Breeding for Heat Resilience

Editorial – Practical Insights for Australia's Dairy Future from a Kentucky Dairy System

Heat stress is increasingly shaping dairy profitability in North Eastern Australia.

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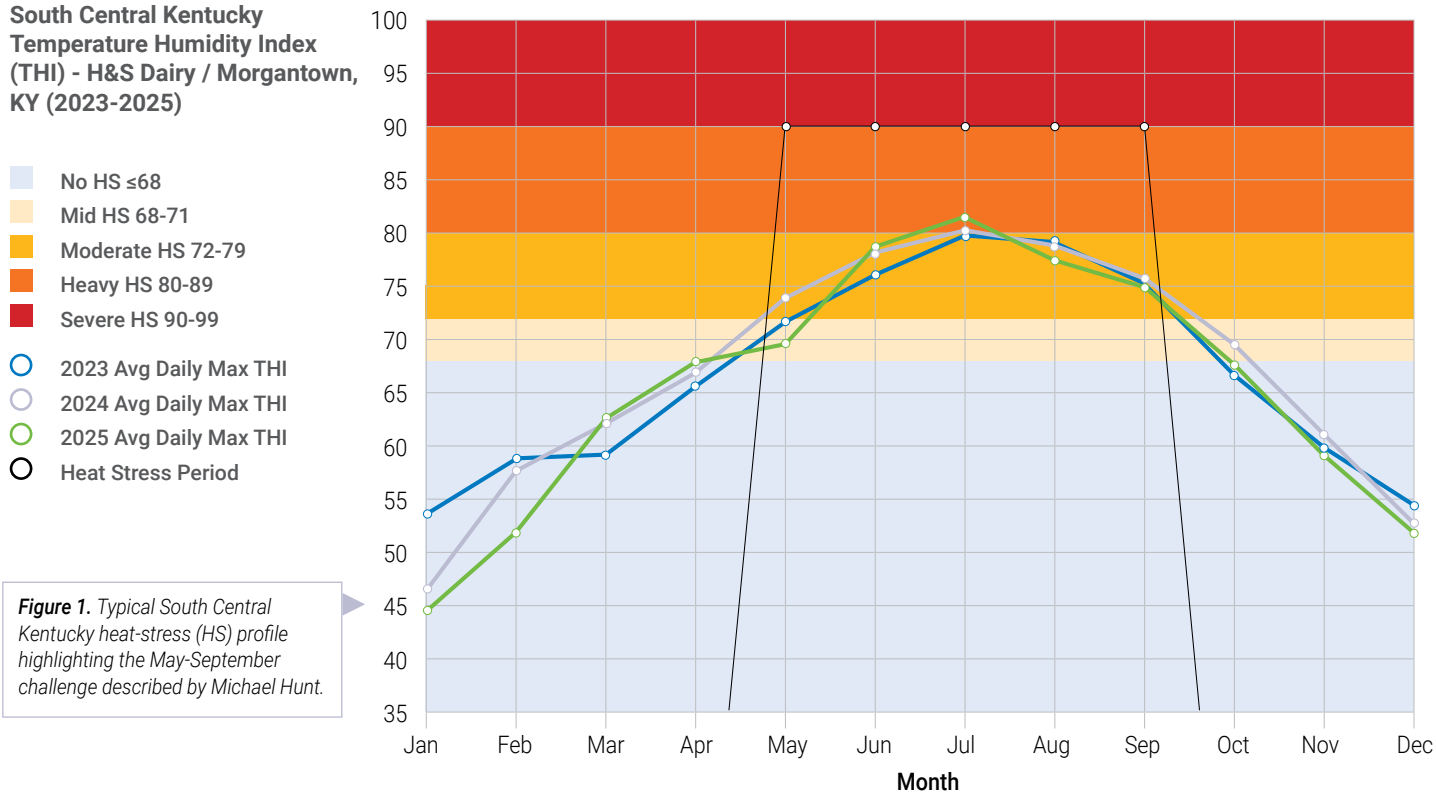

Figure 1. *Typical South Central Kentucky heat-stress (HS) profile highlighting the May-September challenge described by Michael Hunt.*

Michael Hunt of H&S Dairy (IceBlue Genetics) began incorporating SLICK Holstein genetics in 2020 to create a more efficient cow for a heat-stress environment. Hunt reports that cows experience heat stress from May through September (see Figure 1), with the most severe conditions occurring in late June through August.

Field observations have been compelling. SLICK heifers continue grazing during hot weather while conventional animals seek shade. SLICK cows remain at the feed bunk and maintain feed intake when others congregate under fans. Hunt also reports no compromise in udder quality or commercial conformation.

Research Snapshot: Does SLICK Have a Winter Penalty?

One question often raised by producers is whether cattle carrying the SLICK trait may be disadvantaged in cooler conditions because of their shorter hair coat. Recent research from Lincoln University in New Zealand provides some encouraging early insights. *[Robb et al. (2024), New Zealand Journal of Animal Science and Production.]*

Researchers compared SLICK and non-SLICK dairy heifers during winter under both unrestricted and restricted feeding conditions. During the feed restriction period, the control group experienced an 87% reduction in growth rate, while SLICK heifers recorded a minor reduction in growth and displayed behavioural adaptations consistent with efficient energy use (Figure 2).

The study concluded that further research is warranted, but the results suggest the SLICK trait may not be associated with the winter disadvantages that some producers might expect refer to figure 2.

For Australian dairy farmers, that is an encouraging finding. While SLICK genetics were originally developed to address heat stress, emerging research suggests they may contribute to resilience and efficiency across a broader range of environments.

Winter Feed Restriction Study

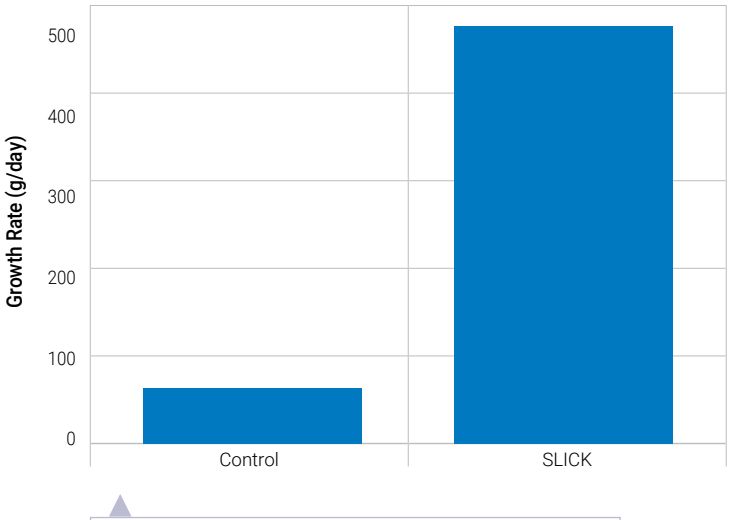

Figure 2: *Heifer growth rate during restricted feed period in winter 2023 (May-July).*

Why does this matter for Australia?

The SLICK gene enables cattle to:

- Maintain feed intake during heat stress, which supports higher fertility and reproduction
- Improve whole-herd resilience to deliver more milk through Summer & Autumn
- Reduce reliance on additional cooling inputs
- Maintain growth and efficient feed utilisation, including during winter.

The Bottom Line

Poor fertility and reduced milk production during periods of heat stress should not be accepted as an unavoidable cost of doing business. While management practices remain essential, genetics offers an additional opportunity to improve herd resilience and long-term profitability.

As climatic pressures increase, genetics that help cows remain productive, fertile and comfortable under heat stress will become increasingly valuable for northern Australian dairy systems. For producers looking to build greater resilience into future generations, heat-adapted genetics represent an opportunity worth serious consideration.

"I thought adding the SLICK gene could increase the output of our animals without adding more daily costs. Now I know it does!"

ABOUT RESILIENCE GENETICS AUSTRALIA

Resilience Genetics Australia is the Australian arm of Tropical Resilience Genetics (TrRG), a specialist dairy genetics provider focused on developing high-performance cattle for hot, humid and heat-stressed production environments.

Established in 2009, the programme combines elite dairy genetics from New Zealand, Australia and the United States, including one of the world's largest and most diverse Homozygous SLICK sire teams. Holstein-Friesian, Jersey and crossbred bloodlines are bred to deliver productivity, fertility and resilience across a range of dairy systems.

Australian-bred sires offer competitive BPI rankings alongside strong fertility, management and type traits, enabling producers to capture the benefits of the SLICK gene without compromising overall breeding objectives.

Working closely with commercial farmers, industry partners and research organisations, Resilience Genetics Australia advances practical, science-based solutions for heat resilience and dairy profitability. The Australian team is supported by Peter Semmens, a respected dairy and beef genetics professional with extensive experience across the Australian livestock industry.

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