

THE NGUNI: TOUGH CATTLE TENDER BEEF

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There is a very important difference between the African and Indian continents on one side and other new world or colonial continents, such as the Americas and Australasia. These continents had no indigenous breeds at their disposal and had to rely entirely on imported material to establish herds of cattle. In contrast to this, Africa is richly endowed with a large number of indigenous breeds, which are adapted to the prevailing harsh conditions.

The Nguni's survival of almost 25 centuries of exposure to the African environment and diseases, attests of an acquired adaptation to these harsh conditions. The research conducted and performance recording on the Nguni revealed the following:

- The Nguni is highly fertile with a long productive life
- The breed is the most resistant to ticks of all breeds in South Africa and it shows tolerance to tick borne diseases
- The Nguni is an excellent dam line for crossbreeding, with no calving difficulties
- Nguni crosses and even pure Ngunis, perform well in feedlots and more and more feedlots are buying Nguni calves

- The Nguni has an increased nitrogen recycling back to the rumen, which improves microbial growth and organic matter digestion, reducing the nitrogen requirement on low quality pastures. The Nguni therefore needs little or no supplementation during winter.

The Nguni has gained popularity over the past decade or two, mostly due to their ability to adapt to harsh extensive conditions. However, other qualities of the Nguni are often overlooked, probably due to the fact that the size of the breed does not necessarily favour the feedlot industry where the largest numbers of animals are finished for slaughter. Negative price margins for weaners and a positive feed margin favour larger later maturing animals, because more weight can be added before the carcass becomes too fat.

Depending on the consumer, the price of meat and product safety remain two of the most important criteria for purchasing meat. However, various consumer studies have shown that meat quality and more specifically tenderness has become a basic prerequisite for a satisfied consumer, even at the lower end of the income scale. Breed plays a small but distinctive role in final meat tenderness, while pre-slaughter conditions (e.g. feeding, stress, age) and slaughter processes (electrical stimulation, chilling, ageing), combined, have a major effect on final meat tenderness. When these conditions were controlled and optimized nguni meat was very acceptable and aged very well compared to other breeds. Warner Bratzler shear force measurement (WBSF) is a physical method to determine meat tenderness and is commonly used worldwide to evaluate and compare meat quality. Nguni meat had WBSF values between 5.2 and 5.4 kg at 3 days post mortem, which improved to 3.3 to 3.6 kg after 21 days ageing. Lower values indicate, less resistance to shearing and therefore more tender meat. The average values for the other breeds (excluding meat from animals with indicus blood) were between 5.4 and 5.5 kg after three days, which improved to 3.5 to 3.6 kg after 21 days. Since the Nguni has a prominent hump, the breed was erroneously classified as indicus in the past, while genetic typing proved that the Nguni has a strong *Bos taurus* relationship and should be classified as *Bos taurus africanus*. Research has shown that the disposition in meat tenderness of indicus breeds is related to the slower ageing of the meat, which is sometimes aggravated by temperament. At the

same age and under the same pre- slaughter and slaughter conditions, breed differences are mostly a function of the potential of the meat to age or to tenderise during post mortem storage. This process is controlled by different enzyme systems that can either enhance or reduce the rate of tenderization. Various studies have shown that the ratios of the enzyme activities in Nguni meat compared favourably with those of Bos Taurus breeds, hence its capacity to produce tender meat. Another muscle characteristic in favour of the Nguni is the muscle fiber type and size. All muscles consist of basically three muscle fiber types, viz. fast contracting white (glycolytic), slow contracting red (oxidative) and intermediate muscle fiber types. It is generally believed

that lower ratios of white muscle and smaller fibers are favourable for tender meat. Recent results showed that Nguni loin muscle had smaller white fibers and tended to have less white fibers than other breeds.

It is important to note that meat quality and specifically tenderness is influenced by a number of factors outside the animal and inherent to the animal. It is believed that the inherent factors discussed above contribute to the meat quality of the Nguni. However, it is even more important to recognize that the influence of these characteristics on final meat quality heavily depends on external factors, such as stress before slaughter and slaughter and post-slaughter practice (electrical stimulation, chilling rate).

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