Internal Parasite Resistance Measured on Pasture and in Confinement of Young Kiko Bucks

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Introduction

Resistance to internal parasites (IP) is important in the sustainability of a meat goat enterprise. Langston University and the American Kiko Goat Association conducted a Second-Generation Buck Performance Test. The performance test measured fecal egg counts (FEC) and packed-cell volume (PCV) in a natural challenge of 6 wks on pasture (PAS) and in an artificial challenge in dry-lot confinement (CON).

Material & Methods

- Seventy-seven Kiko bucks less than one-year of age completed both PAS and CON.
- PAS was conducted on a 57-acre pasture with native grasses and forbs. Bucks were supplemented at 0.5% body weight (BW 25.8 ± 0.18 kg) daily to facilitate visual inspection of animals. Bucks were sampled every 2 wks in PAS.
- CON was conducted at LU's testing facility. In CON, bucks were sampled on days 29, 34, and 38 following an artificial challenge with each buck receiving 7,000 L3 *Haemonchus contortus* larvae.
- Average FEC and PCV for each buck for PAS and CON were analyzed.

PAS

CON

Results & Discussion

The PCV and FEC data are presented for the top 10 bucks in PAS and CON in Tables 1 and 2, respectively. The correlation between FEC-PAS and PCV-PAS was -0.283 (P< 0.05), which is almost identical to the correlation between FEC-CON and PCV-CON (r= -0.280, P< 0.05). The Spearman rank correlation between FEC-PAS and FEC-CON was 0.069 (P> 0.50). However the Spearman rank correlation between PCV-PAS and PCV-CON was 0.376 (P< 0.01). Using mixed model methods, the means for FEC-CON and FEC-PAS were similar (1,428 vs 1,698 ± 169 epg for CON and PAS, respectively). However, PCV were different (P< 0.01) with 28.3 vs 20.7 ± 0.34 for CON and PAS, respectively.

Conclusions

Pasture PCV was a predictor of PCV in confinement and vice versa; however, that was not true for FEC indicating FEC in PAS and in CON may be two separate traits. Future buck performance tests should incorporate pasture and confinement phases to more precisely identify superior bucks for IP resistance.

Table 1. Top 10 bucks ranked by combined PCV and FEC in PAS.

ID	Period 1		Period 2		Period 3		Period 4	
	PCV	FEC	PCV	FEC	PCV	FEC	PCV	FEC
17	25	0	30	1250	29	50	26	1000
13	21	0	21	0	29	250	26	600
16	25	0	30	0	34	1400	24	4900
107	23.5	300		50	29	650	23	2300
111	22.5	800	25	100	26	400	21	2350
100	23	100	34	0	32	250	20	9300
106	18.5	1400	24	150	26	450	25	2300
74	19.5	350	20	500	26	700	22	1300
69	21.5	1400	23	400	24	1350	25	850
80	19.5	500	18	0	25	0	21	

Table 2. Top 10 bucks ranked by combined PCV and FEC in CON.

ID	Day 29		Day 34		Day 38	
	PCV	FEC	PCV	FEC	PCV	FEC
157	35	50	32	0	26	0
126	30	250	30	150	37	250
48	34	50	29	100	30	50
17	35	0	30	50	27	100
161	38				30	200	32	550
171	30	400	34	400	33	350
160	30	100	35	1300	35	450
163	34	250	29	100	30	150
68	31	50	30	0	30	50
132	33	50	30	350	30	600