




# Challenges affecting Mzongwana cattle farmers to commercialise livestock production in Eastern Cape, from a local economic development perspective



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**Background:** Rural cattle farmers in Mzongwana, Matatiele, Eastern Cape, face a scarcity of resources preventing them from commercial farming and contributing to local economic development (LED) and eradicating unemployment.

**Aim:** This study compares resource constraints associated with livestock farming contained in the Matatiele Local Municipality's LED strategy with those identified by the cattle farmers in Mzongwana villages, linked to the agricultural economic theory of scarcity of resources.

**Setting:** The Matatiele area has an estimated unemployment rate of 39%. This article focuses on LED interventions to commercialise livestock farming practices in Mzongwana villages located in the Matatiele Local Municipality, in the Alfred Nzo District Municipality in the Eastern Cape province, South Africa.

**Methods:** A quantitative survey was conducted using a researcher-completed structured questionnaire with 34 of the 65 cattle farmers from Mzongwana.

**Results:** The results revealed that major constraints affecting Mzongwana livestock farmers include stock theft, a dearth of bulls for breeding, inadequate water infrastructure and limited equipment to perform various cattle functions, such as scaling, loading, separating, clamping and sorting of cattle.

**Conclusion:** The LED strategy of the local municipality should be revised to provide training and skills capacity building related to cattle breeding and to address these major constraints affecting the commercialisation of livestock farming in Mzongwana. It is recommended that the Matatiele Local Municipality assist in the combating of stock theft, provide training in artificial insemination, ensure water availability by building dams and drilling boreholes, and arrange for financial support for cattle farmers to purchase cattle equipment.

**Keywords:** livestock farming; local economic development; commercialise livestock production; Mzongwana; municipality.

## Introduction

Local economic development (LED) is an endogenous effort to create prosperity in a local community through the mobilisation of human, physical, financial and natural resources (eds. Nel & Rogerson 2005). Local economic development aligns with Section 152 (1) of the Constitution of South Africa (Republic of South Africa [RSA] 1996), mandating local authorities to promote economic and social development under their jurisdiction. Other relevant policies include the National Development Plan (NDP), Vision 2030, the Industrial Policy Action Plan, 2017/18-2019/20, the New Growth Path adopted in 2010 and the National Framework for LED 2017–2022.

One of the focus areas of LED is to eradicate poverty in rural localities to improve the quality of life (Meyer 2013). Rural areas are characterised by high levels of poverty, traditional agriculture and low-income levels (Meyer 2013). With a high percentage of the poor residing in rural areas, agriculture plays a critical role in eradicating poverty (Babatunde, Salami & Adeboje 2016). By increasing agricultural productivity through farmer support, rural income is raised (Norton, Alwang & Masters 2015). Therefore, the upgrading of livestock farming for small-scale farmers is an important means of generating income (Henriksen & Rota 2014). However, recent research (Khapayi & Celliers 2016; Mapiye 2017) studies revealed that a scarcity of resources and other constraints affect livestock farmers and jeopardise commercialisation and productivity.

This research study focused on LED interventions to commercialise livestock farming practices in Mzongwana villages located in the Matatiele Local Municipality, in the Alfred Nzo District Municipality in the Eastern Cape province, South Africa. The purpose was to compare the resource constraints associated with livestock farming as contained in the Matatiele Local Municipality's LED strategy with those identified by the cattle farmers in Mzongwana villages, linked to the agricultural economic theory of scarcity of resources.

The Matatiele area has an estimated unemployment rate of 39% (Stats SA 2011). According to the Multidimensional Poverty Index (MPI) (Alkire, Conconi & Seth 2014), the population poverty rate (headcount) for Matatiele is 22.4% and the poverty gap (intensity) is 41.6%. Although the income threshold per household is set at R2658, 25358 households are living below this threshold (Matatiele Local Municipality 2016).

Agriculture, particularly livestock and crop production, is critical to the economy of Matatiele. Crops include maize, wheat, sorghum and vegetables (Matatiele Local Municipality 2010), while livestock includes cattle, goats, sheep, poultry and pig farming. In Matatiele, 28508 households are involved with livestock production and 17551 with crop production (Stats SA 2011). Although cattle farming is popular, its commercialisation is limited (Matatiele Local Municipality 2010). The only data available for livestock farmers in Mzongwana are from auction sales data. For 2016, 2017 and 2018, Mzongwana auction sales indicate that an estimated 254 households sold 590 livestock (cattle) to 24 buyers (Umzimvubu 2018).

The agricultural economic theory of scarcity of resources postulates that scarcity of resources occurs when there are insufficient resources to fulfil the demand and supply of agricultural products (Ricketts & Ricketts 2009). In particular, Ricketts and Ricketts (2009) emphasised the necessity of allocating scarce resources to the farming society. The global economic practice is that resource allocation to local authorities is delegated by the national government through national policies that determine government expenditure (Leigh & Blakely 2013). Thus, the government's responsibility for farmer support resorts within the context of national policies that target LED (Leigh & Blakely 2013). Furthermore, Bingham and Mier (1993) adopted the economic development of neighbourhoods and localities as an appropriate theory for LED.

The research problem is that cattle farmers in Mzongwana are facing a scarcity of resources and other constraints that prevent them from commercial cattle farming and contributing to LED. The primary objective of this study was to assess whether the LED strategy of the Matatiele Local Municipality addresses the scarcity of resources and other constraints identified by cattle farmers in the Mzongwana district to enable them to operate commercially viable cattle operations and contribute to LED.

## Literature review

Local economic development entails integrated processes for wealth and job creation through resource mobilisation, community empowerment, the active participation of communities and the local government (Ramafamba 2009). In South Africa, the obligation for LED evolved from the 1994 Reconstruction and Development Programme (RDP) (eds. Nel & Rogerson 2005). Subsequently, Section 152(1) of the Constitution of the Republic of South Africa of 1996 legislates local government to promote socio-economic development (South African Government 1996). Local economic development is broadly used in the academic and public sectors to describe socio-economic interventions undertaken by local authorities (eds. Nel & Rogerson 2005). The *Municipal Systems Act* 32 of 2000 (RSA 2000) prescribes that an Integrated Development Plan (IDP) must reflect LED goals. Furthermore, the National Planning Commission (NPC) through the NDP, Vision 2030 outlined the commitments to pursue rural development as part of an inclusive rural economy (NPC 2012). The NPC (2012) specified that the rural economy includes agriculture as one of the determinants to eradicate poverty. Aligned with the NDP, the Eastern Cape developed their Provincial Development Plan (PDP) and established the Eastern Cape Planning Commission (ECPC) to focus on critical goals for rural economies (ECPC 2014). The PDP prioritised an increase in investment in agricultural production and emerging industries in agriculture. Provincial regions that were earmarked included the Alfred Nzo District Municipality where Mzongwana villages are located (ECPC 2014).

### National framework for local economic development 2017–2022

In 2006, the first National Framework for LED (NFLED) 2006–2011 was released (COGTA 2006). Subsequently, in 2010, the South African Local Government Association (SALGA) in a position paper on LED found the following (Cohen 2010):

LED strategies vary in terms of quality. Very few have an implementation plan attached, and few have a dedicated budget attached. Many of the strategies suffer from a lack of prioritization. Key choices between alternative approaches are avoided, which SALGA LED POSITION PAPER – March 2010 28 leads to lengthy strategies which cannot be effectively implemented due to staff and resource constraints. (p. 27)

In 2017, an enhanced NFLED 2017–2022 replaced the previous version (COGTA 2017). Ariatti and Chasomeris (2015) defined LED as the process encompassing the mobilisation of resources, such as locally owned agricultural resources, to contribute to economic development and poverty alleviation. According to Venter (2019:1), 'effective and sustainable LED initiatives have the potential to increase the economic viability of rural areas, municipalities, cities and surrounding regions, and ultimately improve a country's global competitiveness'. In South Africa, the LED

framework issued by the Department of Cooperative Governance and Traditional Affairs (COGTA 2017) defines LED as the process that collectively involves the community, business and the non-governmental sector to create an enabling environment for economic development and employment opportunities. The LED framework encompasses intentions that are specific to various localities classified into six pillars. Pillar 2, 'Developing Inclusive Economies', promotes an integrated rural economy by focusing on expansive agriculture (COGTA 2017). For expansive agriculture resources, such as natural resources, human resources and manufactured resources are included (Penson et al. 2015).

Land is essential for agricultural production for eradicating poverty and is the basic source of food (Makapela 2015). The Matatiele Local Municipality covers an area of 4352 km<sup>2</sup>; most of its communal land is owned by the 10 recognised tribal leaders who own about 194246 hectares (Matatiele Local Municipality 2010, 2017). Of this area, only 17976 hectares are used for agriculture, 747 hectares for human settlement, while the remaining 175523 hectares are used for other, unspecified purposes (Matatiele Local Municipality 2010, 2017).

The empowerment of farmers could result in improved sources of income and the eradication of poverty (Sinethemba 2014). Empowerment would include the development of the assets (such as livestock) and capabilities (such as education, skills and capacity) of the people (farmers) to participate in the initiatives affecting their lives (ed. Narayan-Parker 2005). In addition, economic and social infrastructure is required as it facilitates services for economic production and empowerment to improve the quality of lives (Makhura & Wasike 2003). Infrastructure in agriculture entails both soft and hard infrastructure (Chaminuka et al. 2008); the soft infrastructure includes transportation services, financial services, animal husbandry, input distribution and marketing, while the hard infrastructure consists of roads, telecommunications, electrification and irrigation (Chaminuka et al. 2008).

### Livestock farming and the beef industry

Livestock farming includes farming with animals, particularly cattle, sheep, goats, pigs, horses, donkeys and poultry (DAFF 2017). In South Africa, livestock is categorised into commercial, communal and game livestock (Mahlobo 2016). Commercial livestock farming has several characteristics: the animal product is usually for sale for both domestic and foreign markets; commercial ranching leads to the growth of towns that act as slaughtering, processing and packing centres; transport networks such as roads and railways are set up to link the ranches to towns; there is little or no migration because food supplies are permanent or are supplemented by fodder crops; the ranches may be large but the ranchers live in permanent houses; the ranches are scientifically managed and high-quality animals

are reared through selective breeding and shortage of pastures is supplemented by the cultivation of feedstuffs, and there is a continuous cover of green pastures of either native grasses or resown selected grasses, for example, alfalfa, Lucerne and clover (Free Geography Notes 2022). However, in the context of this study, commercial livestock farming is the rearing of animals to sell for a profit. Livestock are kept for both commercial (food security and nutrition) and social purposes (*Lobola* [bride payment and for rituals]; Ainslie 2013).

In rural areas, farmers own subsistence livestock as a valuable asset for earning income (Manjengwa 2011). Subsistence farming or smallholder agriculture refers to a family growing only enough to feed themselves (Africa Development Promise 2014). Bosman et al. (2017) found that in South Africa, successful black emerging farmers own about 13 million cattle, yet are still facing constraints that limit them from fully partaking in commercial cattle production. The transformation from an emerging farmer to a commercial farmer is based on the ability to produce beef from weaner calf to the feedlot (Jordaan et al. 2016). Commercial cattle production entails four production phases: cow-calf, stocker-yearling, breeding and feedlot (Field & Taylor 2016). Cow-calf operation involves the maintenance of the breeding herd and calf weaning, while stocker-yearling entails weaning cattle by feeding them roughage diet and grazing before being taken to a feedlot (fenced area or pen where feed is provided). This forms part of the beef industry supply chain (Field & Taylor 2016).

The beef industry refers to the production, processing and distribution of beef and its related products to the market, and thus, a supply chain commercial operation (Field & Taylor 2016). Commercial cattle producers do not sell directly to consumers; however, commercial beef is provided by abattoirs and distributed through butchers, wholesalers and retailers to consumers (Bosman et al. 2017).

In South Africa in 2016, an estimated 48.6 million beef consumers had a per capita consumption of 18.51 kg of beef per annum and beef consumption increased by 4.7% (Department of Agriculture, Forestry and Fisheries (DAFF 2017). In November 2016, of the nine provinces, the Eastern Cape led in cattle production, with 3254683 cattle produced (DAFF 2017). However, commercial livestock farming presents several challenges.

### Livestock farming challenges identified in the Matatiele local economic development strategy

The Matatiele Local Municipality included the following livestock farming challenges in their LED strategy (Matatiele Local Municipality 2010): lack of proper stock-handling facilities; lack of dipping facilities to protect cattle against diseases; lack of a contemporary milking parlour; lack of access to electricity, roads and water infrastructure; limited financial and technical support

for projects; shortage of grazing land; skills shortage for raising cattle, sheep, goats and pigs for commercial purposes; limited understanding of modern farming methods and practices; lack of selling facilities for livestock; low demand for goat and sheep products; lack of bulls to improve certain types of breeds; lack of feedlots for cattle to be raised for commercial purposes; and veld fires. Only those challenges that are relevant to cattle farming are reported in the Results section in this article. Although stock theft is singled out as a major challenge and risk for all livestock producers in South Africa (Mahlobo 2016; Montshwe 2006), the Matatiele Local Municipality LED strategy has not included it as a challenge.

Further resource constraints that were not included in the LED strategy but emerged in an Eastern Cape study by Khapayi and Celliers (2016) could apply to the Mzongwana villages. The authors identified the following: low education levels, poor management skills, lack of farming skills, poor access to formal remunerative markets, high transportation costs to formal markets, deprived market information and insufficient support services from the government.

### Theories relating to economic development of localities

The theories of economic development of neighbourhoods and localities, such as commercial regeneration, business ventures, entrepreneurship, training and community planning, have as the main focus neighbourhood empowerment (Bingham & Mier 1993). These theories of neighbourhood empowerment were embraced in the present study to explore the empowerment and capacity building of cattle farmers as entrepreneurs.

Empowerment is an economic development concept that is people-centred, participatory and sustainable (Ustriyana 2015). Empowerment establishes an environment conducive to people's development, and it strengthens and protects the community (Ustriyana 2015). Empowerment of the poor in rural communities is essential (Kavari 2016), the empowerment of emerging farmers is important for livestock production (Gerber, Veiling & Seinfeld 2010).

Capacity building and training are central to the empowerment of emerging farmers (Holeni-Mdhluli 2013) in order to enhance their existing knowledge (Xaba 2014). Mwaseba et al. (2015) identified capacity-building activities to include institutional strengthening of farmer groups, involvement of farmers in research activities, assisting farmers in accessing markets and addressing the capacities of small and under-resourced farmers.

### Government spending on agricultural growth

The Eastern Cape Provincial Treasury (ECPT), through Estimates of Provincial Revenue and Expenditure (EPRE) 2017-2018 fiscal year, budgeted R130.4 million for the support

of livestock farmers (ECPT 2017). The Eastern Cape provides additional support for livestock farmers through the Department of Rural Development and Agrarian Reform (DRDAR 2017). These comprehensive support programmes include sustainable resource management, farmer development, veterinary services, economic services, education and training. The Matatiele Local Municipality IDP for the 2017-2018 financial year projected a budget of R500 000 for livestock support (Matatiele Local Municipality 2017). Although the Eastern Cape allocated a budget for livestock farmers in the province, a low budget allocation exists for livestock farmers in the Matatiele Local Municipality.

## Research methodology

Using a cross-sectional quantitative survey, data were collected from Mzongwana cattle farmers. A database did not exist but was created from the 65 livestock farmers who participated in a livestock auction held in Mzongwana in June 2016 (Umzimvubu 2017). The population included all 65 farmers who were included in the survey. Two types of cattle farmers emerged: Group 1, which consisted of 34 local farmers of Mzongwana, and Group 2, which comprised 31 migrated farmers residing in Gauteng for employment opportunities but still actively farming with cattle in Mzongwana. Group 1 included 34 cattle farmers who had completed application forms for livestock branding certificates from Department of Agriculture, Forestry and Fisheries and were assisted by the interviewer. Although they were all repeatedly contacted, telephonic interviews were conducted with 22 of the 34 farmers who answered the questionnaire (providing a 65% response rate). As most of Group 2 farmers reside in Madelakufa informal settlement in Tembisa Township in eKuhuleni Metropolitan Municipality, Gauteng, the researcher completed the structured questionnaire during face-to-face interviews with 12 cattle farmers who attended a stock-theft forum. Thus, a total of 34 questionnaires were completed ( $34/65 \times 100 = 52\%$  response rate). Owing to the difficulty in translating a questionnaire into isiXhosa, self-completing questionnaires could not be used.

The questionnaire, informed by the literature, was pilot tested with three farmers: two face-to-face and one telephonic interview. After minor revisions, all interviews were conducted by one interviewer (one of the authors), who is a *bona fide* resident of Mzongwana and fluent in isiXhosa (which was home language of 31 and spoken by the other three respondents). The farmers understood the questions and provided appropriate answers contributing to the reliability and internal consistency. The external validity applies only to cattle farmers in Mzongwana. The data were analysed using descriptive statistics.

### Ethical considerations

Ethical clearance to conduct this study was obtained from the University of Johannesburg, FEFS Research Ethics Committee (reference number: FEFSREC2017082901).

## Results and discussions

### Demographic profile of respondents

The 34 respondents included only cattle farmers, of whom nearly two-thirds (62%) have been farming cattle for more than 10 years. Only one of them was a female respondent, while in the database of 65 cattle farmers in the researched area, only four were women. Reddy et al. (2015:1) found that gender perceptions of livestock farming need to change as it offers an opportunity to improve their livelihoods. The highest level of education of the respondents was matriculation, with 38% having completed a secondary schooling, 59% completed primary schooling and one respondent had no formal schooling.

Their main reason for farming with cattle is income earning (85% of respondents), while for the rest the purpose is cultural (to pay *ilobolo* [bride price]). For three-quarters (76%) of the respondents, cattle farming is the sole source of income, while a quarter (24%) of the respondents have additional sources of income, mainly from social grants and employment in the retail, factory and construction industries.

Of those who earn income from cattle farming, 71% sell their cattle at the livestock auction and to their local community, while 12% sell only to the local community and 6% sell only at auctions. Nearly two-thirds of the respondents (65%) sell their cattle at the livestock auction at Mzongwana, where the 2016-2018 prices ranged between R1800 and R16000 per head of cattle (Umzimvubu 2018). According to these respondents, the lowest selling price they had received since 2016 per head of cattle was R1800 and the highest price was R12000. With regard to the frequency of selling cattle at auctions, 24% of the respondents sell cattle three times a year, 21% of the respondents sell twice a year and 12% sell once a year.

### Cattle farming practices in Mzongwana

To appreciate possible challenges experienced by these farmers, the following information provided the context of their farming practices. Two-thirds (67%) of the respondents kept their cattle in kraals, 21% maintained them in the mountains and the remainder (12%) rent farms. These results align with those of Van Rooyen (2017:83) who found that most cattle farmers (68%) use kraals for protecting their cattle against stock theft and predators. Although all respondents use free communal grazing fields, 88% add salt as feed, 44% provide additional feed such as Lucerne and only 24% feed their cattle in feedlots.

### Comparison of livestock challenges: municipality local economic development strategy versus respondents

In the Matatiele Local Municipality's LED strategy, three challenges are identified: access to cattle facilities, a range of factors contributing to difficulties in cattle farming and access to communal dipping tanks. However, the LED strategy does not include a list of cattle facilities, and a list had to be developed.

Stock or cattle-handling facilities refer to any designed facility or equipment for cattle-handling procedures, such as

artificial insemination, loading cattle into trucks, and sorting cattle (Grandin 1997). A list of such facilities was obtained from a South Africa-based livestock equipment supplier (Taltec 2017; Table 1). From the results, it was revealed that the majority of the respondents had access to branding (88%) and self-feeding (79%) facilities (Table 1), while fewer than half had access to self-water drinkers (47%) and a sprayer for medications (44%). More than 80% of the respondents did not have access to the following stock-handling equipment: cattle separator, vehicles to load cattle, equipment for feeding cattle, water drinkers for a herd of cattle, medication clamp, a gate that closes behind cattle, cattle sorting equipment, and scaling and clamping equipment.

Although most of these farmers have facilities to perform basic functions for cattle farming, such as branding, feeding, drinking water and medication, in commercialising cattle farming access to the rest of the equipment is essential. Nevertheless, these cattle farmers are able to sell their livestock at auction, albeit at rather low prices. According to Umzimvubu (2017), requirements for selling cattle at Mzongwana auctions are not restrictive as auctioneers prefer cattle that grazed on rangelands to improve rural incomes. Furthermore, the auctioneers allow free participation of cattle farmers in the auctions, provided that they accept the market-related prices per kilogram of cattle. At these auctions, South African Police Service officers ensure that all cattle sold display the branding mark corresponding to the owner's branding certificate to avoid stolen cattle being sold at the auction. Livestock farmers are legally obliged to brand their livestock so that ownership can be identified (Nompekela 2016; Nthakheni 2006).

### Factors that could hinder commercialising cattle farming

Several factors inhibit successful commercial cattle farming (Table 2). From the perspective of the respondents, lack of access to water, either borehole water (100%) or a dam (94%), is a key factor contributing to difficulties in cattle farming. The availability of other sources of water, such as a river within walking distance, was not explored. Although there are flowing rivers in Mzongwana (Umngeni and Inyongo rivers), these rivers are the main source of water and during winter

**TABLE 1:** Respondents' access to cattle-handling facilities ( $N = 34$ ).

Cattle-handling facilities	Yes (%)	No (%)
Branding iron	88	12
Self-feeding facility	79	21
Self-water drinker	47	53
Sprayer for medication	44	56
Cattle separator	18	82
Vehicle for loading cattle	15	85
Feeding herd of cattle	15	85
Water drinker for herd of cattle	12	88
Medication clamp	9	91
Gate that closes behind the cattle so that they cannot reverse	6	94
Cattle sorting	6	94
Scaling cattle	0	100
Clamping cattle for branding, artificial insemination	0	100

Source: Compiled by authors using primary data collected in September 2017

season these rivers run dry (Mapiye 2017). In Matatiele, cattle kraals are always located near a water source, natural rangeland being the main source of feed and water (Morokong 2016); however, this may not be the case at Mzongwana.

The lack of protection against stock theft (97%) and the lack of fenced-off camps (79%) are serious concerns for the majority of respondents. Morokong (2016) observed that in Matatiele, grazing land is normally not fenced off. The same applies to most Eastern Cape communities, and the lack of fences contributes to stock theft (Nqeno 2008). A shortage of grazing land does not seem to be a problem as three-quarters of respondents (76%) are not affected by a shortage of grazing land. However, in Elliot, another district in the Eastern Cape, a shortage of grazing land exists and is attributed to informal settlers occupying portions of grazing land (Nompekela 2016). In Limpopo, it is estimated that 42.3% of cattle farmers in Ba-Phalaborwa Municipality were strongly affected by poor grazing land (Cholo 2017).

For commercialisation of a herd, breeding is essential. A shortage of bulls (76%) combined with a lack of cattle-breeding skills (41%) cannot be conducive to increasing herd sizes. The lack of breeding skills may refer to a lack of facilities to perform artificial insemination to impregnate cows. However, 59% of respondents do not seem to lack such facilities. Where a shortage of bulls exists, Mapiye (2017) suggested that farmers can work collectively by sharing the few available bulls.

### Access to communal dipping tanks

Dipping tanks are used for parasite control, improving the sustainability of livestock production (Nthakheni 2006). Communal dipping tanks are available in Pamlaville, Pote, Chibini and Matias, and all the respondents had access to one or more of these communal dipping tanks, while Van Rooyen (2017) found that in Southern Africa the availability of dipping tanks is not a problem. The results seem to align with the Cattle Dipping Policy of the Eastern Cape Province Department of Rural Development and Agricultural Reform (2018), which focuses on regular dipping of cattle. While 11 respondents (32%) from Mzongwana specified the renovation of dipping tanks as

**TABLE 2:** Factors that could hinder commercial cattle farming, as identified by respondents.

Factors that could hinder cattle farming	Yes (%)	No (%)	Not sure (%)
<b>Water supply</b>			
Lack of water boreholes	100	0	0
No access to water infrastructure such as dam	94	3	3
<b>Protection of cattle</b>			
Lack of protection against stock theft	97	3	0
Lack of fencing-off of camps for animals	79	21	0
<b>Breeding cattle</b>			
Not enough bulls	76	24	0
Lack of cattle-breeding skills	41	59	0
Lack of access to roads	53	12	35
Lack of electricity	44	6	50
Shortage of grazing land	24	76	0

Source: Compiled by authors using primary data collected in September 2017

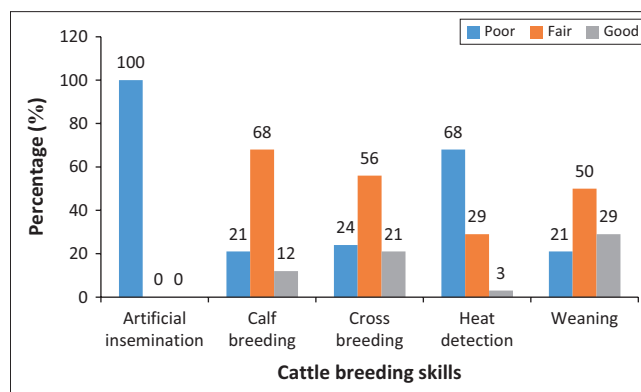
a necessary intervention, it seems that they are not aware of the Cattle Dipping Policy, which states (paragraph 6.5) that a service level agreement must be signed and that the community, Traditional Council, entity, association or farmer must maintain the facility.

### Livestock challenges omitted in the Matatiele Local Municipality's local economic development strategy

The objective was to assess whether the LED strategy of the Matatiele Local Municipality addresses the scarcity of resources, and other constraints identified by the Mzongwana cattle farmers, such as stock theft and access to government funding.

With regard to stock theft, all the respondents identified it as a major challenge, which was also confirmed by several authors, namely, Cholo (2017), Nompekela (2016) and Nkosi (2017). With regard to skills to fence against stock theft and predators, 24% of respondents had poor skills, 47% had fair skills, and only 29% had good skills. A lack of fencing is associated with stock theft (Nompekela 2016) as cattle are stolen from communal grazing land during the day.

With regard to cattle-breeding skills, a lack of such skills was acknowledged by 41% of the respondents (Table 2). This is further exacerbated by the fact that all the respondents indicated poor artificial insemination skills (Figure 1). In addition, 68% of respondents had poor heat detection skills, which is essential for determining the timing for artificial insemination. With regard to levels of cross-breeding skills, nearly a quarter (24%) had poor skill levels, while slightly more than half (56%) had fair skills, and one-fifth (21%) had good skills. In terms of calf-breeding skills, 21% had poor skills, two-thirds (68%) claimed to have fair skills and only 12% have good skills. As far as weaning of calves is concerned, 21% of the respondents had poor calf-weaning skills, while half (50%) had fair skills and 29% had good skills. From this general lack of skills relating to cattle breeding, it would not be possible for these farmers to embark on commercialising their cattle herds. The lack of farming skills is one of the challenges that prevent commercialisation of subsistence farmers (Khapayi & Celliers 2016).



Source: Compiled by the authors using primary data collected in September 2017

**FIGURE 1:** Existing skill levels related to cattle breeding.

With regard to skills relating to cattle health and protection management, 91% of the respondents had good herding skills (Table 3). For cattle identification using branding, 74% had good skills. The results imply that these respondents are capable of good herding and are able to identify their cattle when lost and found.

Regarding the disease management (Table 3), only 17% of the respondents had good skills, while two-thirds of the respondents (65%) had fair skills and 18% had poor skills. For parasite control, only 12% of the respondents had good skills, half (53%) claimed to have fair skills and one-third (35%) had poor skills. As far as parasite control is concerned, a fair skills level would not be adequate. With regard to hygiene management, only 6% had good skills, three-quarters (76%) had fair skills and 18% had poor skills. Even if they had dipping tanks, without the necessary skill, these dipping tanks would not be used correctly for parasite control. To address such a lack of skills, capacity building and training are central to the empowerment of emerging farmers (Holeni-Mdhluli 2013; Mwaseba et al., 2015).

### Specific interventions required by cattle farmers for commercialisation

On an open-ended question, respondents could specify interventions that would enable them to operate cattle farming commercially. Of the 30 who responded, 11 requested the renovation of dipping tanks. A further 10 respondents were interested in increasing their herds and required support with bulls, cross-breeding training, training for artificial insemination and finance for cows. A few requests related to access to market, grazing land and equipment.

In summary, the main question is: 'is there a concurrence between livestock challenges contained in Matatiele Local Municipality's LED strategy with the scarcity of resources and other constraints that are facing cattle farmers in Mzongwana villages?' From a comparison (Table 4), respondents are facing all the challenges identified by the municipality, except for access to communal dipping tanks.

## Discussion

According to the agricultural economic theory of the scarcity of resources, progress is not possible without the necessary resources. For cattle husbandry, the cattle owners need access to resources, such as cattle-handling facilities. From the list specifically compiled for this study, the

**TABLE 3:** Skills relevant to cattle health and protection management.

Cattle health and protection management skills	Good (%)	Fair (%)	Poor (%)
Herding	91	9	0
Identification	74	26	0
Fencing against stock theft and predators	29	47	24
Disease management	17	65	18
Parasite control	12	53	35
Hygiene management	6	76	18

Source: Compiled by the authors using primary data collected in September 2017

majority of the cattle owners only had access to branding irons and self-feeding facilities, with a very few having access to other equipment to perform various cattle functions, such as scaling, loading, separating, clamping and sorting of cattle. In support of this finding, Ricketts and Ricketts (2009:24) argued for the scarce resource allocation to the farming community.

Another scarce resource is water owing to the inadequate water infrastructure, such as the lack of boreholes and dams that are essential during protracted periods of drought. For commercial farming, an adequate water supply is a critical factor. Investment in infrastructure as part of LED was encouraged by Rodríguez-Pose and Tijmstra (2009:17).

Regarding additional livestock challenges not contained in the Matatiele Local Municipality LED strategy, the main factor that contributes to the difficulty of cattle farming is stock theft, according to all respondents. Stock theft has been identified as a major threat to all livestock producers in South Africa (Mahlobo 2016; Montshwe 2006; Sikhweni & Hassan 2013). Van Rooyen (2017:83) found that most cattle farmers (68%) use kraals to protect cattle against stock theft and predators. In Mzongwana, with regard to fencing against stock theft and predators, only 29% of the respondents claimed that their skills are good, while 47% claimed to have fair skills.

At auction sales, cattle prices are determined by breed type, thus making cattle breeding a critical activity in the commercialisation of cattle farming (Nompekela 2016). In terms of cattle-breeding skills, all the respondents (100%) lack artificial insemination skills and 68% lack heat detection skills, which are necessary for the timing of artificial insemination (Perry 2004).

Cattle health seems to be another major problem in Southern Africa. Three-quarters of cattle farmers (75%)

**TABLE 4:** Comparison of the resource constraints: Mzongwana cattle farmers versus Matatiele Local Municipality local economic development strategy.

Livestock challenges identified in Matatiele Local Municipality's LED strategy	Challenges identified by cattle farmers in Mzongwana
<ul style="list-style-type: none"> <li>Lack of proper stock-handling facilities</li> <li>Lack of dipping facilities to protect cattle against diseases</li> <li>Lack of a contemporary milking parlour; lack of access to electricity, roads and water infrastructure</li> <li>Limited financial and technical support for projects</li> <li>Shortage of grazing land; skills shortage for raising cattle, sheep, goats and pigs for commercial purposes</li> <li>Limited understanding of modern farming methods and practices</li> <li>Lack of selling facilities for livestock; low demand for goat and sheep products</li> <li>Lack of bulls to improve certain types of breeds</li> <li>Lack of feedlots for cattle to be raised for commercial purposes</li> <li>Veld fires</li> </ul>	<ul style="list-style-type: none"> <li>Stock theft</li> <li>Cattle-breeding skills               <ul style="list-style-type: none"> <li>Artificial insemination, calf breeding, cross-breeding, heat detection, weaning</li> </ul> </li> <li>Skills on cattle health and protection management               <ul style="list-style-type: none"> <li>Herding, identification, fencing, disease management, parasite control and hygiene management</li> </ul> </li> </ul>

Source: Compiled by the authors using primary data collected in September 2017 LED, local economic development.

are experiencing cattle diseases (Van Rooyen 2017). In the present study, most respondents reported having good herding skills, but indicated that they lack critical skills and knowledge in areas of disease management, parasite control, as well as hygiene management.

## Conclusions

Cattle farmers in Mzongwana are facing a scarcity of resources and other constraints that prevent them from commercially operating their cattle and contributing to LED. The main question is: 'is there a concurrence between livestock challenges contained in Matatiele Local Municipality's LED strategy with the scarcity of resources and other constraints that are facing cattle farmers in Mzongwana villages?' From a comparison (Table 4), respondents are facing all the challenges identified by the municipality, except for access to communal dipping tanks. It follows that the municipality has correctly identified the critical challenges relating to livestock rearing in the research area.

As specified in Matatiele Local Municipality's LED strategy, the results support the fact that livestock farmers in Mzongwana are facing challenges that include a lack of access to a variety of cattle facilities and other requirements to upgrade them to commercial cattle farming. The results reveal that most of the challenges identified in the Matatiele Local Municipality's LED strategy are, indeed, affecting livestock farmers in Mzongwana, with the exception of access to dipping tanks. The Matatiele Local Municipality identified access to communal dipping tanks as a challenge; however, in Mzongwana, all the respondents have access to dipping tanks. This may imply that the challenge applies to other areas in Matatiele but not to Mzongwana. Nevertheless, one-third of the respondents indicated that the dipping tanks in Mzongwana need to be renovated. It seems that they are not aware of the fact that the maintenance of the dipping tanks is their responsibility and they need to be informed accordingly and trained.

Stock theft, however, is a major constraint and requires the attention of the municipality. A lack of bulls and cattle-breeding skills are also serious constraints to commercialisation of cattle farming. Artificial insemination could address the constraint of a lack of bulls; however, the cattle farmers seem to lack adequate skills in artificial insemination. Such a lack of resources (bulls) and the skill of artificial insemination would jeopardise commercial cattle farming.

Although these cattle farmers in Mzongwana have access to dipping tanks, skills to maintain cattle health are a challenge as few respondents are 'good' in disease management (17%), parasite control (12%) and hygiene management (6%). Nevertheless, access to dipping tanks is an advantage in managing cattle health.

Although the Matatiele Local Municipality identified access to the cattle-handling facilities as resource constraints, most

of these cattle farmers have facilities to perform basic functions of cattle farming, such as branding, feeding, drinking water and medication. However, this is not sufficient for commercialising of cattle farming. From the five characteristics of commercial farming, it follows that these farmers need critical training in farm management and cattle herding to upgrade to the level of a commercial farmer.

Specific interventions spontaneously identified by cattle farmers in Mzongwana to enable commercial farming are interventions that could address stock theft, lack of bulls, lack of water, lack of capital to improve cattle productivity, and lack of skills and capacity building in entrepreneurship skills.

## Recommendations

It is recommended that the Matatiele Local Municipality include the following in its LED strategy to minimise specific constraints affecting livestock farmers:

1. mechanisms for combating stock theft
2. provision of bulls for breeding
3. upgrading of the water infrastructure by building dams and drilling boreholes
4. financial support to farmers to purchase the required cattle farming equipment
5. training and capacity building on the following range of skills: artificial insemination, cattle breeding, cattle health (parasites control, disease and hygiene management), cattle protection management, and feed conservation and formulation.

## Contribution to the body of knowledge

The rural economy in the Matatiele Local Municipality is concentrated in agriculture, and this article may contribute to the Municipal LED Strategy aimed at empowering livestock farmers. Specific interventions that will enable livestock farmers in Mzongwana to operate commercially viable cattle farms and contribute to LED are suggested. Such interventions may be critical in other geographical areas of Matatiele. A collective approach to provide interventions may contribute to fulfilling LED obligations in the entire municipality.

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### Authors' contributions

M.B. initiated and conceptualised the project, collected and analysed the data, and wrote the first draft of the article. E.S. critically supervised each stage of the entire research process, and wrote and revised the draft manuscript.

M.V. as co-supervisor of the study was actively involved in all stages of the research process and reviewed the manuscript.



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## Data availability

The raw data are available in MS Excel spreadsheets from first author, M.B. upon request.

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The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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