

## Heat tolerance, part of breeding an efficient animal

**Dairy farmer: Trevor Parrish**

**Region: Kangaroo Valley, NSW**

**Topic: Heat Tolerance ABV**

Seven years ago, Trevor Parrish's bull-buying clients were asking about the new Heat Tolerance Australian Breeding Value (ABV).

Now it doesn't rate a mention, unless it is HOT.

But that's not because the NSW bull-breeder's clients don't care about Heat Tolerance.

It's quite the contrary. These farmers, who are mostly in NSW and Queensland, consider Heat Tolerance one of the core breeding values that make-up a sustainable and efficient animal.

These farmers, who milk up to 2,000 cows, expect high Balanced Performance Index (BPI) bulls to have an above average Heat Tolerance ABV.

"Clients, they are thinking longer term, we have to select for it," the Kangaroo Valley farmer said.

"Into the future, they are going to want more of a compact cow, a cow that can handle just about everything. A

smaller cow, with good feet – that can walk more – and convert feed into milk. A cow that's efficient. Heat tolerance is part of that efficiency. As a breeder, you are trying to cover all the bases and Heat Tolerance – now it has an ABV – is part of a solid, good quality cow."

DataGene's *Good Bulls Guide* reflects the growing focus on breeding heat tolerant bulls. In DataGene's August 2024 ABV release, one third (197) of the Holstein Good Bulls had a Heat Tolerance ABV of 100 or more – which is the Australian average. Included in this group were 34 Holsteins which scored at least 105 for Heat Tolerance; this means they are 5% more tolerant to hot and/or humid conditions than the average. Or the fall in production due to these conditions would be 5% less than average.

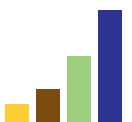
This compares to a small number of bulls that ranked more than 100 for Heat Tolerance back in December 2016, when the breeding value was first released.

Australia was the first country in the world to have a Heat Tolerance Australian Breeding Value. Scientists developed this ABV by identifying genetic markers for heat tolerance using genomic technology (DNA testing).

Trevor said breeding was one of several tools he used to



*Trevor Parrish aims to breed dairy cattle with a high BPI and a Heat Tolerance ABV above 100. (BPI: Balanced Performance Index – reflects traits that influence profit. ABV: Australian Breeding Value – a measure of genetic merit for a single trait).*



help their herd of up to 300 milking registered Holsteins handle the humid conditions.

“It is just one of those things, we put sprinklers on to try and ease the heat and we have shade – trees – you have got to have shade. Breeding for Heat Tolerance is just like planting a tree, how long will it be until the tree provides you with shade? But if you don’t start planting trees and looking to breed for Heat Tolerance, it is only going to get worse. It is about starting.”

Trevor, his wife Leah, their daughter Toni and son-in-law Nathan are all part of the dairy business called Illawambra Family Trust. Nathan and Toni have a rural contracting and fencing business that has been incorporated into the farm business. They are taking over the running of the farm, while Trevor is more of the herd manager. There are four other full-time employees and two part time.

The business also sells about 60 bulls and 100 females annually to dairy farmers and supplies sires to be tested for artificial insemination (AI).

Breeding for AI also requires a focus on Heat Tolerance for the domestic and international market, according to Trevor.

“A bull that’s above 100 for Heat Tolerance is a fairly good selling point and you will get royalties on those bulls.”

Breeding the ultimate bull is a work in progress. The latest bull to go to AI had a 575 BPI, 101 for Heat Tolerance and he was also A2A2.

Selecting bulls and researching the market is one of Trevor’s hobbies. He enjoys breeding and has a set of criteria for how he selects sires.

“They have to have a higher HWI than BPI, and I like them to be A2:A2,” he said. BB Kappa casein, which ensures a higher cheese yield is preferred also. “I look at the Feed Saved ABV and then I rule-out any with a Heat Tolerance ABV below 98.”

Trevor can track improvements in these traits in his female stock through genomic testing. The latest results showed their four highest BPI females where all above 100 for Heat Tolerance. The highest was Illawambra Rocknroll Deonie with a Heat Tolerance ABV of 105, BPI 554 and a HWI of 652.

Selecting for high Heat Tolerance has paid dividends

**To breed for improved heat tolerance, look for high BPI bulls with a Heat Tolerance ABV of more than 100. DataGene recommends using a team of bulls to allow for the lower reliability of the Heat Tolerance ABV.**

for Trevor. Most of his herd has a Heat Tolerance ABV of more than 96 which means the cows susceptible to heat “naturally culled themselves”.

“What we used to see here is, in the summertime cows could be in calf and three months later they come in bulling because they have aborted their calf due to the heat,” he said. “So, because of their fertility they end up in-calf later or they don’t get in calf which means they are culled.”

The science behind the Heat Tolerance ABV has provided Trevor with reassurance when it comes to making breeding decisions.

“The good thing with Heat Tolerance is there’s no human error,” he said. “The reliability is at 48%, yes, I would like it higher, but that is all a DNA test. A bull at 105 is better than 95, it is that simple.”

The Illawambra herd is medium-stature and fed a pasture/TMR diet from about 70 ha plus about 2 tonnes/cow/lactation in the bale of a pellet supplied from a nearby ethanol plant.

More than half the herd are heifers as Trevor has opted to retain his best genetics. Anything that’s not over 330 BPI may get a dose of Angus semen and all animals below 350 BPI are for sale. Spring production was about 27 litres/cow/day with 3.50% protein and 4.2% butterfat, which is expected to rise over time with the use of TMR to cover the pasture shortages.

“I think AI centres won’t take bulls that aren’t good for Heat Tolerance. It will be like calving ease – now they won’t buy a bull that causes difficult calvings.”

To breed for improved heat tolerance, look for high BPI bulls with a Heat Tolerance ABV of more than 100. DataGene recommends using a team of bulls to allow for the lower reliability of the Heat Tolerance ABV.

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