

## OCCURRENCE OF ANTHELMINTIC RESISTANCE IN GOATS IN VICTORIA

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An outbreak of parasitic disease in goats associated with the development of anthelmintic resistance in gastrointestinal nematodes is reported. A flock of 60 feral and dairy goats was introduced onto the Animal Research Institute, Werribee during mid-1976. They were grazed intensively on improved pasture and drenched each month with fenbendazole (FBZ, 'Panacur') for 20 months. In late February 1978 the goats were illthrift and eight died. Four more died during April. Post-mortem examination of three of these revealed heavy burdens of *Ostertagia* spp and *Trichostrongylus* spp (mean counts of 6650 and 120,000 helminths respectively). In Experiment I, conducted in 1978, 12 adults and five kids were drenched with FBZ and five adults were drenched with levamisole (LVS, 'Nilzan') at the recommended rates, during weeks 1, 4 and 7. During week 10, all goats were drenched with morantel tartrate (MOR, 'Banmith II'). Faecal egg counts (FEC, eggs/g faeces) were taken at time of treatment and one week later to assess efficacy of treatment (Table 1). Between Experiments I and II (conducted nine months later) all goats were drenched three times with MOR. In Experiment II 20 goats were randomly allocated to four groups: an untreated control, and those treated with FBZ, LVS or MOR.

TABLE 1 Effect of anthelmintic treatment on faecal egg counts (FEC) in goats

Experiment I		Initial FEC and percentage change in FEC between			
Treatment	Weeks 1 & 2	Weeks 4 & 5	Weeks 7 & 8	Weeks 10 & 11 <sup>†</sup>	
FBZ - adults	462 (-28) <sup>‡</sup>	717 (-37)	508 (-20)	242	(-97)
FBZ - kids	2638 (+67)	5000 (-20)	4550 (-30)	1050	(-90)
LVS - adults	320 (-60)	380 (-45)	240 (-29)	150	(-100)
Experiment II		Initial FEC and percentage change in FEC between weeks 1 & 2			
	Control	FBZ	LVS	MOR	
	636 (-23)	618 (-61)	888 (-94)	516	(-52)

<sup>†</sup> Drenched with MOR during week 10

<sup>‡</sup> Percentage changes in egg numbers are shown in parentheses

On the basis of change in FEC in Experiment I, it appears that the parasites had developed a degree of resistance to FBZ and LVS, but not MOR. Nine months later FBZ and MOR were ineffective and the efficacy of LVS had improved. Thus changes in the effectiveness of LVS and MOR had apparently occurred within one year. Adults had lower FEC than kids suggesting that they had acquired some resistance to heavy nematode burdens.

These results show that goats grazed intensively became heavily infected with nematodes causing production losses and mortality. This was associated with frequent anthelmintic treatment and selection of drug-resistant nematodes. In addition, goats may be more susceptible than sheep to nematode parasites (Le Jambre and Royal 1976). Thus, if production research programmes with goats do not allow for the effects of gastrointestinal parasites, results may not be valid.

LE JAMBRE, L.F. and ROYAL, W.M. (1976). Aust. Vet. J. 52: 181.

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