

Report the study of "Prevalence of GIT parasites in working equines through Brooke Egypt operational area"(May 2023)

Brooke Hospital for Animals (BHA) Egypt has worming strategy whereby all horses are wormed at regular three-month intervals using *fenbendazole*. Moreover, after three years from stopping of this kind of deworming we need to know the prevalence of GIT parasites in working equines through seven Brooke operational areas. The purpose of this research project therefore is to generate evidence to inform future decision regarding the frequency of dewormer usage or the medication used.

Objective

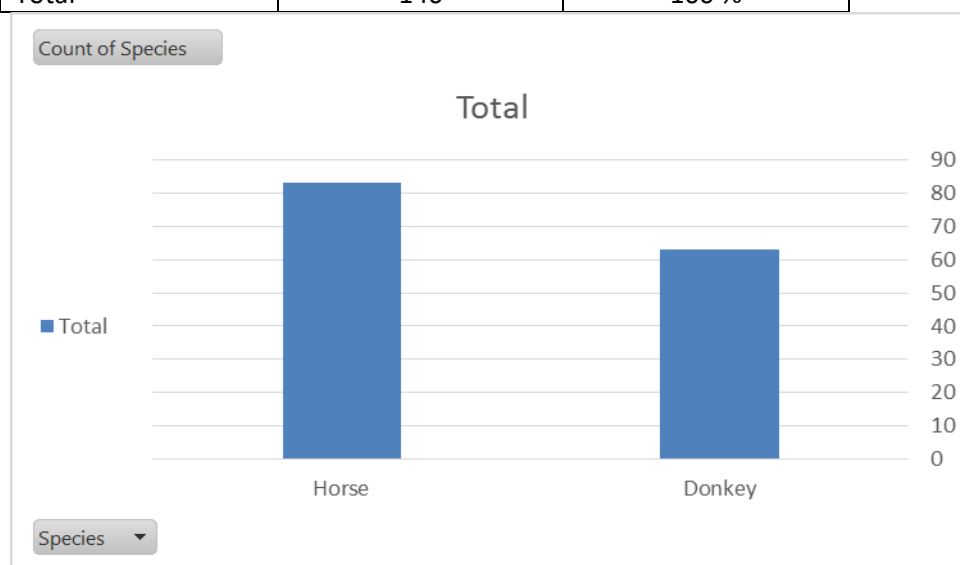
To determine the prevalence of GIT parasites in working horses and donkeys in seven regions of Brooke Egypt operational area.

1-No of Equines for each Region and its percentages:-

Region	Number of animals	%
Cairo	20	13.6 %
Alex.	20	13.6 %
Lux.	26	17.8 %
Aswan	20	13.6 %
Edfu	20	13.6 %
Matrouh	20	13.6 %
Mansoura	20	13.6 %
Total	146	100 %

2-No of each Species:-

Species	Number of animals	%
Horse	83	57 %
Donkey	63	43 %
Total	146	100 %



3- No of each Species/ Region:-

Cairo		Alex.		Lux.		Aswan		Edfu		Matrouh		Mansoura	
Horse	Donkey	Horse	Donkey	Horse	Donkey	Horse	Donkey	Horse	Donkey	Horse	Donkey	Horse	Donkey
17	3	17	3	11	15	8	12	12	8	4	16	14	6
20		20		26		20		20		20		20	

4- Level of infestations for total:-

Upon the following recommendation from the parasitology department –Faculty of vet.medicine –Mansoura University:-

For eggs of round worms (strongyle-type, Parascaris equorum)

A-The detection limit is 50 eggs per gram

B- 0-200 EPG: Low infection

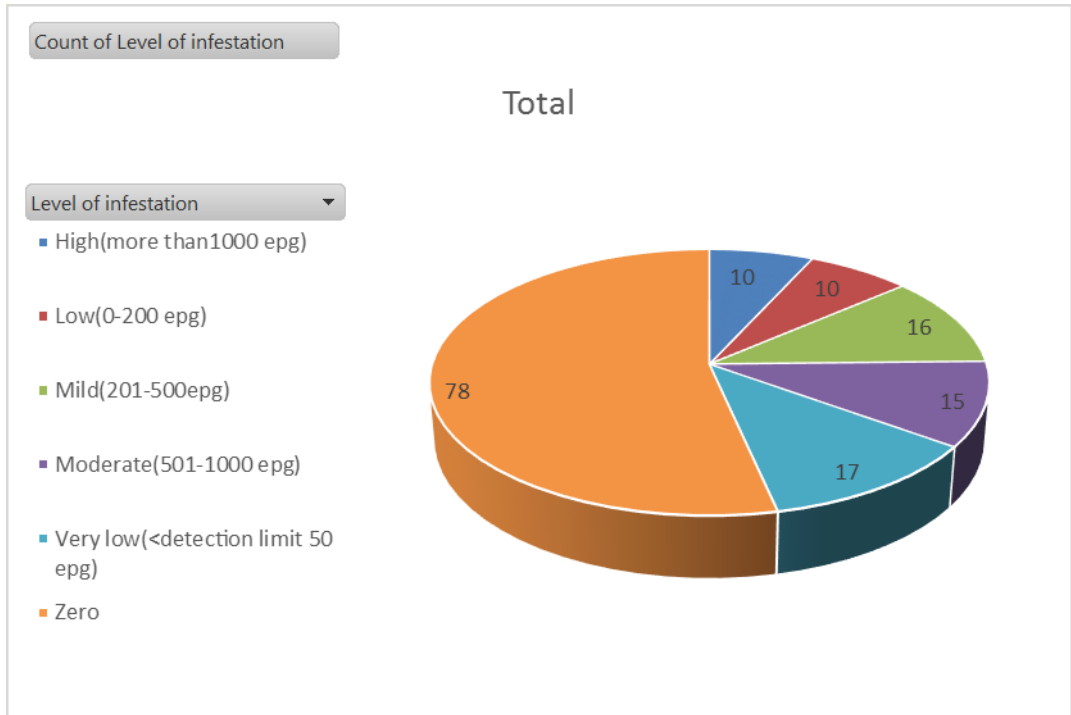
C- 200-500 EPG: Mild infection

D- 500-1000 EPG: Moderate infection

E- >1000 EPG: High infection

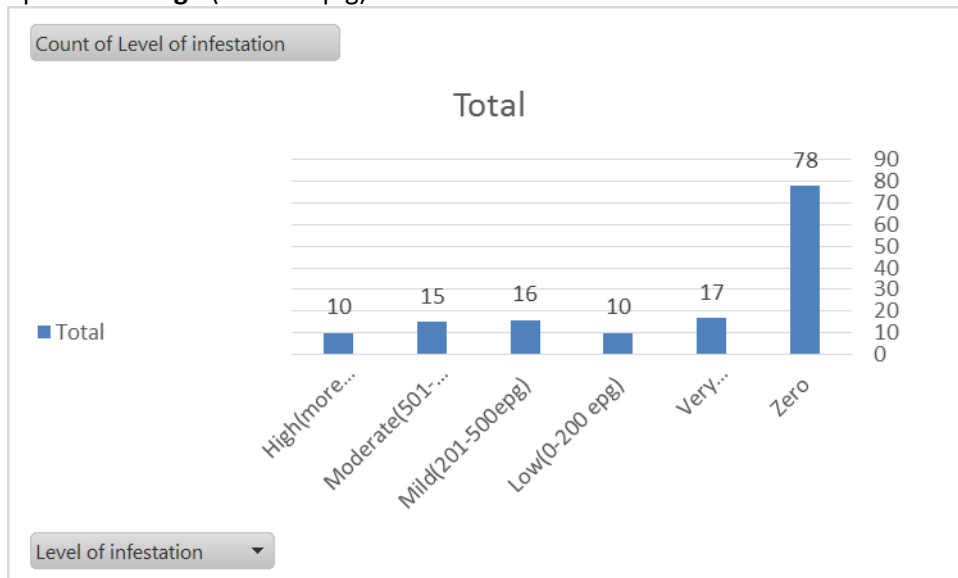
F- Treatment threshold: >200

Level_of_infestation_Total_epg (Count & %)	Zero (0 epg)	Very low (less than detection limit 50 epg)	Low(0-200 epg)	Mild(201-500 epg)	Moderate (501-1000 epg)	High (more than 1000 epg)	Count
Number of animals	78	17	10	16	15	10	146
%	53 %	12 %	7 %	11 %	10 %	7 %	100 %
%	72 %			28 %			100%



5-Frequency and intensity of helminth infection

The estimated coprological prevalence of helminth eggs was 47% of equines sampled (68 out of 146 equines sampled) i.e. 53% (78 equines) of equines sampled had no detectable helminth eggs. The frequency distribution of five levels of intensity of infection for individual animals is shown in Figure 3. Seventeen (12%) had **very low** (less than detectable limit); Ten (7%) equines had **low** (0-200 e.p.g) FEC; Sixteen (11%) had **Mild** (201 – 500); Fifteen (10%) equines had **moderate** (501-1000 e.p.g) FEC; Ten (7%) equines had **high** (>1000 e.p.g) FEC.



Frequency of intensity of helminth infection in working equines in Egypt

6-Frequency and intensity of helminth infection for the last study at 2019(Prevalence of helminths and Re-evaluation of anthelmintic resistance in working horses and donkeys in seven regions of Egypt)

Before treatment the estimated coprological prevalence of helminth eggs was 46% of equines sampled (30 out of 65 equines sampled) i.e. 54% (35 equines) of equines sampled had no detectable helminth eggs. Egg counts on day 0 ranged from 0-3400 and were not normally distributed (Normal plot), a median value of 0 e.p.g with interquartile range (IQR) of 0-300. The frequency distribution of four levels of intensity of infection for individual animals before treatment is shown in Figure 3. Twenty two (34%) equines had **low** (≤ 500 e.p.g) FEC; Five (7.5%) equines had **medium** (501-1000 e.p.g) FEC; three (4.5%) equines had **high** (>1000 e.p.g) FEC.

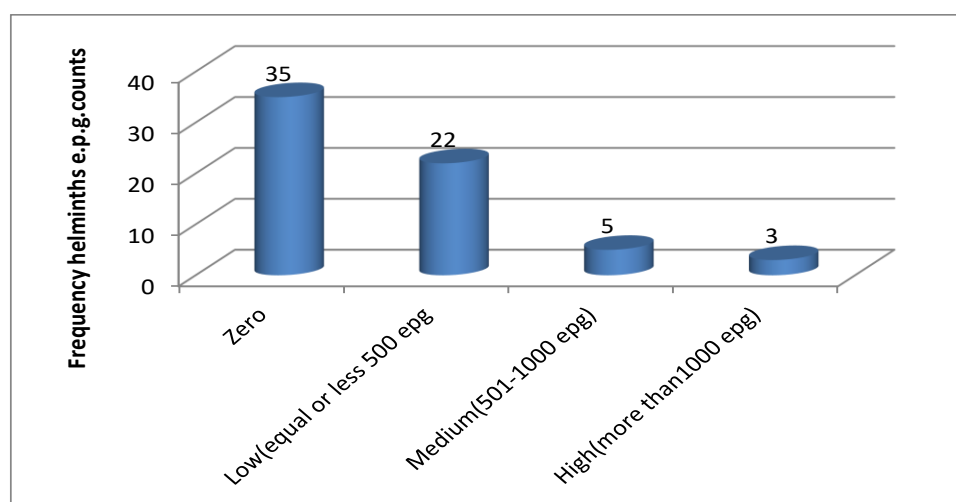
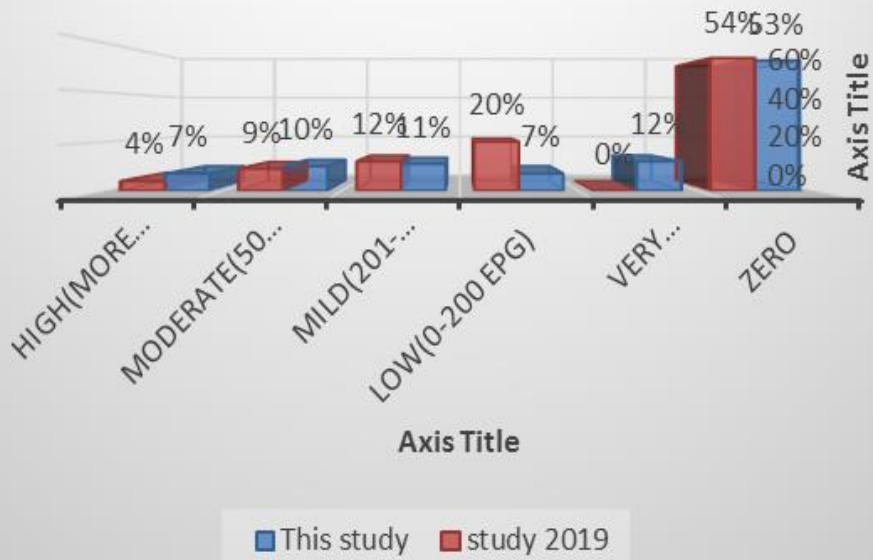


Figure 3. Frequency of intensity of helminth infection in working equines in Egypt.

7- Comparison the Frequency and intensity of helminth infection between the two study.

Level of infestations	Previous Study 2019		This study	
Zero (0 epg)	35 (54%)		78 (53 %)	
Very low(<detection limit 50 epg)	-		17 (12 %)	
Low (0-200 epg)	13 (20%)		10 (7%)	
Mild (201- 500 epg)	8 (12%)	17 (26%)	16 (11%)	41 (28 %)
Moderate (501-1000 epg)	6 (9%)		15 (10 %)	
High (>1000 epg)	3 (4%)		10 (7 %)	
Total	65 (100%)		146 (100 %)	

Comparison the frequency and intensity of the helminth

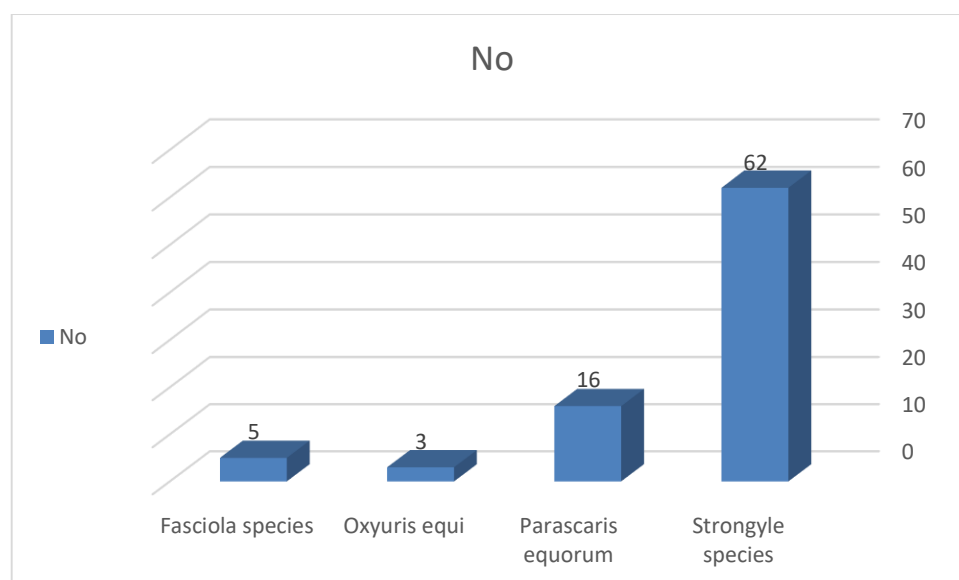


8- Level of infestations for each region:-

Level_of_infe station_Total _epg (Count & %)	Zero (0 epg)	Very low(less than detection limit 50 epg)	Low(0- 200 epg)	Mild(201- 500 epg)	Moderate (501-1000 epg)	High (more than 1000 epg)	Count
Cairo	7	6	0	1	2	4	20
Alex.	10	7	1	1	1	0	20
Luxor	16	0	4	3	0	3	26
Aswan	14	0	2	1	2	1	20
Edfu	10	0	1	4	5	0	20
Matrouh	10	2	0	2	5	1	20
Mansoura	11	2	2	4	0	1	20
Total	78	17	10	16	15	10	146
%	53 %	12 %	7 %	11 %	10 %	7 %	100 %
	72 %			28 %			(100%)

9-Coprological prevalence of helminth species

Laboratory analysis identified the presence of four species of helminths (*Strongyle*, *Parascaris equorum*, *Oxyuris equi* and *Fasciola*). *Strongylus* was the most common helminth identified with a prevalence of 42% (62 equines out of 146). *Parascaris* and *Fasciola* were the next most common with prevalence of 11% (16 out of 146) (*Parascaris*) and 3 % (5 out of 146) (*Fasciola*). Whereas *Oxyuris equi* was detected with a prevalence of 2 % (3 out of the 146).



Discussion

This is the third study to report prevalence of working equine helminth infection and intensity of infection in Egypt within working equines at Brooke operational areas in Egypt.

Strongylus was the most commonly found helminth, which is in line with previous, reports in working equines (Burden et al. 2010, Getachew et al. 2010, Güiris et al. 2010, Upjohn et al. 2010, Pereira and Vianna 2006, Matthee et al. 2002, Wells et al. 1998, Gawor, 1995, Sotiraki, Badouvas and Himonas, 1997). However, the prevalence reported in this study 42%. This prevalence is considerably lower than the majority of similar studies, which report prevalences in excess of 70% (Burden et al. 2010, Getachew et al. 2010, Güiris et al. 2010, Upjohn et al. 2010, Pereira and Vianna, 2006, Matthee et al. 2002, Wells et al. 1998, Gawor, 1995, Sotiraki, Badouvas and Himonas, 1997).

There was some evidence to suggest regional variation in FEC. This may be due to differences in geography, density and husbandry of equines. This suggestion is consistent with the findings of Wells et al. (1998) who demonstrated that working donkeys which had opportunity to graze and interact with other donkeys had a higher natural infection of helminths.

Conclusion and recommendations

Working equines in Egypt have nearly the same prevalence of helminths and total faecal FEC (e.p.g) when compared to reported values in last study 2019. According to FEC intensity categories defined by Soulsby (1982), nearly the third % of equines in this study had mild to high helminth infection and need deworming.

Acknowledgements

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25th, July 2023