



dairynews

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weather. All this talk of weather and climate comes close on the heels of the successful Climate and Weather course conducted by Michael Cashen. Farmer feedback has encouraged us to expand the offering once the pilot phase has been completed.

The dairy industry group of Industry and Investment NSW (I&I NSW) recently toured the Murray Dairy region of NSW. The aim of the visit was to develop an appreciation of the farming systems that have been developed to enable milk production in an environment of little or no water. To say the four farm families visited were inspirational would be an understatement; resilient, determined, focused and never say die were some of the descriptions of the people we met with.

Each of the four farms demonstrated how they were capitalising on what water was available; what strategic investment decisions they had made in infrastructure to support feeding systems; and how to work with their cows to achieve maximum efficiencies in a challenging environment. There were a great deal of practical lessons learnt, supported by discussions among the team and with Phil Shannon, a group mentor and a dairy colleague from the Victorian DPI.

It may be a little known fact that the I & I NSW dairy industry group work closely with our government dairy extension colleagues in all the mainland states and Tasmania, as well as industry consultants. Some of these relationships are long standing and are supported by Dairy Australia. These relationships are important to allow for the constant building of our understanding of dairying and building of networks to enable us to further assist the NSW dairy industry.

EDITORIAL



Tim Burfitt

Manager Intensive Livestock Industry Development

Welcome to our 2010 winter edition of Dairy News. As I write this the south coast of NSW has nearly received its annual rainfall in one week and the east coast low is travelling up our NSW coastline delivering winter rain and wild

FEEDING

It is very encouraging to observe that Dairy Australia, under the leadership of their new Managing Director Ian Halliday, are emphasising a strong connection with their grass roots constituents, dairy farmers. Dairy News in its thirteenth edition is a practical example of one such way that a Dairy Australia service is provided to farmers as they are the principal sponsor of its printing and distribution every quarter.

Previous editions have highlighted the loss of experience suffered when three older and very competent dairy staff retired in as many years. To counter this somewhat we have been fortunate to have Ms Kerry Kempton appointed as Technical Specialist Dairy for NSW in the role previously occupied by Tony Dowman. Kerry is no stranger to the NSW industry and will bring energy, ability and passion to the position while she continues to work out of Tocal.

On behalf of our group I do hope we are providing a useful newsletter. Feedback is always welcome, even if it is constructively critical. So if you have liked something, want to read about something and haven't seen it or disagree with an article, please let me know. Contact me by email tim.burfitt@industry.nsw.gov.au

FUTURE DAIRY IN THE HUNTER VALLEY

Anthea Lisle

Livestock Officer Dairy, Scone

Ross McDarmont and his farm manager Tim Freeman are part of the Future Dairy Hunter project and are trying to increase dry matter production and milk from home grown feed on their farm. Their farm has 94ha of milking area under irrigation and is carrying around 300 milkers.

This year the feed production system has a Complementary Forage System (CFS) area of 18ha under a centre pivot and a permanent pasture base with lucerne over the rest of the farm. A maize crop was grown on the CFS area over summer yielding 21t Dry Matter/ha for silage. Two days after the maize was harvested the area was direct drilled with Sprinter annual ryegrass and Pacer brassica (leafy turnip). Six weeks later the paddock was grazed, in late March.

While the cows were not entirely sure of the brassica for the first day, by the second day they went straight on to the feed and grazed it well, and there have been no issues since.



Wyvern Park showing part of the area being intensively cropped to increase homegrown feed.

The Brassica/ryegrass paddock had yields of 2.3tDM/ha for the first grazing, and 2.8 for the second. Tim thinks he will get another two grazings off the area before the brassica starts to disappear, and even if the yield for those later grazings is not as high, there will still be a benefit. Then there is the anticipated yield off ryegrass - approximately 8tDM/ha - for the remainder of the season before the paddock is resown to maize in late September, giving a 12 month yield of around 34tDM/ha off the 18ha.

Feed quality is very high with test results of brassica/ryegrass mix of Energy 12.5 MJ/kgDM, Crude Protein 32 - 37% and NDF 38 - 42%.

Ross and Tim have in the past relied on oats as a source of early feed, but have been so impressed with the performance of the brassica that they plan to increase the area slightly next year. Future Dairy recommends around 5ha per 100 cows to keep up ideal management of the brassica, and to provide no more than 1/3 of the ration for nutritional reasons. As a result of the work so far the aims for the coming 12 months on Wyvern Park are:

- focus on filling the cows
- maintain weed control to allow another good establishment of brassica next year
- increase cropping area to 20ha
- increase maize yield to 25 tonnes DM/ha

The Future Dairy project, led by Associate Professor Yani Garcia of University of Sydney, and supported by I&I NSW dairy officers Anthea Lisle and Kerry Kempton and agronomist Neil Griffiths, has been monitoring the quantity and quality of the feed harvested across the six monitor farms monthly since July 2009.

FORAGE RAPE – A USEFUL AUTUMN FEED OPTION

Peter Beale

District Agronomist, Taree

Farmers in the Taree area are also discovering the benefits of growing brassicas.

When sown in early March forage rape grows quickly reaching first harvest yields of 2500 kg DM in just six weeks, and as much as 4000 kg within 7 to 8 weeks.

When oversown with ryegrass prior to the first grazing it produces far higher autumn winter growth than ryegrass alone.



Craig's cows enjoying forage rape at 4000 kg DM/ha

When Craig Emerton at Jones Island heard Prof. Bill Fulkerson explain these benefits he put the information into practice and sowed Hunter forage brassica on the 8th March. He has just fed off 1.6 ha of forage rape over 14 days.

From this sowing date he had 2500 kg DM/ha above 5 cm grazing height on 24th April.

By the third grazing 10 days later on 4th May he had 4000 kg DM/ha above 5 cm grazing height in the same paddock.

Over the period the forage rape was fed, milk production rose 100 litres a day, or 1.3 litres/cow/day.

Within a week of coming off the forage brassica the cows dropped nearly 2.6 litres/day as dry sowing conditions prevented ryegrass from being ready to graze.

Forage rape is relatively cheap to sow @ 3 kg/ha and the germination is more tolerant to higher temperatures than ryegrass allowing earlier sowing.

The forage rape is a clear winner for feed supply until mid August. Craig's paddock grew maize for silage before the forage rape and was harvested in February, this fits well as the paddock is ready to sow in early March and is weed free.



Regrowth on Craig's forage rape one week after grazing. With growing points at the base of the stem forage rape is tolerant of grazing but responds well to correct residue height.

There are some constraints with forage rape: It has a low NDF and can be high in nitrate. This means intake needs to be restricted to 4-5 kg DM/cow/day and the diet mixed with a forage with higher fibre content.

In Craig's case this was maize silage or green chopped maize and kikuyu.

The cows were on and off the forage rape within 90 minutes. The high growth rates and rapid removal by grazing result in large amounts of nutrients being removed from the paddock.

This means fertiliser inputs need to be higher than ryegrass but the rewards are evident.

An ideal site maybe an effluent disposal paddock, both for the nutrients and the ability to irrigate if needed.

In general, Brassica's prefer well drained soils with a good pH so they will do best on alluvial soils.

DAIRY ENERGY AUDITS – SWITCH ON

Ray Johnston

Livestock Officer Dairy, Taree

There are a number of initiatives happening around the NSW dairy regions relating to improving energy efficiency. The first to start in 2008 was the Efficient Use of Water Energy and Nutrient resources (EWEN) on dairy farms project, delivered by the Midcoast DAG's and supported by I&I NSW, with funding from the Federal Department of Agriculture Forestry and Fisheries (DAFF) through the Caring for our Country program. The project followed on from the very successful Farmer Targets for Change program, and provides on farm audits of water and energy use. Each farmer then receives a report outlining how they compare to a group of similar sized farms, and an action plan for improving energy and water use efficiency.

Approximately 80 energy audits have been conducted on the Mid North Coast by consultants Nick Bullock and Associates, auditors approved by the NSW Department of Energy, Climate Change and Water (DECCW).

The audits have been underpinned by the DECCW Small Business Energy Efficiency Program, which offers grants of up to \$5000 to farmers for eligible on farm works that achieve energy savings. The grants will cover fifty per cent of the total cost of eligible on-farm work that has a pay back period of more than two years. For example, if a farm conducts \$10,000 worth of eligible work, the farmer can claim a \$5,000 rebate.

A second project came about through funding from Landcare Australia Limited through Dairy NSW. The project was contracted for delivery to I&I NSW, who recognised the value of the energy audits and decided to offer them to three farmer groups in the Hunter and South Coast regions. The successful tenderer Nick Bullock and Associates have now conducted another 33 audits of dairy farms.

Now farmers in other areas of NSW who have not already had an audit will be able to access the Dairy Energy Efficiency Program (DEEP), which will begin statewide delivery in August 2010. This is a jointly funded project through Dairy NSW and DECCW designed to service as many dairy farms as possible over the next 12 months. A number of assessors have recently been trained in the energy auditing process. The names and contact details of all accredited assessors will be provided to dairy farmers from

July 2010, through Dairy NSW, regional dairy groups, processors, and relevant industry newsletters.

Farmers are encouraged to contact their regional assessor when they become available from August 2010, and for more information please contact Dairy NSW's NRM Coordinator, Dr Jess Jennings on 0423 224 750 / j.jennings@uws.edu.au.

REV-UP REPLACEMENTS – MAKING A DIFFERENCE WITH HEIFER RAISING

Vicki Smart

Livestock Officer Dairy, Berry

Following on from the Calf to Cow workshops from Industry and Investment NSW Herd Group are the new Rev-up Replacement workshops.

This is a program looking at the benefits of doing a better job with rearing heifers and trigger points for intervention in the growth cycle to achieve better performance when heifers enter the milking herd.

In the lead up to delivery state wide a pilot workshop was held at Darren and Sharon Parish's farm at Bodalla.

Farmers and service providers in attendance were encouraged to provide feed back and the comments received were extremely positive.

Most farmers thought the day provided valuable and useful information delivered in a practical way. It gave opportunity to re-focus on setting herd targets and check points to keep on track and ensure their replacements meet expectations when they begin lactation.

Rev-up Replacements workshop covers -

- achieving better return for your heifer rearing effort
- tools for assessing replacement performance against mature herd mates
- setting production and growth performance targets for your herd

Workshops will be run across NSW later this year working together with Regional Dairy Groups, the DIGS, DAGS and DDGS.

KNOW YOUR MARGIN

Michael Ison

Livestock Officer Dairy, Tocal

Proposed changes to the contract/allocation system for milk supply to Dairy Farmers Milk Cooperative and Lion Nathan National Foods would bring memories of the regulated milk supply arrangements of the eighties and nineties flooding back for many farmers in NSW.

The new pricing arrangements are expected to have a significant impact on milk incomes for many farms and making a margin in the last litre produced will be of critical importance, particularly when Tier 2 milk price is in play.

So how do we determine the most profitable production level under the new pricing arrangements?

For me, there are three crucial pieces of information that must be available to make this decision;

1. the underlying total cost of production per litre or kg of milk solids
2. the profit margin and marginal cost of production per litre or kg of milk solids
3. total milk production compared to allocation

Let's explain each of these. Firstly, the underlying cost of production is the long run average cost of producing a litre of milk in your business.

This is best determined by a financial review of the farm business. The review can break up the costs incurred in producing milk in your farm system and calculate total cents per litre cost.

The underlying cost of production will include overhead costs and variable costs and it would be typical for a NSW dairy farm to have a total cost per litre of 35-45 cents/litre over the last 12 months.

How can you possibly make money out of Tier 2 milk if your cost is that high? This is where the marginal cost of production comes in to play.

If your dairy farm system is set up to produce milk over a twelve month period with consistent calving pattern, stocking rate and feeding system then at certain times more milk can be produced at a small marginal cost.

A typical example would be in spring when cow numbers are usually highest, there are plenty of fresh cows and pasture growth is at its best.

When this happens extra milk is produced at little cost. A typical herd may go from 25 litres per cow (the long run average production) to 29 litres per cow in spring and the extra 4 litres comes at a small marginal cost.

At other times adding an extra kilo of grain will see a response in the vat and so the extra cost of the grain can be weighed against the value of the milk produced. This will only be possible while ever there is a response to the grain or the extra input. At these times the milk can be worth producing, even at Tier 2 prices.

If the margin is slim or a small loss is incurred on this extra milk, the temptation will be to cut back on production. This maybe the best response at times but the danger of this is that over time the business may not be able to respond quickly and increase production if milk prices improve.

Winding back to reduce Tier 2 milk may also expose the business to the risk of being penalised for being under the liquidated damages allocation at other times.

Knowing the total milk production compared to your allocation helps you to decide how much production is at Tier 2 price and how this will impact on your average cents/litre milk price at that time and the profit margin in the last litre.

In summary, producing Tier 2 milk needs to take into consideration the marginal cost of producing it and whether drastic changes to the production cycle will damage your ability to meet the allocation later on, or will have a negative impact on cow condition, herd health and breeding management.

Can I suggest that what will generally be needed are subtle changes to production by altering feeding inputs, drying off or selling some cows and shifting the calving pattern over time.

Don't be frightened of producing Tier 2 milk if there is a margin. Do you know your margin?

ANALYSE YOUR FINANCIALS WITH MINI MILKBIZ

Kerry Kempton

Technical Specialist Dairy, Tocal

Mini Milkbiz is a spreadsheet program designed to give a snapshot of your business performance over a discrete period of time.

The program is very straightforward and once you have defined the time period, usually a month, then all that is required is to enter information readily available from milk statements and feed records.

Once these figures are entered the program produces a one page report with a wealth of information. An example report is included on the next page.

If Mini Milkbiz is completed over a period of time then the results can form the basis of analysing trends not only financial but production and feed utilisation. These can then be used to improve decisions made regarding feed, production levels and the profitability of current business settings.

Your Industry & Investment Dairy Officer can help complete a Mini Milkbiz analysis and assist in interpreting the results sheet.

REMINDER:

With the end of the financial year approaching it's time to get records in order for tax purposes, but more importantly for management reasons.

To carry out any sort of review of how your business performed you need accurate figures. Take the time at the end of June to:

- do a stocktake of all livestock and fodder on hand
- tally up how many tonnes purchased feed have been bought and fed out this year
- write down how much hay and silage was made and whether it was fed out or stored

FARM MANAGEMENT DEPOSITS POPULAR WITH DAIRY FARMERS

Kerry Kempton

Technical Specialist Dairy, Tocal

Recent data from the Australian Tax Office (ATO) have demonstrated the popularity of the Farm Management Deposits Scheme (FMDS), with 452 NSW dairy farmers holding over \$28 million in FMD accounts as at March this year.

Across Australia there are some 3500 dairy farmers using the FMD scheme to deposit nearly \$200 million of income.

So what are FMD's and how do you use them?

According to the Tax Office, FMD's are a risk management tool to help farmers deal with uneven income common in agriculture, due to changes to climate and market forces.

They allow you to safely store income away in good years and redraw it in tougher years, just like you would do with surplus fodder and a large hayshed or silage pit.

The advantage of this scheme over a normal bank account is that the FMDS allows farmers to claim a tax deduction in the year the deposit is made, providing the deposits remain in the account for at least 12 months.

When the funds are eventually withdrawn they are included as assessable income in that year. Most banks offer FMD accounts to eligible primary producers.

You can find out all you need to know about the scheme and how it works by the following means:

Phoning the ATO on 132866, visit the ATO website: www.ato.gov.au

or the Department of Agriculture, Fisheries and Forestry website: www.daff.gov.au/fmds

You should also talk to your accountant, financial adviser or bank manager before the end of the financial year to see whether you should be considering Farm Management Deposits.



Production Summary

Milking area grazed this period	116 ha
Average number cows in milk	297 cows
Total litres produced	187,000 L
Litres/cow/day	20.31 L/cow/day
Milk Solids/cow/day	1.84 kg/cow/day
Fat Test	4.96 %
Protein test	3.99 %
Litres/hal/day	52.00 L/hal/day
Total milk solids	4.72 kg/hal/day

Financial Summary

Milk price	43.00 c/L
Milk income per cow	\$ 8.73 /cow/day
Purchased feed costs /cow/day	\$ 1.58 /cow/day
Total feed costs /cow/day	\$ 2.47 /cow/day
Margin over feed costs /cow	\$ 6.96 /cow/day
Margin over feed costs c/l	30.85 c/L

Feeding Summary

Milking area grazed this month	116 ha
Effective dairy area	160 ha
Average number cows in milk	297 cows
Stocking rate on milking area	2.56 cows/ha
Grazing rotation	20 days
H.G. feed consumed on milking area	80.67 TDM

Nutrition

Energy density of diet	11.85 MJME/kg DM
Crude protein % of diet	19.6%
NDF level of diet	32.0%

Diet

Estimated H.G. Feed consumption	2602 kgDM/day
Dry matter intake per milker	14.63 kgDM/cow/day
Pasture Consumed /Ha	19.13 kgDM/hal/day
Pasture consumed per cow kgDM	7.5 kgDM/cow/day
Concentrates consumed per cow	4.61 kgDM/cow/day
% Milk from home grown feed	60.86%

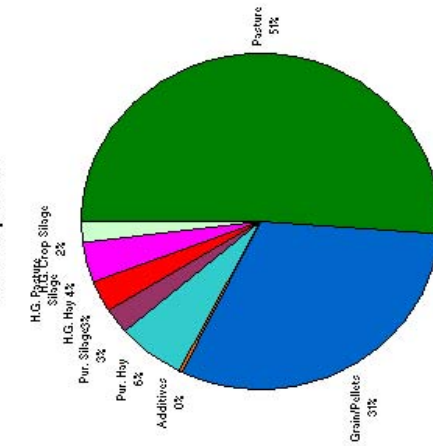
	kgDM/cow/day	¢ DM	¢ DM
Concentrates fed/cow/day	4.55	\$ 3.48	31%
Protein meals fed/cow/day	\$ -	\$ -	0.4%
Additives fed/cow/day	0.07	\$ -	-
Purchased hay fed	0.88	\$ -	2.5%
Purchased Crop silage fed	0.37	\$ -	-
Purchased Pasture Silage Fed	0.45	\$ -	3.1%
Home grown hay fed	0.55	\$ 100	3.8%
Home grown pasture silage fed	0.29	\$ -	2.0%
Home grown crop silage fed	7.47	\$ 105	51%

Home grown feed average price milkers	\$ 90.89 /t DM
Purchased feed costs	\$ 14,577
Purchased feed costs /cow/day	\$ 1.58 /cow/day
Total Feed costs	\$ 22,722
Total feed costs per cow/day	\$ 2.47 /cow/day

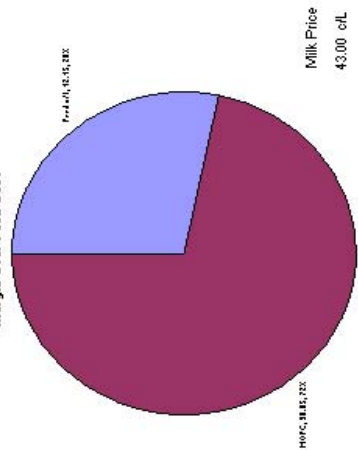
Analysis Dates

Days in month	31
Analysis Start Date	1 July 2009
Analysis Finish Date	31 July 2009
Print Date	9 June 2010

Diet Composition



Margin Over Feed Cost



VEAL CALVES NEED TO BE MADE, NOT JUST 'BOBBY'

Ian Blackwood,

Livestock Officer (Beef Products), Tocal

Selling surplus dairy and dairy cross 'bobby' calves, 7-10 days old, is simply a waste of time and an animal welfare risk.

Dairying is all about cost effective milk production, to receive compositional payment. Yet, the by-product of enabling milk production to occur is removed ASAP to be sold into a 'non-market', underwritten at best by hobby farm calf rearers in regional areas.

The current demand for veal calves by NSW meat wholesalers is largely met by early weaned beef calves. These have the shape (muscularly) wholesalers require to sell to their butcher clients... and they are heavier than 7-10 day old 'bobby' calves.

The growth in boning 4 – 6 month old beef calves for export mainly, has seen product placed onto the domestic market – boned and prepacked into primals with no waste for the butcher.

It is a popular product. It is this scenario that has seen the 'bobby' calf market in NSW dairy areas fall over.

The way out is to produce what the market wants, as is done with milk. The market wants calves between 50 – 70 kg liveweight (25 kg to 35 kg carcase weight), and this information is from phone calls to 11 wholesalers / processors in NSW and servicing the major population areas.

In addition to the liveweight specifications wholesalers want the physical description of the calves to be; "strong, bloom in the coat" and satisfy the withholding period(s) from any health treatment and have an NVD/LPA form.

There are two wholesalers who are interested in having a milk-fed veal product to offer retailers/food service industry.

The problem is that they want to grow a market and no-one wants to supply. Here is an opportunity for a DAG's group to co-ordinate supply, market feedback and build a supply chain.

So, what does this mean to your milk production system?

1. rear calves to at least double their birthweight
2. calves on the farm longer
3. more chance of calves becoming sick and more pharmaceutical costs
4. greater calf rearing costs from time, milk, pellets etc.
5. more costs/cow calved.

All of the above change the return in ¢/litre produced, but is it really significant? What will MilkBiz tell you?

What is important is that the current practices of taking 'bobby' calves out of the milk production business at 7-10 days of age is an animal welfare risk at farmer and industry level.

On-farm practices to euthanase unwanted calves are running out of social conscience time. Supermarket chains want product that comes with minimal risk animal welfare concerns.

Rearing calves is done very well by dairy farmers. Producing veal calves means having more calves to feed using the skills and technologies used so successfully now.

EBL – ALMOST A THING OF THE PAST

Diane Ryan

Regional Veterinary Officer, Menangle

EBL (or enzootic bovine leukosis) once infected more than one fifth of all dairy herds in NSW (in 1993 when there were more than 1700 dairy herds in this State). A voluntary disease control program was introduced by the NSW Dairy Industry Conference in 1994, to reduce this number of dairy herds with EBL. In 1999, after a request from the Conference, this control program became an eradication program.

Infected cows were identified by blood or milk tests so they could be managed separately from 'clean' cows and eventually removed from the herd. Blood cells carry the virus so any management activity that could transfer blood – vaccination, tattooing, ear tagging, pregnancy testing or artificial insemination – or injury resulting in bleeding could also transfer infection between adult cows.

Milk was the main avenue for passing the disease to calves. Cells in milk also carried the virus.

Milk from infected cows was not fed to calves and, in some infected herds, milk replacers were used instead.

Every four months, over a period of fifteen years, a bulk milk sample was collected from every NSW licensed dairy herd to determine if the virus could be detected in the herd.

In herds milking less than 200 cows, a single bulk milk sample was sufficient to detect one infected cow amongst 199 clean cows.

During the last two years, a number of bulk samples have been collected at a single milking from the larger dairy herds, a process called the intensive bulk milk test, to ensure no infected cow was hidden in these herds.

All of this hard work by farmers, dairy processors, herd recorders, LHPA and I&I officers has achieved an EBL Monitored Free status for all NSW licensed herds.

Within the next 12 months, every dairy herd in Australia should also reach this status as there are less than 5 herds with an EBL positive or suspect history remaining in this industry.

But despite this tremendous achievement Australia wide, EBL is still a threat to dairy cattle.

The disease exists in beef cattle and there are no plans to eradicate it from this sector as has happened in the dairy industry.

An infected beef animal could reintroduce the virus back into a dairy herd. A beef bull used to cover heifers and cull cows, beef steers on an agistment property running with heifers or a beef herd running on dairy land could potentially carry the infection.

The best approach to keep your dairy herd free of EBL is to test all beef cattle in contact with dairy animals for the presence of EBL through blood testing - before introducing them to your property or introducing your dairy cattle to their property.

Any beef bull on a dairy property should be blood tested because, even if they are not meant for covering dairy stock, there is a good chance they will find a way.

HORNS AND TAILS – RECOMMENDED PRACTICE

Julie Dart

Livestock Officer Dairy, Coffs Harbour

Dairy farmers need to be aware that there is a Model Code of Practice for the Welfare of Animals: Cattle and the NSW Prevention of Cruelty to Animals Act. Both set out the best way to manage the care and husbandry of dairy animals and it is important that each dairy farm have a copy of the code of practice and follow it closely. Dehorning and tail docking are good examples of where the Code of Practice can be helpful.

Recently Subtropical Dairy funded a series of workshops presented by Queensland vet and consultant Dr Phillip Chamberlain about calf care and animal welfare issues.

A demonstration of disbudding using the heat cautery method (disbudding hot iron) created a lot of discussion. This is one of the preferred methods of removing horns from cattle from an animal welfare perspective, and could possibly become the only lawful way to deal with horn buds in the future, when current codes of practice become law.

Those attending were made aware that dehorning after 12 months of age is discouraged and can only be performed in NSW if an anaesthetic is used, otherwise it is an offence under the NSW Prevention of Cruelty to Animals Act.

Tail docking is another issue where farmers may be confused about what is and isn't allowed. Any procedure that removes skin, muscle or bone (but excluding hair) from the tail is 'tail docking'. According to the Model Code of Practice, in NSW tail docking is prohibited, except where prescribed and performed by a registered vet, and then only on heifers under 6 months of age. It is acceptable to remove the hair from the end or the switch of the tail, which will grow back over time.

The Model Code of Practice (2004) "the pink book" is available for free download as a pdf on the CSIRO publishing website:

<http://www.publish.csiro.au/nid/22/pid/4831.htm>

THE EWEN PROJECT



Case study: heat recovery units

Summary

As a result of the EWEN Energy Audit, the Murphys installed:

- a Wilson “Rapid Flow” 630 L plant hot water heater
- heat exchangers on vat compressors to preheat hot water
- switch to controlled load 1

Cost \$9,872 ex GST



Benefits

- savings of approx \$1,000/yr
- payback time of 4.9 years after the rebate available from the Department of Environment and Climate Change (DEECW)
- payback time of 9.8 yrs with no rebate

Background

Chris and Robyn Murphy milk around 120 cows in Lansdowne in the Manning Valley. The dairy has a 5,200 L vat which is cooled by 2 x 5 kW scroll compressors.



An old pressure type 400 L Wilson D series heated hot water, but the EWEN energy audit identified this was not working efficiently and needed replacing.

The EWEN Action Plan recommended that a larger 630L rapid flow hot water heater be installed so that the hot water heater tariff could be changed from Controlled Load 2 (CL2) to Controlled load 1 (CL 1) and provide enough storage for the full daily plant hot water requirement.

The Action Plan also recommended a heat recovery unit be installed to pre-heat water using the hot gasses in the vat compressors. This comprises a braised stainless steel plate heat exchanger on each of the vat compressors with insulated storage (total 630 L) and a recirculating pump to preheat the water for the plant water heater and vat washing.

NATURAL RESOURCES

Benefits

The change from a pressure type heater to a non pressure heater allows hot water to be used without cold water being added to the tank. This means that morning and evening hot water washes can be discharged from the heater without the need to reheat for the evening wash.

The change from CL 2 to CL 1 means that hot water heating is now done on the cheapest off peak tariff - a 38% saving.

The heat recovery unit pre-heats the hot water by recirculating water through heat exchange plates which are heated by the hot gasses from the vat compressors during milk cooling. The heat transfer across the plate exchangers also improves the efficiency of the compressors which will result in them using less power.

Specifications

Each pre-heating system using plate heat exchangers must be correctly sized and designed by a qualified refrigeration engineer. Solenoid valves, electronic sensors and switch gear will be required to move water into, around, and out of the system at the appropriate time.

The pipe work and storage must be insulated and the storage capacity should equal the daily hot water requirement. Filters in the water supply line must be used to reduce contaminants and sediment in the system.

The main hot water heater needs to be a non-pressure type to allow water to be discharged for washing without the need for cold water intake.

The preheating system, however, is pressurised to allow water to be transferred to the heater and also enables water to flow directly to the vat when washing is required.



Results

Chris has recorded operating data to monitor the performance of the system.

- the water in the pre-heating system is heated to 54 °C (a temperature rise of 36 °C).
- this water is heated in the main water heater to 85 °C for plant washing (31°C rise).
- data from Chris' monitoring and the electricity bills showed the there was reduction of 1648kWhrs between Dec 08 –Mar 09 and Dec 09 –Mar 010
- without switching tariffs, this would have been a saving of \$185 for the quarter. With the tariff change, the saving is \$254 for the quarter. It is also expected that the compressors run more efficiently, however those savings are unknown.

The Bottom Line

The system has the potential to save around \$1,000/yr in water heating costs alone. This is a payback time of 9.8 yrs. With the rebate available from the Department of Environment and Climate Change of 50% of the total cost of the project the payback is 4.9 yrs.

COMING EVENTS

Proposed Topfodder Silage courses for 2010:			
August	17, 18 & 19 Tumut		
August	24, 25 & 26 Gilgandra		
September	Finley and Wakool		
September	8, 9 – DRF Symposium, Camden		

The cost of these Topfodder courses is now \$460 per person, however FarmReady will fully reimburse this cost to eligible primary producers (includes dairy farmers and most family or workers). Take advantage while this scheme is available. For more information or to register your interest contact your local I&I NSW office, phone 1800 025 520 or see www.profarm.com.au

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