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# Introducing an end-to-end solution for genomic testing

By David Levick [david.levick@kiteconsulting.com](mailto:david.levick@kiteconsulting.com)



**Genomic testing offers opportunities to dairy farmers that just can't be ignored, but many people don't know where to start. That's why Kite has just launched an end-to-end solution for genomic testing, in partnership with NMR.**

This new service gives access to the testing technology that NMR's Genetracker service provides, but with strategic advice and effective interpretation of the results by Kite to ensure that you extract maximum benefit from the exercise.

### How does it work?

It all begins with Kite assessing the current genetic report of a herd, focusing closely on the youngstock. Alongside this, we identify the key breeding objectives of the farm, looking at areas such as long term business strategy and milk contract parameters. We also take into account the health traits in the herd, to help steer your requirements from genomic testing.

Having done that, we then work with you to determine which heifers you should test

and NMR then send out all the relevant kit to you. All the labelling and bags are pre-populated, so all you have to do is send back the samples in the packs provided. The idea is to target genomic samples from all heifers under 9–10 months old, prioritising older animals first (so you can determine your bull choices based on the results before you serve them), and then undertake further testing throughout the year.

Kite then work with NMR to assess the genomic reports, including a full SWOT analysis of individual heifers. This allows a ranked list to be created, based on agreed parameters depending on the individual farm's objectives, which can then be used to agree a strategy for dealing with 'the best, the worst and the rest'.

The final stage involves collaborating with your breeding company to ensure bull choices complement the strengths and weaknesses of each heifer, based on their genomic profile, which can also be cross-referenced with the AHDB sire-selection programme.



**GeneTracker**  
Part of the NMR Group

### Why should you use genomic testing?

This is a fast-moving area of science that has already proven itself across the world and which holds real opportunities for UK dairy farmers. This combined offer with NMR provides an easy way for farmers to obtain and make sense of their herd's data and, used properly, will help to advance a herd's genetic potential much more rapidly.

The financial benefit of doing this can be immense. Many milk contracts have moved towards payments based on milk composition and you can make great progress on this using genomic testing, together with improving health traits and longevity. The beauty of using genomic testing is that it is now possible to make real gains in performance and financial return in a relatively short period – why wouldn't you do that?

**For more information contact your Kite consultant.**

# Ventilation and cooling



By Andrew Marlow [andrew.marlow@kiteconsulting.com](mailto:andrew.marlow@kiteconsulting.com)



**When I attended the Zinpro Blu- Ribbon-Trip® in the USA last November I was particularly impressed by Dr Nigel Cook's (University of Wisconsin) presentation on cooling and ventilation for dairy cows.**

Much has been said by Kite and others in the past about the effects of heat on dairy cows, but if you are anything like me, there is a part of your brain that switched off, thinking that this is another hyped up tale to sell things to farmers... and anyway this is the UK not the USA!

However, it is funny how just one small bit of information can make the world of difference. That for me was the graph below which is taken from Nigel Cook's lecture last autumn.

I visit more and more farms these days where their early lactation group (or cows) are producing well in excess of 45 litres and some cows up to 60-70 litres. Recent research has shown that increasing milk production from 35 to 45 litres

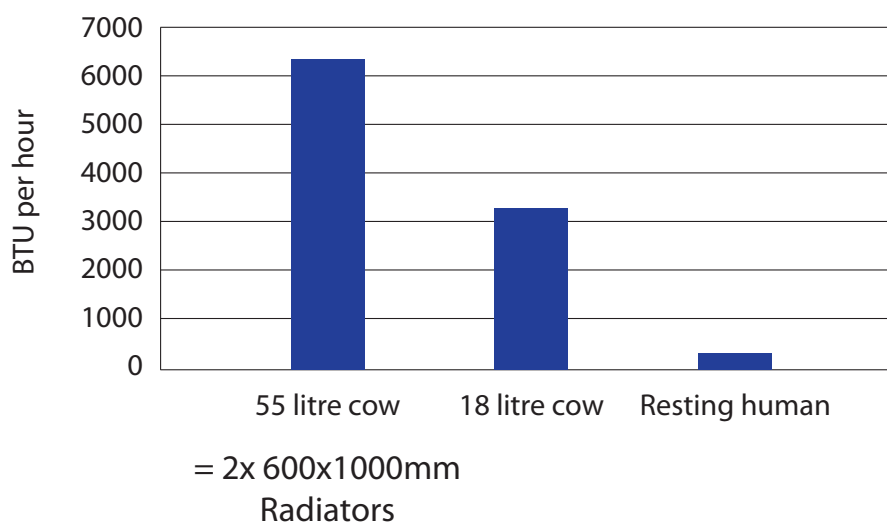
reduces the threshold at which the cow will suffer heat stress by 5°C. This is a big change in understanding but when you see the bar chart below, it all makes sense.

The point at which heat stress starts in a cow is a function of humidity as well as temperature. We may not experience USA temperatures, but in the UK we do have significant humidity levels almost year round, owing to our maritime climate (UK typical range 75-95% humidity). On a day when humidity is 85%, cows will start to experience symptoms of heat stress at a temperature of 20°C and the highest yielding cows will be more sensitive still because they are producing so much heat themselves. Therefore, dissipating that heat becomes increasingly challenging. When a heat stressed cow lies down, she accumulates heat at a rate of 1°C per hour but when she stands, she only loses 0.5°C per hour.

You can see from the TEMPERATURE HUMIDITY INDEX (THI) chart (*see right*) that the first thing to suffer with the cow is fertility and this is an almost immediate effect, followed by a drop in milk production when temperatures rise into the mid and late 20s. The other thing which research and practical experience has shown to occur like clockwork is that claw lesion rates in cows' hooves peak two months after a heat stress event. This is due to the cow standing significantly more (lying down less) in the day as she tries to dissipate heat.

There is a lot at stake for dairy producers in the warmer months of the year. Sub-optimal milk production, lameness and fertility are costly and impact on cow welfare, so the industry needs to take it seriously.

We all know that left to their own devices cows will usually try to find a shady spot where a breeze is blowing when temperatures rise. Cows do not have an effective sweating mechanism, so appreciate fast moving air to help them dissipate heat. Angled fans (as shown in the photo, right) can help to address this in buildings.





# FOCUS ON VENTILATION AND COOLING

*"Our priority should be to make cows comfortable enough that they continue to lie down for their 11 hours a day. They will only do this if they do not start to accumulate heat while lying..."*

In the warmer months though, this natural “stack effect” will often break down because of the physics of outside/inside temperatures. Natural air movements across the shed can help but, in very many cases, cow sheds can be oriented incorrectly for this to work, the farm yard could be too crowded (creating “wind shadows”/sheltering) or it could simply be a still day. If it is hot weather in the UK the isobars are often widely spaced and there is little wind to help the cows cool.

Our priority should be to make cows comfortable enough that they continue to lie down for their 11 hours a day. They will only do this if they do not start to accumulate heat while lying, so consideration should be given to providing fast moving air (400ft/min or 4.5 mph) over the backs of cows lying in cubicles. Fans should be mounted at 6-8 degrees off vertical and adequate numbers provided so that as the air speed of one fan dips below 4.5 mph, another picks up the pace, as shown diagrammatically below.



Positive pressure air tubes can be used over cubicles but can only be used on limited runs, so are probably best employed over collecting yards. Fan choice needs some thought because one large and powerful fan might be able to do a 60ft run of cubicles where other fans might look cheaper but would take 3 fans to achieve the same result, using considerably more electricity in the process.

It is difficult to quantify but it wouldn't take much of a combined effect from milk easing back, fertility being knocked and feet suffering, for a herd to suffer a drag of 300-400 litres on annual yield from the effects of heat on cows. The effects would be highly farm specific so it is well worth putting this firmly on your radar, to monitor your situation as the warmer weather approaches. Some strategically positioned fans (e.g. over a housed high group) could be an investment that pays huge dividends.

Adapted from RJ Collier, The University of Arizona

*E.g. With 85-90% humidity, cows will start to experience heat stress when temperatures reach 20°C*



# Should I use a bacterial silage additive?



**Paul Macer** [paul.macer@kiteconsulting.com](mailto:paul.macer@kiteconsulting.com)

**Silage additives will not make poor silage good and they are not substitutes for poor silage-making technique, but the right one will help make good silage better!**

During the initial ensiling phase we aim to achieve a rapid pH reduction within the silage mass as a result of an efficient fermentation as bacteria convert the plant sugars to acids. This rapid fermentation to achieve a sufficiently low pH will ensure stability right through until the forage is fed, as long as good ensiling practices are followed. The end point pH required will vary depending on the dry matter and quality of the grass at ensiling. A good bacterial additive will speed up this fermentation process which will ensure that more energy and protein are preserved for the cows as opposed to being utilised during an inefficient fermentation. The right product will "flood" the silage with the correct type of bacteria to ensure this happens effectively, which is less likely if not using an additive as it will depend on the naturally occurring bacteria on the grass.

Traditional thinking has suggested that the sun is the best additive that you can have. To a degree this is true in that the grass sugars are

concentrated by wilting and a drier silage is generally easier to ensile than a wet one. However, even in a system where a rapid, efficient wilt is achieved by tedding the grass, the UV light that the grass is exposed to will kill some of the naturally occurring bacteria that we depend on to ferment the crop. So it makes sense to give the fermentation a good shove in the right direction by adding a sufficient dose of the right bugs to dominate the fermentation and reduce losses.

There are many products on the market so what should you be looking for in a good additive?

- At least 1,000,000 cfu/gram of grass
- A homofermentative product (containing *Lactobacillus plantarum*)
- Good independent research behind the product indicating improved fermentation and animal performance

Many products contain other strains of bacteria (heterofermentative), the most common of which is *L. buchneri*. This does a great job of reducing the losses at feed out as the end point of the fermentation is acetic acid which inhibits the growth of yeasts and

moulds. However, if this is our goal then we are admitting that our silage making technique is not good enough, as it is a problem that should not be encountered if clamping and sealing is done correctly. Furthermore the production of acetic acid uses lactic acid and more energy tends to be used in this type of fermentation meaning less available for the stock eating the silage.

The other ingredients often quoted in an additive mix are enzymes. These are fine in terms of what they do, but generally the amount included is too small to have any significant effect and if the inclusion rate was high enough then they would be prohibitively expensive.

If we are striving to maximise animal performance from silages then additives are a useful tool to have in the box and will be the icing on the cake of good silage making. If losses and wastage are being experienced during the process then we should be looking at addressing the fundamental issues of why this is happening before using products as a "sticky plaster".

*Thanks to Rhun Fychan- Forage Researcher at Aberystwyth for his help preparing this article.*

**Following the success of our first Progressive Dairy Operators Conference in March 2015 we are now planning our next conference, which will take place on October 9 & 10, 2017 at the Park Royal Hotel, Warrington.**

The conference will provide practical and thought provoking sessions from farmers, Kite consultants and industry specialists including Mitch Davis of New Sweden Dairy and Torsten Hemme (IFCN). The focus is all about ensuring that delegates are equipped to drive business progress in an uncertain world through technical and business excellence and will cover subjects as diverse as maximising milk from forage using multi-cut silage systems to using genomics to drive herd genetic progress. We'll also focus on important business issues such as how to get the best from staff teams and how to create wealth in volatile market conditions.

**Tickets will be on sale shortly and are strictly limited so make sure you don't miss out!**



**PROGRESSIVE  
DAIRY OPERATORS  
CONFERENCE**

*"Flying  
high for the  
future"*



**For enquiries regarding the information in this newsletter please contact:**

Kite Consulting | The Dairy Lodge | Dunston Business Village | Dunston | Staffordshire | ST18 9AB  
Tel: 01902 851007 | Fax: 01902 851058 | Email: [enquiries@kiteconsulting.com](mailto:enquiries@kiteconsulting.com)

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