

# SELECTING CATTLE BREEDS FOR PRODUCTION

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## Aim

**B**efore deciding on a beef cattle breed for production, clarity must be obtained about the aim or purpose of the production system.

The producer must identify their target market before considering which breed to use and the production system they want to implement. Target markets may include stud breeding, crossbreeding for feedlot or ox production, and producing for the informal market, or a combination of these systems. When identifying the target market, the producer must understand the demands of the market they want to produce for. Stud breeding has its own criteria, including genetic combinations, fertility, and growth requirements. Crossbreeding systems generally aim for efficient small to medium-frame cows that are well adapted to their environment. The informal market needs a variety of cattle, ranging from young slaughter cattle to large fat C-grades, depending on the needs for functions and funerals.

Lastly, the production potential of the veld must be considered to determine which breed will be suitable for optimum use of the natural grazing. It is also crucial for the producer to choose a breed they personally like and are happy to farm with, considering personal preference.

## Demands of different participants in the beef production industry

There are various participants in the beef industry, including the calf producer, feeder and stock producer, beef trader, informal market, and consumer.

The calf producer requires highly fertile cows that have ease of calving, a high weaning percentage (indicating minimal losses from birth to weaning), high weaning mass, and a high re-conception rate. The cows should be easy to manage and well adapted to the environment.

The feeder and stock producer need cattle with high growth rates and feed conversion rates, resulting in high carcass mass.

The beef trader seeks optimum carcass mass, typically exceeding 230 kg, with suitable build and grading, and a high percentage of selling and expensive cuts.

The informal market needs a variety of cattle in slaughter condition for functions and funerals.

Lastly, the end user/consumer desires good-quality beef that is readily available at a low cost, providing value for money.

Remaining competitive in the food market is a significant challenge for the beef industry, and farmers must consider all these factors to meet market demands.

## Aspects to consider when selecting a breed to farm with

Different cattle breeds represent various genotypes and can be categorized into two main groups: Bos Indicus and Bos Taurus types.

The producer can refer to Table 1 for examples of each type. The selection of breeds depends on the producer's needs and environment. For instance, stud breeding may require specific breeds based on genetic combinations, while weaner production emphasizes growth rates, crossbreeding focuses on hybrid vigor, terminal crossbreeding considers cow size, and ox production prioritizes adaptability to the environment.

The Nguni cattle breed, known for excellent fertility, ease of calving, mothering ability, heat and disease resistance, longevity, and low maintenance requirements, is ideally suited for crossbreeding and terminal crossbreeding as a dam line. The Brahman breed, also well adapted and exhibiting high heterosis in crossbreeding systems, is suitable as well. The Bonsmara breed is suited for both purebred and crossbreeding systems. Late maturing breeds are suitable for feedlot calf production in less harsh environments with more readily available grazing and fewer environmental challenges, like heat extremes and tick-borne diseases.

TABLE 2 classifies breeds based on frame size and age at slaughtering

TABLE 1: EXAMPLES ACCORDING TO TYPE

BOS TAURUS*	BOS INDICUS*	BOS TAURUS X BOS INDICUS COMPOSITE BREEDS
<b>Aberdeen-Angus</b>	<b>Afrikaner</b>	<b>Barzona</b> (Afr x Santa x Angus x Her)
<b>Brown Swiss</b>		<b>Beefmaster</b> (Bra x x Her x Shorn)
<b>Charolais</b>	<b>Brahman</b>	<b>Bonsmara</b> (Afr x Shorn x Hereford)
<b>Hereford</b>		<b>Braford</b> (Brahman x Hereford)
<b>Pinzgauer</b>		<b>Brangus</b> (Brahman x Angus)
<b>Shorthorn</b>		
<b>Simmentaler</b>		<b>Charbray</b> (Charolais x Brahman)
<b>South Devon</b>		<b>Droughtmaster</b> (Brahman x Shorn)
<b>Sussex</b>		<b>Santa-Gertrudis</b> (Brahman x Khorn)
<b>Nguni</b>		<b>Simbra</b> (Simmen x Brahman)

TABLE 2: BREEDS CLASSIFIED ACCORDING TO FRAME SIZE AND AGE AT SLAUGHTERING MATURITY

AGE AT SLAUGHTERING MATURITY	FRAME SIZE		
	SMALL	MEDIUM	LARGE
<b>Early maturity</b>	<b>Aberdeen-Angus</b> <b>Shorthorn</b> <b>Nguni</b>	<b>Brahman</b> <b>Pinzgauer</b> <b>Santa-Gertrudis</b>	<b>South Devon</b> <b>Hereford</b>
<b>Late maturity</b>	<b>Sussex</b>	<b>Afrikaner</b> <b>Bonsmara</b> <b>Drankensberger</b>	<b>Simmentaler</b> <b>Brown Swiss</b> <b>Charolais</b> <b>Friesland</b> <b>Limousin</b>

maturity, aiding producers in selecting breeds suitable for their production system and target market. For instance, small to medium frame animals better adapted to harsh environments may be preferred for producers

involved in breeding calves for feedlotting, ox production, and terminal crossbreeding systems. The environmental adaptability factor plays a significant role in breed selection..



**Nguni x Chianina calf, 5 months and 7 days old.**  
**205 days adjusted weight: 272.2 kg. Dam weight:**  
**403.2 kg. Efficiency ratio of 67.5%.**



**Nguni x Chianina calf, 6 months and 4 days old.**  
**205 days adjusted weight: 275.4 kg. Dam weight:**  
**446.5 kg. Efficiency ratio of 61.7%**

The whole test group of 21 calves (10 bulls and 11 heifers) had an average cow weight of 435.5 kg and an average calf weight of 250.6 kg, resulting in an average efficiency ratio of 57.5%.

## Adaptability to the environment

The environment encompasses all physical, natural, and managerial elements that affect animals and limit beef production. Animals must be well adapted to their environment to produce beef successfully and economically. Factors such as feeding, temperature, light, wind, disease, parasites, rainfall, and humidity influence breed suitability. It's important to note that no breed is perfect in all respects because beef production is the result of the interaction between genotype and environment. Animal performance depends on their inherited potential from parents as well as how they cope with environmental conditions.

Only about half of the African continent, covering 30 million km<sup>2</sup> (23% of the earth's land surface), is suitable for cattle production. Of this, only 5 million km<sup>2</sup> are productive, while the remaining 10 million km<sup>2</sup> are disease-ridden and

unsuitable for productive animal husbandry. Despite this, cattle are the most important livestock species in Africa, accounting for 70% of domestic livestock.

This article was adapted by Andre Bothma from the original publication "The Nguni of Southern Africa" by the Nguni Cattle Breeders Association, compiled by Pat Hobbs, Marina Ferreira, Jim Hundleby, Peter Kraupten, Phillip Morgan, and G.T. Ferreira, circa 1998.

*Photos and information provided courtesy of Jannie Breytenbach*