THE MEASUREMENT OF MEDULLATION IN MOHAIR USING THE OPTICAL FIBRE DIAMETER ANALYSER

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It is a common industry belief that the high cost of testing mohair, in particular fibre medullation, has limited the genetic improvement of Angora flocks in Australia. The Optical Fibre Diameter Analyser (OFDA) has now been modified to differentiate medullated fibres from non-medullated fibres based on fibre opacity (Brims 1993). The aim of this experiment was to test the effectiveness of the OFDA to measure percentage medullation (gare and kemp) in mohair.

Twenty Angora fleeces were scoured in detergent and hot water, dried and minicored (2 mm snippets). Each sample was spread onto an OFDA slide and 2000 fibres were counted and classed as either non-medullated, gare or kemp according to fibre opacity. The percentage of medullated fibres was calculated as the sum of gare and kemp fibres over the total number of fibres measured.

The same snippets were then collected and a portion of these were prepared on a microscope slide. A total of 800 fibres were counted and classed as either non-medullated, gare or kemp using the projection microscope.

There were significant linear relationships (P < 0.001) between the OFDA and projection microscope measurements for percentage medullation (Figure 1) and percentage gare (y = 0.065 ± 0.287 + 0.93(t = 0.06)x, r² = 0.93). However, there was no significant relationship (P > 0.05) between percentage kemp (OFDA) and percentage kemp (projection microscope).

These results confirm the ability of the OFDA to measure percentage medullation and gare in mohair. Since the OFDA measures medullation objectively, measurements are highly repeatable unlike the projection microscope which suffers from a high operator error (Stapleton 1985). The poor relationship for percentage kemp is being investigated.

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