

Calm cattle have a dark side

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Stephanie Coombes with an inquisitive steer.

The findings of a recent study conducted by Murdoch University

researchers has challenged the long held belief of the beef industry that flighty cattle are at a higher risk of producing dark, firm and dry meat.

Working in conjunction with the [Department of Agriculture](#) and Food (DAFWA) and Kylagh [Cattle](#) Company, Dr Peter McGilchrist, a post-doctorate researcher, and Stephanie Coombes, an honours student from Murdoch's School of Veterinary and Biomedical Sciences, found that calm cattle were not exempt from the issue of dark cutting syndrome.

Dark cutting is a complex problem caused by low muscle energy (glycogen) at the time of slaughter. Depletion of glycogen during the pre-slaughter period is controlled by many factors, one of which is the animal's temperament.

Temperament affects how agitated cattle become and how much adrenaline they release during handling, and therefore, in theory, how much muscle energy they deplete between leaving the farm and slaughter.

The syndrome in beef carcasses produces meat which is dark in colour, dry to eat, spoils quickly and has variable tenderness. It affected 3.6 per cent of more than two million carcasses graded by [Meat Standards Australia](#) in the 2011/12 financial year, costing the [beef industry](#) millions of dollars.

In their study, funded by the [Australian Meat Processors Corporation](#), Ms Coombes and Dr McGilchrist measured the temperament of 648 commercial lot fed cattle using flight speed, an electronic measure of how quickly an animal exits a weighing chute. Flightier animals will exit at a faster speed while quiet animals move more slowly.

Their results showed that as [flight speed](#) increased, muscle glycogen concentration in the loin muscle at the time of slaughter also increased.

This indicates that the cattle which had higher flight speeds were in fact at a lower risk of producing dark cutting carcasses in this study.

Only two per cent of the cattle in the study were graded as dark cutters (pH greater than 5.7 and/or meat colour score of four or higher) and these carcasses were evenly distributed across the range of flight speeds measured.

"Even though calm cattle certainly have their production benefits, they are not exempt from the issue of dark cutting," said Ms Coombes.

Calmer cattle have been shown to have higher growth rates and more tender meat than flighty animals. These positive benefits have been shown in many different studies around the world.

The owner of Kylagh Cattle Company, Ivan Rogers said flighty cattle posed a danger to their handlers, consistently go onto feed slower, take longer to reach slaughter weight, have a higher morbidity rate and generally perform poorer than calm cattle in the lot fed environment.

"They have the potential to upset calm cattle, which is why we always try to purchase quiet, well handled animals," he added.

Dr McGilchrist suggested that producers need to continue to cull flighty cattle and minimize variation in temperament across a herd, but also to habituate their quiet cattle to change.

He said that producers and processors also need to ensure that calm cattle are treated with as much care during the pre-slaughter period as their more reactive counterparts.

"The employment of common practices like yard weaning not only provide the benefit of improved handling ease, but also provide the

opportunity to desensitize cattle to potential stressors, such as being mustered or drafted," Dr McGilchrist said.

"All cattle also need to be exposed to changes in their environment, so that during the pre-slaughter period they don't become as stressed and agitated."

Dr McGilchrist added that the effect of temperament was not completely understood and that further research was needed to unravel the interactions between animal temperament and energy metabolism during the pre-slaughter period.

Provided by Murdoch University

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