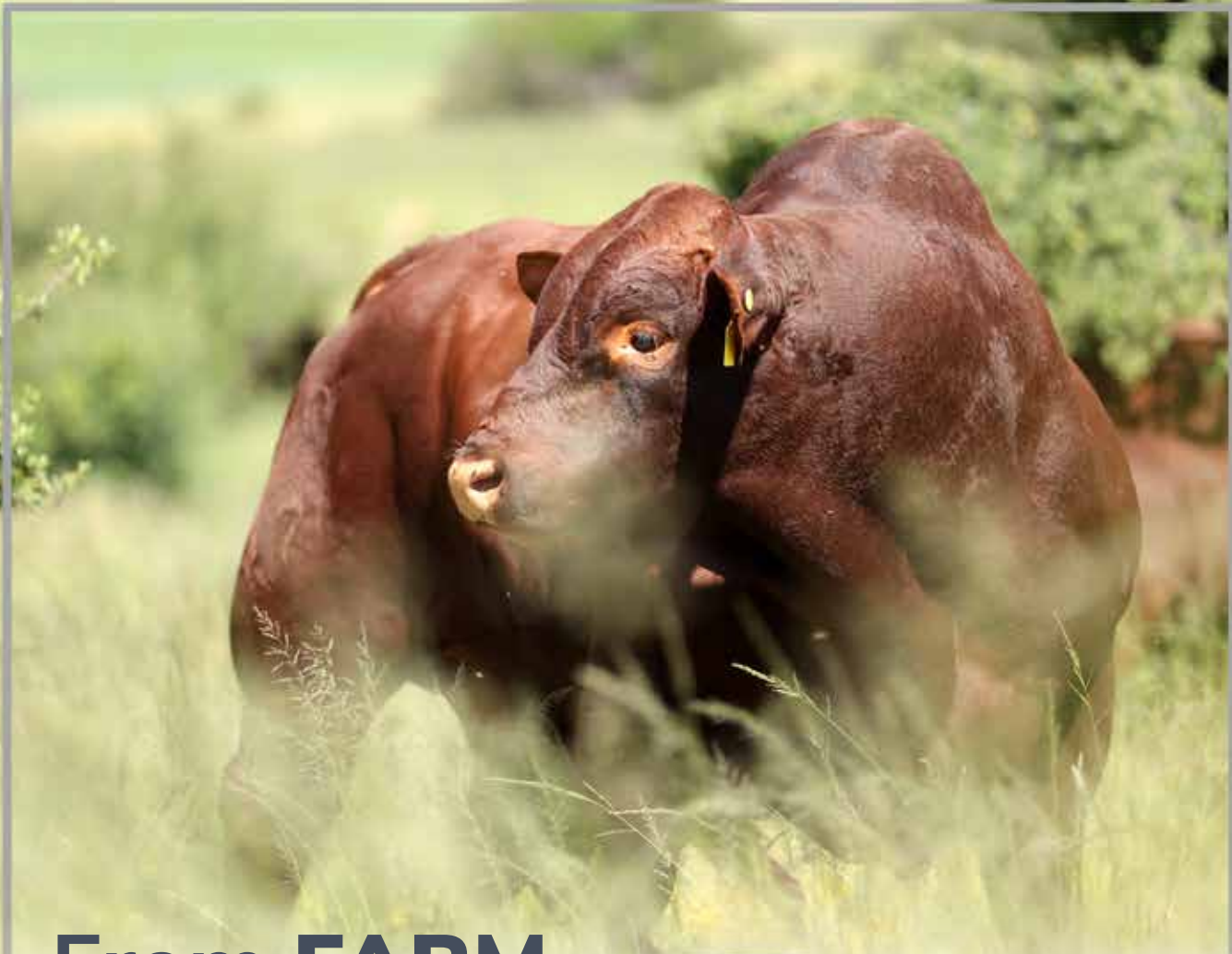




From **FARM** to **FORK:**

How Producers Shape Beef Quality

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From the farm to the fork, the quality of beef is shaped by a chain of decisions that begins long before the meat reaches the retail shelf. While efficiency in growth, feed conversion, and fertility are important for profitability, the true measure of success is whether consumers enjoy the meat and come back to buy it again. Tenderness, juiciness, and flavour, the hallmarks of eating quality, drive this experience. These attributes are influenced not only by what happens after

slaughter, but also by genetics, handling, and finishing practices throughout the animal's life. In this way, the producer plays a central role in determining the final product.

Genetics provides the foundation for eating quality. The calcium-dependent protease system, or calpain system, governs the breakdown of muscle fibres after slaughter. Some enzymes in this system accelerate tenderisation, while others slow it down, and the balance between them



determines how quickly and effectively meat becomes tender. Marbling, or intramuscular fat, enhances flavour and juiciness and can lessen the impact of connective tissue on tenderness. Its development is influenced by the animal's growth, age, and feeding conditions. Temperament also has a biological role with stress-sensitive animals being more likely to have low muscle glycogen at slaughter, which can hinder tenderisation. Across both extensive pasture-based and more intensive production systems, careful attention to growth, body condition, nutrition, and handling ensures that an animal's biological potential is realised, allowing tenderness, juiciness, and flavour to reach their fullest expression.

Management before slaughter further influences eating quality. Animals that are excitable or sensitive to stress are prone to lower glycogen levels at slaughter, which can produce darker, firmer meat with shorter shelf life and increased susceptibility to spoilage. Even animals with calm temperaments can be affected if transport is long, handling is rough, or waiting times at the abattoir are extended. Maintaining nutrition as close to slaughter as possible, reducing overcrowding, and avoiding unnecessary mixing of unfamiliar animals help preserve glycogen reserves. These practices support the enzyme systems that drive tenderisation and help ensure that the meat reaches its potential in tenderness, juiciness, and flavour.

Growth rate and finishing strategies also play an important role. Animals that maintain steady growth and good body condition before slaughter tend to produce more tender, juicy, and flavoursome meat, while interruptions in nutrition or growth can compromise quality. In intensive systems, supplementary feeding or concentrates may be used to optimise growth, though these approaches must be managed carefully to avoid negative effects on tenderness or water-holding capacity (affecting juiciness). In extensive or pasture-based systems, natural growth and condition are especially important, highlighting the role of thoughtful management in allowing the animal's biological potential to be expressed in the final product.

The value of eating quality is reflected in consumers' willingness to pay. Research shows that consumers consistently indicate a higher price for steaks that are tender, juicy, and flavoursome, while lower-quality cuts are often discounted. These preferences are consistent across income levels, ages, and cooking styles, demonstrating that appreciation for eating quality is widespread. Even in rural and urban populations, the pattern is clear, consumers prefer better eating quality. This connection between biological quality on the farm and financial recognition in the marketplace underscores the importance of careful breeding, handling, and finishing practices.

For breeders and producers, the message is straightforward. Selection for traits that support tenderness, marbling, and stress resilience can enhance carcass quality, while careful management of growth, nutrition, and pre-slaughter handling ensures that genetic potential is realised. Participation in carcass competitions provides practical feedback and benchmarking, helping producers assess outcomes and make informed decisions for improvement. Attention to these factors strengthens reputation, encourages repeat purchasing, and demonstrates the value of quality-



focused production practices throughout the supply chain.

Ultimately, the pathway from farm to fork is long, but it begins with the producer. Genetics, management, growth, and finishing practices all interact to shape tenderness, juiciness, and flavour. Consumers reward these attributes with higher willingness to pay showing that investment in quality has both biological and economic

significance. Understanding and applying these principles ensures that carcasses are consistently of high quality, valued in the market, and enjoyed by consumers. Sustainable profitability depends not only on efficiency but on producing a product that people truly want, proving that what happens on the farm directly influences both the eating experience and economic outcomes.

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