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BRIEF COMMUNICATION

Fibre growth cycles of unselected, reproducing cashmere does discussed in relation to winter shearing

R.J. MITCHELL, K. BETTERIDGE

Grasslands Division, DSIR, Palmerston North, New Zealand.

R.A.S. WELCH, M.P. GURNSEY

Biotechnology Division, DSIR, Palmerston North, New Zealand.

A.J. NIXON

Department of Botany and Zoology, Massey University, Palmerston North, New Zealand

INTRODUCTION

Currently, cashmere producers have insufficient information on the precise timing and duration of fibre growth on which to base their winter shearing strategy. Typically, cashmere grows from summer through winter and is shed during spring, making it necessary for producers to shear during winter. This paper presents fibre growth patterns of unselected, reproducing does run on summer-wet hill country in southern Hawkes Bay.

METHODS AND MATERIALS

Fibre growth of nine feral or feral x Saanen does was measured monthly for 30 months from May 1986 to September 1988. Does grazed pasture in a large mob and received some supplementary feed in winter. Each month goats were drenched and foot bathed. Bucks were introduced in mid or late autumn.

Cashmere and guard hair growth rates were measured by dissecting and weighing regrowth, shaven from the mid-side patch every two months. Secondly, cashmere and guard hair lengths were determined from a mid-side fibre staple snipped at a new site each month and measured against a ruler. Thirdly, a small skin biopsy was cut within the staple site from five of the goats, and examined histologically to measure the level of hair follicle activity (Nixon A.J. pers. comm.). Fourthly, the fleece adjacent to the mid-side patch was visually

examined and gently pulled to determine the presence of shedding cashmere. Details of methods are in Mitchell *et al.* (1989).

RESULTS AND DISCUSSION

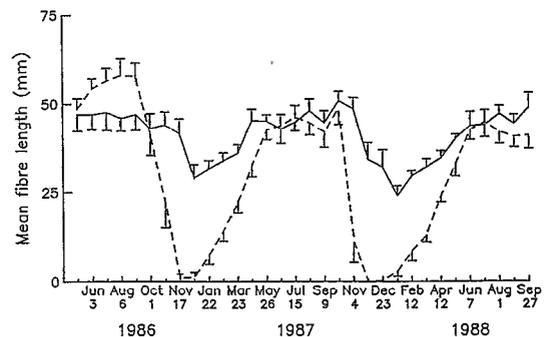


FIG. 1 Mean fibre length of staples cut at approximately monthly intervals for 30 months, from the midside of nine cashmere bearing does, cashmere (---), guard hair (—). Bars denote S.E.M.

Individual goats had new cashmere detectable in their fleece in January, February or March. Average cashmere growth rate was very high from February through May (Mitchell *et al.*, 1989), so that by June average cashmere length was close to maximum (Fig.1), while slight shedding was becoming evident in only one or two individuals. Maximum cashmere length was reached by July but shedding had also increased slightly. A few goats were shedding cashmere heavily by August whereas all goats were shedding heavily or had

shed by October. New guard hair was detected in individual goats in September, October or November. Shedding of guard hair became noticeable in individual goats during the later stages of, or after, the completion of cashmere shedding.

There were no clear year-to-year differences in the timing or duration of fibre growth. However, some individuals appeared to start cashmere growth consistently early and others consistently late, in both 1987 and 1988.

Histological examination of the skin samples indicated that the level of primary (guard hair producing) and secondary (cashmere producing) follicle activity were both minimal at the same time (late winter or early spring) (Mitchell *et al.* 1989). Excluding the small peak in secondary follicle activity that occurred in spring, the duration of activity was similar for both follicle types, although the rise, peak and fall of primary follicle activity preceded the same pattern for secondary follicle activity by about two months. The small spring peak in secondary follicle activity was associated with the production of microscopic vellus hairs. Vellus fibres were apparently shed by summer and were replaced by cashmere.

Our results indicate that shearing in early June or July should maximise cashmere yields. Shearing in early May would sacrifice about 25% of the

mean cashmere length but would allow good regrowth prior to fibre growth stasis, whereas shearing in August would risk considerable cashmere losses from a few individuals. Shearing in June appears to be the best single-shearing option as shedding is minimal, cashmere length very close to maximum and goats would be better able to produce some protective regrowth than if shorn in July.

However, Johnson (1988) found that shearing feral does in mid April and again in July increased cashmere production by 76%. This suggests various shearing strategies should be investigated for New Zealand cashmere goats. Finally, we acknowledged that the effects of selective breeding, reproductive state, latitudinal variation within New Zealand and animal health could all modify the basic pattern of fibre growth presented here.

REFERENCES

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