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Full Length Research Paper

Why not commercial goat production? exploring rural communities' preference for livestock enterprises. case of matsai communal area, Zimbabwe

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This study focuses on understanding preferences of smallholder farmers in the context of livestock enterprises. This was guided by the key question as to what the challenges and potentials of smallholder goat production in Matsai Communal Area are. Structured questionnaires, Focus Group Discussions and observations were employed for data collection. Stratified purposive sampling was used to select 90 households from six goat producing villages. The stratum was social caste. Farmers preferred cattle and broiler production to commercial goat production. Goats were valued for consumption, traditional and marriage uses and as gifts to respected society members. Although farmers own large herds of cattle, the importance of goats as a vehicle for agricultural development was compromised by lack of direct institutional and financial support structures. Structures that influence change in mindset from subsistence to commercial goat farming are necessary. Stakeholders need to employ an integrated approach to providing for shortcomings of the current system. This can be achieved by constructing a goat innovation platform which is inclusive of all socio-economic and political divides. Favourable pricing structure is vital to incentivise commercial goat production. This can take the form of goat schemes, training as well and contractual arrangements.

Key words: Commercial, goat, preferences, communal, farmers, livelihood

INTRODUCTION

Goats make an important contribution to the subsistence of farmers in many developing nations. Goats are unique in that they can strive well in times of drought. This enterprise is well known for its low levels of input requirements, as an easy entry, easy exit project due to its minimal built in costs. Further, goats are more advantageous than other ruminant animals because of their short production cycle, quick returns as well as premium quality meat (Chilonda, 1996; Ademosun, 1988). Despite the above contributions of goats to the rural livelihood and economies of developing countries their production is obscured by a synergy of factors which give an underestimation of the true value of this enterprise. Most goats are kept in developing countries that often cannot afford to carry out regular livestock census and so they are rarely, if ever directly counted (Gauthier, Pradier, & Shumba, 1995; Reardon, Delgado, & Matlon, 1992 & Steinfeld, 1988). There are limited formal marketing systems that are available for goat products and by-products, so the goat's contribution to the rural and national economy tends to be grossly underestimated. In addition, goats are usually kept by poorer people, often tented by women, who are voiceless in national discussion platforms. Goats and rural folk who often keep them are therefore accorded low status and given a low priority in national development (Hebink &Bourdillon, 2001).

Development of smallholder goat production has been neglected by most researchers, institutions and organizations. Minimum researches, workshops and conferences have been done at provincial, national and international level in order to improve goat production in

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smallholder sectors. As a result, politicians, policy-makers, development administrators and researchers have paid little attention to this enterprise. Colonial institution legacies and structures, technological over-dependence, insufficient livestock research and technological development in Africa are some of the socio-economic constrains that affect goat production (GFA 1987; Mburu, 1986). There is also a case against these animals in that they destroy the environment. There is little information on goat production practices since most researchers seem to sideline these studies and focus more on the feeding products. This research therefore, focuses on understanding the preference of smallholder communal farmers for livestock enterprises.

Problem Statement

Food insecurity has been the characteristics of most rural farming communities in Zimbabwe. This can be attributable to a number of factors including poor infrastructure and lack of funding towards crop and livestock related issues by both the private and public sectors (Rukuni *et al.*; 2006; Gauthier, Pradier, & Shumba, 1995; Scoones, I. 1992; Steinfeld, 1988). However the core problem is the inefficient research and development (R&D) regime that is currently being employed in agriculture (Refer to Figure 1). Interestingly, in most communal areas of the developing countries like Zimbabwe, goat production has been identified as an option to improved livelihoods. However, farmers in Matsai Communal Area have not embraced goat production as a safety net in improving their livelihood. This has been necessitated by a spectrum of socio-economic factors that this study seeks to explore.

Justification

Integrating goats into a farm system can increase its economic and environmental health and diversity thereby making important contributions to farm sustainability. If goats are well stocked they will improve biodiversity and soil fertility. Various uses of goats and their products contribute to their significance in small scale farming sector. Results from this study will add to the existing literature on commercial goat production. Furthermore, the identification of the socio-economic factors constraining goat production will act as an entry point to the scaling up and commercialisation of the goat enterprise.

Aim

The aim of this study is to explore the preference for livestock enterprises by smallholder farmers of Matsai Communal Area.

Objectives

The specific objectives of the study are to:

1. Characterize perceptions of smallholder farmers on goat production in Matsai Communal Area.
2. Examine the determinants of commercial goat production in Matsai Communal Area.
3. Draw out implications for commercial goat production that are inclusive at all geographical and political scales.

Research Questions

This study takes an overview of the research that addresses the following general questions in relation to enterprise preference:

1. What are the smallholder farmers' perceptions on goat production in Matsai Communal Area?
2. What are the determinants of commercial goat production in Matsai Communal Area?
3. What strategies can be implemented to scale up commercial goat production in Matsai Communal Area?

2. Literature Review

As with much social science research, there is a lot of terminological confusion and sometimes a lack of rigour. The following definitions of key terms are provided in the hope of clarifying the subsequent discussion of the literature.

Preferences, Acceptance or Expectations?: Demystifying terminology

The distinction between expectations and preferences is often vague though the concepts are different. Preference implies a choice that has the greatest expected value among a number of options. According to Hawkins (2004), this is an economic definition and pays no particular attention to an individual's wishes. Preference and acceptance can in certain contexts mean the same thing but it is useful to keep the distinction in mind. Acceptance indicates a willingness to accept the status quo or some less desirable option. Expectation is used in three slightly differing senses in the literature (Abley, 2000; Ajzen, 1985). One is the act of looking forward i.e. a belief about what will occur in the future. A related but more technical use of expectation is to denote a more formal estimation of the probability of an event occurring. These first two definitions can be distinguished from preference in that preferences refer to some desired

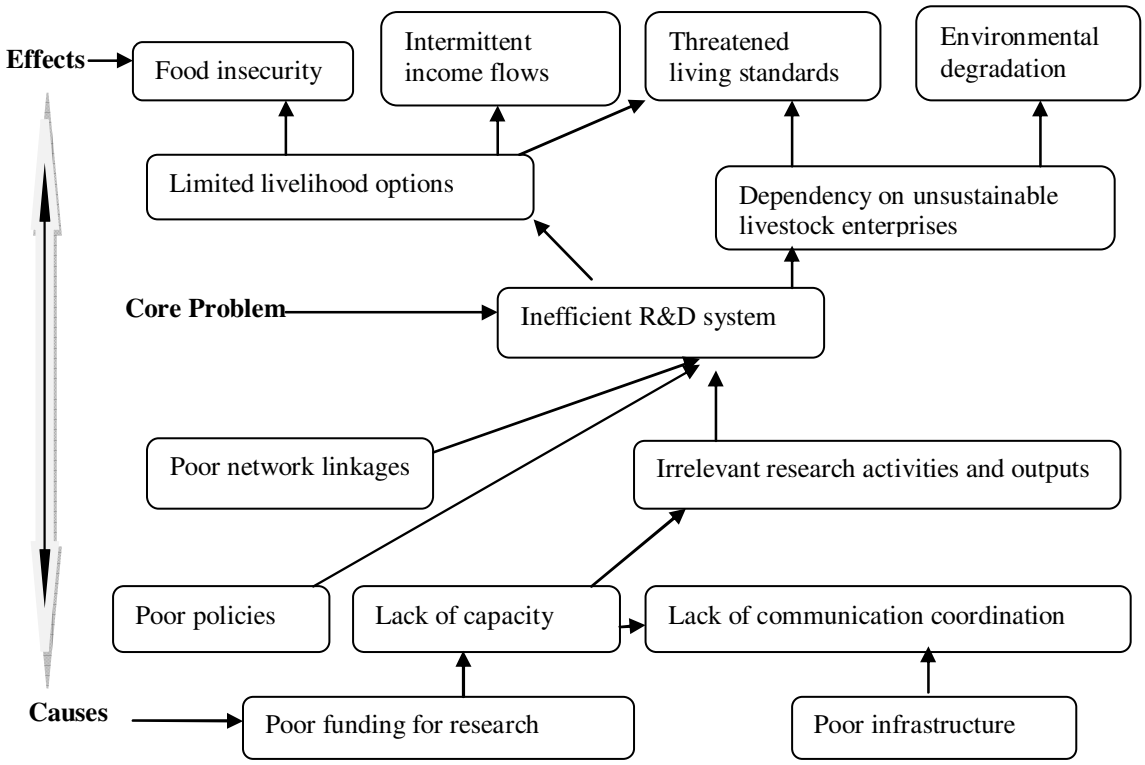

Figure 1: Depicting the livestock choice problem using problem tree approach

state and imply that more than one state is possible and that there are some options. Expectation is also used more loosely to mean a requirement or demand for something and in this sense is a kind of strong preference.

Abley (2000) observed that consumers' preference is significantly influenced by those acts of decision making units such as families, directly involved in obtaining and using needs satisfying products and services. People react differently to social and emotional pressure, so much that it is often difficult to determine the real reason for special preference patterns. Knowledge of consumer preference patterns enables marketing management to make available need-satisfying products in suitable packaging, at prices which consumers are willing to pay and in desirable places (Hawkins, 2004; Ajzen, 1985). This analysis can also apply to the supply side of the market where the factors identified can also influence the decision to produce.

Conceptualising goat production

Figure 2 illustrates a conceptual view of goat production. It is evident that it has to be integrated in the overall farming system to achieve sustainable benefits such as improved living standards of living of the communal farming communities.

Goat Production: A Historical perspective

Goats originated from warm, dry desert area and mountainous terrains Peacock (1996) and hence they can withstand more heat than cattle and their sheep counterparts. These animals are very selective eaters and have a unique feeding characteristic of browsing which accounts for 60 % while grazing preference is only 40 % (Hall, 1999; Holcomb, 1994). Reardon *et al.,* (1992) supported this by adding that goats has survived and thrived well over the world irrespective of extremes of hot, humid climatic conditions of tropics, in equatorial belts, temperate zone of the Himalayan region, such as Ladak and sandy soil in desert area with scant herbage. Goats were among the first to be domesticated and globally goat meat production is higher than meat production from other ruminant (Peacock, 1996). Goats in developed countries are of minor agricultural importance. There are dairy goat industries in France and Switzerland, which specialize in cheese making, but otherwise goats are kept for pleasure. However in developing countries they are of very great importance.

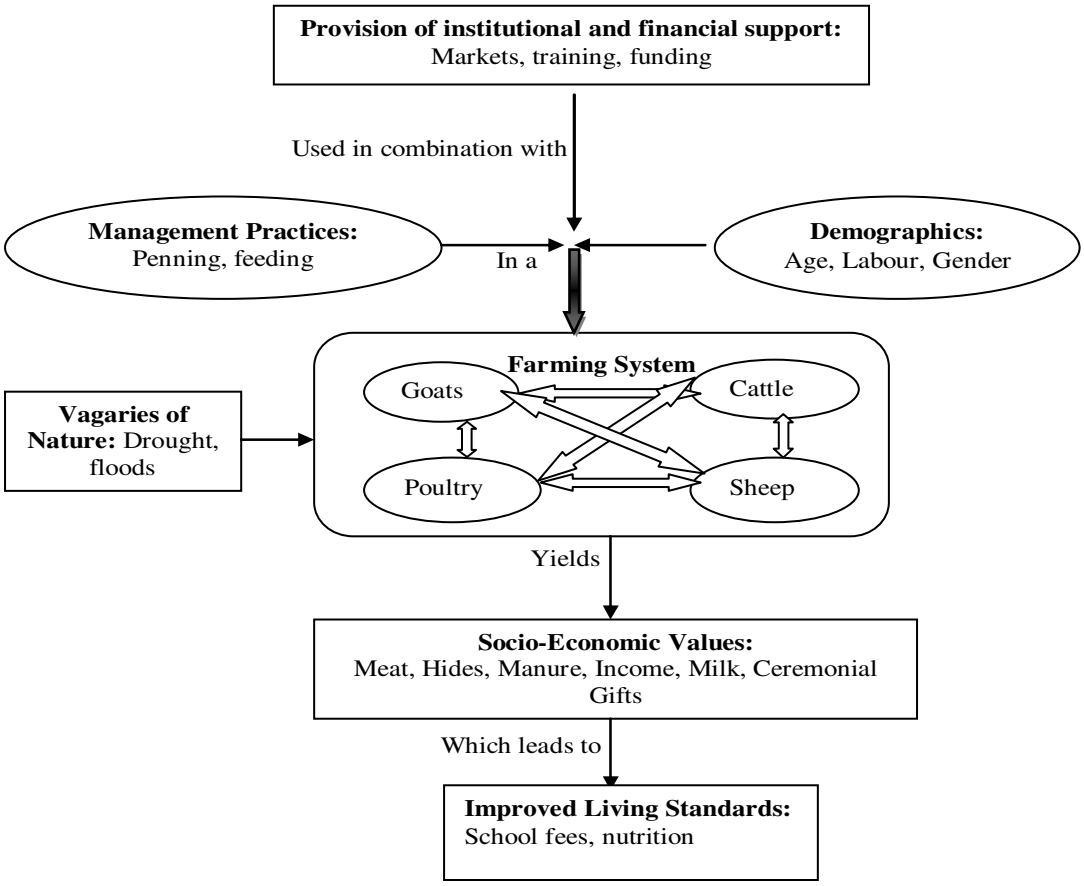

Figure 2: A conceptual approach to goat production

Goat production in Zimbabwe

Goat production relies on two main strains of indigenous goats, namely Mashona and the Matebele goats in the south of the country. The goat herd in Zimbabwe has been the subject of considerable debate and comment over the years. Almost every rural household own at least a unit of small ruminant (Lukert, *et al.*, 2000; Scoones, 1992).

In recent years this interest has been further simulated by reports from various organisations about the potential of the goat herd as the raw material for a multimillion dollar processing industry. The discussions have shown that goat production is both profitable and economically viable. In spite the popularity of small ruminants among the rural households, evidence indicates that the small ruminant production system receives relatively little attention in terms of the services rendered to cattle which include research, marketing and other institutional support from stakeholders. Lukert, *et al.*, (2000) pinpointed that nearly all goats (about 98 %) are kept in the communal areas and mostly reared for subsistence in the drier agro-ecological regions of the country (natural farming regions 3, 4 and 5). Smallholder farmers in the intensive farming natural region 2b also keep goats among other livestock on very limited pasture. DFID surveys specify that farmers do not view goats as the central project (Gauthier et al., 1995). Small ruminant livestock production in Zimbabwe is under customary system in which inputs are low resulting in low off-take. Free-range livestock grazing systems dominate with little investment for supplementary feed.

Development of sustainable rural livelihoods cannot be pursued without understanding the scope of women's activities and problems. Women's work in agricultural activities provides a justification to the introduction of labour-saving technological innovation for productivity in agriculture (Habink & Bourdillon, 2001). The role of women in the case of goat varies considerably depending on the region (ethnic groups). In many places women not only take care of the animals but also own and market them.

Why advocacy for commercial goat production?

Goats represent about 6 % of meat production, 4 % of hides and 2 % of milk production of the world (Barrett, 1992). Goats contribute to the subsistence of small holders and landless rural poor. Goats have an important role in income generation, capital storage, employment generation and improving household nutrition. For some farmers goat production is the only source of income. The animals are sold to boost cash inflow especially just before school open when money is needed for school fees and tuition. Throughout Zimbabwe, goats are used for services rendered such as hired labour and are used to exchange for grain in bad seasons. The economic role of small ruminants to individual households and the nation at large have been overlooked due to several reasons. Small ruminants have not been viewed as an integral and dominant component of the various complex agricultural systems found in Zimbabwe. By preference, due to their small size in comparison with cattle, the income contribution of goats has been considered insignificant (Barrett, 1992; GFA, 1987). Goats in Zimbabwe play important cultural and social roles and are used in the post –marriage ceremonies (Masungiro), commemoration of the death (Kurova guva), exorcism of evil spirits (Kurasira) and settlement of disputes (Kuripa mhosva). Work parties in the communal areas (nhimbe) also make use of goats (Gauthier *et al*., 1995).

Milking of goats depend upon the availability of milk from cows. Where this is available goat is generally not milked (Panin & Mahabile, 1997). Goatskins are not a product of major significance at present in Zimbabwe. These are used mainly as mats for sitting on but may be sold to commercial buyers who travel around some areas. The relative importance of these uses varies from place to place and even between farmers immediately adjacent to each other. According to Onim, *et al*., (1990), a goat can produce about 130kg of dry manure per year that improves the soil fertility through in nutrients (more than that of cow or buffalo) and also by its residual effects on reducing soil pH. Manure from goats is valued for use in vegetable gardens and consequently is of considerable significance even in those areas of the country where crops are not grown. The manure is said to have less tendency to burn plants than that from cattle.

Constraints to goat production

The major constraint to goat production is the lack of an organized marketing system. The current dominant marketing system is mainly informal. Goat markets are characterized by poorly managed and unrealistic carcass grading and pricing systems, inadequate promotion of goat meat and an inadequate and inefficient transport system. Such a situation has resulted in gross profiteering on the parts of certain individuals, to the detriment of producers and consumers. In light of this a detailed market analysis needs to be carried out to create a better understanding of the present existing market systems Private butchers and middleman also buy live animals for sale in other areas e.g. towns, mines, hospitals and schools, but this market is unorganized and unreliable (Gauthier, *et al.,* 1995).

Small ruminant marketing has remained largely informal because of failure to maintain a constant supply of goat meat (Chevon) to the supermarket chains. This stemmed off from problems of transportation of goats to the abattoirs. Cattle haulage trucks where used to transport goats for the same charge as cattle transportation marking it more expensive to transport small ruminants than cattle. In the case of limited resources, cattle always take priority, putting goats at a disadvantage. This is not to say that goats are unimportant to the farmer, but the multipurpose uses of cattle *vis-à-vis* goats produce a bias in favour of cattle. Lack of improvements in the productivity of goats is often attributed to the lack of skilled labour. Hebink et al., (2001) pointed out the special need for training and technology transfer, adapted to women's schedules, would cover all aspects of production and marketing management.

Methodology

Study area description

The study was carried out in Matsai Communal Area of Bikita District in Masvingo Province, Zimbabwe. It is located 67 km along Chiredzi-Bikita Road (North of Chiredzi Town). The area is also accessible to trading areas such a growth points (Nyika, Gutu, Jerera). Matsai Communal area lies in Chief Mabika's area in Natural farming region IV that has an altitude of 800 m above sea level. The area is generally warm and experience high temperature in the greater part of the year ranging from a mean minimum of 15 ^{o}C to a mean maximum of 35 ^{o}C. Mean annual rainfall mainly experienced during the rainy season (October –April), ranges from 300-400 mm. The area is hilly and generally uneven in gradient. Dominant vegetation in the area is tree savannah. The economy of the area is mainly based on mixed crop and livestock subsistence farming, with a significant proportion of its labour force directly or indirectly engaged in agriculture. Major enterprises found in the area are cotton, maize, groundnuts, round nuts, poultry, cattle and some goat production. The productivity of these enterprises is adversely hindered by erratic and poorly distributed rainfall patterns. The selection of the study area was justified by the fact that a range of goat breeds are popular in the area than any other area in the province

Table 1: Ranks of consumer preferences by social caste

	Mean Rank by Social Caste		
	Low	**Medium**	**High**
Goats	14.3	12.8	9.7
Cattle	9.5	9.9	14.9
Sheep	13.9	12.1	7.8
Poultry	10.6	10.3	13.9

Table 2: Kruskal Wallis Test results on analysis on consumer preferences

Enterprise	Asymptotic Significance (p-value).
Goat	0.009
Cattle	0.003
Sheep	0.347
Poultry	0.056

Table 3: Correlations between consumer perceptions and enterprise for low caste producers

Consumer Perceptions in Terms	Goat	Cattle	Sheep	Poultry
Labour	0.79	-0.56	0.87	0.45
Convenience	-0.87	0.97	-0.77	0.92
Market	-0.91	0.69	-0.92	0.94
Returns	-0.73	0.88	-0.33	0.89
Status	0.64	0.84	0.59	0.33

(Gauthier, *et al.,* 1995).

Sampling Procedure

Multi stage sampling was done. From twenty-three wards in Bikita District, three wards were conveniently selected in Matsai Communal area. Random sampling was then used to select two villages from each ward. Fifteen households where also randomly selected from each village. This yielded a sample of 90 households.

Data Collection

Primary data were collected using a validated structured self administered questionnaire. Key government officials in the area, like contact farmers, extension workers, veterinary workers and village headmen were also assembled for Focus Group Discussions. Participatory observations were also instrumental in understanding preferences of farmers in their localities.

Data Analysis

SPSS 16.0 for Windows was used to process gathered data from the study. Frequency distribution and percentages was used for data presentation. A surrogate for goat production was introduced as the number of goats per household during the time of the study. Data were analysed by Kruskal Wallis test to investigate any differences in groups. Correlations were done between producer perception and livestock enterprise chosen. Two stage least squares regression model was used to analyse the factors that affect enterprise choice decision. Variables captured included, dependency ratio, age of household head, duration of keeping goats.

RESULTS

Average goat herd per household.

Figure 3 shows that high caste members own on average 33 goats, while those in the medium caste stratum own averagely 10 goats and low caste community elements account for on average 4 goats per household.

Preference for livestock enterprises

Table 1 show that producers' preference for livestock enterprises is influenced by the position in the society (social caste). Low caste members of the society prefer rearing small ruminants to cattle and poultry. High caste members however prefer cattle and poultry. Table 2 shows significant differences in preference for livestock across the three groups of producers ($p<0.05$). This was also observed in similar studies (Gauthier, *et al.,* 1995; Banda, *et al.,* 1993; Barrett, 1992) where preferences were noted to be affected by the market segment depending on real disposable incomes, tastes and preferences as well as social factors.

Perceptions regarding enterprise

Low caste stratum

For low caste members, all the parameters analysed greatly influenced the producer perceptions regarding the enterprise choice. Higher returns tend to shift enterprises from small ruminants to cattle and poultry. These producers perceive availability of markets as greatly influencing the decision to rear goats, poultry and sheep (Table 3).

Medium caste stratum

Notably, across the categories of enterprises producers in the medium caste segment perceive all the identified factors being important in influencing their enterprise

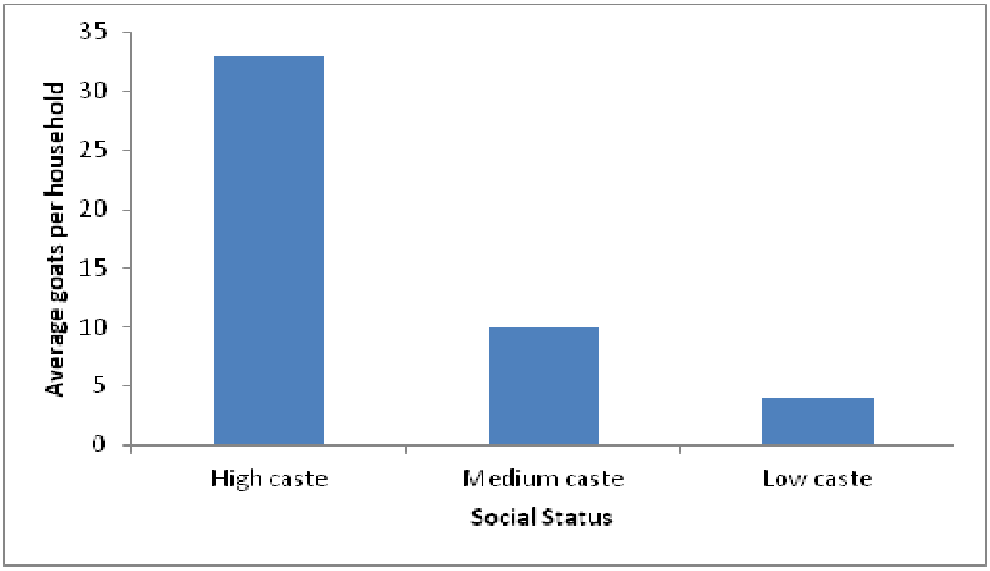

Figure 3: Average goats kept per household according to social caste

Table 4: Correlations between consumer perceptions and enterprise for medium caste producers

Consumer Perceptions in Terms of	Goat	Cattle	Sheep	Poultry
Labour	0.79	-0.56	0.87	0.45
Convenience	-0.87	0.97	-0.77	0.92
Market	-0.91	0.69	-0.92	0.94
Returns	-0.73	0.88	-0.33	0.89
Status	-0.35	0.93	-0.29	0.79

selection decision (Table 4). In this segment, for the producers to change their enterprises, it will take investment in the available options and awareness campaigns on the benefits of the not yet exploited enterprises.

High caste stratum

Labour greatly determines the decision to produce goats in the high caste category. This is evidenced by the high positive correlation between these two parameters (Table 5). In this respect, producers in this social segment perceive convenience and status as key determinants for cattle production. This is also true for poultry production. There are high negative correlations for the factors and goat as well as sheep enterprises.

Factors affecting goat production

Table 6 shows the impact of a number of variables including family size, social status, age and agricultural training on the decision to keep goats commercially.

Discussion

Based on the preference for small ruminants by farmers that has been observed in the study area, expectations would have been that large numbers are being kept in this area. However, an analysis of the goat herd pointed otherwise. This maybe because in the area, goats are highly valued for cultural exercises like traditional and marriage purposes. This is supported by the findings of Chilonda, (1996) who highlighted the value of goat for such purposes in communal areas. The expansion of the enterprise to commercial scale in the area could have been compromised because agricultural institutions have concentrated their training on beef and dairy development as a result there is little attention for goat production. Matsai communal farmers end up sustaining their livelihood from off-farm labour, crop production, animal production and crafting at the expense of a more sustainable goat enterprise that is suited for the area.

The position of the household in society (as surrogated by social caste) has a significant bearing on enterprise choice. Factors such as access to markets play a major role in making this decision. High caste members were noted to take advantage of the existing channels to

Table 5: Correlations between consumer perceptions and enterprise for high caste producers

Consumer Perceptions in Terms	Goat	Cattle	Sheep	Poultry
Labour	0.79	-0.56	0.87	0.45
Convenience	-0.87	0.97	-0.77	0.92
Market	-0.91	0.69	-0.92	0.94
Returns	-0.73	0.88	-0.33	0.89
Status	-0.22	0.99	-0.12	0.53

Table 6: Effect of factors affecting goat production decision

Variable	Coefficient	t-ratio	Marginal effect
Constant	-5.89	1.678*	-0.9984
Dependency ratio	-0.0034	-0.031	-0.0002
Family size	0.21	1.123***	0.0321
Age of household head	-0.0003	-0.0023	-0.0001
Social Caste	1.043	2.345**	0.165
Duration	0.965	1.113**	0.0938
Years of schooling of household head	0.265	1.342	0.0432
Agricultural training	-1.132	0.412	0.0011
X^2 (df)	103.21(7)***		
Percentage of correct predictions	86.3		

Notes: * Significant at 10%, ** Significant at 5%, *** Significant at 1%

market their produce across all enterprises, though they focused on cattle and poultry production. Their participation in the goat markets crowded out those in low caste segment. The current goat market in the communal areas in Zimbabwe is mostly informal (Gauthier, *et al.,* 1995) The majority of sales are conducted within the villages. There was no indication of access of export market by the goat owners in Matsai community. This greatly deterred famers form intensive got production since they felt that they would generate low returns. These results are supported by Debrah & Sissoko, (1990), who found out that communal farmers raised goats for consumption.

Household size also significantly determines the involvement of the households in goat production activities. From the study it was noted that as the household size increases, the level of goat production also increased. This is attributable to the labour intensive nature of the enterprise and households will have high disposable labour resources to allocate towards rearing goats. Furthermore the nutritional demands of the household will also require a source that has a short production cycle and with low capital injection needs. However as opposed to aprior expectations, dependency ratio did not significantly affect goat production. This can be caused by the distribution of the population were large numbers were actively involved in productive processes.

Even though communal farmers' initiatives for the development of their agricultural capacities have generally received little support from the private sector and the non-governmental organizations, training has been observed to significantly affect goat production. This is because these farmers who are trained have the capacity and ability to make use of available information to their benefit in the form of contractual arrangements and making use of supermarket chains as their markets. This is critical in the wake of governments in most African countries retreating from rural areas, leaving the population to craft its own coping strategies and organizational structures in order to mitigate the deteriorating economic conditions. Interestingly years in schooling did not significantly influence goat production levels. This can be attributable to the attitudes of farmers towards the enterprise. This can be supported by many theories of attitudes (Bateman, *et al*., 2002; Ajzen, 1985) were the factor was involved in determining behavioural choices. However there is considerable continuing debate about when, and in what circumstances, attitudes are important determinants of behaviour. An attitude toward something should thus not be taken to imply that attitude consistent behaviour will automatically follow.

CONCLUSIONS

Irrespective of the social stratum, labour, convenience, markets and returns have been observed to influence the producer's enterprise choice. For these parameters the degree and direction of influence varies depending on the social caste of the producer. Low caste members tend to be inclined towards small livestock production as opposed to their medium and high caste counterparts.

The development of goat enterprises in communal areas is influenced by social caste, agricultural training and household size.

RECOMMENDATIONS

- Awareness programmes can be implemented to create appreciation of the benefits of commercially rearing goats especially for producers in the low caste segment of communities.
- Producers can also be capacitated on sustainable methods of goat production. This can be supported by assisting these farmers in terms of reducing transaction and sunk costs as they make these decisions.
- Marketing institutions can also be created or revived to cater for this enterprise in terms of credit provision, capacity building and marketing of goat meat and by products.

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