

# FRAME TYPE, MANAGEMENT & PROFIT

Small-frame cattle such as the Nguni offer advantages for the extensive cattleman. Crucially, a small frame is easier to maintain and reaches carcass maturity sooner, explains **Chris de Brouwer**.

**M**ore than 70% of South Africa is suited to extensive stock production, despite climatic limitations such as low and variable rainfall and high temperatures. Periodic or seasonal drought is the rule, especially in the westerly parts, while the climate also appears to be changing.

Because of limited forage production potential, it is crucial for a farmer to choose the correct choice of cattle breed and frame type to optimise stock

production. In other words, the breed must be adapted to the environment.

Late-maturing, large-frame breeds developed in Europe, where adequate rainfall and moderate temperatures ensured good pasturage. In Asia and Africa, where climate (especially drought and temperature) inhibits forage production, cattle breeds tend to be smaller and earlier maturing to limit maintenance requirements. In more arid regions, forage quality is generally good but the quantity is limited, with a carrying capacity between 8ha/MLU and 18ha/MLU (mature livestock units).

Cattle are well adapted when they can maintain

high production and reproduction levels without additional input, despite an unfavourable environment.

## WHAT CAN BE CONTROLLED?

Global trends, consumer preferences and disease outbreaks are beyond a cattleman's control. But other aspects can be managed. These include productivity (mainly linked to reproduction), herd health (increasingly the farmer's responsibility) and marketing. The environment (climate/risk) determines volume and quality of forage, which in turn determines frame type. This limits the use of licks and other input costs, and thus the production cost of the end-product.

The environment also determines the production system (marketing age)

that should be followed for maximum profit without damaging the resource. Cattle must be adapted to their environment, rather than the environment to the cattle.

Most cattlemen are weaner producers, with another sector developing the product to its full potential. The weaner market prescribes what a calf should be: 180kg to 220kg at seven months, irrespective of production conditions. This results in a continual search for the 'correct' genetics or interventions (different breeds, crossbreeding, supplementary feeds, licks, creep feeding and so forth) to deliver what the market demands. These factors greatly increase production costs. The buyer largely determines the price, which varies according to

**BELOW:**  
The Nguni is superbly adapted to African conditions.  
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season, supply and demand, weight, breed of the calf and the maize price. Thus the cattleman has to fill the price gap, while the quality of the product he supplies varies very little. He carries the production risk, including maintaining a large breeding herd to produce weaners.

## QUALITY OF BEEF

Steers marketed at between 15 and 22 months may be A-grade, especially in indigenous breeds that shed their milk teeth later. This lower-input approach and finishing may be done on veld or pasture to compete directly in the market. Input costs, especially on veld where risk is spread, is lower. Should weaner prices increase sharply, this opportunity can be exploited.

During droughts, steers may be sold to make room for breeding animals. Under these circumstances, successful finishing depends on applicable genetics, and small- to medium-frame cattle such as Nguni and its crossbreed are better suited here. These breeds also provide fat deposition without expensive feed supplements, thanks to their early carcass maturity.

Steers may be marketed at any age, but usually at between 27 and 33 months, when they are graded as an AB or B carcass. This system emphasises the production of mass units rather than the number of units. The system is suitable for high-risk areas and allows manipulation of seasonal selling and buying. Genetics remain crucial because large-frame cattle are difficult to finish under extensive conditions and oxen grow bigger than breeding animals. Small- to medium-frame cattle are suitable for this, and crossbreeding may play an important part.

The cost of feed is crucial to the success or otherwise of any livestock stock production system. In trying to obtain better growth rates in feedlots, some breeders are converting traditional small-frame breeds into large-frame breeds. The genetic diversity required to make this possible exists within every breed, but in the process, cows are also getting larger. The larger an animal, the more feed it requires for maintenance and production.

Trials have shown that large-frame cows use double the amount of lick per capita than small-frame cows,



**ABOVE:**  
A greater number of smaller cattle can be managed sustainably on a given surface area than larger cattle.



even though the larger cows do not weigh twice as much as their smaller counterparts. Large-frame cattle have higher maintenance needs than small-frame cattle and require a surface area about 28% larger on a kilogram-for-kilogram basis.

## LARGE-FRAME CATTLE ARE DIFFICULT TO FINISH UNDER EXTENSIVE CONDITIONS

Smaller cattle can be managed more sustainably on a given surface area than larger cattle can be. Growth and reproduction correlate negatively: where selection is exclusively or mainly for growth, reproduction of the herd suffers in the long run.

### FRAME AND FAT

Frame type refers to the linear dimensions of the animal. Frame

type is linked to carcass maturity, with small-frame cattle yielding the desired carcass at an earlier age, and large-frame cattle at a later age on the same feed. Large-frame cattle generally grow faster for a longer period to reach a higher end-weight than small-frame cattle do. The latter start depositing fat at a lower body weight, while large-frame cattle must be significantly heavier before depositing fat. At the same fatness grade, the feed conversion efficiency of small-frame cattle is similar to that of large-

the performance figures are not comparable. Energy (and hence feed) requirements to deposit fat is more than twice that for muscle growth, reflected in lower average daily gain and feed conversion rate. Small-frame cattle must receive the correct ration to realise their potential by growing for longer with delayed fat deposition to yield a heavier carcass.

Irrespective of breed or frame, all cattle, as a percentage of the carcass at the same fatness grade, have about 71% sellable meat (muscle) of which 44,5% are expensive cuts (hind quarter).

So, farm with the breed of your choice but be led by the environment. While production-oriented management remains crucial, market-oriented management is becoming increasingly important. There's an opportunity for cattlemen to exploit "free-range meat" that contains everything the consumer demands. Small-frame breeds such as the Nguni offers that opportunity.

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