

Seasonal incidence of Haemoprotozoal diseases in crossbred cattle and buffalo in Kaira and Anand districts of Gujarat, India

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Abstract

Seasonal incidence of haemoprotozoal diseases in crossbred cattle and buffalo was studied by examining 3152 and 1129 blood smears respectively, received from various veterinary sub centres located in Anand and Kaira districts of Gujarat during period from April 2009 to March 2010. The present study has recorded higher incidence of haemoprotozoal diseases in crossbred cattle and buffalo from June to September and June to August, respectively. In crossbred cattle, 1172 (37%) out of 3152 blood smears were positive for haemoprotozoal infection while in buffalo, 191 (17%) out of 1129 blood smears were positive for haemoprotozoal infection. In both the species, higher incidence of Theileriosis was recorded during monsoon season as compared to other protozoan diseases.

Key Words: Seasonal Incidence, Haemoprotozoan, Blood Smears

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Introduction

Haemoprotozoal diseases cause devastating losses to the livestock industry and so pose major constraints to the dairy industry throughout the world. The hot and humid climate is very favourable for development and survival of ticks and is a constant source of damage. In the absence of appropriate control strategies, the haemoprotozoal diseases have serious economic impact in view of mortality, reduced milk yield and lowered animal draft power which presents a major constraint to bovine production thus hindering agricultural and socio-economic development of vast area in India (Suryanarayan, 1990). Most of the haemoprotozoan parasites are tick borne and is of great economic importance in Asia and has always been a formidable barrier to the survival of cross bred cattle in India. Devendra, (1995) reported the annual loss of US \$800 million due to tropical theileriosis in India. The babesias are one of the most ubiquitous and widespread blood parasites in the world based on numbers and distribution of species in animals, second only to the trypanosomes (Levine, 1988 and Telford *et al.*, 1994). Trypanosomosis caused by *Trypanosoma evansi* is also an important haemoprotozoan disease of

domesticated animals. Among the several species of trypanosomes, *Trypanosoma evansi* is the most commonly occurring species in India causing the disease (Pathak *et al.*, 2005).

The present investigation has recorded the month wise infection of Theileriosis, Babesiosis, Anaplasmosis and Trypanosomiasis in crossbred cattle and buffaloes.

Materials and Methods

During the period from April 2009 to March 2010, a total of 3152 blood smears of crossbred cattle and 1129 blood smears of buffaloes in Anand and Kaira districts of Gujarat and manifesting clinical signs viz., high temperature, anaemia, enlargement of lymph nodes, haemo-globinuria, circling movement, nasal discharge, coughing, grinding of teeth, sudden drop in milk yield and abortion were screened for various haemoprotozoal diseases. The blood smears were stained with Leishman's stain (Qualigens) and examined under oil immersion microscope.

Results and Discussion

The study was conducted for one year to observe

Table-1: Month wise incidence of Haemoprotzoal diseases detected in crossbred cattle and buffalo during April 2009-March 2010.

Species	Month	Theileriosis	Babesiosis	Anaplasmosis	Trypanosomiasis	Mixed Infection	Total Positive cases	Total blood smears	% of positive cases
Cattle	April	58	18	7	1	3	87	270	32
	May	75	15	6	2	1	99	271	37
	June	138	19	1	1	6	165	356	46
	July	95	15	2	3	2	117	303	39
	Aug.	118	13	6	2	3	142	325	44
	Sep.	81	15	1	3	1	101	337	30
	Oct.	37	7	2	0	1	47	165	28
	Nov.	58	1	0	0	2	61	156	39
	Dec.	89	5	0	0	2	96	199	48
	Jan.	73	4	0	1	4	82	193	42
	Feb.	76	4	5	0	5	90	315	29
	March	74	6	3	0	2	85	262	32
	Total	972	122	33	13	32	1172	3152	37
	%	82.94	10.41	2.82	1.11	2.73			
Buffalo	April	7	1	0	2	0	10	84	21
	May	9	2	0	4	0	15	156	28
	June	37	0	0	4	0	41	139	16
	July	27	0	0	5	0	32	151	9
	Aug	16	2	0	2	0	20	106	5
	Sep.	12	0	0	1	0	13	58	28
	Oct	5	0	0	0	0	5	76	7
	Nov	8	1	0	1	0	10	51	27
	Dec	6	0	0	2	0	8	43	19
	Jan	7	0	0	1	0	8	75	11
	Feb	16	1	0	0	0	17	112	20
	March	11	0	0	1	0	12	78	21
	Total	161	7	0	23	0	191	1129	17
	%	84.29	3.66	0	12.04	0			

the seasonal prevalence, there was a considerable seasonal variation found with the occurrence of haemoprotzoan diseases in animals. The results of the study are presented in (Table-1). Higher incidences of haemoprotzoal diseases in crossbred cattle and buffalo reported during June to September and June to August, respectively which is in accordance with the observation made by Radostits *et al.*, (1994), Roy *et al.*, (2004) and Ananda *et al.*, (2009) they found the highest prevalence of haemoprotzoal infection in monsoon months.

The examination of 3152 blood smears from crossbred cattle and 1129 blood smears buffalo, 1172 (37%) positive cases from crossbred cattle and 191 (17%) positive cases from buffalo were reported during this period. This indicated that the incidences were higher in crossbred cattle than the buffalo. This result of crossbred cattle (37%) was in line with the result observed by Ananda *et al.*, (2009) the prevalence in crossbred cattle was 43.1%.

Among Haemoprotzoan diseases, the incidence of Theileriosis was higher during monsoon in crossbred cattle and buffalo reported 82.94% and 84.29% respectively as compared to other haemoprotzoan diseases. This result supports the earlier study of Theileriosis infection (Jithendran, 1998) who recorded cases of theileriosis are generally observed during summer or rainy season when the ticks have higher activity although sporadic outbreaks have been recorded year round. Results on prevalence of

Theileriosis in crossbred cattle (82.94%) was in accordance with Ananda *et al.*, (2009) who recorded 72% prevalence of Theileriosis in crossbred cattle.

The overall incidences of Babesiosis, Anaplasmosis, Trypanosomiasis and Mixed Infections in crossbred cattle were 10.41%, 2.82%, 1.11% and 2.73% respectively while in buffalo the overall incidences of Babesiosis and Trypanosomiasis were 3.66% and 12.04% respectively. Our results on Babesiosis infection was in accordance with the observation made by Seyyed *et al.*, (2011) the incidence of Babesiosis infection was 9.76%. In buffalo, there was not reported single case of Anaplasmosis and Mixed infections.

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Conflict of interest

Authors declare that they have no conflict of interest.

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