

## INCIDENCE OF RUMEN FLUKES IN RUMINANTS IN BEHERA PROVINCE, EGYPT

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### ABSTRACT

A survey on the rumen flukes infesting ruminants in Behera province, Egypt was carried out to assess the prevalence in association with the season, age, sex and breed through a period of one year from July 2008 to June 2009. The rumen and reticulum of 329 slaughtered animals (246 cattle and 83 buffaloes) were examined for the presence of worms. Moreover, faecal samples from 644 live animals (408 cattle and 236 buffaloes) from the clinics of the veterinary centers were investigated for the presence of paramphistomid eggs. The incidence of infection among slaughtered cattle and buffaloes was 26.1% & 25.3%. Also, it reached 34.6% and 32.6% among those examined coprologically.

Generally season and breed were of the factors found to have an influence on rumen fluke infestation. The high incidence was found in Summer season, lower age groups, females and in cattle breed. Winter, old animals, males and buffaloes reported lower rates of infection. This was observed during examination of slaughtered as well as animals examined coprologically.

### INTRODUCTION

Rumen flukes may decrease production in cattle and buffaloes (Spence et al, 1996) and also cause disease (Agosti et al, 1980). Their prevalence has been determined in most European countries. In Egypt, few studies were made but in other localities (Tadros, 1958; Abdel Ghani, 1961; Sey & Abdel Rahman, 1974; El Refaii, 1993 and El Shahawy, 1999). Therefore, it was found important to study the rumen fluke infestations among slaughtered and live ruminants in Behera province; the area of different climatic conditions favouring parasitic infestations.

### MATERIAL AND METHODS

#### A) From slaughtered animals:

The rumen and reticulum of 329 ruminants that were freshly slaughtered were examined for the presence of flukes (246 cattle of which 218 males and 28 females as well as 83 buffaloes of which 68 males and 15 females). The presence of worms indicates the infestation.

#### B) From live animals:

As most of slaughtered animals were males; coprologic examination of live

ruminants was needed to select different ages and sex. Faecal samples were taken from the rectum of 644 animals (408 cattle of which 136 males and 272 females as well as 236 buffaloes of which 81 males and 155 females). The faecal samples were examined using the sedimentation technique described by Soulsby (1982). The presence of paramphistomid eggs indicates the infection.

## RESULTS

### A) Incidence among slaughtered animals:

Out of the examined animals 64 cattle and 21 buffaloes were found harbouring flukes with infestation rate of 26.1% and 25.3% respectively. Out of the examined cattle the males showed 24.3% and the females showed 39.3%. The infested males were 2- 3 years while the infested females were 4 years old. Also, examination of buffaloes showed that the males showed an incidence of 23.5% while the incidence in the females was 33.3%. The infested males were 2-3 years and the females were 4 years old.

Concerning the seasonal incidence, it was found that the highest infestation in cattle was in summer (30%) followed by Autumn and Spring (29.4 & 25.3%) and the lowest incidence occurred in Winter and it was 20.3%. Buffaloes showed the same pattern where it reached the highest level of infestation during Summer and Autumn (28.6 & 30%). Then in Spring 22.7% and only 20% in Winter (Table 1,2 and plates 1,2).

### B) Incidence among animals examined coprologically:

Out of the examined animals 141 cattle and 77 buffaloes showed eggs during faecal examination with infestation rate of 34.6% & 32.6% respectively. Out of the examined cattle, the incidence in males was 31.6% and that in females was 36.1%. Examination of the buffaloes showed also that the incidence of infestation in males was 28.4% while that in females reached 34.8%. The age of the males as well as that of the females was 1-3 years.

Concerning the seasonal incidence, the highest infestation rate was recorded in cattle during Summer 44.3%, followed by Spring 40% then Autumn 30.8%. The lowest incidence was in Winter 23.2%. Buffaloes were less affected but the highest infestation rate was during Summer 38.1% then Spring 37.5%, then Autumn 31.1% and the lowest rate was during Winter 23.8%. (Table 3, 4 and plates 3, 4).

## DISCUSSION

The present study included examination of slaughtered animals for the presence of rumen flukes as well as live animals faeces for the presence of paramphistomid eggs. The results showed 25.8% of the examined slaughtered ruminants harbour rumen flukes. Also, faecal examination of the investigated animals showed that the incidence was 33.9%.

Differences in the incidence noticed concerning the slaughtered animals and those examined using the faecal samples might be due to the age of the

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animals investigated and to the fact that all slaughtered animals were fattening and depends on grains in its feed; minimizing the possibility of infection to some extent.

These results accorded with that mentioned in other localities (Arafa, 1962; Kabagambe et al (1988); Abd Rabo (1991); Aly (1993) and El Shahawy (1999).

Concerning the breed of the investigated host, the results showed that cattle were more susceptible than buffaloes. The incidence of infestation was 26.1 & 25.3% among slaughtered cattle and buffaloes. Moreover, the incidence reached 34.6 & 32.6% among cattle and buffaloes examined coprologically.

This might due to the fact that most of the examined slaughtered buffaloes were older than cattle; hence it could be related to highest age resistance. Moreover it is well known in Egypt that buffaloes are more resistant to parasitic infections.

Regarding the sex of the examined animal that were of varying ages; the results recorded showed that the percentage of infestation among the examined females was higher than that in males. This observation was met with among cattle and buffaloes. This also was recorded during examination of slaughtered as well as live ruminants. This was in accordance with Tariq et al (2008). This may be due to the system of animal breeding and slaughtering of females at older ages than males. Also, the mode of feeding. Also, attributed to genetic predisposition and differential susceptibility owing to hormonal effects.

As for the seasonality, the results showed that animals investigated in the Summer season showed the highest degree of infection. Those were followed by ruminants examined during Spring, Autumn and Winter. Probably the infection with the infective stage (metacercaria) had occurred during the Spring and development of the worms in the final host (ruminants) was completed during late Spring and beginning of Summer season.

Similar results were recorded by Georgiev et al (1982); Gupta & Singh (1990) & El Shahawy (1999). On the contrary, Abd Rabo (1991) and Aly (1993) reported that animals examined at Spring and Winter were more infested than those in Summer. These variations might be related to differences in the climatic factors. Also this may be due to dispersion and multiplication of snails during rainy season, (Zaki, 2008), dispersion of defecated material by means of rain or other means, the nature of development of the miracidia, infection of the snails and possibility of infection with metacercariae during this grassing season (Spring).

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(TABLE 1)  
Seasonal Incidence of Infestation with rumen flukes  
In cattle slaughtered in Behera province, Egypt

	Cattle males			Cattle females			Total		
	Examined No.	+ve No.	%	Examined No.	+ve No.	%	Examined No.	+ve No.	%
1-Winter	58	11	18.9	6	2	33.3	64	13	20.3
2-Spring	63	15	23.8	8	3	37.5	71	18	25.3
3-Summer	65	16	28.6	4	2	50	60	18	30
4-Autumn	41	11	26.8	10	4	40	51	15	29.4
<b>Total</b>	<b>218</b>	<b>53</b>	<b>24.3</b>	<b>28</b>	<b>11</b>	<b>39.3</b>	<b>246</b>	<b>64</b>	<b>26.1</b>

(TABLE 2)  
Seasonal Incidence of Infestation with rumen flukes  
In buffaloes slaughtered in Behera province, Egypt

	Buffalo males			Buffalo females			Total		
	Examined No.	+ve No.	%	Examined No.	+ve No.	%	Examined No.	+ve No.	%
1-Winter	16	3	18.8	4	1	25	20	4	20
2-Spring	19	4	21.1	3	1	33.3	22	5	22.7
3-Summer	18	5	27.7	3	1	33.3	21	6	28.6
4-Autumn	15	4	26.7	5	2	40	20	6	30
<b>Total</b>	<b>68</b>	<b>16</b>	<b>23.5</b>	<b>15</b>	<b>5</b>	<b>33.3</b>	<b>83</b>	<b>21</b>	<b>25.3</b>

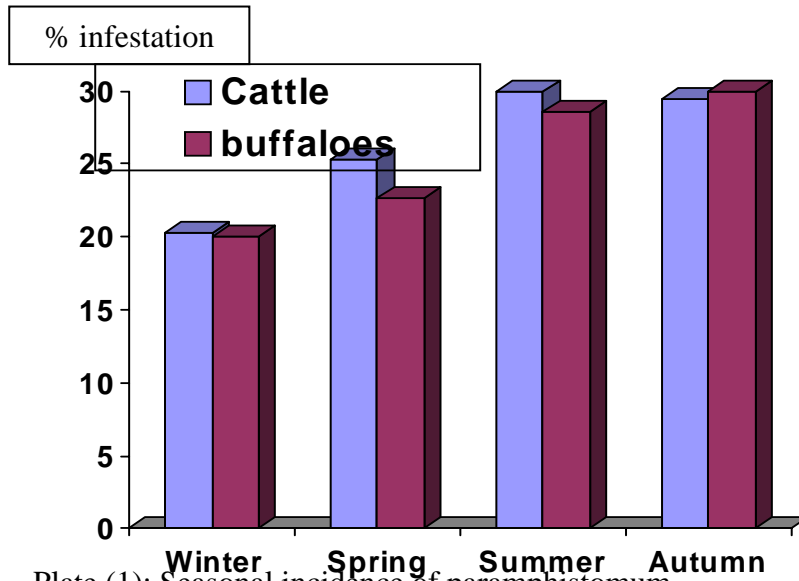


Plate (1): Seasonal incidence of paramphistomum among Slaughtered cattle and Buffaloes (Detected by rumen examination)

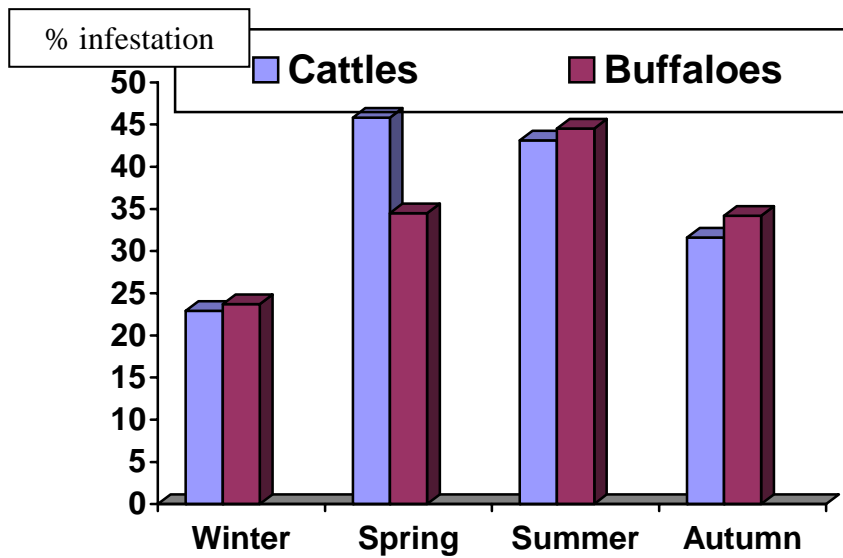


Plate (2): Seasonal incidence of paramphistomum among Live cattle and Buffaloes (Detected by faecal examination)

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**(TABLE 3)**  
**Seasonal Incidence of Rumen flukes infesting cattle**  
**(Diagnosed coprologically)**

Season	Males			Females			Total		
	Examined No.	+ve No.	%	Examined No.	+ve No.	%	Examined No.	+ve No.	%
1-Winter	38	9	23.7	74	17	22.9	112	26	23.2
2-Spring	32	11	34.4	58	25	43.1	90	36	40
3-Summer	32	13	40.6	83	38	45.8	115	51	44.3
4-Autumn	34	10	29.4	57	18	31.6	91	28	30.8
<b>Total</b>	136	43	31.6	272	98	36.1	408	141	34.6

**(TABLE 4)**  
**Seasonal Incidence of Rumen flukes infesting Buffaloes**  
**(Diagnosed coprologically)**

Season	Males			Females			Total		
	Examined No.	+ve No.	%	Examined No.	+ve No.	%	Examined No.	+ve No.	%
1-Winter	21	5	23.8	38	9	23.7	59	14	23.8
2-Spring	17	5	29.4	31	13	41.9	48	18	37.5
3-Summer	23	8	34.8	48	19	39.5	71	27	38.1
4-Autumn	20	5	25	38	13	34.2	58	18	31.1
<b>Total</b>	81	23	28.4	155	54	34.8	236	77	32.6

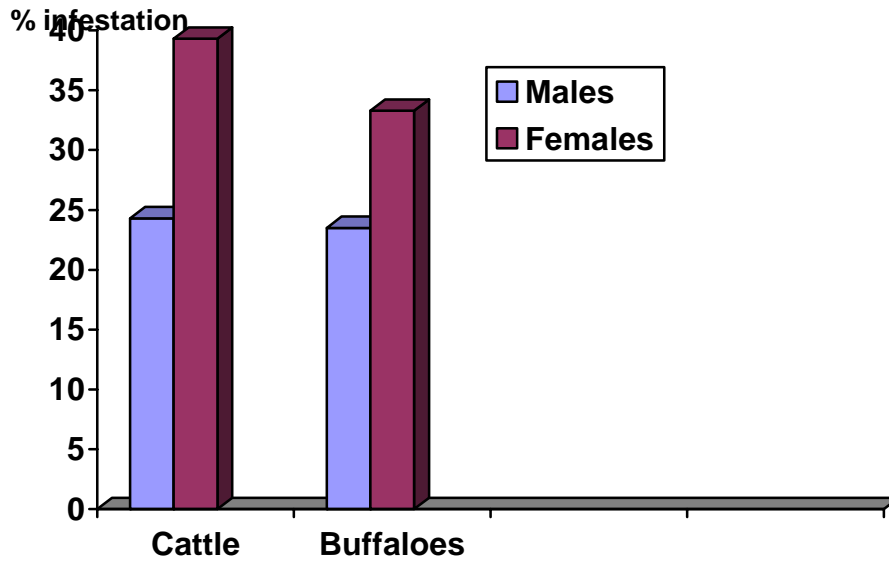


Plate (3): incidence of paramphistomum among Slaughtered males and females (Detected by rumen examination)



Plate (4): incidence of paramphistomum among Live males and females (Detected by feecal examination)