CHAPTER- 4

**RESULTS AND DISCUSSION**

**4.1 Prevalence of PPR in goat**

4.1.1 Overall prevalence of PPR in goat

**Prevalence of study area**

The proportional prevalence of PPR in goat was estimated by the following formula of Thrusfield (1995).

The proportional prevalence of infection

= $\frac{No.of individual having a disease in a particular point of time ×100}{No.of individual in the population at risk at the point of time}$

In the entire period of observation, 715 goats were recorded of which 137 were identified with PPR indicating the overall prevalence 19.16% (Table 1). Prevalence was high in the month of August (19.89%), whereas 9.89% and 17.52% is in the month of July and September respectively.

**Table 1:** The overall prevalence of PPR in goat

|  |  |  |  |
| --- | --- | --- | --- |
| **Month** | **Total animal examined** | **PPR case** | **Prevalence (%)** |
| July | 192 | 19 | 9.89 |
| August | 372 | 74 | 19.89 |
| September | 251 | 44 | 17.52 |
| Overall prevalence | 715 | 137 | 19.16 |

Time of year

 Fig 8: Overall prevalence of PPR in Goat (graphical representation)

The results showed that PPR cases were proportionately and significantly (p= 0.004), higher in the month of August compared with July and september. Similar temporal results on the occurrence of PPR was reported by Obi *et al.,* (1983) and Nawathe (1979) who observed that PPR occurred as outbreaks in rainy season, when goats were herded together.

**4.1.2 Prevalence of Paste des petits ruminant according to sex in goat**

**Table 2** shows the prevalence of PPR in two different sexes in goat. Overall prevalence of male and female animal was somewhat similar that is 50.36% in case of male and 49.64% in female. In the month of July higher prevalence was 57.89% in female. On the other hand prevalence of PPR in male was 60.81% in the month of August. In the month of September higher prevalence was 61.36% in female.

**Table 2:** Prevalence of PPR according to sex in goat

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Category | No of animal(n) | Percentage (%) | P-value |
| sex  | male | 69 | 50.36 | 0.238 |
| female | 68 | 49.64 |

**Table 3:** Prevalence of PPR according to sex in goat (Month basis)

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | **July** | **August** | **September** |
| Total cases | 19 | 74 | 44 |
| No. of male | 8 | 45 | 17 |
| Prevalence in male (%) | 42.10 | 60.81 | 38.63 |
| No. of female | 11 | 29 | 27 |
| Prevalence in female (%) | 57.89 | 39.18 | 61.36 |

Prevalence of male and female animal was somewhat similar that is 50.36% in case of male and 49.64% in female indicating both male and female goats are equally susceptible to PPR (P=0.238). This was close to the report of Samad (2001) who reported both male and female goats are equally susceptible to PPR.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Immune status | No. positive case  | No. negative case | Total cases observation | % of positive cases |  χ2 value | p-value |
| Vaccinated | 14 | 105 | 119 | 11.76 | 11.68 | 0.007 |
| Non-vaccinated | 123 | 473 | 596 | 20.63 |

**4.1.3 Prevalence of PPR based on immunue status**

**Table 4:** Prevalence of PPR according to vaccination status

Vaccination against the disease seems to decrease the prevalence, but not gives guarantee of being PPR-free. The exact dates of vaccinations against PPR were not known. If vaccines were administered to the animals when they were already incubating the virus the vaccine could not work. However, if vaccination time for an animal was within the recommendation period and still they succumbed to PPR then the potential of the vaccine or vaccination could be in-question. This was beyond the scope of the study; however, because some vaccinated animals were also infected with the virus the potential of PPR vaccine, produced from Livestock Research Institute (LRI), in protecting goats from PPR need to be assessed.

**4.1.4 Prevalence of PPR based on breeds of goat**

We found higher prevalence of PPR in Black Bangal goat (P<0.05) compared to nondescriptive breed and Jamunapari, respectively. The prevalence of PPR was 63.50% in BBG, 21.19% in nondescriptive breed and 14.16% in jamunapari goat **(Table 5).**

**Table 5:** Prevalence of PPR based on breeds of goat

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of breed | Frequency | Percentage (%) |  χ2 value | P-value |
| Black bangal | 87 | 63.50 | 6.68 | 0.004 |
| Jamunapari | 20 | 14.16 |
| Nondescriptive breed | 30 | 21.19 |

Fig 9: Prevalence of PPR in different breeds of Goat (graphical representation)

The findings of present study (**Black Bengal** 63.50% and **Jamunapari** 14.16%, **Cross breed** 21.19%) do not similar with previous records. Where Khan and Siddique *et al.*, (2007) reported higher overall prevalence (43.33%) of the ruminant. Also does not congruous with Nussieba *et al.*, (2009), by Mehmood *et al.*, (2009), Abubakar *et al.*, (2008) where they recorded 59.15%, 15.36% and 40.98% respectively. The susceptibility rate recorded in this study has close similarity with Samad (2000) and Sil (2000) where they mentioned about the higher susceptibility of black Bengal goat.

**4.1.5 Prevalence of PPR in different age groups goat**

Age distribution of the affected goats were divided into four category based on percentile, Age ≤6 months , 6-12 months (younger), 12-24 month (adult) and above 24 month. There were found higher prevalence of PPR in young (6month to 12 month) then in adult (12 to 24 month).The prevalence of PPR was 48.64% in young and 28.37% in adult in the month of august **(Table 6).** Other two month also indicate younger goats of 6 to12 months of age were more susceptible to PPR than the adult ones.

**Table 6:** Prevalence of PPR in different age groups of goat

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month** | **Total Animal** | **Below 6 month** | **6 month to 12 month** | **12 to 24 month** | **Above 24 Month** |
| July | 19 | 42 % | 26.31% | 26.31% | 5.26% |
| August | 74 | 20.27% | 48.64% | 28.37% | 4.05% |
| September | 44 | 29.54% | 34.09% | 22.72% | 13.63% |

**Fig 10**: Prevalence of PPR in different age group of Goat (graphical representation)

It was found that less 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).

**4.2.1 Analysis of clinical signs of PPR**

In terms of clinical signs, there were found severe diarrhoea in most of the cases (62.04%) and in other cases there were found moderate diarrhoea (37.95%). Stomatitis was present 83.21% cases, and absent in case of 16.78% of cases. About 74.45% cases the temperature was 104.2 ̊F-106 ̊F and 25.54% cases the Temperature was 103 ̊F to 104 ̊F. There were found higher percentage of cases with nasal discharge (80.29%) . Anorexia was present only 29.19% of cases and 70.80% with off fed. **(Table7).**

**Table 7:** Analysis of clinical signs involved in PPR in goat

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Variables** | **Categories** | **No. of cases** | **Percentage (%)**  |
| Goat | Feeding habit | Anorexia | 40 | 29.19 |
| Off fed | 97 | 70.80 |
| Dehydration | Mild | 22 | 16.05 |
| Moderate | 100 | 72.99 |
| Severe | 15 | 10.94 |
| Diarrhoea | Severe | 85 | 62.04 |
| Moderate | 52 | 37.95 |
| Stomatitis | Present  | 114 | 83.21 |
| Absent | 23 | 16.78 |
| Temperature | 103 ̊F-104 ̊F | 35 | 25.54 |
| 104.2 ̊F-106 ̊F | 102 | 74.45 |
| Oculonasal discharge | Present  | 110 | 80.29 |
| Absent | 27 | 19.70 |

**4.2.2 Response to treatment**

**Animals under different treatment regimens**

Total 137 goats diagnosed positive and treated with antibiotics, allowing them to be divided into 4 major groups, described in section 3.7.Eighty five (85) goats were treated with only with **sulfur drugs,** belonging to **Group I**, 27 goat treated with gentamycin, sulphadimidine and trimethoprim combination that is **Group II**  (treated with **Gentasone plus**®), **Group III** (treated with **Ciprofloxacin**) and **Group IV** (treated with **Amoxicillin**).This 4 group is major group, some other drug also ues like cephalosporin and amoxicillin, colistin sulphate combination.

**4.2.5 Percentage of animal under different group of treatment regimens**

In SAQTVH, so many drugs used in case of PPR. But some drugs used frequently ,those were sulfur drug, combination of gentamycin, sulphadimidine, and trimethoprim, ciprofloxacin, amoxicillin. In this study , 62.04% cases used sulfur drug, 19.71% cases used combined drug (gentamycin, sulphadimidine, trimethoprim), 10.22% cases used ciprofloxacin and 5.11% cases used amoxicillin. Some other drug like ceftriaxone, and combination of amoxicillin and colistin sulphate also used.

Table 8: Percentage of different drugs that used in teaching veterinary hospital

|  |  |  |
| --- | --- | --- |
| Drug group | No of animal treated | Percentage (%) |
| A) Sulfur drug (**Diadin®**) | 85 | 62.04 |
| B) Gentamycin,sulphadimidine and trimethoprim combination (**Gentasone plus**®) | 27 | 19.71 |
| C) Ciprofloxacin (**Cipro A vet®**) | 14 | 10.22 |
| D) Amoxicillin (**Hicomox®**) | 7 | 5.11 |

  **FIG:11 Percentage of different drug used in SAQTVH.**

**Table 9:** Response to treatment of different groups of animals in different treatments

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **No. of animals** | **No of dead animal** | **Number of recovered animals (within days)** |
| **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** | **Day 6** | **Day 7** |
| **A** | **85** | **10** | **-** |  **3****3.53%** | **14****16.47%** | **38** **44.70%** | **16** **18.82%** | **2****3.25%** | **4****4.70%** |
| **B** | **27** | **3** | **-** | **2****7.40%** | **15****55.55%** | **8** **29.62%** | **-** | **1****3.70%** | **-** |
| **C** | **14** | **2** | **-** | **-** | **-** | **6** **42.85%** | **2****14.28%** | **2****14.28%** | **2****14.28%** |
| **D** | **7** | **1** | **-** | **-** | **-** | **3****42.85%** | **3****42.85%** | **-** | **-** |

Among the 4 types of treatment to different groups, the group ‘B’ cases were responding quickly than other groups. The highest percentage (55.55%) of recovery rate was observed in ‘B’ group animals within third days. Other groups were taken more than 5 days for recovery. So treatment with Gentasone plus® along with supportive therapy were more effective than other treatment group. The combined therapy of antihistaminic aided antibiotic and fluid therapy can save the life of PPR patients in the field condition. The results are in agreement with the findings by **Scott 2000**.