



## Present Status of Organic Sheep Production in Ramgoti Upazila of Lakshmipur District

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### Abstract

The experiment was conducted to investigate the present status and potentialities of organic sheep production in Lakshmipur district of Bangladesh. Data were collected through an interview schedule personally from 30 respondents in 3 villages of Ramgoti Upazila who were involved in sheep production. Parameter studied were origin, feeds and fodder, breeding, health care, living condition of livestock and factors related to organic sheep production. All sheep was indigenous. 60 per cent farmers used roadside grass and 40% cultivated and roadside grass. Most of the farmers used mixed feed which was bought from local market and 17% farmers used vitamin mineral supplementation. All farmers used natural breeding. About 80, 80 and 83% farmers practiced vaccination, de-worming and grooming, respectively. About 13% farmers used hormone, antibiotic and growth promoter and only 33% farmers remove sick or injured animal from healthy stock. All farmers allowed access to outdoor and pasturing during winter season and none reared male and female sheep separately. Farmers did not keep and kept their livestock record were 90 and 10%, respectively. Most of the farmers were middle aged categories (53%) and education level of farmers of primary, secondary and higher secondary were 63, 30 and 7%, respectively.

**Key words:** Bangladesh, Organic, Problems, Sheep, Status

### Introduction

Livestock play a pivotal role in the economy of Bangladesh. Bangladesh is endowed with Livestock. Livestock are an integral component of agriculture in Bangladesh and make multifaceted contributions to the growth and development in the agricultural sectors. The livestock resources of Bangladesh are mainly based on cattle, goat, sheep, buffalo, and poultry About 3.401 million sheep heads are distributed throughout the country (DLS, 2017). Although the growth of livestock production is the second highest among all other sub-sector of agriculture in Bangladesh (BER, 2012), the production and consumption of livestock products is still much lower in consumption with other countries. 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). Among meat consumption of 180 countries in the world, Bangladesh stands in 18<sup>th</sup> position which is about only 7.13 kg per capita per year (DLS, 2009) compared to the USA of 124 kg and the global average of 38 kg (Smith *et al.*, 2007). The requirement of meat per head per day is 120 g whereas the availability is 121.74 g (DLS, 2017). Sustainable meat production is the main objectives of DLS to ensure protein security for building meritorious nation of country. To satisfy the animal protein requirements, sheep can play an important role.

Good nutrition and management plays a significant role on sheep production. But now a day's inorganic fertilizer, pesticides, growth stimulating substances like hormones, steroids, feed additives etc. are using in Bangladesh for sheep production. In Bangladesh, growth promoting substances have been used indiscriminately to increase the growth rate of animal. At present, day by day consumers are becoming more aware of safety and quality of food products consumed by them. Therefore, greater emphasis on organic sheep farming can help us to produce safer sheep products without compromising the animal welfare. Many agencies, non-government organizations (NGOs) and individuals have started experimenting with organic methods of food production in the recent years. Organic livestock production is productive and sustainable (Reganold *et al.*, 1993).

In Lakshmipur district large numbers of sheep are found. They used inorganic substances; growth promoting steroids and feed additives for sheep production but in organic sheep production use of these substances is prohibited. The information related to organic sheep production by the farmers in Bangladesh is very limited. No attention has been paid in Bangladesh in respect of using growth promoting steroids and feed additives in small scale farming. Farmers use different inorganic substances and pesticides for fodder production. Problems, prospects

and health hazard on the use of these substances are not well documented in Bangladesh. Detailed study is needed in different district of Bangladesh to know the present status and recommended organic sheep production program for the farmers as an income generating activities. There is a great potentiality of organic sheep production in Bangladesh both for satisfying animal protein requirement and production of quality sheep. Therefore, it is a prime importance to find out present status of organic sheep production in Bangladesh to know the present status, explore the potentialities and identify the existing problems in organic sheep production.

### **Methodology**

#### ***Study area and selection of farmers***

The study was conducted in two unions namely Char Alexander and Char Abdullah under Ramgotiupazila of Lakshmipur district. Preliminary visits were made for the selection of study area. The data was collected through interview schedule selecting 30 respondents of two unions who were involved in sheep production. The farmers were selected who rear sheep and were ready to give information when necessary. Farmers were randomly chosen from each union. Two unions, three villages in two unions, ten farmers in each village therefore, in total 30 farmers were chosen for collecting data to satisfy the objectives.

#### ***Preparation of interview schedule***

A structured interview schedule was carefully prepared keeping the objectives of the study in mind. The questions and statement contained in the schedule were simple, direct and easily understandable by the respondents. The schedule contained closed and open form of questions. Some scales were included in the schedule, wherever necessary. The draft interview schedule was pre-tested in the study area. The pre-test facilities the researcher to identify faulty questions in the draft schedule and necessary corrections and modifications were made on the basis of the pre-test results.

#### ***Collection of data***

The data were collected following the direct interviews and making frequent personal visits. Before making actual interview, the objectives of the study were explained clearly to the respondents. Then the questions were asked in a very simple manner with explanation wherever necessary. To collect the necessary information from the respondents both interviewing and observation were applied. The relevant data for this study were collected without biasness. Respondents had no specific written

documents of their own. So, they had to reply mainly from their memory. In order to minimize owners' memory bias, repeated visits were made and questions were asked in a logical sequence so that the respondents could recollect facts easily. 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 between the farmers and the researcher. Interviews were normally conducted in respondents' house during their leisure time. It was found that the respondents were very cooperative when the aims of the study were explained to them. After completion of each interview, the researcher thanked the respondents for their help.

#### ***Parameter studied***

The interview schedule contained the following information.

##### A) Check list for organic sheep production:

Origin of livestock, Livestock feed, Livestock breeding, Health care, Living condition, and Record keeping (Chander *et al.*, 2011).

##### B) Other factors related to organic sheep production:

Gender, Age of the farmers, Education level, Household size, Occupation, Land size, Training, Source of capital, Number of sheep, Description of the sheep like breed, age, weight and Problems and probable solutions

#### ***Processing of the primary data***

At the end of data collection, the collected data were coded, compiled, tabulated and analyzed. The local units were converted into standard units. The qualitative data were transferred into quantitative data by appropriate scoring technique. The responses of the respondents that were recorded in the interview schedule were transferred into a master sheet for entering the data into the computer.

#### ***Data tabulation and analysis***

Data were carefully tabulated and analyzed with simple statistical method to fulfill the objectives of the study. The collected data were first transferred to master sheets and compiled to facilitate the needed tabulation. Tabular technique was applied for the analysis of data using simple statistical tools like average and percentages through SPSS- v-16 computer package program.

### **Results and Discussions**

#### ***Origin of sheep***

Origin of sheep was classified into two categories like indigenous and crossbred. Table 1 show that all of the farmers used indigenous sheep. Most of the farmers

(77%) used own source of sheep for sheep production, whereas, 23 percent farmers purchased sheep occasionally from market. In organic sheep production indigenous breeds are preferable than crossbred because indigenous breeds are adapted to local

condition and resistance to disease. The origin of sheep 100 percent sheep is considered to be organic. Hossain (2013) stated that 12% indigenous cattle should be chosen for organic beef production.

**Table 1.** Origin, source and breeding method of livestock (n=30)

Parameter	Categories	Number of respondents	Per cent of total respondents
*Origin of sheep	Indigenous	30	100
	Crossbred	0	0
Source of sheep	Own source	23	77
	Purchase	7	23
Breeding method	Natural	30	100
	A.I.	0	0
	Natural and A.I.	0	0

**Livestock breeding**

Table 1 shows 100 percent farmers used natural breeding for sheep production. Reproductive hormones, embryo transfer technology are not used by the farmers for livestock breeding. Hossain (2013) stated that 73, 13 and 14% used A.I, natural and both breeding practice for cattle fattening respectively. In organic sheep production reproduction technique should be natural. Artificial insemination is allowed only upon veterinary necessity. Hormonal treatment for more meat production should be prohibited.

**Livestock feeds and fodder**

Livestock feeds and fodder were classified into two categories viz. roughage and concentrate. Table 2 shows that most of the farmers (60%) used roadside grass and only 33% farmers used cultivated fodder and roadside grass during rainy season. Different concentrate feed like wheat bran, rice polish/bran, kheshari bran, sesame oil cake, mustard oil cake, broken rice, salt etc. used for sheep production. These ingredients were buying from local market. Feed additives, hormones, and growth promoter are not mixed in these ingredients which are prohibited in organic sheep production. About 17% farmer used vitamin mineral supplement in feed and 83% farmers

not used vitamin mineral supplement for sheep production. In organic sheep production producers are required to feed livestock agricultural feed products that are 100% organic and may also provide vitamin and mineral supplements but in the studied area most of farmers used inorganic agricultural feed products and small number of farmers provide vitamin minerals supplement for sheep production. About 90% cultivated fodders are inorganic because 100% farmers used different inorganic substances and pesticides for fodder production which is prohibited in organic sheep production. All farmers used own prepared mixed feed where feed additive, hormones and growth promoter are not mixed with feed ingredients which meet the organic standard of sheep production. In organic sheep production vitamin mineral supplementation is essential but only 17% farmers used vitamin mineral supplement feed which are considered to be organic sheep. Hovi *et al.* (2003) stated that organic standards offer a good framework for animal health and welfare management in these fields it is nevertheless necessary to solve certain green areas among the organic farming objectives. A review of the literature by Worthington (1998) states that animals fed organically grown feed shows better growth and reproduction than animals fed conventionally grown feed.

**Table 2.** Livestock feeds and fodder (n=30)

Parameter	Categories	Number of respondents	Per cent of total respondents
Roughage	Roadside grass	18	60
	Cultivated fodder	1	3.3
	Both	11	36.7
Concentrate	Compound feed/pellet	0	0
	Mixed feed	30	100
Vitamin mineral supplement	Yes	5	17
	No	25	83
Source of concentrate feed	Produce themselves	3	10
	Buy locally	27	90
Fertilizer use	Yes	30	100
	No	0	0

**Livestock health care**

Table 3 shows that about 80% farmers vaccinate their sheep regularly. Most of the farmers (87%) not used hormones, antibiotic and growth promoter for higher meat production and only 13% farmers used hormones, antibiotic and growth promoter for sheep production. About 67% farmers not removed their sick animals from healthy stock and only 33% farmers removed their sick animals from healthy stock which is important for organic sheep production. About 83% farmers groom their sheep regularly. Most of the farmers (80%) practiced de-worming their sheep regularly. Castration is practiced in organic sheep production. Organically raised animals may not be given hormones to promote growth, or antibiotics for any reason. Preventive management practices, including the use of vaccines, will be used to keep animals healthy. Producers are prohibited from withholding treatment from a sick or injured animal; however, animals treated with a prohibited medication would be removed from organic operation. In the studied area most of the farmers (80%) maintain vaccination schedule to keep animals healthy but majority of the farmers not removed sick or injured animal from healthy animals. The results of this study are similar with Begum *et al.* (2007) where they reported that 83.3% farmers used vaccination, 80% farmers practiced de-worming and 63.4% farmers grooming their cattle regularly. About 13% sheep are considered to be conventional because hormone, antibiotic and growth promoter are used in sheep production which is prohibited in organic sheep production. In the parameter of removal of sick animal about 33% sheep are organic because sick or injured animal are separated from healthy stock which meet the standard of organic sheep production.

**Table 3.** Livestock health care and living condition (n=30)

Access to outdoor	30	100
Access to pasture	30	100
Grooming	25	83
Deworming	24	80
Vaccination	24	80
Removal of sick animals	10	33
Hormone, antibiotic and growth promoter	4	13
Separate male and female cattle	0	0

**Livestock living condition**

Table 3 shows that 100 percent farmers allowed animals access to outdoor and pasture during winter season. Most of the farmers clean housing/pens, equipment and utensils regularly. All farmers kept male and female animals together. All organically raised animals must have access to the outdoors, including access to pasture for ruminants. They may be temporarily confined only for rainy reasons of health, safety, the animals stage of production, or to protect soil or water quality. In the studied area most of the farmers reared their sheep in existing traditional sheep shed. In the parameter of livestock living condition 100 percent sheep are considered to be organic because animals are allowed access to outdoor and pasture.

**Record keeping**

Organic production generally requires more record keeping than conventional production. However, records are also important to verify the organic status of the animals and the production, harvesting and handling practices associated with them and their products but in the studied area most of the farmers do not kept livestock record in sheep production. Table 4 shows that most of the farmers (90%) not kept their livestock record and only 10% farmer kept birth record, breeding record, feed record, health record etc. for sheep production. In the parameter 90% sheep are

considered to be inorganic because record keeping is essential in organic sheep production. The results of

this study are similar with Hossain (2013) where he reported that 3% farmers kept record regularly.

**Table 4.** Associated factors related to organic and conventional sheep production

Parameter	Category	No. of respondents	Percent (%)
Age	Young age up to 35	11	37
	Middle aged (36-50 )	16	53
	Old aged (.>50)	03	10
	<b>Total</b>	<b>30</b>	<b>100</b>
Education	Primary	19	63
	Bellow SSC	09	30
	Illiterate	02	07
	<b>Total</b>	<b>30</b>	<b>100</b>
Occupation	Agriculture	15	50
	Business	07	23
	Govt. job	01	04
	Others job	07	23
	<b>Total</b>	<b>30</b>	<b>100</b>
Training skill	With training	01	3
	Without training	29	97
	<b>Total</b>	<b>30</b>	<b>100</b>
Source of capital	Own source	17	57
	Bank loan	03	10
	NGO loan	10	33
	<b>Total</b>	<b>30</b>	<b>100</b>
Purchasing time	Around the year	03	10
	Occasionally	04	13
	Not purchase	23	77
	<b>Total</b>	<b>30</b>	<b>100</b>
Duration of rearing	One year	14	47
	One to five years	16	53
	<b>Total</b>	<b>30</b>	<b>100</b>
Land size	Marginal (up to 1 acre)	10	33
	Small (1-3 acre)	12	40
	Medium (above 3-8 acre)	07	23
	Large (above 9 acre)	01	4
	<b>Total</b>	<b>30</b>	<b>100</b>
Household size(No.)	Small family (up to5)	16	53
	Medium family (6-8)	12	40
	Large family (.> 8)	02	07
	<b>Total</b>	<b>30</b>	<b>100</b>

**Factors related to organic sheep production**

There are many factors and constituents attribute that characterize an individual and form an integral part in the development of one's behavior and personality. In this studied 30 respondents were interviewed to find out their socio-economic condition. The selected characteristics included age of the farmers, family size, education, occupation, and land size, training, and knowledge, source of capital and purchase time of sheep.

**Age of the farmers**

According to data, the farmer's age ranged from 29 to 65 years. The respondents were classified into three categories, such as young age (up to 35 years), middle age (36-50 years) and old age (above 50 years) on the basis of their age shown in Table 4. The findings indicate that the highest proportion (47%) of the farmers in the studied area was in the middle aged category compared to 20% belonging to young aged category and 33% to old aged category.

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. Almost similar findings were found by Begum *et al.* (2007), Ahamed *et al.* (2010) and Sharmin (2005). It was expected that young and middle aged farmers (67%) were more active, energetic and enthusiastic in performing livestock related activities. Particularly the middle aged farmers were well experienced and more acquainted with the sheep production.

#### **Household size**

The household size of the farmers ranged from 4 to 16 numbers and the mean was 6.05. On the basis of their household size, the families were classified into three categories. These were small family (up to 5 members), medium family (6-8 members) and large family (above 8 members). Data contained in table 4 showed that the majority (53%) of the farmers had small sized family, 40% medium sized family and 7% in large sized family. The average family size 6.05 of the respondents in the studied area was higher than that of the national average of 4.9 (BBS, 2008). The results of this study are almost similar with Rahman *et al.* (2012) where they reported that 52 per cent farmers had small sized family, 31 percent medium and 17% farmers in large family. Findings from Sharmin (2010) were much closed to the present study.

#### **Land size**

Table 4 shows that the total land (homestead and cultivable) of the respondents were classified into four categories such as marginal, small, medium and large farmers. The major category (40%) of the farmers belongs to small class which was also a representative of typical land size of Bangladesh. About 33% farmerø marginal, 23% medium and 4% farmers had large size land. The results of this study are more or less similar with Hossain (2013) where he reported that 23 percent farmers had marginal land, 40 percent farmers had small land, 30 percent farmers had medium land and 7 percent farmers had large land size.

#### **Level of education**

The level of education of the farmers ranged from primary to graduate. The respondents were classified into four categories, such as Primary, SSC, HSC and Graduate on the basis of their level of education shown in Table 6. Among the total respondents 63 had primary, 30 had secondary and 7% had higher secondary level of education. Findings indicate that most of the farmers had primary education. The results of this study are similar with Begum *et al.* (2007), where they reported that 20% farmers were illiterate,

and primary, secondary and above secondary level of education were 40, 30 and 10%, respectively. Almost similar findings were found by Sharmin (2005) and Sharmin (2010). It is assumed that people having higher education are more progressive and innovative than those of illiterate and they could perform better in sheep production.

#### **Occupation**

The total respondents were classified into four categories. The major category 15 of the respondents belongs to agriculture categories, 7 businessmen and 1 government job and 7 are other job. Number and percentage distribution of respondents according to the occupation are shown in Table 4. Out of 30 respondents 50% are involved in agriculture, 23% in business, and 23% other job and 4% in government job, respectively. The results of this study are more or less similar with Ahamed *et al.* (2010) where they reported that 70.2% farmers involved in agriculture and 11.2 percent in business.

#### **Source of capital**

The source of capital for sheep production varies from farmers to farmers. According to the farmers are classified into three categories. Table 4 showed that About 57% respondents used own capital for sheep production, 10% respondents taking bank loan and 33% from other sources such as NGO loan and lending for sheep production.

#### **Training**

Training experience was an important factor which enhanced the level of knowledge and improves skills on various aspects of agricultural technologies. Table 4 shows that only 3% respondents had experience on short time training usually for one to two days in Upazila Livestock Office in Ramgoti, Lakshmipur for sheep production. Rest 97% had no experience of training on sheep production. The sheep farmers were not aware about various training courses offered by different organization.

#### **Breed type**

Most of the respondents selected their sheep on the basis of breed, age, sex and weight, respectively. Usually 1 to 2 years old sheep are used for sheep production. The average weight of their sheep was 12 Kg. 100% farmers used indigenous breed of sheep. Distributions of respondents according to breed type are shown in table 5. Hossain (2013) stated that 20% respondents have indigenous and 80% have crossbred for cattle fattening.

### **Purchase time of sheep**

Purchase time of sheep was classified into three categories. One was around the year, which means there is no definite time in the year for purchasing sheep. Another was occasionally and other was not purchase. Table 4 showed that, most of the sheep farmers (77%) not purchase, they used own sources sheep for sheep production whereas, 23% farmers purchase sheep occasionally.

### **Present status of organic sheep production**

In the parameter of breed 100% sheep are considered to organic. In case of roughage 100% of the feeds are

inorganic because most of the farmers use inorganic fertilizer and pesticides for fodder production. About 17 percent sheep are organic and 83 percent sheep are inorganic in criteria of providing vitamin mineral supplement. In the parameter of livestock breeding all sheep is considered to be organic. In the criteria of Health care about 87%are organic. In organic sheep production hormone, antibiotic and growth promoter is prohibited but 13% farmers use growth promoter for sheep production so, 87 percent sheep are considered to organic. In the parameter of livestock living condition and record keeping about 90 and 10% sheep are organic respectively (Table 5).

**Table 5.** Present status of organic and conventional sheep production (n=30)

<b>Check list of organic cattle production</b>	<b>Criteria</b>	<b>Organic (%)</b>	<b>Conventional (%)</b>
Breed	Indigenous	100	0
Feed	Roughage	60	40
	Concentrate	Not known	Not known
	Vitamin and mineral	17	83
Breeding	Natural	100	0
Health care	Vaccination	80	20
	De-worming	80	20
	Growth promoter	86	14
	Removal of sick animal	33	67
Living condition	Access to outdoor	100	0
	Access to pasture	100	0
Record keeping	Kept/Not kept	10	90

### **Problems faced by the farmers and their suggestions**

Table 6 shows problems and suggestions to improve organic sheep production. The major problem of organic sheep production of farmers reported that lack of technical knowledge, training facilities, unavailable organic fertilizer, lack of high cost of vitamin mineral supplementation and lack of pasture land were 83, 60, 27, 10and 43%, respectively. The pasture land should

be available, providing training facilities, awareness of the farmer and motivation of the farmers were the most important suggestions by 56, 76, 53 and 16 per cent of the respondents respectively. Ali and Anwar (1987) and Hossain *et al.* (1996b) found that high feed cost and shortage of animal feed were the greatest problems of the farmers for rearing sheep.

**Table 6.** Problems and suggestions to improve organic sheep production (n=30)

<b>Problems of organic sheep production</b>		
<b>Problems/Suggestion</b>	<b>Number of respondents</b>	<b>Per cent of total respondents</b>
Lack of technical knowledge	25	83
Lack of Training facilities	18	60
Lack of pasture land	13	43
Unavailable organic fertilizer	8	27
High cost of vitamin mineral supplementation	3	10
<b>Suggestions to improve organic sheep production</b>		
Providing training facilities	23	76
Pasture land should be available	17	56
Awareness of the farmer	16	53
Motivation of the farmers	5	16

**Conclusions**

From the study it reveals that all farmers used indigenous type for sheep production and they used natural breeding for sheep production. All roughages were organic because they are grown naturally. Twenty per cent farmers do not vaccinate their sheep regularly. All sheep are considered to be organic because no hormone, antibiotic and growth promoter are used of sheep production in studied areas. Maximum sheep are considered to be organic because animals are allowed access to outdoor and pasture. The farmers were not aware about organic sheep farming and various training courses offered by different organization. Therefore, it is recommended that more number of training courses like training on organic sheep farming, rearing, marketing etc. should be conducted by government and non government organizations. Government owned fellow land should be allotted as pasture land for organic sheep farming, training facilities as well as government support for the farmers should be provided.

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