

HEAT STRESS IN DAIRY COWS



By Yoav Alony-Gilboa DVM MRCVS CertSHP

Managing heat stress has become a major challenge in recent years, due to the increasing number of cows with increased milk yield and therefore greater metabolic activity. Environmental temperatures have also increased by 1.0°C since the 1800s and are expected to continue to increase by another 1.5°C between 2030 and 2052. Our cows are now exposed to higher ambient temperatures for prolonged periods during the summer months and many of them suffer the negative effects of heat stress.

Heat stress happens when a cow absorbs and produces more heat than she can lose to the environment. High external air temperature, humidity, and exposure to solar radiation, alongside the metabolic heat produced by the cow when digesting feed, can cause cattle to accumulate heat. During times of heat stress, dairy cattle will try to maintain constant body temperature by sweating, panting, and standing where cooler air blows over them. When ambient temperature rises above 24°C and relative humidity reaches above 70%, cows will struggle to lose excess heat and suffer with moderate stress that can become severe if temperature and humidity reach even higher levels.

Cows with heat stress may not show signs at first but will become less active and will often stand, in order to increase their body surface, breath rapidly or pant and drool, trying to lose heat to the environment. Their dry matter intake will drop and as a result so will their milk yield and milk solids (fat and sometimes protein). Heat stressed cows will spend more time standing, often in pooled slurry, trying to cool their feet. This type of behaviour will predispose them to lameness due to solar ulcers and digital dermatitis.

Temperature Humidity Index (THI)										
Relative Humidity %										
C	20	30	40	50	60	70	80	90	100	
22	66	66	67	68	69	69	70	71	72	
24	68	69	70	70	71	72	73	74	75	
26	70	71	72	73	74	75	77	78	79	
28	72	73	74	76	77	78	80	81	82	
30	74	75	77	78	80	81	83	84	86	
32	76	77	79	81	83	84	86	88	90	
34	78	80	82	84	85	87	89	91	93	
36	80	82	84	86	88	90	93	95	97	
38	82	84	86	89	91	93	96	98	100	
40	84	86	89	91	94	96	99	101	104	

No heat stress

Moderate heat stress

Severe heat stress

Dead cows

Cows will often bunch together in the coolest place available or lay down in wet areas, thus increasing their chances of mastitis (not helped by the fact that E. coli and other mastitis causing environmental bacteria thrive in ambient temperatures of 20–44°C).

Dry cows that have struggled with heat stress during the transition period will often calve early, produce lighter calves, and poorer quantity and quality of colostrum. After calving, these cows will be predisposed to ketosis, metritis, and displaced abomasum and often struggle to reach their full milk production potential. Conception rate drops during times of heat stress, especially if experienced a couple of days before or after service. Cows will exhibit oestrus behaviour for shorter periods, resulting in an increased number of “open days”, and higher overall culling rate.

Synchronisation protocols and timed insemination might help somewhat to negate this negative effect. Conception rates will often continue to be low during the autumn months as follicular development during heat stress periods is sub-optimal. High twinning rate is also often observed.

Heat stress can be reduced using a combination of means, some of which require a capital investment, but some can be achieved at little cost:

Feed, especially roughages, should be of good quality to reduce metabolic heat produced during its digestion. If increasing the energy density of the ration by adding highly fermentable carbohydrates, care should be taken to avoid acidosis, as rumination rate and salivation (which buffers acidity) are much reduced.

Adequate trough space should be provided and if possible, the bulk of the ration should be fed late in the evening, as temperatures drop and the cow’s appetite increases.

Clean, fresh water should always be available to the cows in clean deep troughs. Trough space should allow 2” per cow as a minimum and water pressure should allow rapid fill, especially to troughs at the exit of the milking parlour. At pasture, troughs should be located no more than 200 meters away from the cows as when stressed, some might not walk a long distance to get to one.

Stocking rates should be reduced whenever possible and ventilation inside the sheds improved to allow adequate airflow and reduce the temperature inside. Cows at pasture should be provided with shade to avoid direct sunlight whenever possible.

Cooling the cows with water sprinklers, to wet their skin, or misters, to cool the air around them, should be combined with fans, to help evaporation, over the feed passages and in the collecting yard. This will improve the cow’s ability to lose excess heat. When “showering” cows in the collecting yard before milking, it is important to control the amount of water used, and to wipe the teats dry before cluster attachment to reduce the chances of mastitis.

Mechanical ventilation, using blast fans, in combination with water application, will ensure the air is blown away from the cows to help further with cooling. Fans will also help keeping feed, teats, and beds dry and not saturated with water.

Fan installation is a financial investment, and these systems will increase running and maintenance costs, but reducing the level of heat stress is probably a worthy investment on most farms due to the short and long term effects described.

We would be happy to advise further on ways of reducing heat stress to cows. As no two farms are the same, a bespoke plan should be considered for each farm.



AN OPEN MEETING WITH FRIARS MOOR YOUNGSTOCK GROUP

REARING CALVES AT HEMSWORTH FARM WITH A FOCUS ON OPTIMISING GUT HEALTH.

Wednesday 21st June. 10.45am-2pm. Coffee from 10.45am to start at 11am

Hemsworth Farm, Witchampton, Wimborne, Dorset BH21 5BN

With the third spring calving season complete at Hemsworth, an organic Viking Red herd; it's a good time to reflect on calf rearing 2023.

Join us for a calf farm tour to hear how colostrum transfer is optimised with dry cow feeding and farm protocols for colostrum harvesting and delivery. Calves grow well on pasteurised whole milk. The farm has worked hard to reduce the impact of Cryptosporidium in the calves and have some novel ideas to share. We will be joined by Berry Agriculture and Wynnstay to hear about two new gut health products which have worked well at Hemsworth. This will be a great opportunity for all herds, whether block or AYR calving to visit one of our newest group members, and to pick up tips for Crypto control on their own farms.

Lunch is provided. Please wear clean wellies as usual.

By kind permission of Sophie Alexander, Andrew Batty and Jenny Bailey

Included in youngstock group membership. Non members very welcome - £10/person.

Please RSVP by the 14th June by calling the farm office on 01258472314, or go to our website www.friarsmoorlivestockhealth.co.uk/events/

LUCIE - VET TECH

Lucie joined the team as a vet tech this year and has a particular interest in sheep work. She has been pivotal in developing our new sheep packages for smaller flocks and vaccination and fly control rounds (see flyers attached). She has a huge amount of shepherding experience so please don't hesitate to ask for help, whatever the size of your flock. Here's a bit more about Lucie:



I started at Friars Moor in Feb 2023 and work three days a week. The rest of my time is spent working on a large, mixed farm managing 900 ewes. I have my own small flock of 60 ewes at home on our family small holding, where I grew up. In my spare time I can usually be found walking or training with my three working border collies.

STAFF NEWS:



We are saddened to say goodbye to Stephen who has retired from the practice at the end of May. Stephen has been a core part of our Vet Tech team since 2016 and we can't thank him enough for all his hard work! We wish Stephen a happy retirement!

DATES FOR YOUR DIARY:

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JUNE

YOUNGSTOCK DISCUSSION GROUP

Rearing calves at Hemsworth Farm with a focus on optimising gut health. **Wednesday 21st June. 10.45am-2pm.** Coffee from 10.45am to start at 11am. Included in youngstock group membership. Non members very welcome - £10/person.

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JULY

CALF REARING COURSE

Join us to learn more about how to keep calves healthy and growing well. The course is appropriate for anyone relatively new to rearing dairy replacements or beef calves. **Wednesday 5th July. 10:30am - 3pm.** Cost is £100 inc VAT/person with 25% discount for youngstock group members - Refreshments included.

6
JULY

REGENERATIVE & BEEF FARMING DISCUSSION GROUP

Farm walk to look at this year's maize, see germination and crop establishment. Take a look at the Horizon strip till cultivator. **Thursday 6th July. 10:30am for coffee 11am start.** Manor Farm, Mere, Wiltshire BA12 6HR. Then move to Longmoor Farm, Forest Deer, Gillingham, SP8 5QW for further maize walk and lunch.

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JULY

PRACTICAL CALVING COURSE

Wednesday 19th July 10.30am - 3pm. Longmoor Farm, Gillingham, SP85QW Cost is £100 including VAT with 25% discount for dairy youngstock group members

TBC

INTEREST LISTS:

To register your interest for our next foot trimming or mastering medicines course please contact the farm office and we will add you to our list! **Dates to be confirmed.** Call us on 01258 472314

G&S SHOW BBQ!

YOUR BBQ TICKETS ARE INCLUDED IN THIS MONTHS BILLS

This year for the Gillingham and Shaftesbury show we are sending out BBQ tickets for you all to bring to our hospitality tent on show days. If you require more tickets than we have sent do not hesitate to get in touch and we will get more sent out so everyone gets one. We look forward to seeing you all!



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