had similar grazing behaviour (time and bite rate).

For further information please contact Nicolas Lyons at nlyo4990@uni.sydney.edu.au



POST GRADUATE UPDATES

NICOLAS LYONS *PhD Student*

After 3 years of very hard work, and many hours of trials, reading and being behind the computer, I achieved the ultimate milestone of submitting my PhD thesis late in March 2013. Although still under evaluation, 6 out of the 8 chapters have been submitted for publication, and 2 of them have already been accepted in the Journal of Dairy Science.



Additionally, 2 abstracts were accepted (1 of them for oral presentation) at the Precision Dairy 2013 Conference to be held in Minnesota, US late June 2013. I will be heading there with Dr. Cameron Clark in representation of the FutureDairy team, in a tour that includes a visit to Michigan State University to participate in a workshop organized by Dr. Santiago Utsumi to discuss Automatic Milking Systems on Grazing Farms.

On top of this, another 2 abstracts have also been accepted at the International Grasslands Congress to be held in Sydney, Australia during mid-September 2013.

While my thesis is being evaluated I have taken the opportunity to travel back to Argentina to visit family and friends. I also made a short visit to the Universidad de la Republica in Montevideo, Uruguay, where I spent some time with other postgraduate students and was invited to present about "Automatic milking systems: A change towards the future".



Nico presented recently to staff and students at Universidad de la Republica in Montevideo, Uruguay

Main dairy industry representatives, consultants, farmers and researchers were amongst the audience, all of them very keen and interested in AMS as an option for Uruguayan dairy farmers. Taking a break away whilst I await my examiners reports has allowed me to reflect on the past three years and to evaluate my options for future career opportunities.

HELEN GOLDER *PhD Student*

Ruminal acidosis remains an important nutritional disorder facing the Australian dairy industry. The focus of my PhD is to increase our understandings of this disorder through examination of how different feed substrates, primarily starches, sugars, and proteins, affect the risk of acidosis. I have also evaluated the potential of different feed additives to reduce the risk of acidosis. I am currently completing the final chapters of my thesis and will be presenting some of my more recent findings at the American Dairy Science Association in Indianapolis in July.



Helen Golder preparing to collect rumen fluid

Acidosis case study

During a trial to evaluate the potential for different feed additives to reduce the risk of acidosis an untreated control heifer developed clinical signs of acidosis on the trial challenge day (day 21) within 10 hours of consuming 5.3 kg dry matter of wheat (1% of her bodyweight) and 960g of sugar (0.2% of her bodyweight).

For the previous 20 days she had been fed twice daily a 62% forage and 38% concentrate total mixed ration at 1.25% of her bodyweight dry matter intake (approximately 13 kg dry matter/d). Sugar (0.1% of her bodyweight/d) was included in the ration for the last 10 of these days.



This case study highlights the difference in acidosis susceptibility among cattle and the need to further explore rumen interactions during acidosis to improve control strategies. This heifer's rapid recovery and re-establishment of rumen characteristics was also of interest. A full case report on this heifer has been submitted to The Canadian Veterinary Journal.

Case study heifer 24 hours after consuming the wheat and sugar ration

MICHAEL CAMPBELL

PhD Student



Previous modelling work has shown that a complementary forage system can have a role in increasing profitability on several different types of dairy farms.

Following on from this, I have been looking at ways a complementary forage system might be able to assist dairy farms in unique scenarios.



As part of the initial case study development each farmer was consulted in regards to their immediate goals for their business.

Some of the farmers goals where more general in terms of a business system philosophy and so these were converted into physical production goals.

To achieve these goals it was assumed that a farmer has the option of using a CFS, leasing more land or purchasing more feed.



Maize silage being rolled in Northern Victoria

The initial results from modelling the case study farms in both the Hunter Valley and northern Victoria regions are that there is not one particular system that is the "best" option for each farm.

While a complementary forage system does tend to increase profitability on most farms the result is dependent on the cost of the alternatives and milk price received.

MICHAEL CAMPBELL (con't)

I am currently working towards investigating the risk of using a CFS in all the scenarios that I have been modelling in the past.

This will be the real value of the whole study as most of the modelling results show thus far show that a CFS is a profitable option but we need to understand the conditions that make it profitable and when farmers should be looking at the alternatives such as buying feed in or accessing more land to increase production.



RACHAEL RODNEY *PhD student*

I have recently started my PhD at the University of Sydney in collaboration with SBScibus.

I grew up near Camden, NSW and completed a Bachelor of Animal and Veterinary Bioscience through the University of Sydney, graduating in 2010.

More recently I have been working in sustainable agriculture policy.

My work explores relationships between transition nutrition and fertility, production and health in the cow. I'm quite excited to be working on this topic as I believe it is an area that will have real benefits to productivity and cow health in Australian dairies.

*Rachael amongst the herd
at Craigend, The Oaks NSW*



TORI SCOTT *PhD Student*



*PhD student Tori Scott
(R) with one of her
supervisors, Assoc. Prof.
Kendra Kerrisk*

I am now a couple of months into my final year, so the pressure is increasing to finish my thesis. However the excitement of finally being finished and no longer a student is also rising.

Between now and the start of next year, I still have quite a bit of data and writing to keep me busy.

I hope to have my first paper submitted and published very soon, looking into the effects of feeding at milking on voluntary cow traffic on the Robotic Rotary.

I found that cows spent almost half the time in the pre-milking yard when feed was provided (compared to when no feed was provided).

Equivalently, when cows were fed at milking on the Robotic Rotary, they were faster to move through the pre-milking yard.

I have also been making progress towards finishing my second paper on the effects of feeding supplementary feed before or after milking on cow traffic at the dairy.

In this study, it was found that cows spent less time in the pre-milking yard, and at the feedpad, when feed after milking (so spent less time in the dairy and more time either trafficking to paddocks, or on pasture).

To understand this further, I captured some behavioural data in the dairy and have been running preliminary data analyses on this.



Recording cow behaviour in the dairy



SARANIKA TALUKDER *PhD Student*

INFRARED CAMERA AS OESTRUS DETECTION AID

Recently, as a component of my PhD study, an intensive trial was conducted at Corstorphine farm.

The aim was to explore the potential use of infrared thermography (IRT) for oestrus detection and prediction of ovulation in dairy cows.

Twenty cows were synchronized using controlled internal drug release (CIDR) and prostaglandin $F_{2\alpha}$ (PGF $_{2\alpha}$).

Vulva and muzzle skin temperatures were measured every 12 h from CIDR insertion to 32 h post PGF $_{2\alpha}$ injection and then every 4 h until ovulation occurred.

Thermal images obtained with a FLIR T620 series infrared camera.

A positive ($P < 0.01$, $r = 0.74$) relationship was noted between muzzle and vulva temperature.

Both Vulva and muzzle temperature increased after PG injection compared to those before PGF $_{2\alpha}$ injection.

Onset of oestrus and ovulation occurred 54.7 and 87.3 hours after PG injection. Muzzle and vulva temperature also changed with time of approaching ovulation.

The next step is to look at the accuracy of this non-invasive technology by comparing with hormonal profiles.

Saranika is presenting her research at the ADSA2013 JAM in Minneapolis, USA in early July.



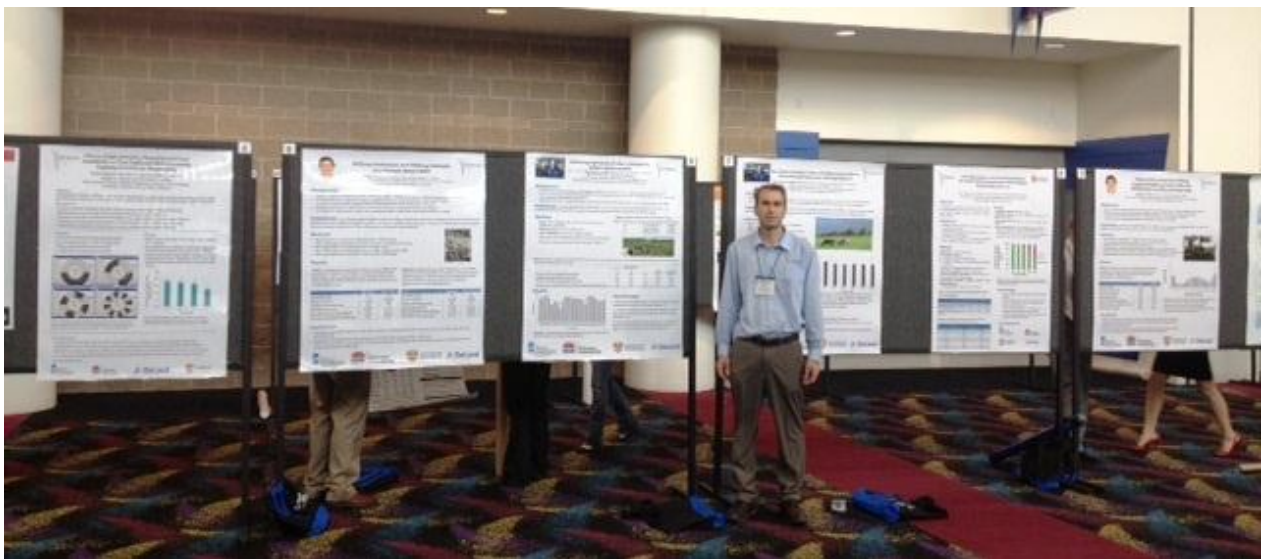
FUTUREDAIRY OVERSEAS

PhD student Nicolas Lyons and Dr Cameron Clark are representing FutureDairy and the Dairy Science Group at the PRECISION DAIRY 2013 in Minnesota, USA.

With 6 papers presented as oral and posters, our team had the largest number of papers presented by a research group.

Nicolas and Cameron have presented their work to >500 people attending the conference.

Congratulations to both!



Cameron Clark with the six posters presented at Precision Dairy 2013

PhD student Saranika Talukder will also be presenting her research in front of a large audience. She is attending the American Dairy Science Association 2013 JAM in Minneapolis, USA from July 8-12.

Good luck Saranika!

CAMDEN FARMS

Corstorphine is currently milking 370 cows and numbers are continuing to increase.

Milk production levels are up but the rain we have received recently is currently impacting on this. Hopefully levels will lift again as the weather dries up a little.

A recent cold snap has stopped the growth of our Kikuyu completely and seen a slowing of the growth of Ryegrass on Camden Farms.

On a positive note, we are saving some money as the need for irrigating has been minimal.

Negotiations for milk contracts are progressing steadily with hope of an agreement being reached very soon.

Kim McKean

Camden Farms Manager



Recent heavy rainfalls have hindered milk production but saved on irrigation. Nepean River levels got close to breaking at Westwood farm this month. The blue drum (visible just below tree line) usually floats about 6 metres from the bank.



An integrated assessment of business risk for pasture-based dairy farm systems intensification

S.R. Fariña^{a,*}, A. Alford^b, S.C. Garcia^a, W.J. Fulkerson^a

^a The Faculty of Veterinary Science, The University of Sydney, Private Bag 3, Camden, NSW 2570, Australia

^b New South Wales Department of Primary Industries, JSF Barker Building, University of New England, Armidale, NSW 2351, Australia



J. Dairy Sci. 96:2137–2146

<http://dx.doi.org/10.3168/jds.2012-5332>

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Effects of bail activation sequence and feed availability on cow traffic and milk harvesting capacity in a robotic rotary dairy

R. Kolbach,^{*†} K. L. Kerrisk,^{*} S. C. Garcia,^{*} and N. K. Dhand[†]

^{*}MC Franklin Laboratory (CO4), and

[†]J. L. Shute Building (C01), Faculty of Veterinary Science, The University of Sydney, Private Mailbag 4003, Narellan, New South Wales 2567, Australia



J. Dairy Sci. 96:360–365

<http://dx.doi.org/10.3168/jds.2012-5477>

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Short communication: The effect of premilking with a teat cup-like device, in a novel robotic rotary, on attachment accuracy and milk removal

R. Kolbach,[†] K. L. Kerrisk, and S. C. Garcia

The University of Sydney, Faculty of Veterinary Science, MC Franklin Laboratory (CO4), Private Mailbag 4003, Narellan, NSW 2567, Australia



J. Dairy Sci. 96:4494–4504

<http://dx.doi.org/10.3168/jds.2013-6716>

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Comparison of 2 systems of pasture allocation on milking intervals and total daily milk yield of dairy cows in a pasture-based automatic milking system

N. A. Lyons,[†] K. L. Kerrisk, and S. C. Garcia

Dairy Science Group, Faculty of Veterinary Science, The University of Sydney, Camden (2570), NSW, Australia



J. Dairy Sci. 96:4397–4405

<http://dx.doi.org/10.3168/jds.2012-6431>

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Effect of pre- versus postmilking supplementation on traffic and performance of cows milked in a pasture-based automatic milking system

N. A. Lyons,[†] K. L. Kerrisk, and S. C. Garcia

Dairy Science Group, Faculty of Veterinary Science, The University of Sydney, Camden (2570), NSW, Australia

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