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Summary only

THE PRODUCTION OF VOLATILE FATTY ACIDS IN SHEEP ON DIFFERENT PASTURE TYPES

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DIFFERENCES in animal production on New Zealand pasture species cannot be fully accounted for by intake of feed alone (Ulyatt, 1969), and utilization by the animal of ingested feed must play an important role. Variations in volatile fatty acids (VFA) produced in the rumen have been cited as a possible reason for differences between pastures species. A preliminary investigation of this role of VFA is reported here.

Nine wether sheep were caged indoors and three fed on each of, 'Grasslands 4700' white clover (C), 'Grasslands Manawa' ryegrass (S), and 'Grasslands Ruanui' perennial ryegrass (P), freshly cut. Ruminal VFA production was measured by the isotope infusion and sampling technique of Gray *et al.* (1967). Digestibility determinations were carried out concurrently. The results are summarized in Table 1.

There were no significant differences in intake of the three feeds but the VFA production rates from P and C were significantly higher than from S. The proportion of digestible energy accounted for by VFA production was significantly higher for P than for S.

These results are lower than published estimates of VFA production measured by the isotope dilution method for dry feeds (Gray *et al.*, 1967). The possibility that these low results were due to errors in the sampling technique cannot be overlooked. However, it is suggested that the

TABLE 1: SUMMARY OF DATA FOR INTAKE AND VFA PRODUCTION RELATIVE TO TYPE OF PASTURE

	Clover (C)	Ryegrass (S)	Ryegrass (P)
GE digestibility (%)	81.0	77.5	77.7
DE intake (kcal/day)	3,328	3,005	2,757
VFA production (moles/day)	2.99	1.78	3.33
VFA as % DE intake	25.1	16.5	33.9

differences between the present results and published estimates, and between the pasture species used, can be explained by differences in rumen retention times.

Further work is in progress to follow up these results both indoors and in the grazing situation.

REFERENCES

- Gray, F. V.; Weller, R. A.; Pilgrim, A. F.; Jones, G. B., 1967: *Aust. J. agric. Res.*, 18: 625.
Ulyatt, M. J., 1969: *Proc. N.Z. Soc. Anim. Prod.*, 29: 114.