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Pasture Larval Burden of Grazing Land of Goat in Assam during Different Seasons

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Abstract

Pasture larval burden (PLB) revealed a positive correlation of larval recovery with the increase rainfall. No larva could be recovered from the herbage samples collected in the month of December and January, but the highest PLB count (Mean PLB 156.00 ± 7.76 larvae per Kg of herbage samples on Dry Matter (DM) basis) was recorded in July, when average rainfall was found to be highest (198.4 mm). The average rainfall ranged from 21.7 mm in the month of February to 198.4 mm in the month of July. Among seasons Monsoon showed a significantly Higher ($p<0.01$) larval recovery rate (Mean PLB 127.30 ± 10.13) than Pre-monsoon (Mean PLB 27.40 ± 1.76) and post-monsoon (Mean PLB 21.80 ±1.62) and winter (mean PLB 4.00 ± 2.67).

Key words : Pasture larval burden, Grazing land, Goat.

Gastrointestinal helminthes are the important causes of impaired productivity in the goats. It has been observed that larval availability on pasture coincided with rainy seasons (1—5). The present study was undertaken from december 2003 to November 2004 to determine the Pasture larval burden in grazing land of Goat in Assam. The climate of this research conducting area is pleasant with an average temperature 20.29-29.18, humidity 75.05-83.86% and rainfall of 87.9 mm (Table 1).

Methods

The herbage samples from different plot of common grazing field of Goat Research Station, Burnihat were collected at monthly interval by conventional w shaped sampling method during the period December 2003 to November 2004. After collection, the samples were processed as number of larvae per Kg dry matter of herbage following the method described by Sanyal and Gour (2).

Results and Discussion

The study revealed that pasture larval burden varied from 0.00 in December to 156.00 ± 7.76 in July. The pattern of PLB as shown Table 1 and Figure 1

Table 1. Meteorological data of Assam in study area during 2003-2004.

Parameters		Winter Dec	Jan	Feb	Pre-monsoon Mar	Apr	May	Monsoon Jun	Jul	Aug	Sep	Post monsoon Oct	Nov
Average temperature	Max (C)	25.2	21.7	25.8	27.6	31.5	31.6	31.8	32.7	33.6	30.5	29.8	28.3
	Min (C)	10.3	10.1	13.2	17.1	22.9	22.4	25.2	26.3	26.6	25.9	24.1	19.4
Average RH	Max (%)	85.1	89.7	93.5	77.0	80.5	77.6	81.0	85.8	86.1	88.9	86.8	74.3
	Max (%)	80.6	75.2	73.0	59.2	70.2	69.1	75.5	79.5	80.1	80.5	78.5	79.2
Average (mm)	rainfall	27.9	21.7	28.0	68.2	84.0	96.1	102.0	198.4	192.2	129.0	71.3	36.0

Table 2. Month -wise pasture larval burden (PLB) in grazing land of goat in Assam during 2003-2004.

	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov
Mean PLB	0.00	0.00	12.00	26.80	20.00	35.20	138.40	156.00	144.00	72.00	24.40	19.20
SE	0.00	0.00	7.16	2.09	1.96	2.37	12.22	7.76	15.76	11.17	1.19	2.37

that it increase was gradually from April reaching its peak in July-August when average rainfalls were highest and then gradually declined. The average rainfall ranged from 21.7 mm in February to 198.4 mm in July. The average rainfall was found more in the month of June, July and August, and this rainfall directly correlated with the PLB, where mean PLB was found 138.40 ± 12.22, 156.00 ± 7.76 and 144.00 ± 15.76 in the respective months. This might be due to larval availability on pasture coincides with rainy season in tropical areas (1) and also the over wintered larvae on pasture grazed by infected animals on previous summer and autumn, might be the factor for the aforementioned pattern (1). Sanyal and Gour (2) and Swarnkar et al. (3) also noticed an increased larval recovery with increased rainfall which corrobated with the present findings (Fig.1). Similar findings were also reported by Agyei and Ampomah (5). During the present investigation, larval burden started declining from October i.e. in the beginning of the dry season .

The present investigation also revealed that the monsoon was the most favorable season for availability of larvae on pasture and the recovery rate also found to be the highest in monsoon (mean PLB 127.00 ± 10.13) among the seasons which differ significantly (P<0.01) from other seasons i.e. winter (mean PLB 4.00 ± 2.67), pre monsoon (27.40 ± 1.76) and post-monsoon (21.80 ± 1.62). The highest number of larvae were recovered on herbage from monsoon season was associated with consistent rainfall. The mean daily rainfall, relative humidity and mean minimum and maximum temperature are shown in Table 3. High temperature during summer months was found unsuitable for the development and survival of strongyle larvae on pasture. Similarly, winter climate was also unsuitable and restricted the development and survival of larvae. This observation was conformity with the observation made by Donald (6) in Australia, Misra and Ruprah (7) in India, Gibson and Everett (8) in England and by Altaif and Yakoob (9) in Iraq.

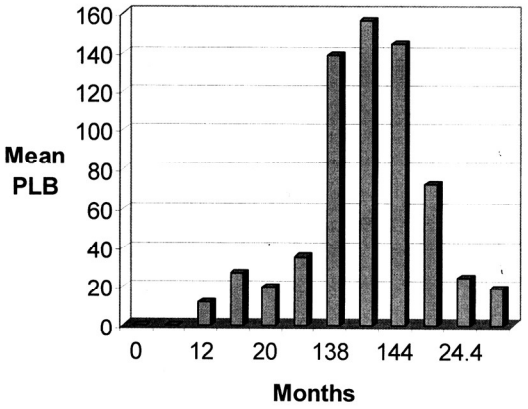

Figure 1. Month-wise pasture larval burden (PLB) in grazing land of goat in Assam during 2003-2004.

Table 3. Season -wise pasture larval burden (PLB) in grazing land of goat in Assam during 2003-2004.

Season	Mean PLB
Winter	4.00 ± 2.67
Pre-monsoon	27.40^{b} ± 1.76
Monsoon	127.30^{c} ± 10.13
Post-mosoon	21.80^{b} ± 162
Overall mean	45.14 ± 1.33

References

1. Soulsby E. J. L. 1982. *Helminths, arthropods and Protozoa of domesticated animals.* 7th edition. Bailliere Tindall, London, UK.
2. Sanyal P. K. and D. Gour. 1984. Studies on pasture sampling on the availability of ovine strongyle larvae on pasture in sub temperate Tamil Nadu. *Ind. J. Anim. Sci.* 4 : 167—170.
3. Swankar C. P., D. Singh, F. A. Khan, C. P. Srivastav and P. S. K. Bhagwan. 1997. Development and survival of *Haemonchus contortus* larvae on pasture under semi arid condition of Rajasthan. *J. Vet. Parasitol.* 1 : 37—41.
4. Borthakur S. K. 1993. *Studies on epidemiology of gastro-intestinal helminthiasis in dairy animals of Assam.* M.V.Sc. thesis, Assam Agric. Univ., Guwahati,

India.
5. Agyei A. D. and A. Ampomah. 2001. Seasonal availability of strongyle nematode larvae on pasture in the forest zone of Ghana. *Bull. Anim. Hlth. Prod. Africa.* 49 : 68—72.
6. Donald A. D. 1986. Ecology of free-living stages of nematodes parasites of sheep. *Aust. Vet. J.* 44 : 139—144.
7. Misra S. C. and N. S. Ruprah. 1974. Influence of atmospheric temperature and relative humidity on population of Heamonchus larvae on pasture *Ind. Vet. J.* 51 : 147—148.
8. Gibson T. E. and G. Everett. 1976. The biology of the free-living stages of *Haemonchus contortus. Br. Vet. J.* 132 : 131—141.
9. Altaif K. I. and A. Y. Yakoob. 1987. Devalopment and survival of Heamonchus contortus larvae on pastures in Iraq. *Trop. Anim. Hlth. Prod.* 19 : 88 —92.