THE DRAKENSBERGER AS COMPETITIVE BREED OF CATTLE IN THE SOUTH AFRICAN BEEF INDUSTRY

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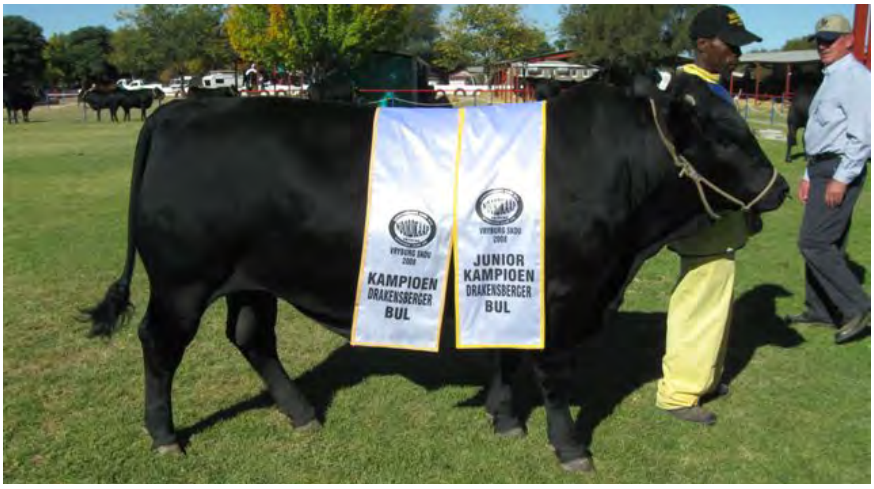
Abstract

This paper focuses on the Drakensberger as competitive beef breed of cattle. The Drakensberger is a medium-framed black cattle breed, indigenous to South Africa. The breed fares well in key requirements for successful cattle farming, and although the breed has much to offer, it does not enjoy a large market share in the country. Resultantly, this low market share raises questions as to why an indigenous, quality cattle breed has a low market share. The primary objective was to determine the South African farmer's perception on Drakensberger as cattle breed in the market. This was achieved by the secondary objectives that identify and describe the competitive South African cattle breeds, identify the characteristics a South African farmer looks for a cattle breed, measure the Drakensberger's performance against these identified characteristics, and to clarify the low market share. The literature study reviewed the background of the South African cattle industry, identified the competitors in the cattle market, and also assessed the Drakensberger breed's potential. From the literature it was evident that the breed has no fatal flaws. It outperforms certain other more popular cattle breeds, and the Drakensberger is also exceptionally well adapted for the diverse South African conditions, performing well on even low quality sour grass veld conditions. The empirical research employed qualitative research to determine the characteristics important to South African cattle farmers. Additionally, quantitative research, using a structured questionnaire, was employed to determine cattle breeders' perceptions of the Drakensberger and competitive cattle breed. The data showed a high reliability coefficient of 0.83 (as calculated by the Cronbach Alpha). The results showed that farmers prefer cattle breeds possessing hardiness, high fertility, high weaning weight and, surprisingly, the colour of the breed. The colour preference negatively impacts on the Drakensberger as South African farmer prefer red and not black cattle breeds (such as the Drakensberger). However, farmers farming with the Drakensberger are very satisfied with the breed's performance, even more so that the farmers of other cattle breeds are with their breeds.

Keywords: Drakensberger cattle; marketing of cattle; potential of cattle; marketing perceptions; characteristics of cattle; black beef cattle



1. History of the Drakensberger

The Drakensberger breed of cattle is indigenous to South Africa. It developed over the past 150 years to become one of few true indigenous cattle breed. However, tracing history back to 1497, the breed was originally discovered by the Portuguese when the explorer Vasco da Gama rounded the Cape of Good Hope in 1497. He met with local natives and acquires a black ox, incidentally trading it for three copper bracelets. Da Gama was impressed with the excellent quality of its meat (a characteristic of the breed that stood the test of time) (The Cattle Site, 2010). The Drakensberger gained popularity as breed, and by the time of the Great Trek (1834), the Drakensberger was part and parcel of the migration to the north when these families left the Cape. These cattle were then called *Vaderland cattle* (Home country cattle).

A large number of these migrating farmers halted against the fertile slopes of the Drakensberg mountain range (located today in the midlands of the KwaZulu-Natal province of South Africa), and the cattle became known as the "Drakensberger" (Pentz, 2009:1). Drakensberger Cattle Breeders Society of South Africa was founded in 1947, and the name "Drakensberger" eventually gained official status.

The Drakensberger breed of cattle enjoys widespread recognition for its ability to thrive on a variety of grazing types, even the sour veld to be found in the Drakensberg region. They even strive in the mountainous and arid Karoo region as well as in Namibia. Recent research showed that the breed does even better on sweet grazing and has the ability to round off on the farm without requiring feedlots or excessive conditioning supplementary feeds (Smit, 2010). This is an exceptional advantage where premium priced free-range beef is in high demand. Furthermore, an additional benefit of the breed is embedded in its history. Being part of the demanding migration in the 19th century, only the most hardy, illness resistant and best adapted cattle survived, making a case for natural selection where the best genetic material remained to as breeding material for the Drakensberger breed of cattle for the future (Roos, 2007:1). This means that these cattle are very suitable for the "natural" beef markets because they require little medication and antibiotics, and its beef could fetch premium prices on the market. It is relatively inexpensive when compared to other breeds and it competes well in important cattle characteristics like fertility, feed conversion ratio, hardiness and weight gain. It is reasonably to very resilient against illness and pests such as ticks (Drakensberger, 2013).

Today the Drakensberger can be found all over South Africa, but its main concentration remains the Mpumalanga and KwaZulu-Natal regions where it originated as registered breed. The Drakensberger is dispersed mainly in Southern Africa, and roughly 14 000 purebred Drakensberger cows and 5 300 bulls are registered. Annually an average of another 2 700 cows and 2 800 heifers are added as to the registrations roll (Drakensberger, 2013). The Drakensberger Cattle Breeding Association adopted the well-respected mantra: "*The profit breed*" in the late 1980s (Foster *et al.*, 2008).

2. The South African beef- and beef cattle market

Cattle farming form an integral part of the South African economy and culture of South Africans. Agriculture contributes nearly 2.2% to the South African GDP. Cattle and calves contribute 12% to the agricultural GDP (Thato, 2009), which in turn contributes around R100 billion to the total SA GDP of R2 000 billion per annum (Anon., 2009a). South Africa produces 85% of the domestic demand while the remaining 15% are imported from Namibië, Botswana, Swaziland,

Australia, New Zealand and the United Kingdom. Brazil is competing fiercely to gain entrance in the South African beef market (Gallardo, 2012). The red meat industry is a valuable contributor to the gross domestic product of the South African national economy, and also has an important multiplier effect through creation of employment throughout the value chain; from the farm to the table. The livestock sector in South Africa produces on average 900 000 tons red meat per annum.

In the South African cattle industry, farmers are spoilt for choice among different breeds, having to choose between indigenous or imported breeds and having to choose a breed in these categories. No single breed dominates the market. (The popularity of breeds is shown in Table 4).

Despite the various positive attributes associated with the indigenous Drakensbergerit does not enjoy a dominant market share. There are areas where the Drakensberger is a prevalent breed (see Figure 1), but there are large areas where other breeds totally dominate. The areas where relatively strong presences of the Drakensberger are observed are the following:

- Eastern regions of Mpumalanga, with the Drakensberger Cattle Breeders Organisation based in Volksrust;
- Certain parts of the Northern Free State; and
- Small pockets in the Northern and Eastern Cape.

One of the most prominent cattle producing areas in South Africa is the North West Province, but the Drakensberger is not popular in this area (Morgenthal et al., 2004; Fourie, 2011).

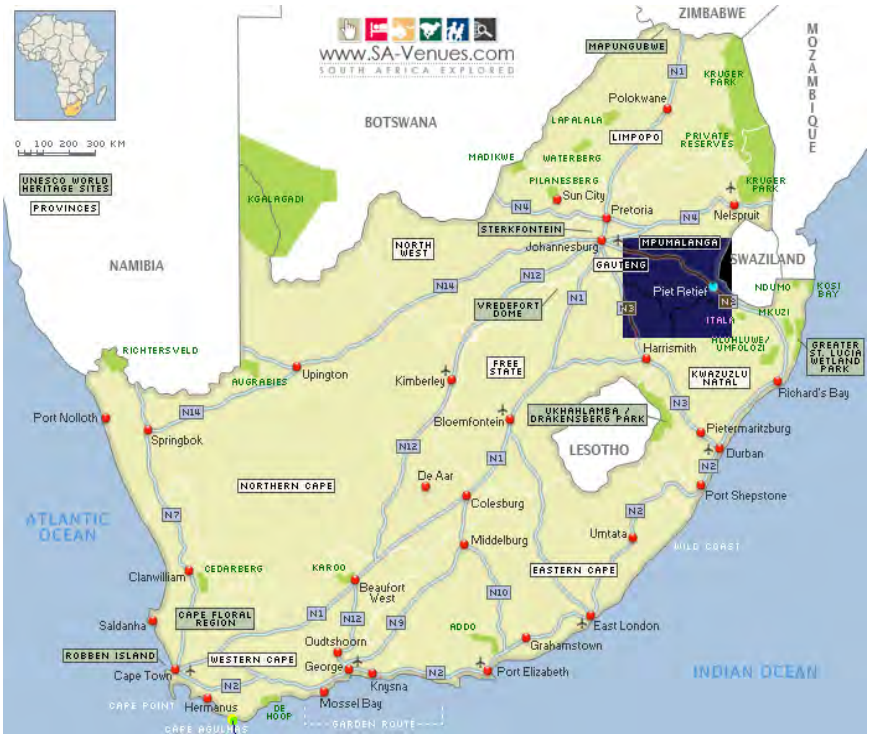


Figure 1. Area of Drakensberger concentration
Source: Anon (2009b)

3. Research objectives

The primary objective was to determine the South African farmer's perception on Drakensberger as cattle breed in the market. This was achieved by the following secondary objectives, namely to:

1. Identify and describe the competitive South African cattle breeds;
2. Identify the characteristics a South African farmer looks for in his or her cattle breed;
3. Measure the Drakensberger's performance against these identified characteristics; and to
4. Clarify the low market share based on the research findings.

4. Research methodology

4.1. Research orientation

The results are based on the perceptions of the farmer(s) pertaining to their respective cattle breeds. The perceptions pertaining different breeds of cattle is directly comparable seeing as they reflect how each farmer feels about his or her breed of cattle and its performance. Therefore, should "Cattle breed A" perform better than "Cattle breed B", it means that farmers who farm with "Breed A", are more impressed with the breed than farmers who farm with "Breed B". Each farmer is thus the judge of his own cattle and their performance.

4.2. Research schedule

The schedule consisted of five phases. These phases are explained below.

Phase 1: Discussions and conceptualisation of the research area with delegates from the Drakensberger Breeders' Association.

Phase 2: Consultation with different large stock authorities and experts pertaining to the chosen characteristics of beef cattle and the production of wieners.

Phase 3: Consultation with a joint interest group where, according to the Meta technique, cattle characteristics were identified and prioritised in order to finalise the questionnaire for the empirical research.

Phase 4: Data collection and processing. In total, 158 questionnaires were received. Of these, seven were received after the cut-off date and were not processed in the quantitative calculations. Furthermore, eight questionnaires were incomplete, and were therefore only partially processed. Another five questionnaires were not processed due to incorrect completion thereof. This means that 138 complete questionnaires were received and could be fully processed.

Phase 5: Reporting based on the empirical survey.

The research made use of qualitative as well as quantitative data collection. Phases 1, 2 and 3 employed qualitative research to gather data by means of focus group discussions. The aim of these discussions was to identify the characteristics a beef farmer is looking for in his or her preferred breed of cattle. It was also important to determine a ranking of the characteristics. The results obtained from the discussions led to the compilation of the structured interval-scaled questionnaire. In total 29 dedicated beef cattle farmers participated in three focus group meetings.

After the questionnaire was compiled, the research made use of quantitative data collection. The Drakensberger breeders' association assisted to ensure that all their members received a questionnaire with a special request to complete. A total of 158 questionnaires were received back.

5. Results

5.1. Objectives 1. Identify competitive cattle breeds

Contrary to a large producer of beef such as Brazil where a major market share in beef cattle is held by the adapted South African cattle breed, the Bonsmara (Bisschoff, 2007), the South African beef cattle farmers are spoilt for choice when it comes to the number of breeds available. Farmers can select their breed of choice according to distinguishing features such as:

- Characteristics of the different cattle breeds in relation to grazing;
- The South African farming environment;
- Personal preference;
- Climate; and
- Other cattle breed characteristics.

In this regard, the Drakensberger as cattle breed has a formidable offering to a prospective cattle farmer. The Drakensberger is a medium frame breed with a long and deep body. It has a smooth black coat. The mature bulls weigh between 820kg to 1100kg. Cows weigh between 550kg and 720kg. The breed has a relative low birth weight of 35 kg at birth. In addition, the cows calve easily, have high fertility, display excellent mothers' instincts and can remain productive for up to 20 years. The breed as motherline breed, cross-breeds very well with most other breeds (The Cattle Site, 2010). Regarding specific offerings as a breed, the Drakensberger fares well on the following characteristics:

- Ability to adapt to all conditions,
- Good milk production – 240 kg weaning weight (205 days) is common in stud,
- Fertility – 90%, ICP to 353 days/92 cows,
- Low mortality – in official tests 49% lower than most breeds from birth to wean,
- Impressive weight reached by wiener calves - heifers 210 kg and bull calves 240 kg, on average 25 kg more in sweetveld,
- Even temperament, easy handling,
- Outstanding mothering ability,
- Long productive life of 14 years and more,
- Tender and succulent meat.

Some of the popular competitors to the Drakensberger are the following beef cattle breeds available in South African: Bonsmara, Hereford, Simmentaler, Limousin, Sussex, Aberdeen Angus and Beefmaster. The Bonsmara, bred specifically for South African conditions by the renowned professor Jan Bonsma, is the only other competitive indigenous cattle breed. The cattle breeds are introduced in the table below.

Table 1. Competitive cattle breeds

Bonsmara – market share 15.9% (Anon, 2009c) The Bonsmara breed was developed through cross-breeding by the late professor Jan Bonsma. It is the only cattle breed in the world to have been developed through objectively recording performance data. The breed was mainly developed in response to the British breeds not being able to handle the sub-tropic climate and relatively high temperatures in South Africa. It is the market leader in South Africa.	
Hereford – market share 12.7% (Anon, 2009d) The Hereford originated in the United Kingdom in 1742 near Herefordshire as an answer to fulfil the expanding need for beef following the Industrial Revolution. The Hereford distinguished itself with high beef yield and production efficiency, which is still a breed attribute today. Considering its rich history and excellent features, the Hereford earned its strong place in the South African cattle market and should be a strong contender for years to come.	
Simmentaler – market share 12.3% (Anon, 2009e) The first Simmentalers were introduced to South Africa when President Steyn of the Free State established a stud in 1905. The breed did not occupy a strong position in the South African market until the 1960s when tests revealed its excellent attributes. The breed fares well in aspects like the reproduction index, weaning weight, yearling weight of heifers and feedlot growth. One possible challenge with Simmentaler animals is their relative heat sensitivity when judging rectal temperatures in high ambient heat.	
Limousin – 8.9% market share (Anon, 2009f) The Limousin is a breed with a long history, originating in the south of France in the 1800s. The animals fare well in rocky and harsh conditions and were often used as drought animals prior to fattening them up for slaughter. They were imported to South Africa in 1974. The Limousin is a medium-framed animal that calves easily and fares very well in hybrids or cross breeding. They can feed efficiently on the veld and has a high feed conversion ratio, which should suit commercial farmers and feedlots. They are, however, more suitable to the Highveld regions of South Africa, which might hamper a countrywide growth strategy.	
SA Aberdeen Angus – 8.2% market share (Anon, 2009g) The Angus originated in the cold Scottish highlands and is currently numerically the largest breed in the world. It is quite popular in South Africa, especially in the Free State, Western Cape and KwaZulu-Natal. The breed can withstand the extreme cold of some parts of South Africa well and therefore is a popular choice in cold areas and areas with winter rainfall. (Contrary to black being the colour of choice uin the United States of America, the South African farmers opt for the red Aberdeen Angus).	

Beefmaster – 6.0% market share (Anon, 2009b) The Beefmaster originated in Texas in 1908 when a breeder crossed a Brahman, Hereford and Shorthorn. The primary focus of the Beefmaster during development was the production of beef, and other attributes were not pursued strongly.	
Sussex – 4.5% market share (Anon, 2009h) The Sussex is one of the oldest and purest cattle breeds. The breed has been recorded as early as 1066 in England. The breed was imported to South Africa for the first time in the early 1900s by Mr Alec Holm of the Potchefstroom Agricultural College. The breed has many winning characteristics, but its strong features are mainly its: size (medium-sized); hardiness; and milk abundance.	
Charolais – 4.2% market share (Anon, 2009x) The exact origins of the breed is not known, but is suspected to have originated in France in the 800s to 900s. It is a large breed with a thick, matted coat. Whether it can be attributed to its coat or not, the breed was found to be more prone to heat sensitivity than other breeds tested. Also suffers from excessive teeth wear in sandy regions	

Source: Pentz, 2009; Wiese, 2012

The South African beef cattle market share is shown in table 2.

The table clearly shows the superiority of the Bonsmara, enjoying three times the market share of the Drakensberger (5.3%) at 15.9%, followed by the British Hereford and the Simmintaler (both at 12%)

Table 2. Market share per cattle breed (CARCASSES)

Position	Cattle breed	% of total
1	Bonsmara	15.9
2	Hereford	12.7
3	Simmentaler	12.3
4	Limousin	8.9
5	SA Angus	8.2
6	Beefmaster	6.0
7	Drakensberger	5.3
8	Sussex	4.5
9	Charolais	4.2
10	Holstein	4.1
11	Afrikaner	3.8
12	Santas Gertrudis	3.4
13	Brahman/Simbra/Brangus	5.3
14	Other breeds	5.4

Source: Pentz (2009)

5.2. Objectives 2 and 3. Identify characteristics and measure perceptions of cattle breeds

Objective 2 was reached per se from analysing and ordering the qualitative research in the process of compiling the questionnaire. The characteristics of beef cattle breeds was identified and formalised in the questionnaire. The data was collected as described above to achieve objective 3, and the results are discussed below.

Processing of data

The data were processed by the statistical software Statistical Package for Social Sciences (SPSS version 18). Reliability coefficients and descriptive statistics were used.

- Regarding the reliability and internal stability, the data show a very satisfying Cronbach Alpha coefficient of 0.83, exceeding the required 0.70 with ease (Field, 2005:668).
- Descriptive statistics were employed to perform the comparative analysis, and the mean values were calculated. Standard deviations were also scrutinised, but no significant deviations were identified, hence these figures were omitted from the results.

Market perceptions

The questionnaire makes comparisons between the expected performances of the Drakensberger as breed of cattle on the cattle breed characteristics versus the expected performance by other breeds of cattle. The interval measurement scale varies from -3 (much poorer) to +3 (much

Table 3. Perceptions of expected performance of different breeds in comparison to the Drakensberger

No	Characteristic	Drakens-berger	Brah-man	Bons-mara	Charo-laise	Angus	Santa	Afri-kaner	Simmen-taler	Beef-master	Sim-bra
1	Temperament	2.00	1.70	1.08	1.00	1.00	1.50	1.67	0.75	1.75	0.71
2	Mothering characteristics	2.46	1.40	1.19	1.50	1.43	1.00	1.00	0.50	1.50	1.14
3	Fertility (Cows)	1.96	1.56	1.04	1.00	0.86	0.50	1.00	0.50	1.50	0.43
4	Growth rate	1.38	0.80	0.42	0.50	0.86	0.50	0.67	0.75	0.25	-0.43
5	Hardiness	2.48	1.00	0.76	1.50	1.86	2.25	0.00	0.75	0.75	0.86
6	Adaptability	2.43	1.30	0.50	1.00	1.71	1.75	1.00	1.25	0.75	0.00
7	Quality of meat	1.91	1.30	0.88	1.00	0.71	1.00	0.33	0.50	0.50	-0.29
8	Productive life span	2.21	0.90	0.84	1.00	1.71	1.00	0.67	0.33	1.25	0.57
9	Recovery ability (E.g. after a cold winter or drought)	2.29	1.20	0.35	1.00	1.14	1.50	0.67	1.50	0.00	-0.29
10	Feed conversion ratio (FCR.)	1.54	0.90	0.15	0.00	0.86	0.25	1.33	0.50	0.50	-0.43
11	Walking ability	2.25	0.70	0.88	1.50	1.57	1.50	1.00	0.00	0.50	1.14
12	Serving ability (Bulls)	2.04	1.10	0.73	1.00	1.29	1.25	0.33	0.50	0.50	1.00
13	Easy calving	2.17	1.00	1.08	2.00	1.71	1.25	0.67	0.25	1.50	1.43
14	Prepotency (heredity of characteristics)	1.63	0.70	0.85	1.50	0.71	0.75	0.00	0.67	1.25	1.00
15	Heat sensitivity	1.38	0.20	0.12	0.50	0.57	0.75	-0.67	0.25	0.75	0.57

Source: Bisschoff & Lotriet (2009)

better). An average performance of a cattle breed should yield a mean value of zero while a better than average expected performance by the cattle should yield a positive value (the inverse is true for negative values). The results appear in table 3.

It is clear from the table that the Drakensberger farmers are very satisfied with their breed, even more so than the farmers of the competitive breeds with their own cattle breed. Especially characteristic 5, 6 and 9 (respectively *Hardiness*, *Adaptability* and *Recovery ability*) are experienced as very positive by the Drakensberger farmers. Furthermore, it is also important to take note of the characteristics that other breeds evaluated below 1, namely 4, 10 and 15 (*Growth rate*, *FCR* and *Heat sensitivity*), seeing as they lean towards negative perceptions about the Drakensberger as breed.

5.3. Most important cattle breed characteristics

From the questionnaires, farmers were also required to indicate the three most important characteristics required for the cattle breed they farm with. The results appear in the table 4. Interesting is, however, that there is a deviation at Bonsmaras, namely that a core characteristic of the breed is *Popularity of the breed*, and that this stimulates the sales of the bulls. Because of this, the market shows that a significant premium on the price of Bonsmaras can be levied if breeding material is purchased.

Table 4. Most important characteristics of cattle per breed

Breed	Characteristic 1	Characteristic 2	Characteristic 3
Drakensberger *	Adaptability	Hardiness	Temperament
Brahman	Hardiness	Is not stolen	Mothering characteristics
Bonsmara **	Bulls marketability	Fertility	Mothering characteristics
Aberdeen Angus	Fertility	Field finishing	Temperament
Other breeds (mixed)	Udder weight	Mothering characteristics	Hardiness
Santa Gertrudis	Fertility	Udder weight & FCR	Hardiness & calves easily
Afrikaners *	Mothering characteristics	Hardiness	Low maintenance
Simmentaler	Udder weight	Meat quality	***
Beefmaster	Udder weight	Adaptability	***
Simbra	Fertility	Udder weight	***
Drakensberger X	Adaptability	Hardiness	Fertility & Mothering characteristics
Brahman X	Hardiness	Adaptability	Mothering characteristics
Bonsmara X	Hardiness	Udder weight	***
Other X	Mothering characteristics	Udder weight	Hardiness

* Indiginous, ** SA developed cattle breed
Source: Bisschoff & Lotriet (2009)

5.4. Objective 4. Market share

Both the literature as well as the empirical research clearly showed that the Drakensberger as cattle breed is not flawed. From the literature review it is clear that the breed is hardy, has excellent farming qualities and is well adapted to a variety of veld conditions. It even fares well under poor veld (such as sour veld) conditions. The literature also showed that the breed has a number of distinctive and very competitive qualities such as its hardiness and resilience to illness and pests. Add to that the ability to be able to gain the required carcass condition for market-

readiness, and the Drakensberger is clearly well positioned to enter into the premium beef markets of *free range, health* and *natural beef*. Strangely, in contrast to farmers in the United States of America, Scotland and other countries, colour seem to be an issue with the South African farmer who believes that a black cattle breed is not able to perform well in harsh African sun. However, this misnomer is clearly reputed by Foster, *et al.* (2008), Fourie (2011) and Jordaan (2012) who explain that animal heat tolerance is not determined by colour of skin, but by the thickness of the skin (as isolator) as well as the density of sweat glands on the skin (as cooling mechanism). The Drakensberger breed is exceptionally well equipped in both instances, and has a high tolerance for heat (scientifically possessing higher heat tolerance levels than some of the popular European cattle breeds in South Africa). From the literature there is no explanation why the Drakensberger does not enjoy a significant market share, as it should, in South Africa.

The empirical research shows clearly that the Drakensberger performs excellently in South Africa. Also here not even one failure in performance could be identified. More mysterious is the fact that, although a black coloured animal seems to be dismissed outright, the empirical research have shown that none of the required characteristics (as identified by farmers) identified the colour of beef cattle to be a characteristic of choice!

A marketing-focussed managerial analysis reveals that, in the event of poor market performance with a seemingly well-performing product, a *market* and *marketing mix* analysis should be performed (Kotler and Armstrong, 2011). In this regard, it is evident that the beef cattle market is above suspicion, and can be ruled out. The marketing mix on the other hand showed that the:

- *Product* (Drakensberger) is acceptable,
- *Price* offering is fine,
- *Distribution* and the availability of the breed is satisfactory, but that
- *Promotion* as marketing mix element fails catastrophically.

The breed per se is not promoted properly (if at all) and its qualities are not known to prospective farmers. The conservative marketing approach in this regard by the Drakensberger Breeders Association adds to the poor knowledge of the breed. In addition, the association also does not attempt to address any misnomers of the breed, such as the correlation between heat tolerance and black colour. The failure of the marketing mix (via promotion) is, therefore, the reason for the poor market performance. Tragically, this is essentially and easy failure to correct in the marketing mix, and the window of market opportunity that currently exists is fast being closed by the successful marketing of the Bonsmara (SA adapted and excellent cross-bred bulls), the Angus (premium beef qualities), and even some feeding lots with a specialised beef branding focus. Other cattle breeds are also starting to brand themselves, and the Drakensberger continues to lose market share, despite being an excellent cattle breed.

6. Conclusions

The results of this empirical survey indicate that the Drakensberger as breed of cattle, pertaining to the 15 identified beef cattle characteristics, fares well in certain categories, but that there are areas of concern. The success of a cattle breed rests on its ability to provide good quality meat, adapt to the environment and be an economically viable asset based on its breed characteristics. However, unfortunately this is not enough to ensure a success for a cattle breed. Economic and market influences also plays a role because the market requires bulls as breeding material, and cattle breeds, as supplier of good quality bulls to the meat-producing market, can charge a premium for a bull from a cattle breed that is more well-known or has a superior image.

The marketing failure on the part of the Drakensberger is a managerial issue, and sadly breeders and the breeders' association focus on improving the breed rather than properly marketing the breed and developing the market. It is still possible to utilise the marketing window of opportunity and to promote the Drakensberger as one of the top breeds within a premium market niche. It, however, remains to be seen if the role-players would recognise this opportunity and timeously refocus also on the first part of their mission statement (and not only on the second part thereof to continuously to improving the cattle breed):

"The declared mission of Drakensberger farmers is to propagate the traditional black animals carrying a maximum amount of high quality beef without sacrifice of the breed's inherent qualities"

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