



UNDERSTANDING HEAT STRESS : WHY THI MATTERS IN TROPICAL DAIRY SYSTEMS

As Tropical dairy producers, managing heat stress is critical to maintaining animal welfare, fertility, and milk production. The Temperature- Humidity Index (THI) is a practical tool that combines air temperature and relative humidity to assess the risk of heat stress in cattle.

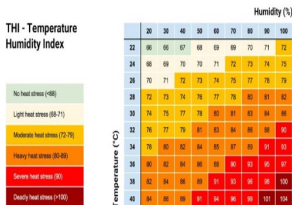
The chart below clearly shows how quickly conditions escalate from mild discomfort to severe and even deadly stress. For example:

At just 24°C and 70% humidity, cows are already experiencing moderate heat stress (THI = 72)

Conditions at 32°C and 50% humidity, the THI jumps to 81, marking the onset of High (heavy) heat stress.

This underlines the importance of selecting genetics that can thrive in these environments. Tropical Resilience Genetics focuses on heat-adapted cows that perform under THI levels that would otherwise cripple production and fertility in conventional breeds.

Our goal is to help farmers stay productive and profitable, even under extreme tropical conditions. The right genetics are not a luxury—they're a necessity.



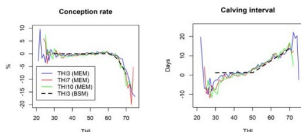
Tijssen et al 2025, Impact of Heat Stress on fertility in Dairy Cows (Netherlands)

SLICK: The Smart Breed for Hot Climates

Based on the above data and using it as a reference we have linked information from other recent research papers and our own analyses which confirms Farmers across the tropics are reporting up to 50% faster growth, 3-4L more milk per day on average, and earlier calving from cattle carrying the SLICK gene.

Key Advantages:

- Earlier Calving = Faster ROI
- Higher Milk Yield
- Better Fertility Post Calving = Shorter Calving Interval
- Improved Feed Efficiency Due to Less Stress
- Lower Methane Per Litre of Milk or Kg of Meat



* Results from Dikman et al. 2014, SLICK Hair locus Improves Thermo-Tolerance, # Pers. Comm.

*Further confirmed by breeding results at Tropical Genetics Elite herd, in Spring 2024, where the SLICK carrier cows had 5% empty rate and only 1.55 mating per pregnancy (65% CR) while the bigger USA Holstein type cows, not SLICK, had 15% empty rate, and 57% CR, while THI range was 65-75, ave. approx 70.

REPORTED IMPACT OF HEAT STRESS IN CATTLE & MITIGATION WITH THE SLICK GENE



THI (Temperature-Humidity Index)	60-66 (ave. 64)	67-72 (ave. 70)	73-80 (ave. 76)	81-90 (ave. 86)	91-99 (ave. 95)
	Slight	mild	moderate	Severe	Extreme
Cattle Heat Stress level					
Est Milk Production gain with SLICK gene (litres) (Milk Depression non-SLICK)	0	1.5* (-5%)	2.5-4 (-10%)	4-8* (-25%)	8+ (-35+%)
Conception rate reduction w/ Heat Stress (from base 65%)**	-3% actual CR 62%	-10% actual CR 55%	-20% actual CR 45%	-30% actual CR 35% #	-40% actual CR 25% #
Est Calving Interval increase from Heat Stress** (days)	3	12	25	60	100+
Extra feed required for Maintenance	0%	7%	15%	25%	30%
These Fertility & feed demand effects will be largely mitigated in cattle with the SLICK gene, in mild and moderate ranges					

Even in tough months with suboptimal feed, SLICK calves outperform. This is the climate-smart upgrade your herd needs.

Temperature Humidity Index (THI) Made Easy: Understand Heat Stress with Meta AI
Wondering how the heat is affecting your cows?

Use Meta AI via WhatsApp to ask:
"Produce a report of average THI during the day, by month for [Town], [Country]." Results in under 3 minutes using referenced weather data with monthly THI and stress categories.

Follow up with 'Please finish the report' for a summary. Below is an example for New Delhi that is generated using Meta AI



Monthly Average THI in New Delhi					
Month	Low	High	Ave		
January	45	55	50 (no stress)		
February	50	60	55 (no stress)		
March	60	70	65 (Slight-mild stress)		
April	75	85	80 (moderate to severe stress)		
May	85	95	90 (severe-extreme stress)		
June	90	100	95 (extreme stress)		
July	85	95	90 (severe-extreme stress)		
August	85	95	90 (severe-extreme stress)		
September	80	90	85 (severe stress)		
October	70	80	75 (moderate stress)		
November	55	65	60 (slight stress)		
December	45	55	50 (no stress)		
THI Categories:					
	60-66:	Slight stress			
	67-72:	Mild stress			
	73-79:	Moderate stress			
	80-88:	Severe stress			





We were honored to host a delegation from Jamaica at the Tropical Resilience Genetics farm, where they got a firsthand look at the future of tropical dairy genetics. The group saw some donor cows, Slick gene heifers, and young bulls that are part of our Tropical Resilience Breeding program.

In the photo:

Richard Pandohie, CEO of Sepro Group (Dairy Processors and owners of Serge Island Dairies), **Dr. Derrick Deslandes**, Chairman of the Jamaican Dairy Development Board, **Dr. Michael Motta**, Senior Veterinarian with Hi-Pro Farm Supplies and **Dave Hayman**, Managing Director of Tropical Resilience Genetics.

It's always inspiring to collaborate with visionary partners who are committed to building a sustainable and profitable future for dairy farmers across the Caribbean.

Customer Contact Team



Dr David Hayman
Managing Director BVSc, MBA

With a broad experience in Breeding Program management, Embryo Transfer and livestock Export Projects, Dave will build the high quality genetics pipeline, the TrRG team, and provide valid advice to customers.

M Ph. +64 274 965 983
Email: Dave.Hayman@trgenetics.co.nz

Shubhendra Singh
Sales and Administration

Shubhendra has a degree in International Business and experience in Livestock management and admin for large scale export programs. He will manage orders and product despatch with expert assistance from the team at Reproduction Speciality Group (RSG), our primary repro-technology service provider, which operates approved and regularly audited semen and embryo production centres.

Office Ph: +64 7 843 7577

Email: office@trgenetics.co.nz



ABS IVP Embryo Laboratory



Quarantine Center Entrance To Awanutu

ABOUT BREEDING PROGRAM

The Tropical Resilience dairy SLICK Breeding program has a broad base including some of the top performing herds in New Zealand e.g. HSS, Waipiri and Kaipaki Dairy, plus embryos and animals selected from the most progressive SLICK program in the USA (Fit Dairy Genetics). We are now working to incorporate an Australian breeding pool.

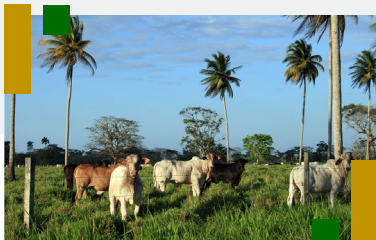
The program uses Genomic DNA analysis plus local and international production indexes to drive selection for the most profitable animals, but also taking into account welfare traits like the polled gene. Profit is driven by:

- Early and regular calving for longevity and herd growth
- High milk value relative to body weight (can be with higher milk solids)
- Robust cattle able to process large amounts of roughage feed
- Easy care with Resistance to disease—mastitis, lameness

In each new market we can adapt our Profit Index for local factors, but usually it selects a medium size, easy care and fertile productive cow.

The beef genetics that carry the SLICK gene have been developed in partnership with Rissington Farms, a long established breed leader in Simmental, Angus and the innovative hybrid Profitmaker cattle. Rissington P101 (front page) is the ultimate Profitmaker with easy calving, but superb growth and maternal indexes, i.e. similar principles as the dairy selection program. We will diversify the breed base as customers require.

The selection and sire development is guided by Dr Hayman with input from well respected breeders such as; Henk Smit, Dave Fullerton, Dr Jeffrey Bewley (US), and the Rissington principals; Daniel and Jeremy Absolom.



Tropical Zone Focus

Tropical Resilience Genetics is fully focused on making impact in the true tropical and semi-tropical zones where the SLICK gene adds major health and production impact. The result is high merit bos taurus genetics delivering efficiency under tropical conditions much more successfully than previous genetic importations that did not carry the SLICK gene.

New Global Distributors:



Philippines - Advira Trading Corporation (www.adviratrading.com)



Caribbean - Hi Pro Farm Supplies (www.hiproace.com)



Kenya - Livestock Value Ventures (www.livestock.co.ke)

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- Australia & Pacific
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- East Africa; Ethiopia & Tanzania
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