

## A CASE STUDY : INVESTIGATION OF GOAT FARMING SYSTEMS IN GAMPOLA AREA IN KANDY DISTRICT

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**ABSTRACT:** *The goat farming system in Sri Lanka is a developing industry. The study was conducted as field survey at Gampola area in Kandy district to identify the goat production system and the problems faced by the farmers through random sample of 96 goat farmers were interviewed using a pre-tested structured questionnaire. Feeding practices found to be more traditional while animals were mainly fed with jack leaves (*Artocarpus heterophyllus*) by all the farmers while famers did not depend on one feed. The majorities of goats reared in this area were Jamnapari (24%), Saanen (19%). The average mature weights of an animal are approximately 30 Kg. The average kidding interval was 9 months it may differ with breeds. Waste management was important to maintain the hygienic condition of the farm, many farmers used waste as organic fertilizer (41%), some were giving others without money (20%) and no proper methods were followed by some famers. Paralysis (32%) was the most serious disease condition while bloating and other diseases were occurred. Kid mortality (65-75% out of total death) became a serious threat which was mainly due lack nourishment for kids during early growth (63%), susceptibility to contagious diseases. Selling of live animal in the basis of eye estimation the present market prices of weight per Kilo gram vary from 900-1100 Rupees. The major limitation of marketing was transport (permit) and religious problems. Lack of extension services for goat production and very poor regional veterinary services were discussed. Gampola area has potential to goat production. Recommendations to improve the sector government should involve solving transport problem and organizing other necessary services to goat famers.*

**Keywords:** goat farming, jamnapari, saanen, paralysis, kid mortality, nourishment

### 1. INTRODUCTION

Goat was one of the first animals to be domesticated by humans, about 9,000 years ago (Ahmad Al Khraisat, 2013). Today, there are 200 different breeds of goats that produce a variety of products including milk, meat, and fiber. Goats are ruminant animals which possess complex stomach, due to its small body size it is referred to as small ruminant. Goat is an integral part of a traditional crop livestock production (Seyoum, 2002).

Raising goats can be a valuable part of a sustainable farm (Pavithra.V and Thangadurai.M). Integrating livestock into a farm system can increase its economic and environmental health and diversity (Joana adefemi.O, 2014), thereby making important contributions to the farm's sustainability (Ogunniyi and Titilola.L, 2010). Main inherent characteristics of goat, such as their high efficiency in crude fiber digestibility, fertility and short generation interval have made them very popular in livestock industry.

Goats have unique behaviors. They are intensely curious and will investigate anything that sparks their interest. Goat is referred to as poor man's cow because they provide milk in enough quantity for household consumption (Odunsi *et al.*, 2005). Goat milk is also more easily digested than cow's milk and is less allergic.

Goat adapt easily to various environment as evident from socio–economic perspective, they are source of investment and as instrument against disaster. Goats are also used in ceremonial feasting and payment of social dues (Okunlola, 2000). Proper management system and health care play an important role in achieving optimum result from goat management system.

Considering that rearing of goats in Gampola area contributes largely on enhancing the life status of rural farmers, little attention has been paid to study the goat farming practices & problems in Gampola area. Therefore, evaluation of goat farming practices & problems in Gampola area is of important to improve the goat farming sector.

**1.1 Objectives:** of the study is to identify the goat production system and the problems faced by the farmers

## 2. METHODOLOGY

### 2.1. Study area

Gampola VS Division in Kandy District is purposively selected. It is about 470 m above the sea level with a temperature between 18°C – 24°C it has an annual average rainfall of 1450mm. So, Gampola is town that receives the above mentioned rainfall because of the Monsoon rains. This place is situated in North Western, Sri Lanka; its geographical coordinates are 8° 3' 0" North, 80° 11' 0" East (Figure 9).



Figure 9. Study area

### 2.2. Sampling method

Ninety-six goat farmers were selected throughout the Gampola Veterinary surgeon division by using simple random sampling method.

### 2.3. Data collection

The primary data were collected through personal interview with the help of pre-tested structured questionnaire during the period of October 20 to December 15. The data were collected from 96 goat famers who were registered as goat famers in Gampola veterinary Surgeon Office. The pre-

tested questionnaire contains following information the information such as general information about goat farmers, socio-economic status of the famers, goat management system, goat management practices, health and marketing of goats.

The famers respond most of the questions were based on their recall memory. famers were found to be satisfactorily cooperative to the present study. In addition to the questionnaire observations were made to understand the farm's situation, breeds, welfare of the animals etc. The secondary data were collected from Department of Animal production and health, Veterinary surgeon office, Journals, and Books stated in Rifky, A. (2016).

#### **2.4. Data analysis**

Data were tabulated in 2010 Microsoft Excel sheet and descriptively analysis were done by using graphs, Bar charts, Pie charts etc. Minitab 14 Software were used for the statistical analysis of the data and chi-square test also used to examine the association between variables.

### **3. DISCUSSIONS AND RESULTS**

#### **3.1. General information about goat farmers**

In goat rearing Buddhists are dominant (67%) while Muslims, Hindus and Christians are contributing 22%, 9% and 2% respectively in Gampola area. Nevertheless Muslims are actively engage in large scale goat farming and goat business (**Error! Reference source not found.**).

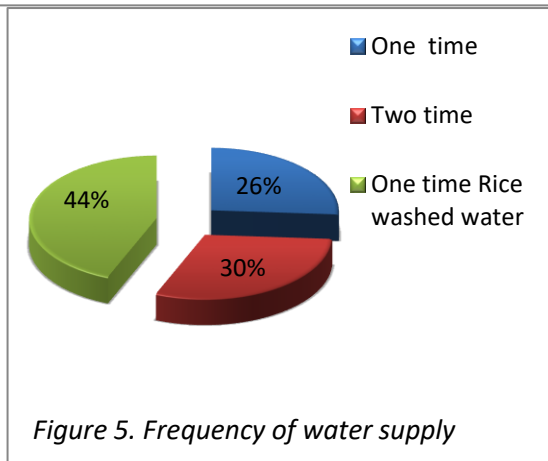
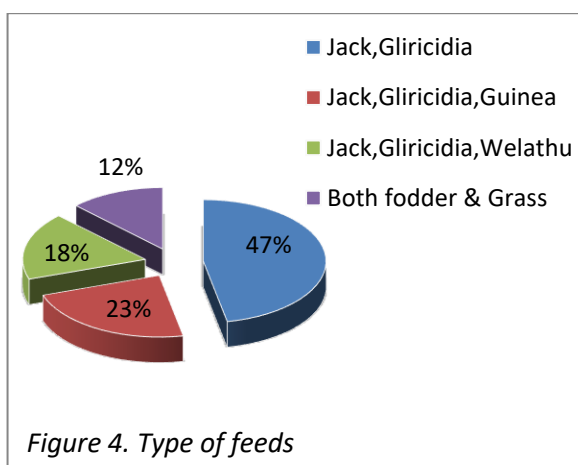
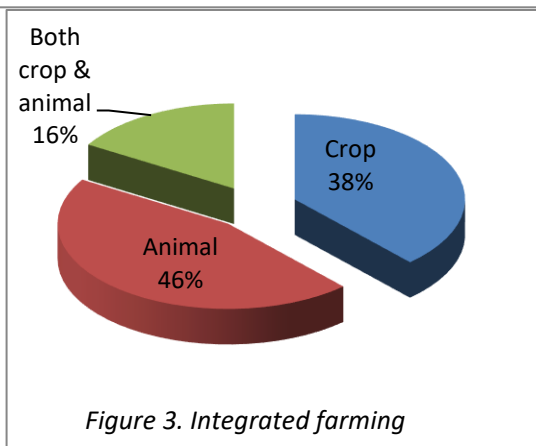
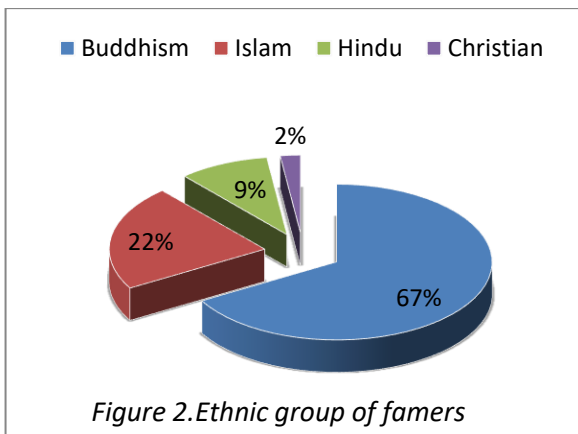
#### **3.2. Socio-economic status of the farmers**

Majority of famers practice integrated farming (57%, n=55) an integrating with chicken & cattle were very popular and cattle management was focal livelihood of some famers as well rearing Quill, duck, turkey, pigeon and rabbit as an entertainment also common in surveyed area. And many famers practice vegetable gardening (38%) also (**Error! Reference source not found.**).

#### **3.3. Goat management system**

The most popular management system found in the surveyed area was intensive management system (98%) (n=94) due to limited land area. Semi intensive system found to be very little (2%) (n=2) therefore only two famers allow their goats to grazing at a part of day time and they practice cut and fed also, while no one practice extensive management system because of lack of land and many goat sheds sited nearby to town area.

The average land availability of land was 0.75 perches (190 square feet) and many places of surveyed area closely constructed houses were lead to intensive management system.



### 3.4. Goat management practices

#### 3.4.1. Feeding practices

To feeding goats it is evident according to above figure all famers use jack leaves (*Artocarpus heterophyllus*) as dominant feeding material along with shrubs and grasses. Majority of famers' use *Gliricidia* leaves (*Gliricidia sepium*) also to feed their goats (**Error! Reference source not found.**). Welkarabu (*Ludwigia perennis*) (18%) was one of popular legume species used by many famers in surveyed area while many famers provide Guinea grass (23%) and some are provide CO3 also. waste fruit parts, refused part of jack fruit, waste cooked rice and refused bread was given by some famers, and mainly fed with cut & carry method. Many famers did not depend on one feed; they provide tree and shrubs which are available in their resident place.

All famers supply atlibitum water except rainy days and majority of famers supply rice washed water in behalf of water and concentrate. Famers who supply rice washed water add common salt in to the rice washed water to fulfill the salt requirement of their goats (**Error! Reference source not found.**).

#### 3.4.2. Housing practices

Majority of famers in Gampola area used stilted houses (

Figure 10) 96% while very few famers used ground level houses 4%. 93% of famers use Galvanized sheets as roofing material and rest of the famers use asbestoses sheet 3% and other materials 4% such as gunny bag poly sheets. 94% of famers had slated type wooden floor whereas 6% famers had cemented floor but no respondent had clay floor. Many famers used wooden 83% as wall material for build slated houses and certain famers used gunny bag and poly sheets 16% for wall material and only one famer raised cement wall 1%. Feeding racks were fixed at few herds where plenty of famers hang the feeds as cluster for feeding goats was popular in mid country areas. However many houses were not properly build in surveyed area.



Figure 10.a stilted type house in surveyed area

### 3.5. Waste management

Waste management is important to reduce environmental problems and maintain the hygienic condition of the farm. Above table show the waste management practices of respondents and majority were disposes their waste at proper way therefore very good (11%), Good (30%) and satisfactory (25%) respectively. Majority of famers used their waste as organic fertilizer (41%) in many ways such as to add vegetable cultivation, to add home garden even though some famers give their waste to other crop famers without money (20%) because of their relationship and few famers sell their waste but 33% of famers had no proper waste disposal method. Hence there is an association between waste management practice and method of waste management therefore bad (8%) and very bad (26%) (Total=34%) of management practices reported while no proper method followed (33%).

### 3.6. Health

#### 3.6.1. Occurrence of Diseases

The (Table 6) indicates the occurrence of diseases in the surveyed area according to the ability to recall by the famers. Apparently, the famers observe the health status of goats at daily basis, by judging the goats from their external appearances.

Paralysis 31%, Bloat, Pneumonia, Diarrhea and mouth diseases were seem to be the most common disease condition in surveyed area. The exotic breed Saanen was susceptible to Paralysis specially kids and it was frequently occurred during rainy season, in addition no cases reported that recovery after animals effected by Paralysis and Pneumonia, and the reason for Bloating excess feeding of high moisture leaves. However other disease conditions reported were Fever (3%), Hoof diseases (2%) and mite attack (4%) as well according to the survey 30% of famers responded there were no disease conditions arisen. Many famers did not aware about many diseases which are not common.

The sanitary practices such as External parasite control, Hoof trimming, and routine practices such as Castration, Exercise, Tattooing and Record keeping

were not practiced by famers whereas very few famers practice Vaccination, Worm control and Ear notching. Several famers tend to vaccinate their animals after outbreak of diseases.

Table 6. Occurrence of Diseases

Diseases	No of reports	Percentage%
No disease condition	29	30.21
Diarrhea	9	9.38
Mites	4	4.17
Fever	3	3.13
Hoof disease	2	2.08
Other diseases	18	18.75
Paralysis & Other diseases	31	32.29

### 3.6.2. Treatments

When animal fell sick, most famers practiced traditional medicine method (42%) by them self, because they could made medicine by using commonly available house hold goods such as Ginger, Garlic and Pepper as well low cost and famers couldn't obtain veterinary services on time are the reasons for using traditional medicine. In addition, it is easy and some famers used alcohol also to treat sick animals.

It was evident that more than 50% (52%) of the farmers wish to receive veterinary services to treat their animals during illnesses. But all the interviewed famers were complained that they did not receive enough veterinary services, at the same time very poor regional veterinary service was one of the serious problems to goat famers.

Officially there was only one veterinary doctor to wall Gampola areas that have to care after all livestock and pets so it is impossible to look after by a single person. That is why many goat famers attempt to attained private veterinary services. But the cost of private veterinary service was very high and many famers unable to bear this charge. It was also evident that 3% of the farmers did not use any kind of a medicine on their goats. 22% of famers practice both traditional medicine and veterinary services (Figure 11).

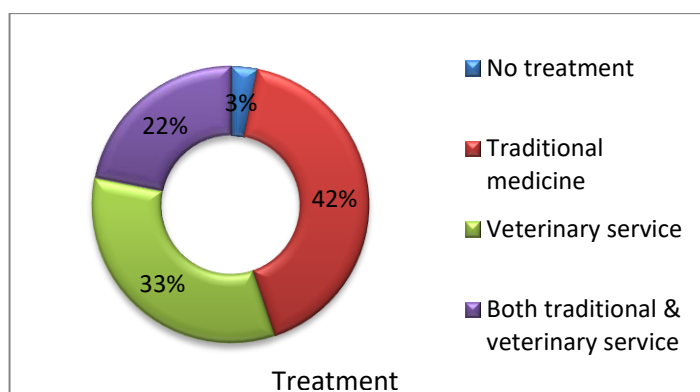


Figure 11. Treatment method made by farmers when animal sick

### 3.6.3. Kid Mortality

The kids mortality 15% were highest with 65% of total deaths occurred. This was mainly seen during the parturition and during early stage after birth (63%) (0-1 Week). Deaths of kids were mainly due to lack of nourishment for does during the pregnancy period which resulted low milk yield, less adoptability to the prevailing environment conditions by kids and lack of awareness on delivery of kids and absence of farmers at the delivery. One to three month kids' death accounted for the second highest with 28% while one to four Week kids' death was the lowest with 9%.

### 3.7. Goat Marketing

Selling of goats for breeding purposes or meat production was very popular in Gampola area. Billy goats and dairy goats were the most preferred animal categories for selling as farmers could earn ample amount of money by selling them although Price of bucks are higher than does. Kid goats were the least preferred for sale and selling of live animal were occurred in the basis of eye estimation whereas the present market prices of dress weight per kilo gram vary from 900-1100 Rupees. Farmers prefer to keep animals in their herds until they get matured to sell at a higher price. Selling of Billy goats was very popular in Gampola area, while sales were low with dairy and kid goats. Results clearly indicated that sale of goats were done through middlemen while incentives for marketing were totally absent where live goats were sold to middlemen throughout the year particularly during festival seasons. Our results also confirm that goat has been a ready cash riding dependence for farmers, when urgent need of money.

## 4. CONCLUSION

The main production system is intensive system (98%) which would utilize available feed resources in resident area. Hence famer did not depend on one feed. The purpose of goat rearing is an asset. It would be ready cash when necessary. The most prominent housing type is stilted house (96%) but houses are not separated to male and female (75%) is a serious problem which would result unwanted and early mating. Majority of famers provide coconut poonac (58%), Many famers practice integrated farming (57%) with chicken & cattle



are popular in Gampola area. According to field survey the most dominant goat breeds are Jamnapari (40%), Saanen (32%) cross blood of Saanen and Jamnapari. Plenty of illegal goat transport was frequently occurred because of transport permit problem.

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