Asian Australas. J. Food Saf. Secur. 2017, 1 (1), 1-6

Asian-Australasian Journal of Food Safety and Security
ISSN 2523-1073 (Print) 2523-2983 (Online)
www.ebupress.com/journal/aajfss

Article

An assessment of socio-economic conditions of the farmers related to goat fattening in Rangpur district of Bangladesh

Topon Chandra Barman[1], Mohammad Mujaffar Hossain[1], Md. Mukhlesur Rahman[1], Md. Younus Ali[2*] and Nipa Rani Sarker[3]

[1]Department of Animal Science, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh
[2]Goat and sheep production research division, Bangladesh Livestock Research Institute, Savar, Dhaka-1341, Bangladesh
[3]Department of Genetics & Animal Breeding, Hajee Mohammad Danesh Science & Technology University-5200, Bangladesh

*Corresponding author: Md. Younus Ali, Goat and Sheep Production Research Division, Bangladesh Livestock Research Institute, Savar-1341, Bangladesh. E-mail: younus.bau@gmail.com

Received: 24 October 2017/Accepted: 06 November 2017/ Published: 21 November 2017

Abstract: The experiment was carried out at Kaunia upazila in Rangpur district to investigate the socio-economic conditions of the farmers, use of different hormones, feed additives and their effects. The data were collected through interview schedule by selecting 30 respondents who were involved in goat fattening. Collected data were analyzed using Excel sheet. It was found that most of the farmers were middle aged categories (50%) and educational level of the farmers was primary (57%), secondary (23%), and higher secondary (10%). Half of the respondents were farmer, followed by businessman (20%). About 67% farmers used own capital, 3% farmers took loan from bank and 23% took loan from other sources such as NGO. It was also found that about 33% respondents had on short time training experience and the rest 67% had no experience. Almost 97% farmers reared Black Bengal goat and 3% Jamunapari goat. Near about 97% farmers used roadside grass and tree leaves and only 3% farmers used cultivated fodder. Only 7% farmer used growth promoter & feed additives in feed where 93% farmers are not being used growth promoter &feed additives in feed. But not a single farmer used growth hormones for fattening purpose. Therefore, still now goat meat would be safe for human consumption without any health hazard.

Keywords: goat fattening; hormones; feed additives

1. Introduction

Livestock is an integral component of agricultural economy of Bangladesh performing multifarious functions such as provision of food, nutrition, income, savings, draft power, manure, and transport, social and cultural functions. The livestock resources of Bangladesh are mainly based on cattle, goat, sheep, buffalo, and poultry. The average number of goats per household is about 2.31 in Bangladesh and they are mostly reared by landless, small and medium farmers (Faruque *et al*., 2010). Goat plays a vital role in the economy of poor dwellers in adverse climatic condition of Bangladesh (Kosgey, 2004) and Perry *et al*. (2002). Goats in communal areas are less susceptible to drought than cattle and have lower feed and capital requirement than large ruminants (Iniguez, 2004). They are better able to utilize a variety of feed stuffs, including fibrous crop residues (Holst, 1999). The domestic goat (*Capra hircus*) is an important livestock species in Bangladesh and has about 25.734 million in number (BER, 2015). The old man saying "The goat is the poor man's cow" (MacHugh and Bradley, 2001) is still hold true for developing country like Bangladesh. The increasing trends of meat consumption have already been evident in several Southeast Asian countries such as Indonesia, Malaysia, Philippines and Thailand (Skunmun *et al.*, 2002). According to Department of Livestock Services (DLS, 2015-2016) the availability of

meat is 106.21 g/d per head against the requirements of 120 g/d per head. So, it is clear that there is a huge shortage of meat in Bangladesh for human consumption. An increasing number of consumers demanding health and natural foods have favoured organic goat farming that is reputed to be environmentally friendly, sustaining animals in good health, with high welfare standards and resulting in high quality products (Sundrum, 2001). In many countries, growth promoting hormones have been successfully used to increase the growth rate of animals, particularly in goat. A scientific agreement was also adopted to prohibit the use of stilbenes owing to their potential tumor-inducing effects in human. However, most of these compounds have not gained widespread consumer acceptability and growth-promoting hormones were banned by the EU. The consequence of this EU position has been the development in numerous countries of a black market of hormone cocktails including potentially dangerous synthetic steroids and corticoids. The weight gain increase in steroid-treated animals was associated with net protein accretion and N retention without any changes in the digestibility of N intake (Scarth *et al.*, 2009). In Bangladesh, feed additives and growth promoters imported by pharmaceutical industries and overseas marketing agencies and attract farmers to use them in fattening animals. Some of them may have deleterious residual effects on human health or some may not respond cost effectively. Most of the goat brought for sale as sacrificial animals in the northern districts ahead of Eid-ul-Azha are fattened allegedly by unscrupulous goat traders ignoring the scientific formula prescribed by Livestock Department. However, almost no attention has been paid in Bangladesh in respect of using hormone and feed additives in small scale goat fattening.

2. Materials and Methods

2.1. Study area

The study was conducted at Sarai, Haragachh and Kursha unions, respectively under Rangpur district.

2.2. Farmer selection

Respondents those are used hormones and feed additives in goat fattening were randomly chosen from each union. A total of 30 farmers (10 farmers from each union) were chosen for collecting data to fulfill the objectives.

2.3. Preparation of interview schedule

An interview schedule was carefully prepared keeping the objectives of the study in mind. The schedule contained closed and open form of questions.

2.4. Methods of data collection

Data were collected from respondents by one-to-one interview method. The relevant data for this study were collected without biasness. To obtain accuracy and reliability to data, care and caution were taken in the course of data collection. Attention was paid to the mood of farmers and cordial relationship was established among the farmers. Interviews were normally conducted in respondent's house during their leisure time.

2.5. Parameters studied

The interview schedule contained the following information's:

A) Socio-economic factors related to goat fattening like age of the farmers, educational level, household size, occupation, land size, source of capital, and purchase time etc.

B) Check list of goat fattening such as types of feed used, sources of feed, use of hormones and feed additives.

C) Public perception and suggestions to improve goat fattening.

2.6. Statistical analysis

At the end of data collection, the collected data were coded, compiled, tabulated and analysed by using Excel sheet. The qualitative data were transferred into quantitative data by appropriate scoring technique.

3. Results and Discussion

3.1. Socio-economic condition of the goat farmers

In this study some major characteristics of the respondents were selected to find out the socio-economic condition of the farmers like age of the farmers, family size, education, occupation, land size, source of capital and training. Number and percentage distribution of respondents according to their age of the farmers, family size, education, occupation, land size, source of capital and training on goat fattening are shown in Tables 1 and 2.

3.1.1. Age of the farmers
The findings indicated that the highest proportion (50%) of the farmers in the study area was in the middle aged category compared to young aged category (30%) and old aged category (20%). The results of this study are similar with Rahman *et al.* (2012) where they reported that 45.3% farmers was in middle aged category 16.0% and 38.7% farmers was in young and old age category, respectively.

3.1.2. Household size
About (47%) of the farmer had small size family, 37% medium size family and 16% in large size family. The results of this study is collaborate with Rahman *et al.* (2012) where they reported that 52% farmers had small size family, 31% medium and 17% farmers in large family.

3.1.3. Land size
The respondents were classified into four categories on the basis of total land (homestead and cultivable) such as marginal, small, medium and large farmers. About 23% farmer's small, 17% medium and 3% farmers had large size land and the mean was 1.00 acre which is almost close to the result of Kumar (2014).

3.1.4. Level of education
Begum *et al.* (2007) reported that 20%, 40%, and 30% farmers are illiterate, primary, and secondary level of education, respectively that is slightly higher than the present finding.

3.1.5. Occupation
Out of 30 respondents 50% are involved in agriculture, 20% in business and 3% in government job and 27% in other job respectively. The results of this study agree with the result of Sarker (2014) who reported that 50% farmers involved in agriculture and 23% in business and 23% in other job.

3.1.6. Source of capital
The source of capital for goat fattening varies from farmers to farmers. About 67% respondents used own capital for fattening purpose, 3% respondents taking bank loan and 23% from other sources such as NGO loan and 7% lending for fattening purpose. The results of this study are similar with Sarker (2014) where he reported that 57% used own capital, 10% used bank loan and 33% from other sources such as NGO loan and lending for goat fattening purpose.

3.1.7. Training
Training experience was an important factor which enhanced the level of knowledge and improves skills on various aspects of agricultural technologies. Finding showed that 33% respondents had short time training experience usually from three to seven days in different govt. & non-govt. organizations. Rest 67% had no experience of training on goat fattening purpose. Sarker (2014) and Hossain (2013) stated that 97% farmers have no training experience on sheep and goat production respectively.

3.2. Factors associated with goat fattening
3.2.1. Breed type
About 97% farmer's used Black Bengal goat (deshi) and 3% farmer's used Jamunapari goat for goat fattening purpose. It was also found that 77% farmers reared goat at dry season and 23% farmers reared goat at rainy season and they used 100% castrated male goat for goat fattening purpose. The results of this study are similar with Sarker (2014) where he reported that the 100% respondents have deshi goat (Table 3).

3.2.2. Purchase time of goat
Table 3 showed that, 83% farmers purchased goat occasionally and 17% farmers purchased goat around the year. Rahman *et al.* (2012) found that 13.3% farmers purchased goat around the year and 86.7% purchase goat occasionally for goat production. Almost similar result was found by Hossain (2013).

3.2.3. Goat marketing
About (90%) respondents stated that they directly sold their goat to the local market. Most of the farmers reared male goat 1 to 3 years for fattening purpose on the basis of production performances, health and family condition of the farmers (Table 3).

Table 1. Distribution of respondents according to age, household size and land size.

Parameter	Categories	Number of respondents	% of total respondents
Age (years)	Young (< 30)	09	30
	Middle (31-50)	15	50
	Old age (> 50)	06	20
Household size	Small family (<5)	14	47
	Medium family (6-8)	11	37
	Large family (>8)	05	16
Land size (Acre)	Marginal (<1)	17	57
	Small (1-3)	07	23
	Medium (3-8)	05	17
	Large (>9)	01	03

Table 2. Distribution of respondents according to level of education, occupation, source of capital and training.

Parameter	Categories	Number of respondents	% of total respondents
Level of education	Illiterate	03	10
	Primary	17	57
	SSC	07	23
	HSC	03	10
	Graduate	00	00
Occupation	Agriculture	15	50
	Business	06	20
	Govt. job	01	03
	Other job	08	27
Source of capital	Own capital	20	67
	Bank loan	01	03
	NGO loan	07	23
	Lending	02	07
Training	Have	10	33
	Have not	20	67

Table 3. Distribution of respondents according to breed type, purchase time, and marketing.

Parameter	Categories	Number of respondents	% of total respondents
Breed type	Black Bengal Goat	29	97
	Jamunapari	01	03
	Mixed	00	00
Age	1-1.5 years	25	83
	2-3 years	05	17
Sex	Castrated male	30	100
	Uncast rated male	00	00
Body weight	(5-10)Kg	05	17
	Above 10kg	25	83
Purchase time	Around the year	05	17
	Occasionally	25	83
Fattening Seasons	Dry season	23	77
	Rainy season	07	23
Marketing	Direct sale	27	90
	Butcher/others	03	10

Table 4. Distribution of respondents according to feed supplementation.

Parameter	Categories	Number of respondents	% of respondents
Roughage	Roadside grass	09	30
	Cultivated fodder	01	03
	Tree leaves	05	17
	Tree leaves & Roadside grass	15	50
Concentrate	Compound feed/pellet	00	00
	Mixed feed	23	77
	No	07	23
Growth promoter & feed additives	Yes	02	07
	No	28	93
Growth hormones	Yes	00	00
	No	30	100

Table 5. Public perception and suggestions to improve goat fattening.

Public perception	Number of respondents	% of total respondents
They want to get more profit within short time	28	93
Feeding natural feed in low amount	20	67
They have less idea about health status	15	50
Lack of knowledge on carcinogenic effect of steroid hormone	-	-
Growth promoter using in wrong period	-	-
Harmful feed additives	-	-
Suggestions		
May be initiated training program	27	90
Feeding animals with balance and safe feed	25	83
Regular health check via veterinary services	23	77
Proper doses of vaccines in appropriate age	20	67
Organic growth promoter program	15	50
Improvement of farmer background knowledge	15	50
Strengthening rules and policy development for local authority	12	40
Create goat management knowledge bank	-	-
Knowledge bank through ICT program	-	-

3.2.4. Livestock rearing practices

Table 4 showed that most of the farmers used both roadside grass and tree leaves for feeding where different concentrates feed like wheat bran, rice polish or rice barn bran, kheshari bran, till oil cake, mustard oil cake, broken rice, salt etc. also used for goat fattening. These concentrate ingredients were produced by farmers and some farmers also bought from local market. About 7% farmer used growth promoter and feed additives in feed and 93% farmers are not being used growth promoter and feed additives in feed for goat fattening. Kumar (2014) reported that about 96% farmers used roadside grass and tree leaves and only 4% farmers used cultivated fodder which is nearly similar with the result of present findings.

3.3. Public perception and suggestions

About 93% farmers want to get more profit within short time, 67% farmers fed natural feed in low amount, and 50% farmer have less idea about health status. The need of may be initiated training program, feeding animals with balance and safe feed, regular health check via veterinary services, proper doses of vaccines in appropriate age, organic growth promoter program, improvement of farmer background knowledge, and Strengthening rules and policy development for local authority were the most important suggestions by 90, 83, 77, 67, 50, 50 and 40% of the respondents, respectively (Table 5).

The suggestion of this study has concluded that goat-rearing has tremendous potential for improving the food, employment and livelihood security of rural people. However, a holistic livestock policy and consistent efforts are required to minimize technological knowledge gap on improved goat management practices. Due to weak economic base of goat farmers, they may be provided initial support for input supply to realize the benefits through increased adoption of innovations and technologies. The goat-based integrated livelihood models have been suggested for different categories of households in rural areas. The capacity building of goat-keepers is necessary to bring a change in goat-keepers orientation, attitude and approach. Active support services,

availability of key inputs (vaccines, breeding bucks etc.) and a policy support for better access to micro-credit will have to be ensured for making goat farming a key tool to alleviate poverty, check migration, provide employment, manage malnutrition and attract youths for making agriculture and livestock farming more profitable even in less fertile areas.

4. Conclusions

The study reveal that most of the respondents were middle aged female belong to marginal class, involved in agriculture, used own capital, had no training experience on goat fattening, all the farmers used 100% castrated male Black Bengal goat and only few farmers used growth promoter and feed additives in feed. It clearly indicates that goat fattening is the most profitable and socially acceptable income generating activity and goat meat is safe for health.

Conflict of interest

None to declare.

References

Begum MAA, MM Hossain, M Khan, MM Rahman and SME Rahman, 2007. Cattle fattening practices of selected farmers in Panchagarh district. Bang. J. Anim. Sci., 36: 62-72.

Bangladesh Economic Review, 2015. Ministry of Planning, Government of the People's Republic of Bangladesh.

Department of Livestock Services, 2016. General information related to livestock. Monthly Fisheries and Livestock Bulletin, published by Fisheries and Livestock information office, Khamarbari, Farmgate, Dhaka, Bangladesh.

Faruque S, SA Chowdhury, NU Siddiquee and MA Afroz, 2010. Performance and genetic parameters of economically important traits of Black Bengal goat. J. Bang. Agri. Uni. Res. Sys., 8: 67–78.

Holst PJ, 1999. Recoding and on-farm evaluation and monitoring. In: breeding and selection. Small Ruminant Res., 34: 197-202.

Hossain MD, 2013. Present status of organic Beef Cattle Production in Shahjadpur Upazila of Sirajgong District.MS thesis, Department of Animal Science, Faculty of Animal Husbandry, Bangladesh Agricultural University, Mymensingh.

Iniguez L, 2004. Goats in resource-poor systems in the dry environments of West Asia, Central Asia, and the Inter-Andean Valleys. Small Ruminant Res., 51**:** 137-144.

Kosgey IS, 2004. Breeding objectives and breeding strategies for small ruminants in the tropics, PhD Thesis, Wageningen University, Netherland. pp. 272.

Kumar A, 2014. Present status of organic goat production at Bhaluka upazila in Mymensigh District. MS thesis, Department of Animal Science, Bangladesh Agricultural University, Mymensingh.

MacHugh DE and DG Bardley, 2001. Livestock genetic origin: Goats and buck the trend. Proceedings of the National Academy of Science, United State of America, 98: 5382-5384.

Perry BTF, JJ Randolf, McDermont, KR Sones and PK Thornton, 2002. Investing in animal health research to alleviate poverty. International Livestock Research Institute, Nairobi, Kenya. pp. 148.

Rahman Z, MM Hossain and MA Hashem, 2012. Cattle fattening program in Dinajpur district of Bangladesh. Progressive Agriculture, 23: 1-13.

Sarker AK, 2014. Present status of organic Sheep Production at Ramgoti Upazila in Lakshmipur District.MS Thesis, Department of Animal Science, Faculty of Animal Husbandry, Bangladesh Agricultural University, Mymensingh.

Scarth J, C Akre, L van Ginkel, B Le Bizec, H De Brabander, W Korth, J Points, P Teale and J Kay, 2009. Presence and metabolism of endogenous androgenic Anabolic steroid hormones in meat-producing animals: a review. Food Addit Contam Part a Chem Anal Control Expo Risk Assess. 26: 640-71.

Skunmun P, C Chantalakhana, R Pungchai, T Poondusit and P Prucsasri, 2002. Comparative Feeding of Nale Dairy, Beef Cattle and Swamp Buffalo. Economics of Beef Production. Asian-Australas. J. Anim. Sci., 15: 878-883.

Sundrum A, 2001. Organic livestock farming: a critical review. Live. Prod. Sci., 67: 207–215.