

# Crossbreeding South Devon cattle

Farming beef profitably means identifying animals that will produce more for less. South Devon genetics in a commercial crossbreeding programme can make a real difference to profit margins.

By **Nan Smith.**

Since farmers discovered the benefits of hybrid vigour (heterosis), crossbreeding cattle has been used to boost productivity and bring down costs. Hybrid vigour is defined as outbreeding enhancement and the increased or improved function of any biological quality in the hybrid offspring. In a double advantage to the producer, crossbreeding brings hybrid vigour and combines breed strengths.

According to Scott Greiner, animal scientist at Virginia Tech in the USA, hybrid vigour can be calculated by using the formula, [(crossbred average – purebred average) ÷ purebred average] x 100.

If the average weaning weight of the purebred calf was 320kg for breed A and 350kg for breed B, the average weaning weight for the two breeds would be 335kg. If the crossbred calves of A and B have an average weaning weight of, say, 345kg, hybrid vigour would be calculated as [(345 – 335) ÷ 335] x 100 = 10 ÷ 3.5. This is roughly a 3% gain due to hybrid vigour.

Heterosis is greatest in traits with low heritability such as fertility, and lowest in highly heritable traits such as carcass quality, says Greiner.

Colorado cattle rancher, Lee Leachman, speaks for

all South Devon breeders when he describes profit-driven commercial beef farmers as ideal customers, who put value on genes that improve their bottom line. Developing cattlemen in South Africa who are becoming aware of the benefits of herd improvement are well placed to improve their animals with South Devon genetics.

As experts predict a profitable decade ahead for the beef industry, Leachman says there is no better time than the present to get South Devon genes into commercial herds.

## THE RIGHT COW

The ideal commercial cow matures early to calve down at 24 months. She is highly fertile, with strong maternal ability, calving ease and good milk production. She is also environmentally adaptable.

A crossbred cow has greater longevity and weans more calves at heavier weights, offering substantial economic benefits to the cow/calf operation. Embarking on a good crossbreeding programme requires recognising that selected traits must be balanced against environmental and economic pressures. The farmer should know his constraints and check selection against his resources.



**ABOVE:** This Brahman-type cross South Devon calf is a winner that clearly shows the beef gains from the South Devon infusion. PHOTOS COURTESY OF SOUTH DEVON BREED SOCIETY

It is no use having a high-producing animal in a system that cannot provide proper support.

## YIELD IMPROVEMENT

Weaner production systems are driven by fertility, feed intake, production for weaning weight and market demand. Feed conversion rates, daily gains, carcass weight and quality drive the feedlot operation.

Crossbreeding with South Devons gives producers advantages in both systems – they introduce an efficient feed conversion ratio, low intakes and good gains. A South Devon cross can yield a 23% increase in kg/cow bred, much more than the average 12% to 14% increase generally found in the F1 cross. There is a further weight increase in the F2 progeny of the South Devon cross.

To drive profit, animals selected for crossbreeding have to bring extra fertility, growth and carcass merit

to the system, while transferring the ability to reduce intakes without sacrificing gains. The South Devon easily meets these requirements, and brings good temperament and easy handling into the mix.

## RECENTLY POLLED

The advantages of the polled gene in cattle mean that breeders are selecting for polledness more often. Also, animal welfare groups are increasingly concerned about dehorning. Horns are a danger to other cattle and handlers, and are a problem in the crush, in transport trucks and at the abattoir. In feedlots, horned animals must be dehorned, and at this stage the process can cause a setback, thus compromising gains. Horned animals are also prone to bullying polled or dehorned cattle away from feeding, drinking and resting areas.

The polled gene is dominant and so a herd of horned cows (or dehorned,

as the case may be) can be bred to a polled bull (homozygous for the polled gene) and drop calves that would all be polled (heterozygous for the polled gene).

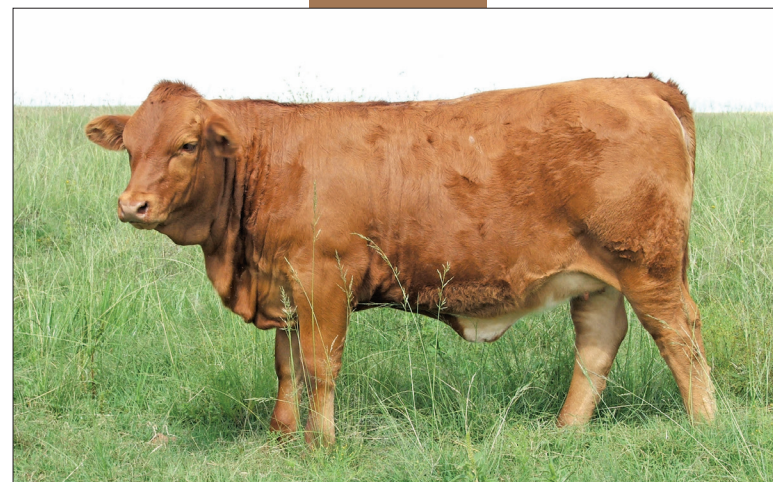
Since 2010, the South Devon Breeder's Society has been working on a project to import semen from polled Australian, New Zealand and US bulls, and there are now polled bulls available at sales. Tielman Nieuwoudt, a member of the South Devon Breeders' Society of South Africa, says that bulls identified in other countries were carefully selected and will have a positive impact on the SA herd.

The gene for scurs, transmitted separately, is gender-linked, appearing only in males. Although females can carry the gene, it will not be expressed in the phenotype. Prof Este van Marle-Koster of the University of Pretoria points out that breeders should record phenotypes accurately, including the presence of scurs, if they are to identify bulls homozygous for the polled gene.

**A SOUTH DEVON CROSS CAN YIELD A 23% INCREASE IN KG/COW**

## EASY CROSSING

In a system using the two-breed rotational cross (or criss-cross), the F1 female progeny are retained and mated back to one of the parent breeds. Females of following generations are bred to the opposite breed of their sire. For instance, if South Devon and Nguni are crossed, and the 50% South Devon 50% Nguni heifer is bred to a South Devon bull, the F2 heifer



**TOP:** Developing SA cattlemen are fast becoming aware of the benefits of crossbreeding. This crossbred Nguni-type pre-weaner will have more kilogram per frame than its dam.

**ABOVE:** The South Devon breed can play a role in profitable beef production as commercial cattle farmers look for genetics to improve their bottom line. Pictured here is a Beefmaster-type cross heifer.

would be 75% South Devon and 25% Nguni. This animal would then be bred to an Nguni bull for the rest of her life.

In the two-breed rotation, both breeds must be suitable as dam and sire breeds, and should be reasonably biologically compatible.

A terminal sire system can be introduced to the two-breed rotation, with 50% of the herd bred to a terminal sire and the offspring all marketed. Replacement heifers are produced in the remaining 50% of the herd, which carries on in the two-breed rotation cycle. Terminal sires need only be selected for calving ease, growth and carcass merit. Older, less-efficient

cows can be used in the mating programme, which needs about 100 cows to function productively.

## RAND VALUE INDEX

Dr Michael Bradfield of Breedplan SA says that market-related figures and modern breed values used to calculate a rand value index for each animal are key to profitability. Many breeds record an insufficient number of traits to allow for meaningful development of economic indices. But the economic index is vital if genetic progress is to be accelerated, and producers should have a good recording system across a broad range of traits.

The South Devon cow rand value index

increased by R38,17 from 1996 to 2006 before stabilising. This increasing index is an excellent indicator of genetic improvement in cow profitability in the herd.

South Devons cross well with *Bos indicus* breeds. In line with the advantages of hybrid vigour, crossbred calves can withstand high temperatures and resist tick-borne parasitic diseases, while improving on gain, muscling and temperament, which they inherit from the South Devon.

Temperament has a direct implication for profit. Jittery animals will drop kilograms and lose condition in loading and shipping – affecting the bottom line. The South Devon's reputation for a steady and calm temperament is well-deserved.

These 'naturalised South African' South Devon cattle, bred by a group of dedicated farmers aware of the profit possibilities and easy performance of the breed, are poised to take the commercial cattle world by storm.

• Phone the South Devon Breeders' Society of South Africa on 051 410 0967, or email [sdevon@studbook.co.za](mailto:sdevon@studbook.co.za).