

# Delaware State University Small Ruminant Program:

## Research Update



**Dr. Kwame Matthews**

Small Ruminant Specialist

[kmatthews@desu.edu](mailto:kmatthews@desu.edu)

302-857-6540



# Increasing the Use of a Natural Fungus (*Duddingtonia flagrans*) To Control Internal Parasites in Small Ruminants

---



# Major objective

---

- The overall objective of this project is to educate farmers on integrated parasite control strategies and demonstrate how best to utilize *D. flagrans* to reduce parasite infections and losses on sheep and goat farms.
- **Hypothesis 1:** Feeding Livamol® with BioWorma® fourteen days each month (1/2 current recommendation) for a period exceeding sixty days will improve FAMACHA scores, reduce fecal egg counts and reduce GIN larvae on pasture.
- **Hypothesis 2:** A locally developed BioWorma® mineral/feed supplement will be more cost-effective and as effective as Livamol® with BioWorma® in controlling GIN infection in sheep and goats.

# Methods

- Conduct for 4 month
- Feeding animals
  - Livamol® with BioWorma® daily (BIO-A)
  - Livamol® with BioWorma® for fourteen days in each month (BIO-B)
  - No fungal supplementation (CON)
- Samples collected
  - FAMACHA© scores
  - Body weight
  - Fecal samples (fecal egg count and larval culture)
  - Grass samples



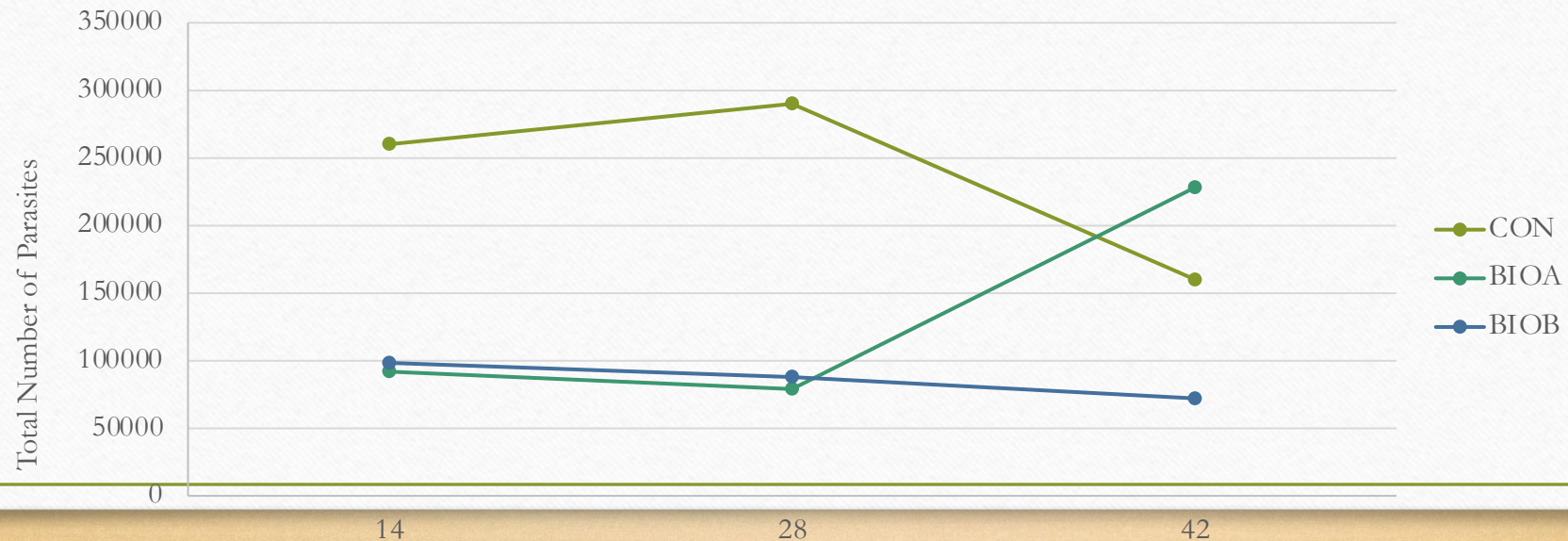
Body Weights, FAMACHA, and Fecal Egg Count of Meat Goat Kids Fed  
 Livamol® With Bioworma® Daily (BIO-A), Livamol® With Bioworma® For  
 Fourteen Days in Each Month (BIO-B), Or No Fungal Supplementation (CON)  
 Over a 42 Day Period

Time (days)	Body Weight (pounds)	FAMACHA	Fecal Egg Count (eggs per gram)
0	58.69 ± 2.03 <sup>a</sup>	2.6 ± 0.16 <sup>ac</sup>	1,692.5 ± 288.9 <sup>a</sup>
14	60.85 ± 2.03 <sup>ab</sup>	2.1 ± 0.16 <sup>b</sup>	1,905.3 ± 288.9 <sup>b</sup>
28	60.95 ± 2.03 <sup>ab</sup>	2.1 ± 0.16 <sup>b</sup>	906.8 ± 288.9 <sup>c</sup>
42	62.97 ± 2.03 <sup>b</sup>	2.3 ± 0.16 <sup>bc</sup>	1099.6 ± 288.9 <sup>c</sup>



## Larval Identification of Meat Goat Kids Fed Livamol® With Bioworma® Daily (BIO-A), Livamol® With Bioworma® For Fourteen Days in Each Month (BIO-B), Or No Fungal Supplementation (CON) Over a 42 Day Period

	CON		BIO-A		BIO-B	
Day	<i>Haemonchus contortus</i>	<i>Trichostrongylus colubriformis</i>	<i>Haemonchus contortus</i>	<i>Trichostrongylus colubriformis</i>	<i>Haemonchus contortus</i>	<i>Trichostrongylus colubriformis</i>
14	99.92%	0.08%	100.00%	0.00%	99.92%	0.08%
28	99.99%	0.01%	100.00%	0.00%	99.91%	0.09%
42	99.98%	0.02%	99.93%	0.07%	99.89%	0.11%

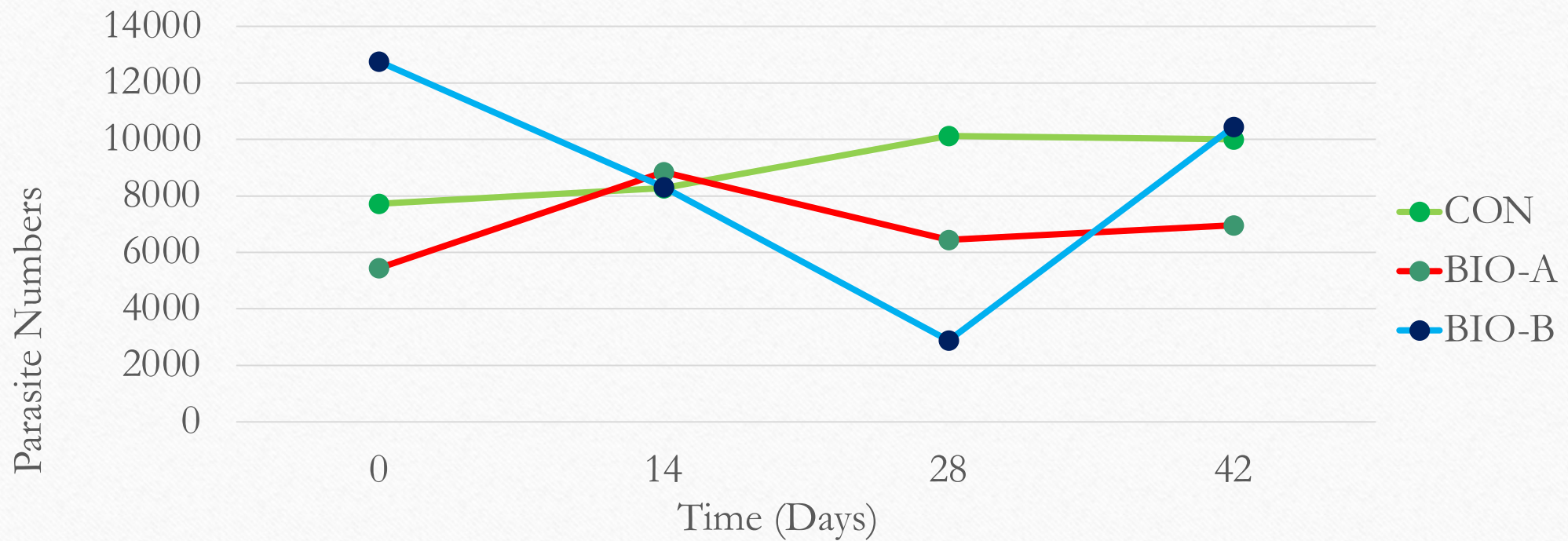


**Larval Count of Parasites Found in Paddocks With Animals Fed Livamol® With Bioworma® Daily (BIO-A), Livamol® With Bioworma® For Fourteen Days in Each Month (BIO-B), or No Fungal Supplementation (CON) Over a 42 Day Period**

	CON			BIO-A			BIO-B		
Day	Haemonchus contortus	Trichostrongylus colubriformis	Other	Haemonchus contortus	Trichostrongylus colubriformis	other	Haemonchus contortus	Trichostrongylus colubriformis	Other
0	95.34	3.63	1.04	95.68	1.23	3.09	96.55	0.63	2.82
14	96.14	2.90	0.97	94.57	4.98	0.45	99.04	0.96	0.00
28	98.42	1.58	0.00	99.38	0.62	0.00	100.00	0.00	0.00
42	99.20	0.80	0.00	97.70	2.30	0.00	97.70	2.30	0.00



## Larval Count of Parasites Found in Paddocks With Animals Fed Livamol® With Bioworma® Daily (BIO-A), Livamol® With Bioworma® For Fourteen Days in Each Month (BIO-B), or No Fungal Supplementation (CON) Over a 42 Day Period





Year 2: Body Weights of Meat Goat Kids Fed Livamol® With Bioworma® Daily (BIO-A), Livamol® With Bioworma® For Fourteen Days in Each Month (BIO-B), Or No Fungal Supplementation (CON) Over a 70 Day Period



Year 2: Fecal Egg Count of Meat Goat Kids Fed Livamol® With Bioworma® Daily (BIO-A), Livamol® With Bioworma® For Fourteen Days in Each Month (BIO-B), Or No Fungal Supplementation (CON) Over a 70 Day Period

