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INTRODUCTION

- Gastrointestinal parasites affect virtually all grazing livestock
- Increasing prevalence of dewormer resistance requires new strategies for parasite control
- Grazing management can play a role in parasitism for pasture-based livestock

OBJECTIVE

- To compare the effects of grazing system on livestock parasite burdens



MATERIALS AND METHODS

Study 1 (2022-2023):

- Holstein heifers (n=106) at the UMD dairy were grazed in either a continuous (CON) or rotational grazing (ROT) system
- CON: continuous access to one 5-acre cool-season perennial pasture + TMR once daily
- ROT: rotational grazing across 20 acres of both perennial and annual pastures (1-2 d rotation) + mineral mix (1 lb/head/d)
- Fecal samples collected biweekly throughout the grazing season (annually April-December)

Study 2 (2023-2024):

- A mixed-species herd (n=65 lambs, 38 calves) at the UMD Western Maryland REC were rotationally grazed in either a perennial-based (PER) or a perennial/annual combination (ANN) grazing system
- PER: rotationally grazed across 13 acres of mixed cool-season perennial pasture
- ANN: rotationally grazed across 13 acres of perennial and annual mixed pastures
- Both groups were rotated to a new paddock using a 2-5 d rotation
- Fecal samples collected biweekly (2023; May-September) or monthly (2024; April-November) throughout the grazing season

Figure 1. Mean fecal egg counts for grazing heifers in the control (CON) and rotational grazing (ROT) treatment groups across the 2022 and 2023 grazing season (study 1)

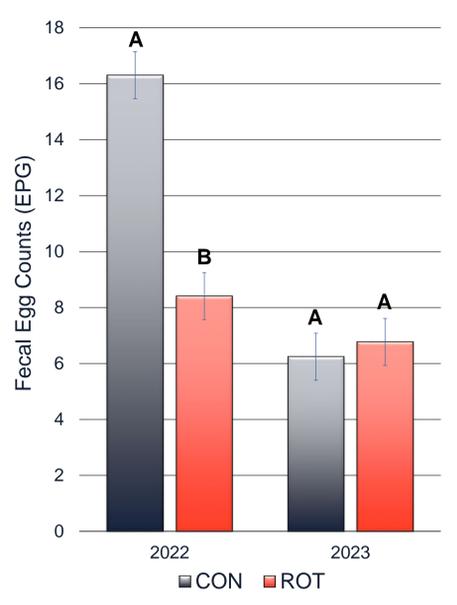


Figure 2. Fecal egg counts across timepoints for grazing heifers in the control (CON) and rotational grazing (ROT) treatment groups across the 2022 (top) and 2023 (bottom) grazing season (study 1)

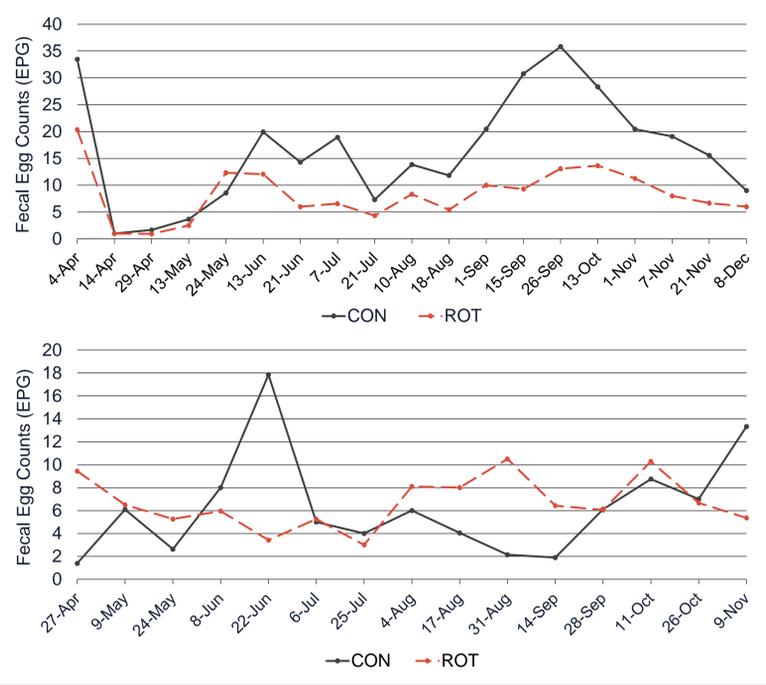


Figure 3. Mean fecal egg counts for grazing beef calves (top) and lambs (bottom) in the perennial (PER) and perennial/annual combination (ANN) treatment groups across the 2023 and 2024 grazing season (study 2)

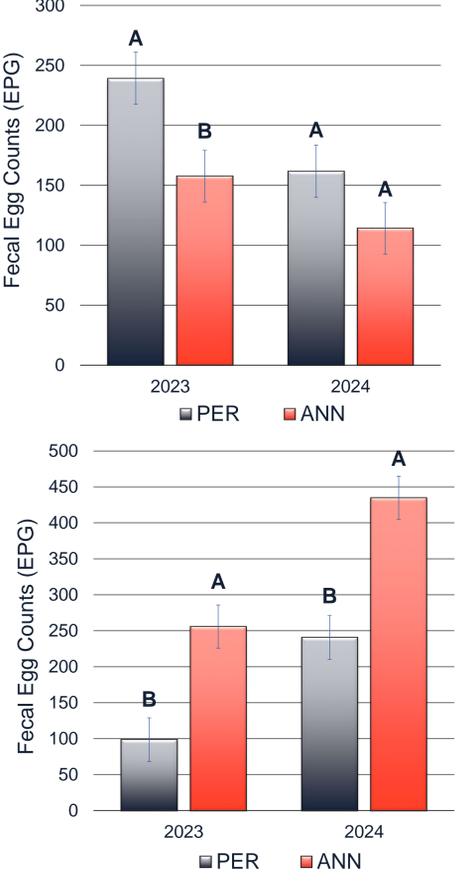
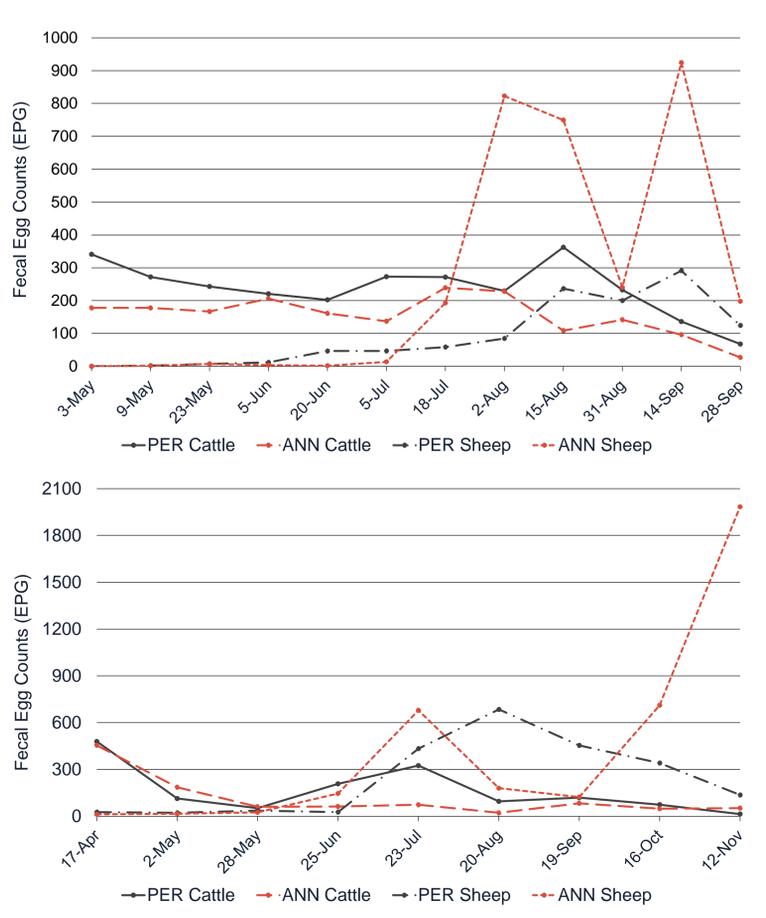


Figure 4. Fecal egg counts across timepoints for grazing beef calves and lambs in the perennial-only (PER) and perennial/annual combination (ANN) treatment groups across the 2023 (top) and 2024 (bottom) grazing season (study 2)



MATERIALS AND METHODS

Study 1 and Study 2:

- Fecal samples for both studies were analysed for fecal egg counts (FEC) using the McMaster flotation technique
- Data was analysed using mixed model analysis with significance set at $P \leq 0.05$

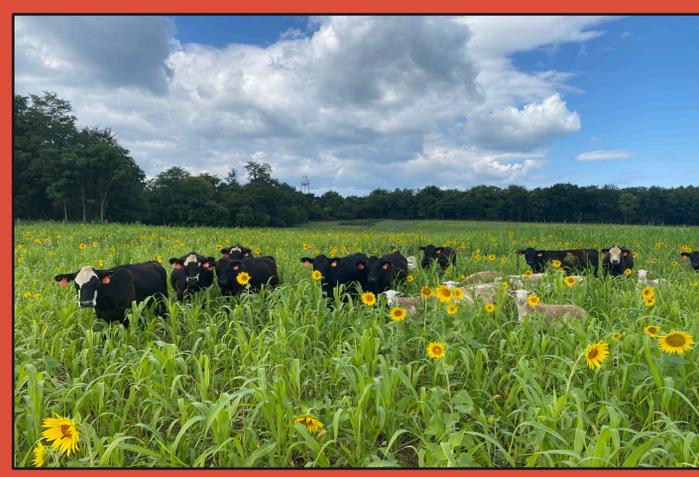
RESULTS

Study 1 (2022-2023):

- Heifer FEC were lower for ROT heifers in 2022 but did not differ in 2023 (Figure 1)
- Heifer FEC were affected by time and varied throughout the grazing season in both years (Figure 2)
- Overall heifer FEC were low (< 35 epg) for both groups throughout the study

Study 2 (2023-2024):

- Cattle FEC were higher for PER calves compared to ANN calves in 2023 but did not differ in 2024 (Figure 3)
- Lamb FEC were higher for ANN lambs compared to PER lambs (Figure 3)
- Cattle and lamb FEC were affected by time and varied throughout the grazing season in both years (Figure 4)



CONCLUSIONS

- Livestock parasite loads were affected by both time and grazing management
- Rotational grazing systems with more frequent moves may be advantageous in reducing parasite loads