

Introduction

Hot weather during summer is an increasingly predictable factor that must be dealt with on UK dairy farms. Longer summer days with higher than average temperatures and cloudless blue skies are not the best conditions for lactating dairy cattle. Reductions in animal performance and health issues associated with these conditions can be minimised. The following guidelines illustrate the measures that can be taken at farm level.

Effects of Heat Stress on Cattle

- Cattle sweat only 10% as much as man
- Optimum temp for cattle is -2 - 18 degrees C (humidity is also critical)
- Evaporative cooling is needed to maintain body temperature
- Panting can increase the cows maintenance requirements by 20%
- Volatile Fatty Acid production in the rumen is decreased, milk composition can be affected.
- Air movement
- Shade seeking behaviour increases
- Water intake requirements increase
- Feed intake (reduced by 8-12%)

Changes In Behaviour

When cows are heat stressed their behaviour changes significantly, the signs to look out for include the following;

Increased breathing intake	Increased water intake	Increased sweating
Reduced feed intake	Reduced milk production	Seek Shaded Areas
Crowd Together	Reduced Butterfat %	Reduced Protein %
Refuse to lie down	Change orientation to sun	Stand in water
Changes in blood hormones	Reduced bulling activity	Seeking salt

Fertility Watch

Often the obvious signs of bulling activity give way to much more subtle signs, so instead of cows mounting each other, be on the lookout for more chin resting, grooming and licking activity, record all suspects and check your expected bulling dates.

When holding cows back for AI ensure they have access to water in the holding pens. Also be very careful with semen storage and thawing, the use of proprietary semen thawing equipment is highly recommended.

Water Provision

Larger high yielding cows will drink as much as 120 – 150 litres of water on hot days if the temperature reaches 26 - 32 degrees C. Water troughs must be clean and fresh at all times. Cows will drink between 2 and 6 times per day.

- Try to locate water troughs in the shade to keep the water cool
- Use large round water troughs if possible, more animals can drink at a time
- Check water troughs daily
- Keep them clean and free of algae
- If the TMR is dry consider adding some water to the mix (say 1-2 litres per head)
- Special care should be taken with animals drinking from dykes to prevent them from getting stuck when trying to cool off, extra fencing may be required.
- Provide extra water troughs in the collecting yard
- Provide extra water troughs at the parlour exit
- Provide extra water troughs in loafing areas
- Mister units in the collecting yards can be highly effective
- In buildings, the new Tip-Over type troughs are ideal

Housing Changes

Temporary adjustments can be made to housing to ensure the environment is effective in preventing heat stress. Other adjustments cost more, but are often more effective.

- Increase the gap in space boarding by removing every other board
- Install hinged flaps into space boarding, that can be opened on very hot days
- Paint out roof lights with white emulsion paint or greenhouse paint to reflect heat out of the building (reduces greenhouse effect on large buildings)
- Open sheeted gates to improve air flow into the building
- Remove roof ridges to improve air flow out of the building
- Install fans to cover feed passages and cubicle beds to keep cows cool

Management Changes

Often there are simple changes we can make to the day-to-day routine to reduce the effects of heat stress on dairy cows. These changes often cost nothing, and can improve the working routine for staff as well as cows in hot weather, these include;

- Reduce the size of management groups, do not overcrowd the collecting yards, this gets animals back to water and feed quicker.
- Go easy with the backing gate to give cows enough space to keep cool
- Provide most of the buffer ration during cooler periods of the day (morning or evening)
- Keep smaller amounts of feed available during daytime hours
- Increase the use of fly control measures, bothered cows are hotter cows !
- Use more bedding and keep the cows clean
- Keep cows inside during the day if it is cooler for them
- Allow cows to loaf in and out if a suitable shady building can be made available.
- Shades can be made from large bales stacked against the fence
- Reduce the walking distance, hold cows close to buildings during the day

Feed System Changes

TMR diets often deteriorate quicker in hot weather and dry matter intakes can be reduced as well, so keeping the ration fresh and palatable can be even more critical, the following tips may help;

- Monitor intakes carefully, keep your consultant informed of any changes
- Feed ensiled items more frequently to compensate for short trough life
- Remove silage from clamps at feeding time, not before
- Spray the fronts of the silage clamps with silage additive mixed up in a knapsack to reduced waste at the face (follow safety precautions)
- Always use a shear grab or bucket and remove waste to the muck heap
- Consider mixing up TMR's twice or even three times per day (not always possible)
- Offer more TMR during cooler times of the day
- Try to feed in shaded buildings or shady areas
- Try to offer feed near a source of water
- Consider adding water to a very dry TMR mix
- Consider feeding a higher density ration if DMI targets cannot be maintained
- Consider increasing levels of certain minerals (esp: Potassium, Magnesium and Sodium) to compensate for higher losses from the body

Summary

Hot summertime temperatures are becoming a fact of life for dairy farmers in many parts of the UK. The best strategy for any farm is to employ management tools to prevent heat stress in their cows. A combination of the above strategies can prevent heat stress from affecting the performance, health and fertility of your dairy herd in all but the most extreme weather conditions.