

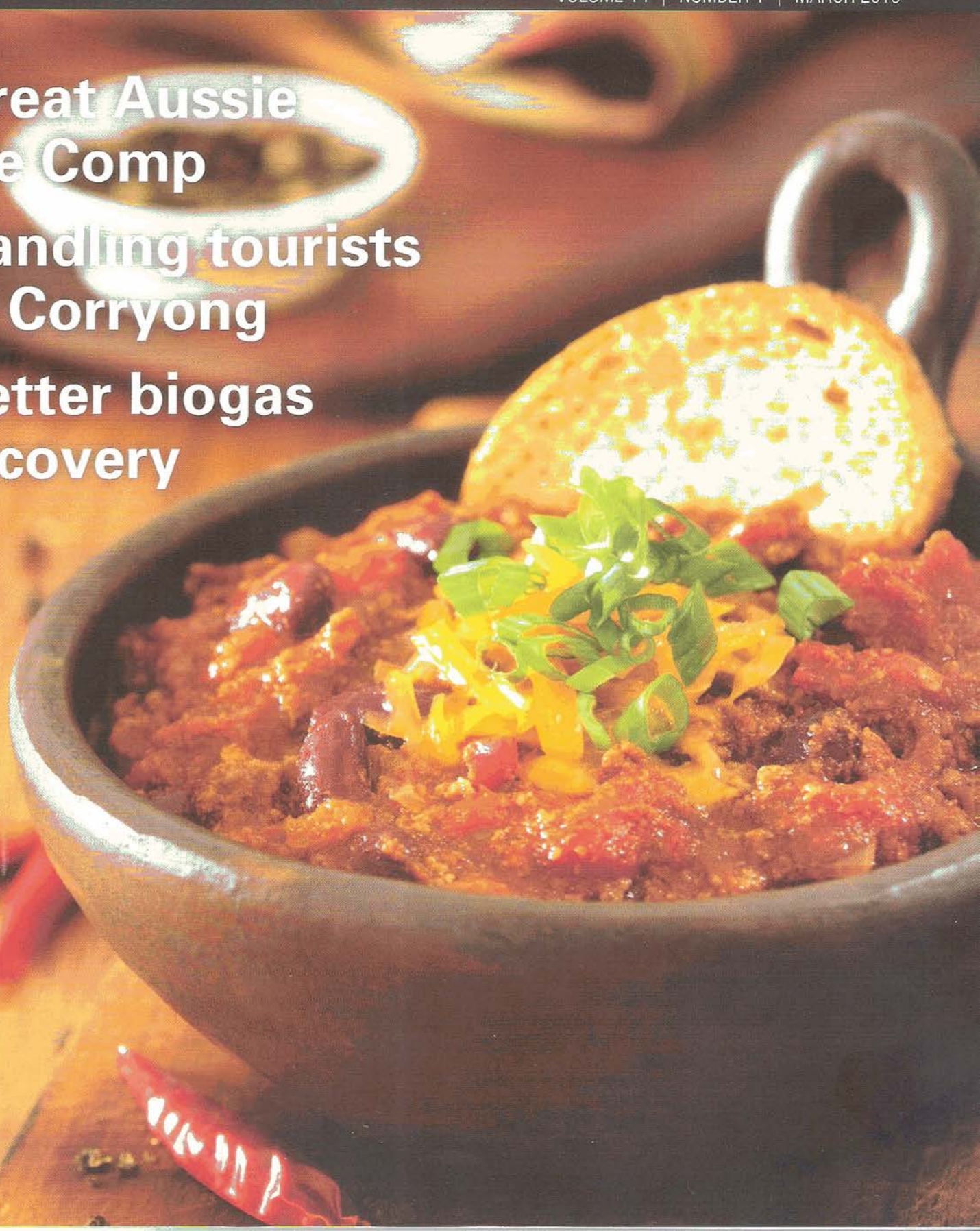
AUSTRALIAN **MeatNews**

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**Great Aussie
Pie Comp**

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Rinse and chill for a better carcass result

The meat quality benefits of vascular rinsing have become a technical and financial reality for an increasing number of beef processors and in the near future, for lamb and pork.

A vascular rinsing technology called Rinse & Chill® has been under development by US based MPSC Inc. for more than 25 years and has been operational in Australian beef processing facilities for more than 15 years, with more than five million beef bodies processed.

The technology removes an estimated 50% more residual blood from the carcass, while dropping internal temperatures as much as 5°C and optimizing pH response. John Marlette, Managing Director of MPSC Australia says the company has worked closely with its clients to refine product quality and consistency but also to adapt and integrate the Rinse & Chill® system to modern process floor design and chain speeds. Benefits include lower bacterial counts, improved quality and economic attributes.

One outstanding benefit of Rinse & Chill® is its capacity to improve meat colour. A beef carcass destined to have an AUSMEAT color of 5-6 will score 3-4 after vascular rinsing. A beef body that would score AUSMEAT 3 will score 2 after rinsing.

Shear force trials run by Michigan State University found rinsed carcasses were significantly more tender. While prime

cattle showed improvement, cows showed much greater improvement in tenderness. The trials also showed the improvement in tenderness was realised sooner after processing. The rinsed carcasses were significantly more tender than the control group at 14 days aging. At 28 days both groups had improved but the control group were still less tender than the rinsed group was at 14 days.

The colour improvement is particularly valuable in grass fed cattle that are naturally more variable and susceptible to seasonal variation. A small across-the-board improvement in tenderness can be the critical difference in marginal cuts such as rump.

Better Yields

Processors and boning room operators report beef from Rinse & Chill® is easier to bone, increasing yield by as much as 2% and improving worker safety. Improved yield results from less carcass damage during hide removal and less trim required due to bloodstains in the neck area.

Boning room trials show saleable meat yields can improve up to 1%, depending on operator skills, due to ease of cutting



Luke Hardwick: customers want light coloured meat.

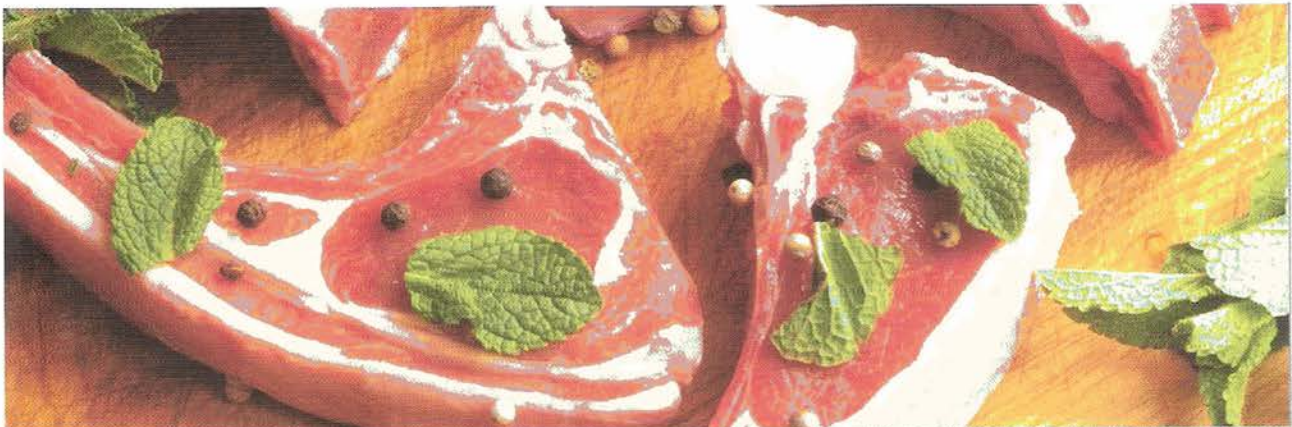
and easier knife strokes. Ultimately, less meat remaining on the bone, due to the greater tenderness of the meat.

Customers report rinsing makes hide removal easier and results in less damage to the carcass, specifically in the 'sticky spots' in the rump/hip bone area. This is attributed to changes in the nature of the hide-carcass interface caused by the rinsing solution. Less force results in less airborne contamination and a cleaner carcass.

One published study cites a 99.3% reduction in coliforms on the carcass (n=180.) US processors universally cite lower bacteria in carcass and offals resulting from their use of Rinse & Chill[®]. The technology is believed to lower carcass bacteria counts because a layer of the mildly antimicrobial solution remains on the carcass after the hide pull, causing mechanical interference with bacterial attachment. Reducing the carcass temperature quickly helps, too.

The displacement of blood with chilled rinsing solution initiates carcass cooling from within and compliments external chilling. Data from three abattoirs on hundreds of animals from the USDA Commercial Trial in the early 2000s

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Rinse & Chill[™] is a proven method of ideally controlling the decline of muscle pH and temperature. The consistent colour and eating enjoyment delivered will keep your customers satisfied and demanding more.

Rinse & Chill[™] is complementary to MSA grading and will promote a wider population of carcasses through the grading window.



**Rinse
& Chill[™]**

Better Meat through Better Processing

Rinse & Chill[™] immediately reduces muscle temperature in the carcass and it removes residual blood. The carcass, boned-out primals, trimmings and mince are more resilient to spoilage bacteria and pathogens, resulting in better hygiene and shelf life.

Rinse & Chill[™] affords slaughter and boning efficiencies so that production yields increase.

Beef – Lamb – Goat

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showed the average moisture gain from the technology to be +0.34%. This is compliant with retained moisture regulations in the US.

The Rinse & Chill® process is Halal approved.

Hardwicks, Kyneton Victoria

Hardwicks have used Rinse & Chill® for more than a decade. General Manager Luke Hardwick says it all about what his customers want. Hardwicks process about 3000, 180-230 kg mainly locally grown, grass fed yearling bodies per week.

"Our carcass trade customers value body shape, fat cover, light fat colour and light coloured pink meat," Luke said. "Autumn is our most difficult time in terms of meat quality and Rinse & Chill® makes a real difference to the quality we can offer.

"Our sales team don't like to sell if the Rinse & Chill® is not working," Luke said, emphasising the real and obvious difference in the product.

The Process

Vascular rinsing is the process of removing the residual blood from a carcass immediately after conventional stunning and bleeding. An automatic rinsing station is incorporated in the chain where a specially designed catheter is inserted into the carotid artery. The rinsing solution is pumped through the vascular system for about three minutes (for beef). The catheter is then removed and the carcass continues along the chain as normal.

The rinsing chilled solution is roughly 99% water and 1-2% salts and sugars – similar rates as found in blood. It is important to understand that the substrates metabolise completely, which is how pH drops, leaving no detectable residues. One version of these substrates is certified organic and can be used for organic product.

The rinsing solution is prepared in a secured, sanitary mixing room using dairy-type equipment. Potable water is purified, filtered, chilled and then mixed with the rinsing substrates and continuously UV sterilised. On the kill floor, an-automated process control system weighs each body and calculates the volume of rinse required. Appropriate HACCP and sanitary procedures are followed for equipment and operators for each catheter insertion and removal.

Rinse & Chill® carcasses do not need electrical stimulation.

Hardwicks have cattle on grain to assist with quality and supply during autumn and winter.

Working with Customers

John Marlette describes the development of Rinse & Chill® has benefitted from continuous R&D improvements. The obvious benefits of colour, tenderness and yield improvement have been known for a long time, but our understanding of how to ensure getting the most consistent, optimum results through better engineering has really leapt forward during the past several years.

"We have been and continue to be motivated by our customers' enthusiasm.

"All Rinse & Chill® systems are custom integrated with a client's existing kill floor configuration. Rinse & Chill® is a tool, and like any tool, successful integration requires proper engineering and operational disciplines," John said.

New engineering advances from MPSC are addressing higher speed processing environments. Small stock systems currently can handle up to 13 bodies per minute.

Rinse & Chill® system typically requires one to two and a half additional labour units to operate.

Sheep Meat

In recent years MPSC has been developing Rinse & Chill® technology for sheep processing.

John said MPSC has been fortunate to have the opportunity to work closely with experienced sheep process-line engineer Harry Schulz. "We needed Harry's detailed understanding of sheep processing to assist us while at the same time Harry's enthusiasm for Rinse & Chill® has helped us realise its full potential," John said.

Trials by Melbourne based Cedar Meats have revealed Rinse & Chill® has a positive impact on the colour of sheep meat. Comparisons of rinsed and un-rinsed carcasses from uniform runs of sheep found the rinsed carcasses had a lighter and brighter colour. Boning Room Manager Ashley Laubsch described the rinsed carcasses as "fantastic". He said they looked much better and were easier to bone.

MPSC plan to commission their first full-scale sheep processing facility in mid 2016. The process line will have a chain speed of 13 bodies per minute. "We have been working with beef and bison in the US for more than a decade. We have learned a lot, and are now in a position to apply all that we know to small stock," John Marlette said. ■