

The impact of covid-19 and coping strategies used by small-scale farmers: A case study of Buffalo City Metropolitan, Amathole and O.R Tambo - District Municipalities of the Eastern Cape

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Abstract

Livestock farming plays a vital role in food supply, job creation, promoting economic transformation and financial capital. Covid-19 pandemic negatively influenced livestock production through reduced access to markets, medicines, extension services and animal health services. The aim of the study was to assess the impact of covid-19 and coping strategies used by small-scale farmers in three municipalities. Eleven farms were purposively selected and a total of 30 farmers were interviewed using semi-structured questionnaires. The results showed that the participation of females (12%) in farming was low compared to males (88%). Lower participation by the youth was alarming with 92% of farmers were above 35 years of age and 50% having a matric. Landownership; 40% were private farms, 30% rely on communal land and 30% on lease agreements. The findings showed that the majority of farmers kept livestock for cash sales (60%) meat (19%) and prestige (10%), respectively. Reduced access to markets (50%) and animal health services (19%) were the most highly ranked constraints. Farmers mentioned that they had lost marketing opportunities and income due to the suspension of traditional ceremonies and initiation schools by government restrictions. Approximately 50% of farmers acknowledged the government's intervention in the form of vouchers to cushion the impact covid-19. Due to stringent restrictions, 66% of farmers used cell phones, and 13% went used online to gain access information in order to cope with challenges imposed by the pandemic. In conclusion, the study revealed that small-scale farmers were socially and economically affected by the pandemic.

Keywords: Covid-19, landownership, pandemic, livestock, small-scale

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Introduction

The first case of the popular coronavirus known as covid-19 was reported in China (i.e. Wuhan) on 31 December 2018 (Wang, 2020; WHO, 2020). The South African government announced strict lockdown measures on 26 March 2020 with the agricultural sector was declared as an essential service. Coronavirus outbreak have been reported across the globe (Bekuma, 2020). In South Africa, the covid-19 pandemic led to a shutdown of the economy in order to reduce the spread of the virus. According to Bekuma (2020), the agricultural value chain and livelihoods were affected by the pandemic and this posing a high risk to food security. Livestock production through formal and informal livestock sales had demonstrated a great potential to be an income generating and viable solution to food security. In general, farming creates employment; promote the economic transformation by contributing to human and financial capital (FAO, 2018).

The FAO (2020) and G20 (2020) reported that covid-19 has had a significant impact on many sectors including the livestock sector due to the introduction of lockdowns, travel restrictions and border controls. Consequently, the South African Government Department of Agriculture, Land Reform and Rural Development (DALRRD) announced an amount of R1.2 billion financial assistance targeted at the distressed small-scale farmers. Of the R1.2 billion, 400 million was allocated for farmers within the Proactive Land Acquisition Strategy (PLAS) Programme, with the remainder channelled towards assistance of small-scale farmers on poultry, vegetable and livestock commodities (Meyer *et al.* 2022).

The relief programme aimed at providing a short-term support to small-scale farmers who were assumed to be the most affected by covid-19.

The DALRRD did not provide scientific evidence on how the pandemic and regulations affected small-scale farmers (Meyer *et al.* 2022). The relief was distributed to farmers across the country in the form of vouchers and allocated for procuring specific production inputs. Bekuma (2020) reported some measures that had negative impact in livestock sector such as restricting transportation of live animals to abattoirs and auctions in other parts of the African continent such as Ethiopia. Small-scale farmers were experiencing difficulties in transporting their produce to markets (i.e. formal and informal) because of permits, restricted capacity to purchase necessary production inputs, restricted access to health and extension services (Bekuma, 2020). Therefore, this study aimed at assessing the impact of covid-19 and coping strategies used by small-scale farmers in Amathole, Buffalo City Metropolitan and O.R Tambo Districts.

Materials and Methods

Site description

The study was carried out in ten farms situated in O.R Tambo, Buffalo City Metropolitan and Amathole District municipalities, Eastern Cape Province, South Africa (Figure 1 and Table 1).

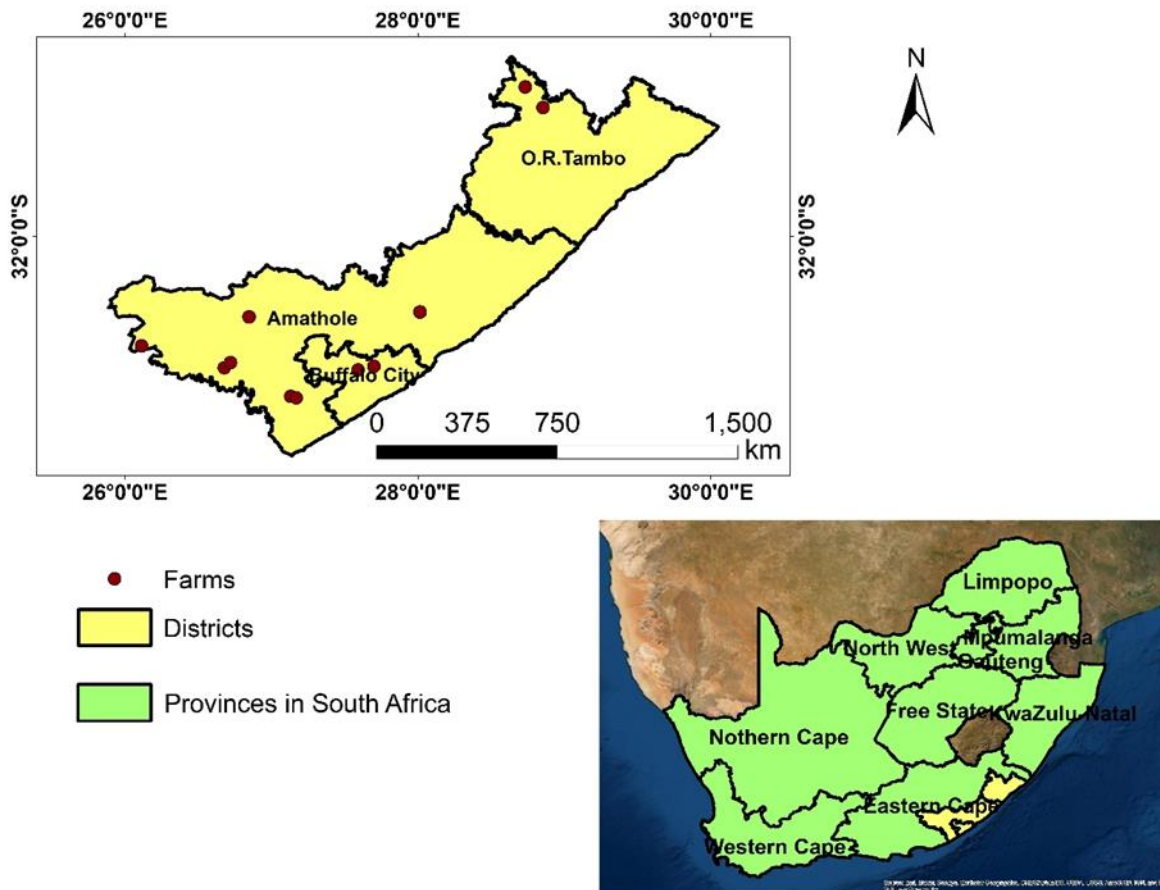


Figure 1 Study sites.

Table 1 Farm names, towns, districts, location, veld types and average rainfall

Farm names	Town	Municipalities	Coordinates	Veld types	Average rainfall/year
Tsilitwa	Qumbu	O.R Tambo	30°59'6.94"S;28°44'12.58"E	DFMG	1322mm
Marhambeni	Qumbu	O.R Tambo	31° 6'51.53"S;28°51'16.17"E	EGG	970mm
Nkomo	Butterworth	Amathole	32°30'35.33"S,28°00'37.15"E	EVB	720mm
Rosedence	East London	Buffalo city	32°52'29.67"S,27°42'32.85"E	BT	815mm
Thornvalley	Berlin	Buffalo city	32°54'33.85"S,27°35'58.86"E	ACB	815mm
Bloemfontein	Peddie	Amathole	33° 4'49.94"S,27° 7'34.64"E	BT	412mm
Glen Craig	Peddie	Amathole	33° 6'4.21"S,27° 9'42.81"E	GFT	412mm
Malangaskraal	Bedford	Amathole	32°45'24.10"S,26° 6'28.90"E	BDG	680mm
New glen	Seymour	Amathole	32°33'22.01"S,26°50'45.55"	EMT	520mm
Whiteney	Fort Beaufort	Amathole	32°53'29.93"S,26°41'17.49"E	GFT	529mm
Mthontsi	Adelaide	Amathole	32°53'29.93"S,26°41'17.49"E	BT	512mm

DFMG= Drakensberg foothill moist grassland, EQG East griqualand grassland, EVB= Eastern valley bushveld, BT= Bisho thornveld, ACB= Albany coastal belt, GFT= Great fish thicket, BDG= Bedford grassland, EMT= Escarpment mesic thicket, FVT= Fish valley thicket.

Data collection and analysis

The study was conducted in Buffalo City Metropolitan, Amathole and O.R Tambo District Municipalities between October and November 2021. Eleven farms, which participated in Livestock Improvement Scheme Programme (i.e farmer support) of the Department of Rural Development and Agrarian Reform (DRDAR), were selected using the purposive sampling technique. Thirty (30) small-scale farmers were interviewed using semi-structured questionnaires, which comprised both open and closed ended questions. Three farmers (Chairperson, secretary and treasurer) were interviewed where land is shared amongst community members which include the followings farms; Nkomo, Mthontsi, Tsilitwa and Marhambeni. Farm owners or lease holders and farmer managers were also interviewed under private owned and government farms (leased farms) which comprise the followings farms; Rosedence, Thornvalley, Bloemfontein, Glen crag, Malangaskraal, New glen and Whiteney.

Livestock Improvement Scheme Programme aimed at improving the traits of economic importance on livestock namely; to produce animals with high feed conversion rate, produce animals with high growth rate, early maturing, produce animals that can adapt to different climatic conditions and are resistant to diseases. These farms were classified as small-scale farms but found in both communal, private and government land (i.e lease). In South Africa, small-scale farmer is a farmer who produces for both household consumption and generate income, with the aim of becoming a commercial farmer, as defined by (DAFF, 2012). Out of eleven farms two were situated in Buffalo City Metropolitan (Rosedence and Thornvalley) and seven in Amathole District (Bloemfontein, Glen crag, Malangaskraal, New glen, Whiteney, Nkomo and Mthontsi) and two in O.R Tambo District (Tsilitwa and Marhambeni). Data sheets were verified and corrected for any kind of errors and then entered into Microsoft excel. The data obtained through the questionnaire were analysed using descriptive statistics.

Results and discussion

Demographic information of farmers

Livestock production makes a crucial contribution to human wellbeing both socially and economically (Bekuma, 2020). The study constituted 77% of males and 23% were females (Table 2). Comparable findings were reported in same Province (Mthi and Nyangiwe, 2018; Mthi *et al.* 2021) and Southern region of Ethiopia (Admasu *et al.* 2010). These finding contracts with Tokozwayo *et al.* (2018) who recorded a higher proportion of females (62%) participated in a survey, but discovered that livestock were mainly owned by males (38%). An imbalance between males and females in livestock production it is still an overlooked subject in African continent (Maeda-Machangu *et al.* 2000; Adedeji *et al.* 2013).

About 73% of the respondents were unemployed, 23% employed and 4% self-employed (Table 2). Despite the stringent covid-19 regulations imposed by government at the beginning of March 2020 small-scale

farmers remain resolute that agricultural activities will continue because to them farming is a primary source of income. Approximately 80% were above 35 years old and youth contributed 20% (Table 2).

Less participation of young people in livestock farming could be associated with the fact that youth perceive farming as not fashionable. High levels of unemployment and difficulties on accessing land which have made it difficult for the youth to participate because farming requires both land and capital. The majority of young people migrated to stay in townships and urban areas mainly for job hunting, while those who are still in farms or communal areas were mainly involved in non-farming activities, like fashion design and tendering. This finding coincides with the results reported in Eastern region of Ethiopia in Africa (Baars and Aptidon 2002). Moreover, high proportion of elders were perceived to have challenges on the adoption of new technologies such as use of computers.

Furthermore, the results showed that 57% of respondents who had obtained post matric qualifications, 27% have reached secondary school, while 16% stopped at primary school level (Table 2). Similar results were reported by Tokozwayo *et al.* (2018), who indicated 92% of farmers attained primary and secondary school, whereas 8% were illiterate. This was a clear indication that level of education was improving amongst farmers. Education remains vital for the improvement of agricultural productivity because education broadens the mind of farmers so they can make informed decision about their farming enterprise. Moreover, education is a key tool for farming particularly in the adaptation of new technologies (Moyo *et al.* 2008).

Table 2 Characteristics of the selected small-scale farmers in the three district municipalities of the Eastern Cape (n=30)

Characteristics	Frequency	Proportion (%)
Gender		
Females	7	23
Males	23	77
Age group		
35 and under	6	20
36 and above	24	80
Education status		
Illiterate	0	0
Primary	5	16
Secondary	8	27
Post matric	17	57
Employment Status		
Unemployed	22	73
Employed	7	23
Self-employed	1	4

Landownership

In terms of landownership, 40% (4) were on private land, 30% (3) leased from government and 40% (4) on communal owned land (Table 2). Some of farmers believed that keeping livestock in communal areas where all rangeland resources are shared amongst the communities is too complex specially when it comes to management and as result; communal farmers were aspiring to get leased land from the government in order to diversify their farming operations. The expansion in terms of farming and commodity diversification could be influenced by an increase of population and demand of commodities such as wool, live animal, crops etc. Previous studies revealed that communal rangelands are likely to be overutilization due to uncontrolled access of range resources (Lesoli, 2008; Tokozwayo *et al.* 2021). Most of the land was mainly used for livestock production (i.e. Bloemfontein, Glen crag, Malangaskraal, New glen, Mthontsi and Whiteney), but yellow maize and lucerne were observed in some farms, and some of farmers did indicate that maize and lucerne were reserved for feeding livestock during the dry season. According to Mthi *et al.* (2022) landownership is an important asset to have in order to be fully engaged in farming activities.

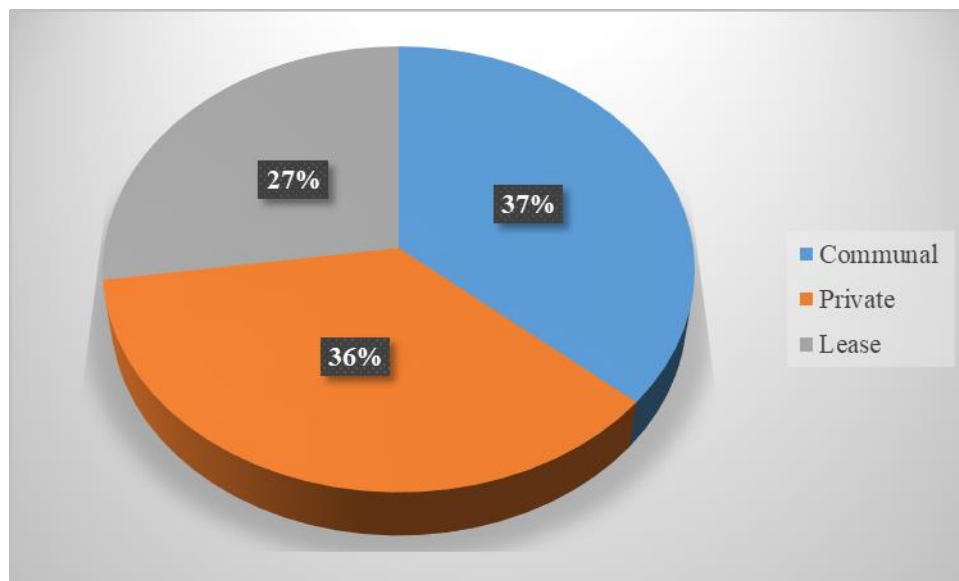


Figure 1 Landownership status

Purpose of keeping livestock

Domestic animals are of great importance to the welfare of humans across the globe. Small-scale farmers keep livestock for different motives. This study showed that majority of small-scale farmers kept livestock for cash sales (60%) meat (19%), prestige (10%) and milk (4%) (Table 3). The income generated from livestock was mainly used to purchase of livestock medication, production inputs, the maintenance of farm infrastructure and household maintenance. This finding agrees with the study conducted by Solomon *et al.* (2014), who reported that cash generated from livestock was saved to meet immediate family needs and for buying medicines. Nevertheless, this finding conflicts with Mngomezulu (2010), who reported that farming for prestige has declined in communal areas because farmers are farming to generate income. Despite generating income from livestock, respondents alluded that goats and cattle are most important species, because these species are used for cultural purposes such as traditional ceremonies, ritual purposes and traditional weddings. Similar findings were reported in the same province by Solomon *et al.* (2014) who mentioned that the importance of culturally related functions is mainly associated with slaughtering goats during ceremonies, funerals and ritual sacrificial purposes. Respondents stated sheep were kept primarily for cash generation, meat and wool production. This finding agrees with the findings reported by Kunene and Fossey (2006) from Kwa-Zulu Natal and Solomon (2014) in the Eastern Cape Province.

Even though none of respondents mentioned the selling of animal by-products such as hides and skins. The respondents stated that they were capable of producing hides and skins if the market was available. Musemwa *et al.* (2010) reported that livestock farming played an important role in the livelihood of rural communities and produced a wide diversity of products such as hides and skins. Animal traction (7%) and milk (4%) were the least important reason for keeping among respondents (Table 3). According to Allsop *et al.* (2007), the use of animals for animal traction is declining because small-scale farmers rely on government mechanisation scheme. Respondents acknowledged that animal traction is cheaper than tractors but its labour intensive. Livestock farming has demonstrated a great potential for income generation but also a viable solution to malnutrition and poverty.

Table 3 Purpose of keeping livestock by scale farmers (3 = most important, 2 = important, 1 = least important) (respondents, n = 30).

Purpose	Frequency	Proportion (%)	Rank
Milk (consumption & sales)	1	4	1
Meat (consumption & sales)	5	19	2
Sales (live animal and wool)	15	60	3
Prestige or status	3	10	2
Animal traction	2	7	1

Challenges associated with covid-19 experienced by small-scale farmers

The current study revealed that reduced access to markets (50%) and government animal health services (19%) were ranked as the most important constraints by the respondents (Table 4). Respondents indicated that they had lost market and income due to the suspension of traditional ceremonies and initiation schools by government. Similar results reported by Bekuma (2020) in Ethiopia. Solomon *et al.* (2014) discovered that small-scale farmers generate more income during initiation season, traditional ceremonies and weddings (i.e around June and December months). Under alert level 4, farmers were allowed to transport live animals and auctions were opened because agricultural activities were declared as essential services (Meyer *et al.* 2022).

Respondents who are farming in communal land indicated that they had never participated in a formal market such as auctions and abattoirs. They mainly rely on the local markets; hence, they were the most affected by the suspension of cultural functions. High transport costs were cited as the main reason why these farmers were not taking the advantage of formal markets. Despite the impact of coronavirus outbreak respondents assumed that, formal markets for wool production were moderately disturbed, because these buyers came to collect wool directly from farmers.

Because of gatherings especially in the communal areas where farmers are sharing dipping tanks or handling facilities, health services were disrupted, resulting in a loss of livestock from the tick-borne diseases. However, under the alert level 4, all agricultural activities were restored (Meyer *et al.* 2022) and animal technician were visible, and further losses of livestock were prevented. Reduced access to livestock medication (15%) was ranked as an important factor (2) which has led to infestation of ticks and tick-borne diseases, because acaricides for ticks and medicines were not easily accessible (Table 4). Farmer's panic buying and disruptions of medicine supplies due to country's shutdown resulted in a shortage of livestock medication and feeds and other veterinary supplies. Reduced access to government extension services (8%) and unavailability of farm workers (8%) were the least ranked constraints by the respondents. Comparable finding was reported by FAO (2020), who reported movement of restrictions and illness of farmworkers resulted in labour shortages and reduced supply or delayed access to livestock medicines and feed. Nonetheless, small-scale farmers admitted that the coronavirus has directly impacted on their livelihoods through the anxiety, sickness and deaths among workers and relatives. This finding concur with results reported by Wegerif (2022) in same country. Government's intervention towards the impact of covid-19 were recognised by respondents even though it was not sustainable. This finding disagrees with Wegerif (2022) who argued that the government responses have further disrupted farmers' operations in numerous ways and many farmers have not even benefitted from government.

Table 4: Challenges associated with covid-19 experienced by small-scale farmers (3 = most important, 2 = important, 1 = least important) (respondents, n = 30).

Constraints	Frequency	Proportion of farmers (%)	Rank
Reduced access to markets	13	50	3
Reduced access to livestock medication	4	15	2
Reduced access to government extension services	2	8	2
Reduced access to government animal health services	5	19	3
Decline of farm workers	2	8	1

Strategies used by farmers to cope with covid-19

As a result of limited access to markets farmers had to keep their stock longer with higher maintenance and production costs. Livelihood of small-scale farmers were severely disturbed by the pandemic, with farmers losing markets and income due to the stringent restrictions. As previously mentioned the shutdown of economy has caused difficulties on accessing markets, accessing the medication for livestock, accessing government health services and extension services. Prior the outbreak of covid-19, farm visits, information days, meetings and demonstration trials were keys activities where farmers and government officials (extension officers and animal health technicians) shared information. All of those gatherings and activities were prohibited mainly to curb the spread of the coronavirus. Nonetheless the study revealed that 66% of small-scale farmers opted to use cellphone in order reach extension services such as advising farmers on different commodities (livestock, vegetation, wool fibre and bee keeping) (Table 5).

Approximately 21% of small-scale farmers used WhatsApp groups in order access vaccination and dosing programmes. Information amongst farmers, extension officers and animal technicians were shared on WhatsApp in the form of videos clips and voice notes (Table 5). Extension officers and animal technicians made it easier for the farmers in this way. However, some of these farmers especially the elderly were reluctant to adjust to the use of WhatsApp because of age, expensive data and poor network coverage. This finding concurs with Baars & Aptidon (2002) who reported that high proportion of elderly farmers may find difficulties in adopting new technologies because of age. Shortage of livestock medicines at retail shops which was caused by panic buying has pushed 13% of farmers to purchase medicine online (Table 5). However, agriculture was declared as an essential service as result extension and animal health services were rendered and farmers who struggle to use WhatsApp were relieved by the announcement. Even under alert level 4 traditional ceremonies as target informal market remained closed, only funerals were allowed as results sheep and goats were sold and casual workers were hired by farmers during dosing, dipping and vaccination periods because full-time farm workers left farms due to anxiety and deaths associated with covid-19.

Table 5 Coping strategies used by farmers under Covid restrictions (3 = most important, 2 = important, 1 = least important) (respondents, n = 30)

Responses	Frequency	Proportion of farmers (%)	Rank
WhatsApp group	5	21%	3
Google	3	13%	2
Cellphone communication	10	66%	3

Conclusion and recommendations

In conclusion, coronavirus had a great impact on the livelihood of farmers. Small-scale farmers were greatly affected due to mobility restrictions, reduced access to markets, reduced access to government health services, reduced access to livestock medication and reduced access to government extension services. Some farm workers left their jobs because they were scared of coronavirus called pandemic.

Use of cell phone communication and the establishment of WhatsApp groups were used as one of the coping strategies to get access to extension services, purchasing livestock medication online, sharing information etc.

It is recommended that farmers should at least have smart-phone in order to access information from different platforms and government should ensure all areas have a network coverage of at least 3G. Despite the stringent covid-19 regulations imposed by government at the beginning of March 2020, small-scale farmers remained resolute, with agricultural activities continuing because the majority of small-scale farmers rely on farming as a source of income.

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Author's contributions

Conception: ST and TT, data collection: ST, TT, NN and NM, study site map: WM, data analysis: ST, Critical revision and final approval of version to be submitted: ST, TT, UG, MG, UG, AS and NCM.

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