Chapter –I

INTRODUCTION

In our national economy livestock (mainly cattle, buffalo and goats) plays an important role as an integral component of farming systems. The population of livestock of Bangladesh was 58.96 million but now goat populations are 35.3 millions. The population contributes about 3.96 percent in GDP (Alam, 2002). Traditionally goat rearing is an integral part of mixed farming in Bangladesh and their contribution to national economy is valued for high quality meat, milk, skin also for poverty alleviation, income generation, creation of employment opportunity and food production (Debnath, 1995). Goats are important sources of food and income for small farmers in tropical areas of the world. In Bangladesh, most of the farmers are small (8-10) marginal (4-7) or poor (1-3) and goats are sized extensively as an important income generating resource. Goat is called cow for poor farmers. In our country almost all of the villagers rear at least 1 or 2 goats. (Alam, 2002).). In Bangladesh livestock play a sustainable agriculture employment generation. In Bangladesh Black Bengal goat is one of them for its genetic characters due to its superior quality such as more prolificacy, skin quality etc. Bangladesh earn foreign currency every year about 2.32 million square meter leather area is produced annually from the goat skins that helps earn foreign exchange amounting to tk.180 cores (Rahman and Sil, 2002). There are more than 56000 goat and sheep farms operating in Bangladesh (DLS, 2000).

Different types of diseases both infections (PPR, parasitic infestation Pneumonia, Goat pox, gid disease,bloat, Tetanus and others etc.) are important problems in goat rearing in our country. In case of parasitic infestation, fascioliasis is more common in goat. Source of infection of this disease are infected animal,contaminated food and water.Babesiosis,anaplasmosis also significant parasitic diseses.Gid disease or coenurosis is more common in this area due to lacking of anthelmentics therapy.Dog bite wound is more commonly occurred in this area.Main reason of this disease condion is improper vaccination of dog and large size of dog population. Bloat and tetanusw has also important economic value in goat population. Among the diseases that have a great significance and economic value in goat rearing of them PPR (Peste Des Petits Ruminants) is the most devastating disease. PPR is popularly called Goat plague / Stomatitis / pneumoenterties syndrome. It is a infectious, highly contagious viral.

Disease of small ruminants particularly goat and sheep (Roeder and Obi, 1994). It is caused by morbilli virus under the family paramyxoviridae which is closely related to the rinderpest virus of cattle, the measles virus of human, the distemper virus of dogs (Dhar, 2002). It is also known as pseudorinderpest of small ruminants or pest of small ruminants or pest of goats or kata, contagious pustular stomatitis and pneumoenteritis complex. PPR was first recorded as clinical entity in the Ivory Coast of West Africa in 1942 (Samad, 2000). It is an acute or sub-acute viral disease of goats characterized by high fever, stomatitis, and gastroenteritis, pneumonia which has different epidemic pattern and endemic in nature found throughout the world. East and West Africa, the Middle East, Nigeria, Senegal, Ghana, Sudan, Indian sub-continent including Bangladesh (Reader and Obi, 1999). Among the South Asian countries, PPR virus was first recorded in India from the southernstate of Tamilnadu in 1987 and it continued to be present in the Andhapradesh and Karnataka (Taylor, 1984). PPRV is transmitted by direct contact with secretions and excretions of infected animals. It is highly contagious and all discharges can carry virus. Substantial quantities of virus are found in ocular nasal or oral secretions of sick goats and in the faeces late in disease (Abegunde and Abu, 1977). PPR disease spread also depends upon season. Rainy season is more susceptible to spread the disease where as dry season is less susceptible. In Bangladesh PPR was first noticed by FAO expert team while visiting western part of Bangladesh in 1993 (Debnath, 1995). PPR was detected by sample taken from the sick goats and then spread an epidemic fashion throughout the country (Debnath, 1995). By the year 1995 it is assumed that almost 75 percent of the districts in Bangladesh become noticed. It is thought that the disease might have come from India (Debnath, 1995). Control of PPR is designed based on a concerted effort of vaccination and sanitary measures. At present homologous PPR vaccine has been 1the livestock developed region of Bangladesh. KUSHTIA GRADE is very popular name for good quality skin from Black bengal goat. Many livestock farms are developed in this area .Goat population are considerable in Kushtia.

Considering all those aspects, the present study, therefore, was undertaken with following objectives:-

- To know the percentage of common diseases of goat
- To find out the Prevalence of PPR disease in goa at kushtia sadar, kushtia.
- To find out the associated risk factor with PPR occurrence in terms of breed, age and sex.

Chapter-II

MATERIALS AND METHOD

3.1 Location and duration

The study was conducted at major goat rearing areas of kushtia sadar in Kushtia district. From the period of 1st March 2017 to 6th April 2017 during internship working period.

3.2 Population and tools used for data collection

The study was conducted on the Upazilla Veterinary Hospital for register goat. Naturally various diseased goats and a lots of PPR infected goats of various age, sex and breed that were brought to the Hospital over the study period. A number of total cases of 200 were recorded in internship period in Upazilla Veterinary Hospital. Of them PPR were detected 80 cases after clinical diagnosis .parasitic infestation were 25 case, diarrhea were 18 case, dog bite wound were 17 case, gid disease were around 14 case, and others case respectively. The data collection was performed by owners complain, clinical history and clinical signs of the goat.

3.3 Disease Diagnosis and treatment

3.3.1 Anamnesis

Every day about 15-20 goats brought in to the hospital for the treatment of various diseases. History of the cases were taken from the owner and carefully recorded in each case individually.

3.3.2 Clinical examination

The temperature, pulse, and respiratory rate from each of these sick animals were recorded. Clinical examinations of all 200 goats were conducted on the basis of diseases history, owner complaint, symptoms, to diagnose the following diseases . History of each case (Present and past) was carefully taken which gave a guideline for examination of the animals. According the merit of the individual case, general clinical examination were conducted on the basis of disease history and owners complaint, symptoms and techniques such as microscopic examination, laboratory common techniques used by Rosenberger (1979) and Samad et al., (1988).About 80 goats affected with PPR were diagnosed looking at defined clinical signs (restless, dull, dry muzzle, purulent nasal discharge, arched back) correlation with owners history (fever, loss of appetite,

coughing, nasal discharge, diarrhea) through close observation and physical examination (high rise of body temperature, 104-107 ^{0}F, erosion of the gum, increase rate of respiration) from 200 affected goats during (march to april) study area.

3.3.3 Clinical signs

The clinical signs were found during clinical examination of PPR patients and others patients are:

In case of PPR.

Sudden high fever (104 – 106 ^{0}F)

Markedly depressed.

- Rough hair coat and clear watery discharge from anus and thick purulent discharge from the eyes and nose.
- Anorexia, severe dehydration and emaciation followed by hypothermia.
- The mucous membrane of the mouth and eyes become very reddened.
- Faces were soft, watery, foul smelling and contain blood streaks and pieces of dead gut tissues.
- In severe cases, difficult breathing marked by extension of head and neck, dilation of nostrils, protrusion of the tongue and soft painful coughs.
- Necrotic enteritis followed by frothy salivation and off fed.
- Severe gastro enteritis followed by diarrhoea; dehydraion and death

Parasitic infestation

- Anemia, loss of body weight,Jaundice
- Fever, diarrhea , dehydration. and presence of different parasite.

Mastitis

- fever,udder become swollen and painful.
- Blood stained milk

Bloat

- Enlargement of abdomen,.acidic PH level
- Dull, depressed and anorexia

Tetanus

Locked jaw appearance,unable to walk, muscle stiffness

Dog bite wound

- Continious bleating, restlessness

3.3.4 Lab diagnosis (feces test, PH, skin scraping)

3.3.5 Treatment was given to the patients. The therapy regime as:

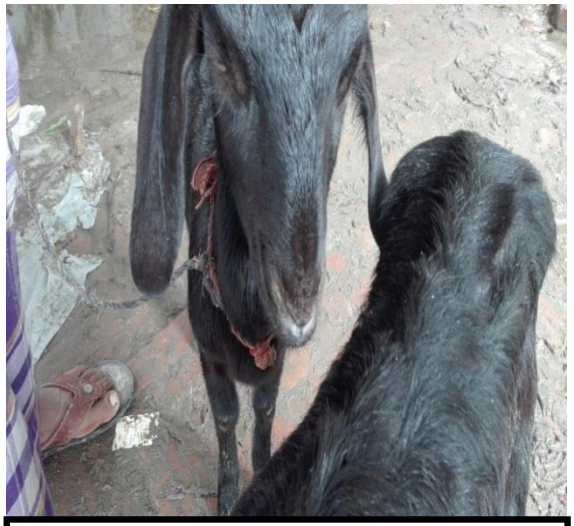
- Oxytetracycline(Inj.Renamycin-100® 10 mg/kg body wt.
- Streptomycin+Penicillin (Sp vet®)-10mg/kg body wt.
- Sulphadimidine (Inj. Diadin®) 140 mg / kg body wt. (I/V).
- Promethazine Hydrochloride: (Inj. Dellergin®) 10 mg/kg body wt.(I/M)
- Atropine sulphate: (Inj. Atro-vet®) 1mg/kg body wt(I/M).
- Fluid therapy- Normal saline was given in every case.
- Some supportive drugs like vita-B complex, vita-C, rumentonic mixture, stomachic mixture astringen mixture, CuSO4 solution,

3.3.6 Data analysis

The raw data that was collected from owners complain, clinical history and clinical signs were recorded into previously formed a data record sheet. Then these data were put into MS Excel-2007 program. Then mathematical analysis (sum, percentage etc.) were calculated. A descriptive analysis were performed to interpret the data.

Figure: 5

Diarrhoea



Nasal discharge

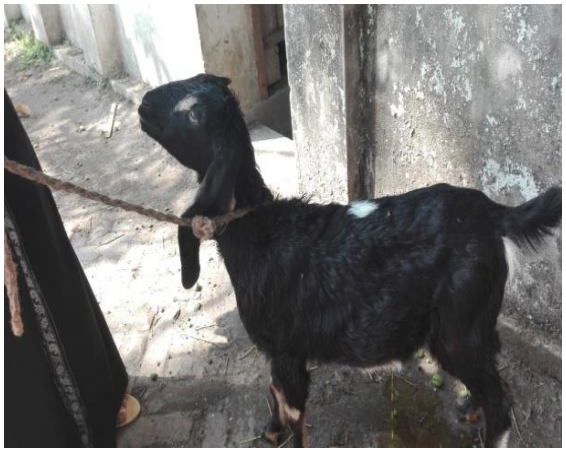
Soiled hind quarter with feces

Stomatitis

Gangrenous mastitis in Goat

Tetanus in Goat

Intravenous fluid therapy



Gid disease

Examination of bloat by direct palpation

Collection of ruminal fluid

Chapter-III

RESULTS AND DISCUSSION

The study was conducted to find out the clinical investigation of common diseases and prevalence of PPR at upazilla veterinary hospital in kushtia sadar; kushtia from 1st March 2017 to 6th April 2017. Following tables represent the present findings.

Table:1Comparison of disease frequency of various diseases of goats.

Name of Upazilla	**Total cases**	**Name of diseases**	**No. of cases**	**Percentage (%)**
kushtia sadar	200	PPR	80	40
		Parasitic infestation	25	12.50
		Diarrhoea (Non specific)	18	9
		Pneumonia	13	6.5
		Dog bite wound	17	8.5
		GID disease	14	7
		Bloat	12	6
		Arthritis	6	3
		Others	15	7.5
Total			200	

From the above table it is shown that frequencies of disease incidence are variable. About 200 cases were encountered in the study area. Out of those cases 80(40%) were PPR. The other cases were parasitic infestation 25(12.25%), non specific diarrheas were 18(9%); pneumonia was 13(6.5%);dog bite wound was 17(8.5); GID disease wsa14(7%);bloat 12(6%);arthritis (6.3%) and others were 15(7.5%). Among the diseases the PPR infection is the highest percentage (40%). Allover frequency of diseases were PPR, Parasitic Infestation, Diarrhea (non specific), Pneumonia; Dog bite wound; Gid disease; Bloat; Arthitis; and others were 40%, 12.50%, 9%, 6.5%, 8.5% ;7%;6%;3% ;and 7.5%.

PPR

This study recorded 40% cases of PPR in goats,. In male,48.75% in female,51.25%, in young 65% and 25% in adult goat(table 1) There is a remarkable higher value than the findings of Dubaid, (1989) who reported 55.09% PPR infection in goat. Here the table shows that the PPR infection is 40% which is higher than previous value.

Diarrhoea

Diarrhoea was found to be the major digestive disorders in ruminants. Diarrhoea cases were 9% in goats (Table 1). These observations could be compared well with the 6.94% of non-specific diarrhoea in dairy cows, 8.99% in cow-calves and 12.23% in goats (Hoque and Samad, 1996, 1997) and 7.6% in cattle and 12.1% in goats (Rahman *et al.*, 2012). Samad (2001) reported 25.97% and 9.91% of diarrhoeal diseases in cattle and goats, respectively. Rahman *et al.* (1999) reported 4.78% of diarrhoeal diseases in cattle.

Bloat

Bloat was recorded 7.47% in goats(Table 4). In goat, it was also recorded 5.97% in . Badruzzaman et al. (2015) reported ruminal acidosis 12.24%, which is higher.

Parasitic infestation

Parasitic infestation was recorded 12.50% in goat(table 1).The higher prevalence of parasites of goat in Bangladesh was also in agreement with the findings of Parvez *et al*., (2014) and Alam *et al* ., (2015)

Pneumonia

Pneumonia recorded in goats were 6%, respectively (Table 1). Rahman *et al.* (2012) recorded 5.1% and 16.8% cases of pneumonia in cattle and goats. Cases of pneumonia in cattle were comparatively lower than the earlier reports of Samad (2001) and Samad *et al.* (2002) who reported 0.84% and 1.24% pneumonia in cattle, respectively.

Risk factors associated with PPR:

The disease frequencies are shown in pie chart:

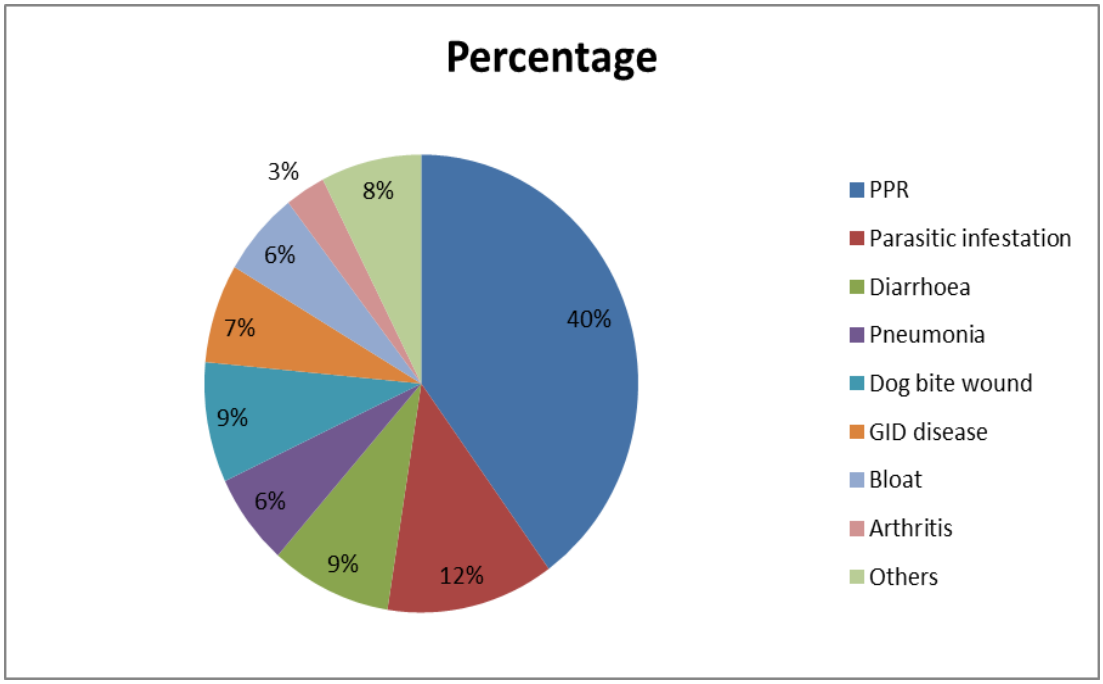


Fig 1: Graphical presentation of Disease frequency of various diseases of goats.

Table 2: Disease incidence of goat according to sex

Total	**Sex**	**No. of cases**	**Percentage (%)**
80	Male	39	48.75
	Female	41	51.25

Table 4.2 represent disease incidence of goat according to sex. Female were affected in highest in number 41(51.25%) whereas the males were slightly lower in number 39(48.75%). This was close to the report of Samad, (2001) who reported both male and female goats are equally susceptible to PPR.

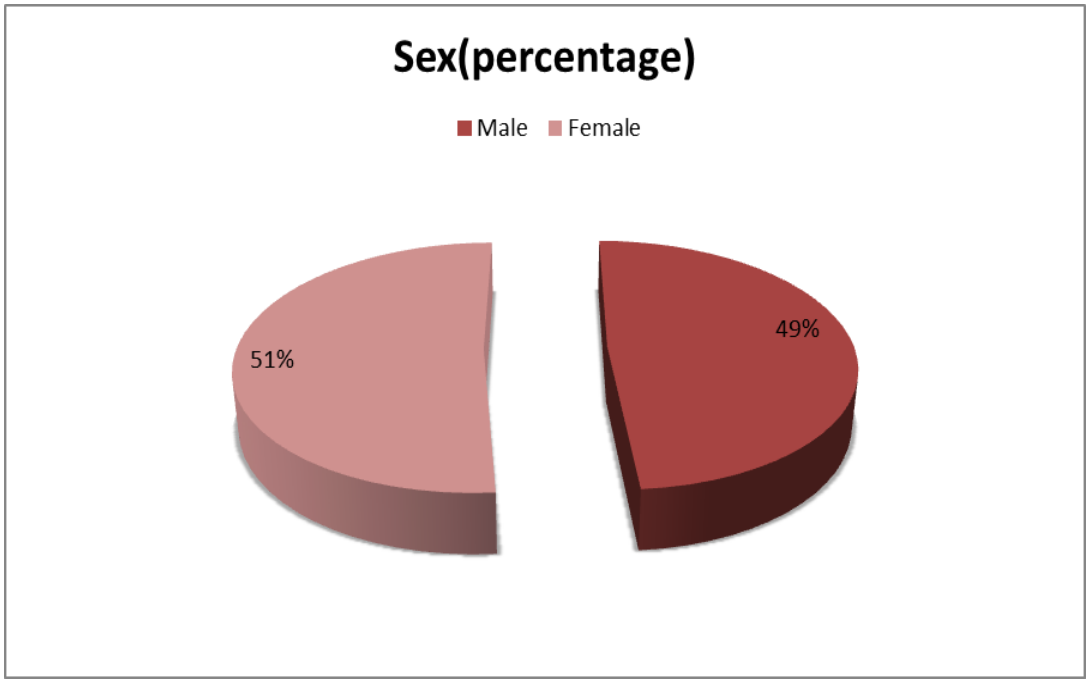


Fig 2: Graphical presentation of Disease incidence of goat according to sex

Table 3. Age categories of PPR affected goats.

Total	**Age**	**No of cases**	**Percentage (%)**
80	1-3 months	6	7.5
	3-6 months	22	27.5
	6-12 months	24	30
	Above 1 year	28	35

Table 3.Represents age categories of PPR affected goats. Irrespective of breed less than one year old of goats were tremendously affected by PPR followed by 7.5% at 1-3 months old, 27.5% at 3-6 months, 30% at 6m-1 year and 35% at above 1 year. It was found that more than one year old of goat population were mostly affected. Radostits *et al,* (1995) cited that the maximum proportionate of PPR was encountered 37.5% at

the category of 7 to 12 month). The findings are agreement with the result of Radostits *et al*, (1995).The frequencies are shown in pie chart.

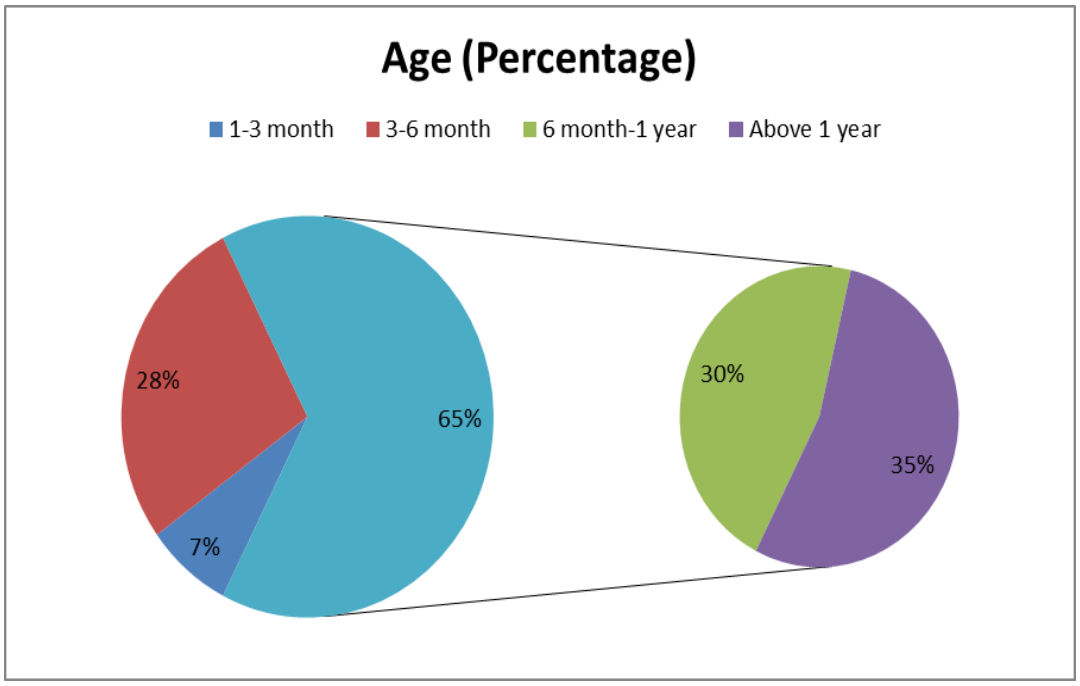


Fig 3: Graphical presentation of Age categories of PPR affected goats.

Table: 4. Percentage of PPR affected goat according to breed.

Total	Name of breed	No: of cases	Percentage
80	Black Bengal	64	80
	Jamunapari	16	20

Table 4.represents Percentage of PPR affected goat according to breed. Black Bengal goats were affected more (80%) than Cross or Jamunapari (20%). The present study agrees with previous author in terms of breed involvement (Samad, 2000). Where he reported that Black Bengal goats are more susceptible to PPR than Jamunapari. These frequencies are shown in pie chart.

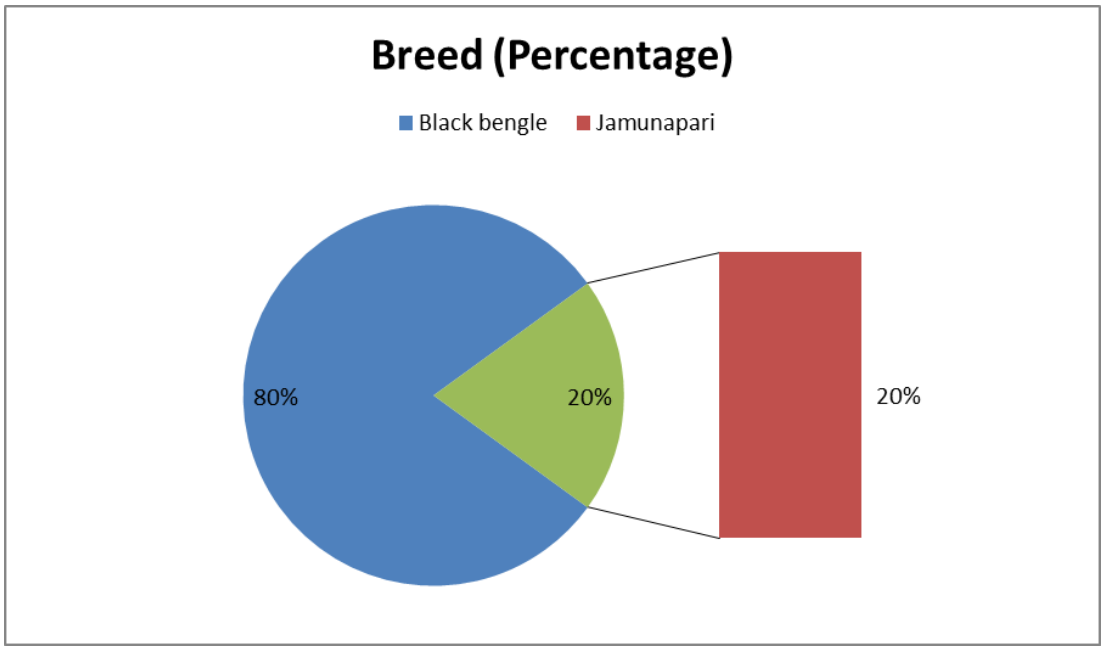


Fig 4: Graphical presentation of Percentage of PPR affected goat according to breed.

LIMITATION

The diagnoses of case were mostly done based on clinical signs and symptoms but few of them were based on laboratoty diagnosis. The number of clinical cases of goats was small(200 cases) and duration of study period was short.

CONCLUSION

Livestock play an important role in agro-economy of Bangladesh. But different kinds of diseases and disorders lower its performance. This study was carried out to detect the common existing diseases in goat and prevalence of PPR at upazilla veterinary hospital in kushtia sadar. The existing common diseases of goat are Parasitic infestation; Diarrhea (non specific), Pneumonia, Dog bite wound, Tetanus, Gid disease, Bloat, Arthritis and PPR; PPR is around 40% of total cases. Whereas Parasitic infestation 12.5%, Diarrhea 9%, Pneumonia 6.5%, Dog bite wound 8.5%, GID disease 7%, Bloat 6%, Arthritis 3% and others are 7.5%. .Among the diseases the frequency of PPR is more higher than others. PPR is known as a goat plague. This disease is spreading more day by day.. This study found that young's are more susceptible (65%) than adults (35%). Also females (51.25%) were more infected than male (48.75%). In case of breed Black Bangle goats (80%) were more susceptible to PPR infection. PPR causes heavy economic losses in every year. Most of the diseases treatment with Penicillin , Sulpha drugs, Steptomycin + penicillin, Oxytetracyclin, Gentamycine and metranidazole. Used some supportive drugs like vita-B complex, vita-C, rumentonic mixture, stomachic mixture astringen mixture, $CuSO_4$ solution. Proper vaccination and continious survillence and monitoring can eradicate the disease from this area.

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The Author

Biography

I am Md. Bashir ahammed. I born in kushtia which located at the south west part of bangladesh. I am an intern student for the degree of Doctor of Veterinary Medicine (DVM), Faculty of Veterinary Medicine, CVASU. I belongs to a happy family. Now, i am working on indigenous poultry rearing system in backyard condition. I have aslo great interest on molecular and clinical isolation and identification of different bacteria, virus and protozoa.