

FACTORS INFLUENCING CATTLE OFF-TAKE OF CHIWESHE SMALL HOLDER FARMERS IN ZIMBABWE

By

MAGWIZI CHIPO

B224992B

**Bindura University
of Science Education**



A thesis submitted to Bindura University of Science Education, Department of Animal
Science in partial fulfilment of the requirements for the Bachelor of Science Honours
degree in Animal Science

Supervisor

Mr. A Pagute

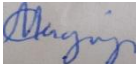
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APPROVAL PAGE

I hereby declare that the research project entitled “Factors influencing cattle take off of Chiweshe small holder farmers in Zimbabwe” submitted to Bindura University of Science Education, Department of Animal Science is a record of an original work done by me under the guidance of my project supervisor. This work is submitted in partial fulfillment of the requirements for the award of the Bachelor of Agricultural Science Honours Degree in Animal Health and Production Extension. The results embodied in this dissertation have not been submitted to any University or Institute for the award of any degree or diploma.

Student name: Magwizi Chipo

Reg Number: B224992B

Signature: 

Date: 11/06/25

The undersigned certified that they have supervised and recommended to Bindura University of Science Education for acceptance of the dissertation entitled “Factors influencing cattle take off of Chiweshe small holder farmers in Zimbabwe”. Submitted in partial fulfillment of the Bachelor of Science Honours Degree in Animal Health and Production Extension.

Name of Supervisor: Mr. A. Pagute

Signed: 

Date: ...06/10/25.....

Name of Chairperson: Mr A Pagute

Singed: 

Date:06/10/25.....

Dedication

This study is dedicated to my family

Acknowledgements

I thank the support I got from my family and friends for giving me support and encouragement. I also want to thank my lecturers for helping me understand my studies.

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Abstract

The research study was carried out to investigate on factors influencing cattle off-take for small-holder cattle farmers in Chiweshe district in Zimbabwe. The study was aimed at determining the cattle production off-take levels, factors that determine cattle off-take and evaluate on the strategies to improve the efficiency of cattle offtake among Chiweshe small scale farmers. There is low cattle off take from small holder farming sectors in Zimbabwe and there is little information documented and readily available on factors which influence such low contribution. The small holder cattle farmers in Zimbabwe generally face challenges such as high prevalence of diseases, limited forage and poor marketing linkages. The study was conducted in Chiweshe district small scale communal farming sector of Zimbabwe and a sample of 300 farmers was selected randomly for administration of questionnaires for data collection. The data collected was analysed while using SPSS (Statistical Package of Social Scientists). From the study, it was concluded that there were several factors influencing cattle offtake such as regarding cattle as source of income, wealth and prestige, among other factors such as cattle herd size. The study also concluded that the efficient marketing strategy of cattle is to sell through butcheries. The study recommended farmers to fatten cattle and sell through butcheries since this add value to cattle and is the fast way of off-take as well as to increase their cattle numbers and increase on cattle off-take.

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CHAPTER 1

1.1 Introduction and Background

Cattle contribute 60% of edible livestock products in Africa (Kaoud & Yosseif, 2019) and are therefore a critical aspect of the livestock sector. Livestock production is an important part of livelihoods in sub-Saharan Africa where approximately 70% of the poor own livestock (Sere, 2019). On average, livestock contributes 35% to gross domestic product (GDP) from agriculture on the sub-continent (Otte and Knips, 2016).

Globally, sub-Saharan Africa has the slowest growth in meat production than other developing regions (IFPRI, 1999; Gregory, 2017). The sub-continent owns 14% of the world's livestock resources but produces only 2.8% of the world's meat and milk (Otte and Chilonda, 2022). This low productivity has implications for Africa's ability to meet the millennium development goals. In order to meet the Continent's agricultural growth target of 6% by 2021, the livestock sector should grow by 4%, annually (FAO, 2016). This is double the current meat supply in sub-Saharan Africa, which is growing at 2.6% per year (Ogle, 2017).

Cattle off-take is a measure of voluntary exits from the herd in the form of sales, slaughter or donation. National cattle off-take rates are determined through annual slaughters for a particular country. Cattle off-take for South Africa ranges between 25% and 30%, which is the highest in sub-Saharan Africa (WTO, 2017). The high national cattle off-take rate is comparable with those of the World's largest beef producing countries such as Brazil and Australia (Meissner et al., 2019).

In Zimbabwe, the livestock sector consists of large scale and small scale sectors of production. The recent population census showed that 78% of cattle producers own small herds of between one and 10 head of cattle (Statsa, 2018). Small-holder producers own approximately 40% of the national herd (Agritex, 2023) but make a negligible contribution to the market. The biggest concern in cattle owned by Zimbabwe small scale farmers is of low offtake despite the fact that selling cattle would improve their livelihoods. Cattle offtake is carried out while using different channels in Zimbabwe which include butcheries and abattoirs.

1.1 Statement of the Problem

There is low cattle off take from small holder farming sectors in Zimbabwe and there is little information documented and readily available on factors which influence such low contribution. The small holder cattle farmers in Zimbabwe generally face challenges such as high prevalence of diseases, limited forage and poor marketing linkages.

1.2 Justification of the study

It is generally accepted that small-holder producers make their off-take decisions under a complex environment but no study has been conducted to determine the interface between management practices, institutional, cultural socio-economic factors as well as off-take decisions of small-holder cattle producers. This knowledge gap about small-holder cattle production systems results in piece meal extension solutions. This study is therefore needed to identify the key dynamics of these production systems and foster behavioural change among small holder cattle farmers.

1.3 Study objectives

The purpose of this study was to investigate on factors influencing cattle off-take for small-holder cattle farmers in Chiweshe district

The specific objectives of the study were:

1. To determine the cattle production off-take level among Chiweshe small scale farmers
2. To identify factors that determine cattle off-take among small scale farmers in Chiweshe
3. To determine a strategy to improve the efficiency of cattle offtake among Chiweshe small scale farmers

1.4 Hypothesis

The following hypothesis were tested

There are few factors influencing cattle offtake, to be recommended to small scale farmers in Chiweshe district.

CHAPTER 2: Review of Literature

2.1 The definition of cattle off-take

Off-take rates are an estimate of proportions of both voluntary or planned and involuntary or unintended disposal of individual animals from a cattle population (Hubbard, 2016). Voluntary off-takes include sales, slaughters and donations such as lobola and involuntary off-takes include deaths and theft as well as losses (Scholtz and Bester, 2020). In this study, off-take is used to denote voluntary offtakes in the form of sales while the aggregate off-take is referred to as herd exit. The formula for calculating off-take rates requires precise animal records, which is often lacking in small-holder production systems.

The off-take formula has been applied to calculate herd mortality rates in different production systems (Otte and Chilonda, 2022; Swai et al., 2023; Mansour et al., 2018) based on the number of animals exiting the herd in a specific period divided by the number of days the animal spent in the herd. However, crude herd exit for each type of animal can be calculated by dividing the number of animals leaving the herd with the average of the opening and the closing herd sizes (Otte and Chilonda, 2022). The latter requires that animals purchased during that period as well as donations such as gifts be excluded to reduce bias.

The conceptualization of cattle off-take rates varies among scholars. For example, Colvin (2022) and Muma et al. (2019) defined commercial off-take as disposal through sale and consumption. Colvin (2022) reported a huge difference between sales and other forms of voluntary exit in some regions of Swaziland. In a study of communal small-holder farmers in Kwa-Zulu Natal, Tapson (2020) restricted cattle off-take to sales only and excluded rituals such as lobola. It is clear that the true estimation of off-take is confounded by cultural practices.

2.1 Regional cattle off-take rates

South Africa has the highest cattle off-take on the Continent, (Table 2.1) below. However, the regional comparison shows no difference between the SADC and other regions on the Continent. Most countries have higher goat and sheep off take rates. The low cattle off-take

rates among small-holder farmers in South Africa may be attributed to discrimination by the feedlot dominated market against mature animals commonly kept in small-holder production systems as well as institutional barriers to market access. However, the same may not be adequate to explain reasons for low off-take in Botswana, which has access to export market for grass-fed beef.

Table 2.1 Livestock off-take rates in Africa

Region	Country	Off-take (%)		
		Cattle	Goats	Sheep
East Africa Community (EAC)	Kenya	10.2	33	28.1
	Rwanda	14	27	27
	Uganda	16.9	35	20
	Mean	13.7	31.67	25.3
Economic Community of West African States (ECOWAS)	Burkina Faso	12	32	26
	Côte d'Ivoire	23	37	37
	Ghana	11	30	30
	Senegal	12	25	25
	Mean	14.5	31	29.5
Economic Community of Central African States (ECCAS)	Cameroon	11	7 25-30	9 25-30
	Chad	13		
	Mean	12	7	9
Southern African Development Community (SADC)	Botswana	7	5	7
	Malawi	27	64	43
	Tanzania	10	15	15
	South Africa	25-30	30-35	30-35
	Zambia	8	35-40	20
	Zimbabwe	10	8	13

Mean	14.92	24.8	21.75
Ethiopia	7.7	37	33
Sudan	20	37	45

Source: WTO (2017)

2.4. The role of cattle in small-holder production systems

Cattle play multiple roles in the livelihoods of many African communities even though the majority of producers keep cattle for commercial reasons. As in the case of Botswana (Nkhor, 2018), cattle are still used for traction in the southern provinces of South Africa (Musemwa et al., 2017) while that role is diminishing in Northern provinces. Nkosi and Kirsten (2023) reported lower proportion of farmers keeping cattle for traction, 3% compared to 8% and 9%, as reported by Nkhor and Musemwa et al., respectively. In the North West Province, Swalbach et al. (2018) reported no use of cattle for traction while all studies showed that social activities such as lobola play an insignificant role (1-4%). However, although regional variations exist, these studies show that farmers keep cattle mainly for commercial reasons with 81% of farmers in Botswana keeping cattle for sales compared to between 46% and 59% in South Africa. This paradigm shift will enable small-holder producers to contribute significantly to Africa's food demand by 2025 (FAO, 2016). For this to be achieved the livestock sector should grow by 4% (FAO, 2016).

Despite the commercial orientation of small-holder producers, the multiple roles of cattle complicate selection traits for small-holder producers resulting in incongruence between producer preferences and market requirements. The tension between farmer preferences and market requirements has been highlighted in recent studies (Ouma et al., 2018; Ndumu et al., 2018). Coetzee et al. (2018) confirmed that the market discriminates against cattle from small-holder producers because of phenotypic appearance.

Critical in these tensions is the need for the farmer to allocate his/her resources optimally. This is referred to allocative efficiency (Bogetoft et al., 2016). For example, the farmer keep cattle

breeds that he/she derives maximum utility from. The breed may or may not be adapted to the natural environment in which case the operation may become both technically and economically inefficient. In other words, the farmer may be unable to derive maximum outputs from a given set of inputs (his/her type of cattle) because cattle are not used optimally according to existing price and technology (Andreu, 2018). Figure 2.1 summarises reasons for keeping cattle by small-holder producers in Southern Africa

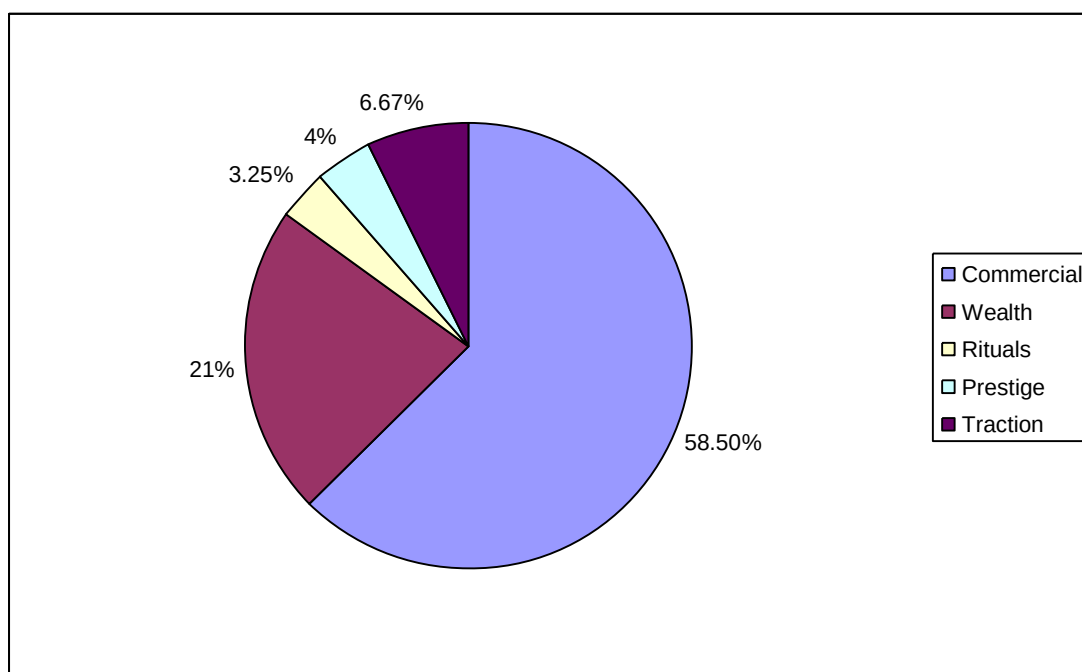


Figure 2.1 Reasons for keeping cattle in some parts of Southern Africa Source: (Musemwa et al., 2018)

The fact of the matter is that small-holder producers keep cattle for multiple purposes. As a store of wealth, cattle represent a sense of prestige, security and utility. Even under uncompetitive market prices, small-holder producers market their cattle to meet household needs. In situations where the store of wealth declines due to drought or animal diseases, producers maintain the prestige of owning cattle until other assets are disposed of. It is apparent that prestige and wealth connote that there is a commercial threshold for cattle off-take.

2.5 Implications of low cattle off-take

Tapson (2020) stated that the monetary per capita output in typical small-holder cattle sector in South Africa could be as low as one tenth of the national potential. It is logical to conclude that low cattle off-take in South Africa has cyclic knock on effect on the growth of the small-holder beef sector. Therefore the vicious poverty cycle among small-holder cattle producers can be partly attributed to low off-take rates, which result in little income to meet family needs /or invest in the growth of the cattle enterprise, to the detriment of herd productivity and the natural resource base due to overstocking (Figure 2.2).

On the contrary, higher cattle off-take could reduce overstocking, provide capital for farmers to acquire vital inputs to grow their enterprises thereby increasing economic efficiency of their herds. Failure to improve cattle off-take could result in the continent not achieving its goal of achieving a 6% agricultural growth by 2025 (FAO, 2016) as well as the North West Province not achieving its 6.7% growth target for the District in question by 2018 (North West Provincial Government, 2018). A systematic analysis of the small-holder beef sector would therefore enable the identification of leverage points for turn around.

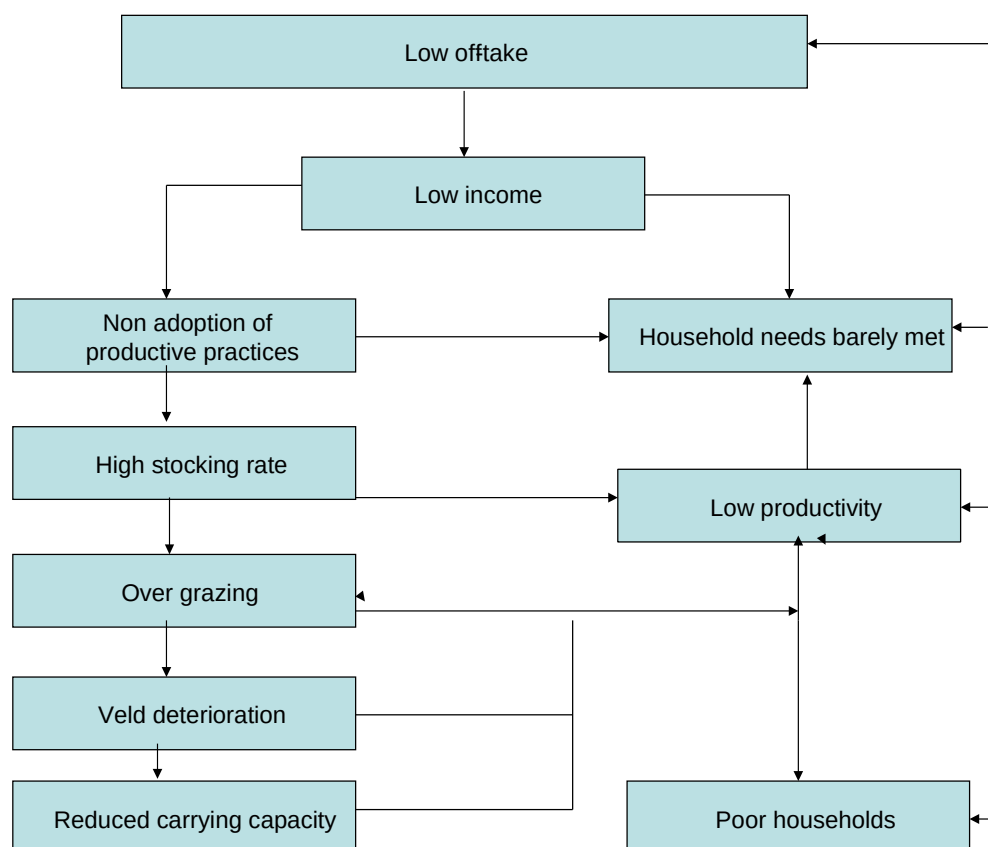


Figure 2.2. A logical link between cattle off-take rates and sustainable development

2.6 The influence of the household on cattle off-take

Household attributes such as headship, size, gender, education, employment, aspirations and attitude determine the extent to which the household can utilise the physical asset at their disposal. According to Scully (2020) there is a strong interdependence between the social economic ends of the firm-household.

2.6.1 Household size

The influence of the household has been confirmed in recent off-take studies (McPeack, 2019; Nkhori, 2018), showing a positive correlation between cattle off-take and household size. In this study, it was presumed that the influence of family size on cattle off-take would also be dependent upon the herd size. Tapson (2020) concluded that a threshold for becoming a commercial cattle farmer in relatively purely livestock subsistence economies is approximately 30 head of cattle but less than 20 for mixed systems. It was presumed that family size would not be significant where households possess larger herds of cattle.

2.6.2 Household headship

Inherent in a household is an institutional arrangement. In this regard, each household has its unique decision making pattern. Household headship is an important element of this institution, which either provides leadership to determine or express the household utility maximisation problem. However, the influence of the household head's gender on the efficiency of small-holder agriculture is insignificant (Idiong, 2019; Tchale, 2019). It therefore follows that the gender of the household head would not influence off-take.

2.6.3 Age of household head

Some studies reported significant impact of the age of household head on efficiency (Tchale, 2019) and cattle off-take (Nkhori, 2018) implying that older farmers would have more experience to make rational decisions for selling cattle. Because of the tendency of new farmers to enter the industry at late age, sometimes after retirement, this study presumed that the age of household head would not influence off-take. Rather, business objectives, which also occur on a continuum, would. A young farmer would tend to sell less animals because he/she is still accumulating capital to build his/her desired herd size while an older farmer may have reached his/her target herd size and make profit maximization his/her priority. In other words, regardless of the age of the head, a household with smaller herds may be inclined to focus on increasing stock, even though they will sell to meet basic needs.

2.6.4 Education

Studies by Idiong (2019) and Tchale (2019) showed that education does increase efficiency of small-holder farmers but this has not been determined for cattle off-take. The current study argues that education per se may not influence off-take but the application of knowledge/technology will. In this regard, the measure of adoption of “appropriate practices” can predict off-take.

2.6.5 Employment

Because of the high unemployment rate, it is logical to conclude that most households in the North West province make a living out of cattle production. Because of the apparent interaction between unemployment and the threshold for commercial production, this study presumed that most households would participate in stock sales even though their main objective might be to build their ideal herd size. It was anticipated that households in the study area would be aspiring for a higher commercial threshold.

Baldwin et al. (2021) reported a negative correlation between employment and off-take rates while McPeack (2018) reported a negative correlation between food aid and off-take. It was postulated that households with high unemployment rates would be receiving social grants, which could equally suppress cattle off-take. Wages and alternative forms of income have also

been reported to suppress off-take (Colvin, 2022; Baldwin et al., 2021). Therefore, the study anticipated that there would be an interaction between household size and income to determine off-take rates.

2.7 The influence of land size on cattle off-take

Land size and land ownership are closely related to finance and credit. In particular, Tapson (2020) regards land tenure in sub-Saharan Africa as complicated. This is true for South Africa today. However, Anim (2023) concluded that land title provides incentives for investment. As in the case of finance, on farm investment could increase productivity and cattle off-take.

The study area has a diverse land tenure system ranging from communal holdings to different forms of private holdings. Private titles include some of the land acquired through the land reform programme and that acquired privately. It was presumed that off-take will be suppressed on land that was acquired through the land reform process for a group of beneficiaries because of the complexities of the decision making institutions. On the other hand, individually owned private land should have higher off-take than communal land.

2.8 Market

Nkosi and Kirsten (2023) reported that low prices offered at auction sales deter small-holder farmers from participating in the market. Tapson (2020) had reported market participation rate of 21% while Randela (2023) reported a high participation rate of 64% but confirmed earlier findings by Nkosi and Kirsten that most farmers disposed their cattle through other means than auctions, which also offer lower prices.

The location of farmers influences off-take because of a variety of factors. First, the difference in climatic conditions will obviously result in different output levels. Some regions may have experienced drought and other disasters such as veld fires more than other areas thus reducing grazing and animal growth. The occurrence of these events would influence farmers' off-take decisions (Kinsey et al., 2024).

Second, several authors (Makhura, 2021; Nkosi Kirsten, 2023; Coetzee et al., 2018; Senyolo et al., 2019) have identified marketing infrastructure as an impediment to off-take. Aspects such as distance to formal markets including auctions determine price and off-take. This also interacts with knowledge of farmers. With interventions such as the Comprehensive Agricultural Support Programme (CASP) (DoA, 2023), which inter alia upgrades infrastructure, it is apparent that the high market participation through auctions in the Eastern Cape (Musemwa et al., 2017), is a result of reduced transaction costs due to the improvement of market infrastructure

Kyeyamwa et al. (2019) reported that proportional transaction costs have a huge impact on market participation in Uganda. Senyolo et al. (2019) also showed the suppressing effect of transaction costs on market participation in South Africa. In both studies, it was concluded that infrastructural development would improve the situation. Meanwhile, Coetzee et al. (2018) ascribed a lack of market participation to small volumes of cattle from smallholder farmers. It is clear that there are many opportunities for identifying parameters for predicting cattle off-take.

2.9 Extension support

Extension contacts and quality is also an important input to farmer's knowledge and therefore influence off-take. This study contends that extension practitioners face a dilemma of disseminating messages for improving technical efficiency while farmers are constrained by extraneous factors such as market environment. According to Rogers (2023), farmers would adopt innovations they perceived as having superior economic value. Market challenges suppress off-take and subsequent economic benefit and therefore provide no logical incentive for farmers to adopt technology.

2.10 Production practices

One of the major gaps in cattle off-take studies is the limited data on the influence of production practices. Muma et al. (2019) and Hüttner et al. (2021) have reported the impact of adopting animal health practices on off-take. On the other hand, although not significant, Baldwin et al.

(2021) measured the impact of breed type on off-take. With reference to production systems, breed type and production practices should be considered for predicting cattle off-take in North West province.

2.11 The influence of drought on cattle off-take

In general, cattle off-take rates are circumstantial and therefore subject to covariance. Düvel and Stephanus (2022) ascribed the negative correlation between herd size and off-take to drought suggesting that farmers could be rebuilding stock when off-take rates are measured. The effect of drought, other sources of income and asset shocks has been widely reported (Kinsey et al., 2018; Fafchamps et al., 2021; McPeak, 2018). Two of the longitudinal studies found no significant shifts in cattle sales during droughts in West Africa (Fafchamps et al., 2021) and Kenya (McPeak, 2018).

In contrast, the Zimbabwean study reported increased cattle sales during drought (Kinsey et al., 2024). However, the latter showed that farmers build cattle stock overtime to sell during drought. This reinforces the notion of a commercial threshold for off-take as suggested by Tapson (2020). Although the covariate effect of time according to the foregoing literature is inconclusive, it has implications for the design of the future study

CHAPTER 3: Method and Materials

3.1 Study area

The study was conducted in Chiweshe district small scale communal farming sector of Zimbabwe. The District is in natural region two (2) of the country and receives an annual rainfall of 700 mm per annum. Cattle production is commonly produced in the area. The temperatures in the area are hot during the summer and cold during winter and ranges from 29 degrees Celsius to 11 degrees Celsius respectively.

3.2. Study design

Creswell (2007) illustrates how a qualitative research design could be employed to identify new variables while Tashakkori and Creswell (2017) shows guidelines for mixed methods designs. This study was carried out while using a sequence of mixed method starting with a qualitative study to identify new variables from extension agents and followed by a quantitative study. A focus session was conducted with officials of the Department of Agriculture (Agritex) in the district which identified that there is a need to exploit the complex environment of small-holder cattle producers and determine their off-take decision making models. In this regard, the extension played an important role in determining the factors that influence farmers' cattle offtake.

3.3. Sampling

A list of 1700 farmers cattle obtained from the district office of the Department of Agricultural Technical and Extension (Agritex) was used as a sampling frame. A sample of 300 farmers was selected randomly for administration of questionnaires for data collection.

3.4. Data collection

Questions were constructed and designed to reduce the interview time and contained open ended questions. A questionnaire aimed at capturing cross-sectional data on factors affecting

cattle off-take for 2020/2021 breeding season was developed and administered through face-to-face interviews with respondents and the interviews lasted for 20 minutes with each respondent. The demographic section addressed variables relating to farmer's age, gender, family size, level of education and employment status.

The behaviour section focused on variables relating to herd size, calving rates, mortality rates, herd composition, cattle breed, land ownership, ownership of other livestock, affiliation, leadership role, access to finance, access to extension, sources of information, frequency of extension contacts, types of contacts, type of messages, adoption of animal production practices, access to market and market information as well as causes of mortality, slaughters and sales frequency.

The feeling section addressed variables relating to farming objectives, reasons for keeping cattle, aspirations and utility, ideal herd size, perceived constraints, competitiveness of prices, reasons for current price, rating of marketing channels, relevance of extension, quality of extension, quality of institutional arrangements and alternative solutions.

The knowledge section addressed variables relating to extension programme, government policy, scope of market channels, product quality, institutional arrangements and governance.

3.5. Data analysis

The data collected was analysed while using SPSS (Statistical Package of Social Scientists) and means were separated using least significant differences (LSD) tests.

CHAPTER 4: Results

4.1 Cattle production cattle off-take level among Chiweshe small scale farmers

The average calving rate for the study area was 55% ranging from 52% to 58%, (Table 4.5). Out of the three hundred (300) cattle farmers in Chiweshe district studied, it was observed that a large proportion of 120 farmers have cattle numbers within range of 11-30 cattle. Nevertheless, 90 farmers had 31- 70 cattle herd sizes. 34 farmers were identified to have cattle herd size of above 70 while 56 farmers had a herd size of 1-10. The highest off take, 22 % of cattle was observed to be within farmers who have the lowest number of cattle of 1-10 herd size, followed by those farmers with the highest number of cattle, 16 % of more than 70 herd size. However, there was no significant difference in offtake of the farmers who produce cattle from 30 and up to 70 herd size while those with less than 10 had an offtake significantly different.

Table 4.1 Herd performance of small-holder cattle farmers by herd size category

Herd size	No of farmers	Calving%	Offtake%	Slaughter%
1-10	56	53	22 ^a	3 ^a
11-30	120	52	12 ^b	2.7 ^{ab}
31-70	90	54	13 ^b	1.9 ^{abc}
>70	34	58	16 ^b	1 ^c
Total/Avg	300	54		

Values with different superscripts differ significantly (P <0.05)

4.2 Factors that determine cattle off-take among small scale farmers in Chiweshe

Table 4.2 below shows that the income objective was negatively correlated with calving rates, steer and overall herd off-take but positively correlated with ox off-take, ($P < 0.05$). From the results in the same table, it can also be noted that there was a positive correlation between the income objective and aspiration for herd growth. However, the ranking for wealth was negatively correlated with calving rates and cow off-take but positively correlated with ox and overall herd off-take, ($P < 0.05$). Farmers who gave a high ranking for ritual objective experienced low calving rates while those who ranked the prestige objective high had a higher cow off-take than steers, ($P < 0.05$).

Table 4.2: The relationship between cattle rearing objectives and herd off-take

	Calving rate	Cow sale	Steer sale	Ox sale	Herd sale
Income	-.211**	-.078	-.378**	.129*	-.138*
Wealth	-.171**	-.186**	.025	.354**	.137*
Ritual	-.180**	-.101	-.004	-.068	-.097
Prestige	-.056	.195**	-.153*	-.020	.60

4.3 Strategy to improve the efficiency of cattle offtake among Chiweshe small scale farmers

Table 4.3 shows that cows constituted a greater proportion of sales 27.5 % and most of these sales done through local and external butcheries within the district. Steers are secondly sold in the district 26.5 % and a greater proportion also carried out by farmers direct to butcheries. Another significant amount of cattle sale class is the oxen, 17.2 % which also have a significantly high proportion of 108. From the study, it was observed that heifers are least sold by farmers in the district as shown by 9.2 % selling and their greatest marketing channel was

through butcheries. Generally, the results in table 4.3 below indicated that fewer number of cattle are sold through feedlot fattening for all classes of cattle which ranges from bulls up to steers.

Table 4.3: Market channels for disposing of different categories of animals

Category	Marketing channel				Percent
	Butchery	Other	Feedlot	Out of hand	
Bulls	54	8	14	12	9.9%
Oxen	108	2	2	40	17.2%
Cows	130	22	54	38	27.5%
Heifers	34	8	28	12	9.2%
Bullocks	48	2	28	8	9.7%
Steers	132	2	22	78	26.5%
Total	506	44	148	188	100%

CHAPTER 5: Discussion

5.1 Cattle production cattle off-take level among Chiweshe small scale farmers

Although calving rates did not differ significantly across herd size categories, small herds of 1-10 consistently had relatively higher values for other performance traits than larger ones. High mortality rates in small herds are a cause for concern because the huge proportionate losses stifle herd expansion depriving farmers the benefits of commercial farming. The high rates of off-take in small scale farmers with 1-10 herd sizes can also be as a result of forced sales due to the disease of theileriosis which affected most parts of the country Zimbabwe during the same period of time. The average off-take rate of 15% found in this study is higher than the 12% reported by Enkono et.al, 2023. Although the average off-take rate of 22% for small herds is commendable, it may contribute to further stock shrinkage when considering the high herd mortality and slaughter rates. The low off-take rates observed could be attributed to herd mortality. Herd slaughters were performed for different ceremonies such as burial and wedding celebrations. On average, owners of small herds slaughtered 2.3% of the herd for own household ceremonies while owners of larger herds did so in order to earn income.

5.2 Factors that determine cattle off-take among small scale farmers in Chiweshe

The results revealed that there was a positive correlation between the income objective and aspiration for herd growth. This implies that farmers, who regard income as their main objective may be holding on to stock with a view to increasing herd size. However, the ranking for wealth was negatively correlated with calving rates and cow off-take but positively correlated with ox and overall herd off-take ($P < 0.05$). This result is consistent with off-take patterns for herd management principles where cows and replacement heifers are withheld at the expense of surplus males. Farmers who gave a high ranking for ritual objective, experienced low calving rates while those who ranked the prestige objective high had a higher cow off-take than steers ($P < 0.05$).

The other dimensional view is that African farmers keep cattle for non-commercial purposes (Tapson, 2020) and this is evidenced by the fact that cattle play multiple roles in livelihoods

of African communities (Düvel, 2022). Previous studies in other parts of Africa reported that only 5% of respondents kept cattle for prestige whilst none were used for marketing purposes (Schwalbach et al., 2021).

5.3 Strategy to improve the efficiency of cattle offtake among Chiweshe small scale farmers

Table 4.3 showed that most cattle sales were done through butcheries followed by through fattening at feedlot. This can be as a result of the fact that many farmers in Chiweshe district have access to butcheries and require urgent quick money which is provided by butcheries. A few of the farmers add value of cattle through fattening at their feedlot but indicated that it requires time. The proportion of farmers who indicated to sale cattle through out of hand, may be due to their ability to negotiate prices between buyers and sellers. However, the low proportion of sales could be a result of the unreliability of this market. Most sales in this category were of cows slaughtered for ceremonies such funerals. This study also shows that a significant amount of cattle were sold through other sources such as speculators and most respondents regarded the price offered by speculators to be poor.

CHAPTER 6: Conclusion and recommendations

6.1 Conclusion

From the study, it can be concluded that there were several factors influencing cattle offtake such as regarding cattle as source of income, wealth and prestige, among other factors such as cattle herd size. It can also be concluded that the efficient marketing strategy of cattle is to sell through butcheries

6.2 Recommendations

1. The study recommend farmers to fatten cattle and sell through butcheries since this add value to cattle and is the fast was of off-take
2. It can also be recommended that farmers must increase their cattle numbers and increase on cattle off-take

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APPENDICES

QUESTIONNAIRE

1. Respondent Number

2. **Personal questions**

3. Name of farm /Location

4. Gender of respondent

1. Male

--

2. Female

--

5. Relationship of respondent to household head

1. Self

--

2. Wife

--

3. Son

--

4. Daughter

--

5. Other

--

6. Marital status of household head

1. Married

--

2. Single

--

3. Divorced

--

4. Widowed

--

7. Number of persons in household

	Male	Female
7.1. Number of persons < 7 years old		
7.2. Number of persons 7-12 years old		
7.3. Number of persons 12-18 years old		
6.4. Number of persons 18-35 years old		
6.5. Number of persons >35 years old		

8. Age of household head

Male	Female

Purpose of keeping cattle

What is/are your reason/s for keeping cattle? Please rate the correctness of the reason using the scale below

Commercial	4	3	2	1
Wealth	4	3	2	1
Prestige	4	3	2	1
Rituals	4	3	1	1

Off take

How many animals were slaughtered in 2020/21

Bulls

Oxen

Cows

Heifers

Bullocks

Steers

