THE TOP 5 SELECTION TIPS

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1. **Understand what selection means.**
A simple definition for selection would be: "Selecting the right animals as parents for the next generation". It is well known that the variation observed or recorded for any trait is the result of genetic differences among animals for the trait and the affect of the environment on its expression. It is furthermore known that not all genetic differences among selection candidates, even if known, will be transferrable to their offspring. To be successful in identifying suitable parents for the next generation, it is important that the choice must be based on the transferrable genetic differences among the available animals for the traits of importance. Selecting on this basis will result in offspring with desirable genetic merit that outperform their contemporaries. Normally selection for males (bulls and rams) will be based on "positive selection", meaning that the impact will be big as they will

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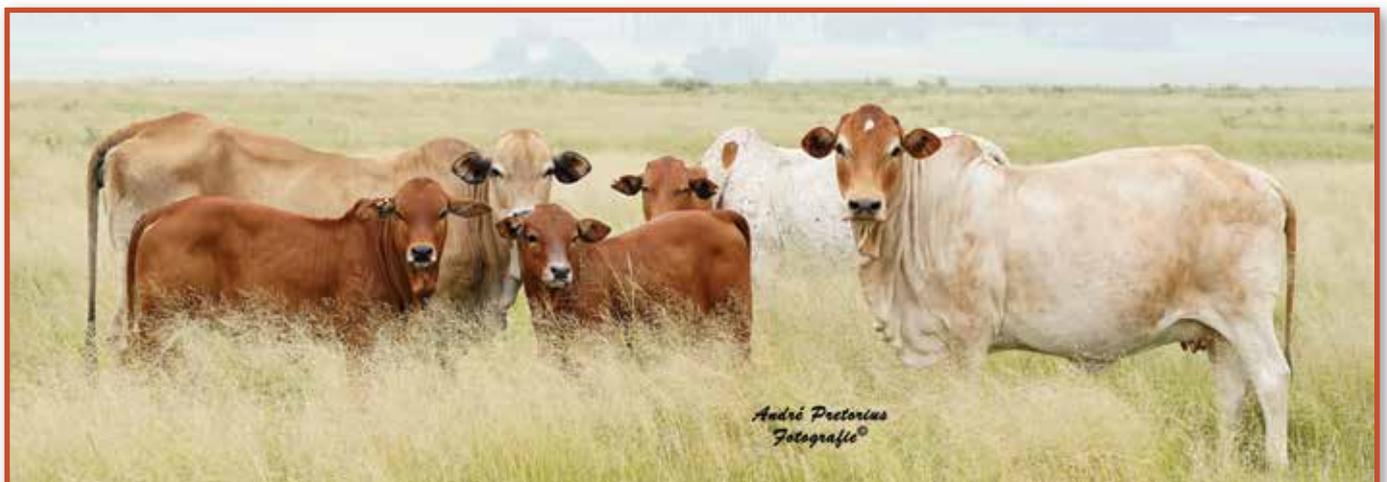
produce many progeny per year and over their lifetime. On the other hand, selection of female (heifers, cows and ewes) are usually associated of getting rid of the bottom end, therefore culling undesirable animals or "negative selection". Due to the properties of these practices, selection progress will largely be dependant on male selection, but also with most suitable males born from top females (dams of sires) for sex limited traits only measurable among females (like calving ease, pre-wean maternal ability, female fertility [and fecundity in small stock] and productive herd life).

2. Selection is worthless without a sensible objective

Successful selection must start with an overarching objective and very clear achievable and realistic goals. Goals can be medium term (sometimes even short term) but the objective must be sustainable over the long term. Such a typical overarching objective should be described in monetary terms and must be linked to profit, taking product quantity and quality into consideration as well as inputs needed for the production thereof. Limitations of resources and their realistic availabilities as well as the market segment aimed at, should be considered. An objective should also not be chopped and changed. The challenge still is to clearly write down an own objective as well as each selection goal. Goals will enable breeders and commercial producers to have very clear ways to identify those animals to select as parents for the next generation. Breeding goals only considering single traits, and neglecting the spread in the genetic merit among possible selection candidates, as well as the interaction (genetic correlations) among these traits, will result in a selection dead end.

3. Selection candidates can only be considered as parents of the next generation when the performance of their progeny can accurately be predicted.

It is logical to rank all possible selection candidates from the most desirable to the least,
based on how they fit into your overarching objective and goals and how progeny will perform in your herd. This is only possible when the traits forming part of the goals are measured, recorded and the genetic merit for each of them are calculated. The most efficient way is also to combine all these traits in an economic (expressed in monetary units) selection (index) value and use that ranking to determine the desirability of each possible animal as selection candidate. It therefore starts with recordings in each herd and to insist on the availability of genetic merit values for all males (and females) considered to be introduced from other herds. A bull or ram without predicted breeding values for the important traits included in one's own objective put up for sale is like a bakkie for sale without any specifications. Typically, a selection value will be expressed as profit per hectare for replacement females and/or profit per animal in the feedlot or finished after weaning and/or the finished product (carcass and meat properties). These genetic merit values should also be comparable with the genetic merit of the animals in your own herd. Breeding values based on a foreign population is of no value on the South African herds, for example. In most cases, each beef breed should clearly define its role in the market and accordingly define its objective and breeding goals. This will then typically be expressed in values such as the well-known "Cow Value" (female replacement value) and/or "Growth Value" (profit value for post wean growth and market finishing). These values and the traits used in formulating them are printed in sales catalogues and are also available on www.SABeefBulls.com.

4. Once you have identified the most suitable animals as parents for the next generation, you should apply the correct mating plans to achieve your goal effectively.

Mating plans reflect the thoughts going into setting up mating groups putting males and females together (or applying artificial insemination and multiple
ovulation practices). The most efficient way to achieve the set breeding objectives is to mate "best with best" without increasing inbreeding in the progeny resulting from the planned matings. Increased levels of inbreeding result in narrowing genetic diversity that will not only slow down genetic progress but also reduce fertility and survival rates.

In some cases, certain compromises must be made, especially when corrections have to be made through corrective matings or to rectify weaknesses in a heard (such as trying to increase the genetic levels for specific traits).

5. Figures without functionality can derail selection plans.

Genetic merit for based on selection objectives is useless unless the considered selection candidates are also able to fulfil their function. Males must show libido, be able to mate and have no defects. Likewise, females must be able to give birth easily, be adapted to the physical and production environment, get to the sources of nutrition and easily manageable. Therefore, genetic merit for the traits of economic importance will have a 100% contribution in the final decisions but, likewise functional efficiency will also account for 100% before an animal is to be considered as parent for the next generation.

It is a continuous process

Selection never stops. Continuous selection also means continuous assessment and evaluation. Breeders and commercial producers should continuously benchmark the results of their decisions and actions. Benchmarking should include assessment against biological and market criteria. For example, no real selection progress can be possible in a cow herd, if weaning percentages drop below 80%. Profitability is compromised if no recording and benchmarking take place. Selection of more profitable animals is part of the process.