March 2007

Mr Angus McColl of Yocom-McColl recently published papers “Fibre Sampling for Individual Animals” and “Methods of Measuring Microns” require a response.

IWG makes the following observations:

Mr McColl is correct with his description of the requirements for correct sampling, sample identification and sample handling. Careful and correct sampling reduces one of the variability’s associated with animal midside fibre testing.

To then suggest the correct method of testing each individual midside sample by obtaining a sub-sample of the midside at the base of each staple within the sample to measure “fibres that have grown side by side” is ignoring advances in fibre measurement. The most significant of these new measurement advances is the along staple micron profile. The statement also ignores the reality that the fleece of any animal is sold by a measurement of a random sample of all the fleeces in the consignment of fibre being sold.

In recent times we did see a trend toward staple base measurements until the advent of along staple micron profiling was developed. In the early development of this measurement method the along staple micron profile was obtained by careful guillotining the staples in a sample at 5mm increments and measuring each increment. The measured information was then put into a spreadsheet to graph the profile.

What this research showed was that considerable along staple micron variation could be observed under normal environmental and management conditions. Greater variability is observed under abnormal conditions such as drought, un-seasonal weather conditions and above average seasonal conditions where there is a significant availability of feed.

Further research demonstrated that the along staple micron profile had a significant effect on the CVD (coefficient of variation of diameter) of the test result and also the processing performance of the consignments of animal fibre processing lots. A sudden change in the along staple micron profile can also indicate a staple strength issue whereby the sudden change in the along staple micron profile can be used to identify fleeces that may have a lower tensile strength (NKt)

With the commercialisation of the OFDA2000 animal fibre producers had available to them an instrument that could rapidly measure a fibre sample for micron (including all the normal measurements associated with the micron measurement), length of staple and the along staple micron profile. Mr McColl’s suggestion that the OFDA2000 is primarily used for developing lines of animal fibres for presentation to the buying trade is not correct. In the major animal fibre producing countries South America, New Zealand, Australia and South Africa the primary function of the OFDA2000 use on farm has been for genetic selection. If the test is completed just prior to de-fleecing or at the point of de-fleecing the spin off is the information generated for genetic selection can be used for building lines of animal fibres to obtain premiums in available spot markets. This has proven to be a most successful management tool and without penalty to the overall clip value because of the other lines of wool being slightly stronger.

Australian Wool Innovation and the Sheep CRC have been instrumental in developing on-line tools to assist wool producers with this decision making process.
Theses tools can be found at:
http://www.wool.com.au/Testing_and_Handling/On_farm_testing/page__2274.aspx
http://www.sheepcrc.org.au/index.php?id=177

South Africa broker Cape Mohair and Wool have had great success with the OFDA2000 promoting their EGT (Every Goat Test) service. 90% of the 150000+ tests per year completed by CMW with their OFDA2000 are mohair samples. Their service offers genetic selection of animals and the building of lines of mohair by micron and CVD. The mohair line building has proven to be of considerable financial benefit to South African mohair producers. Go to www.cmw.co.za for further information.

Mr McColl also suggests the OFDA2000 only measures 100 fibres in the sample. This is simply not possible because the OFDA2000 software has in-built minimum fibre measurements per scan. If the minimum fibre count per scan (150) is not observed the OFDA2000 rejects the sample. In determining the overall average mean fibre diameter, typically at least 2000 fibres are measured with a higher fibre count of longer staples. The many and varied independent and detailed metrology investigations published on the OFDA2000 and other fleece measurement methods over the last 5 years have shown that the technology gives adequate precision for the intended uses.

In 2004 Australian Wool Innovation the peak Australian wool producer body commissioned on behalf of Australian wool producers the largest midside sample wool trial every conducted in the world. The trial compared the performance of OFDA2000 and Fleecescan used on farm to the laboratory testing instruments OFDA100 and Laserscan. The trial summary concluded that there were no significant differences between instruments if used in accordance with recommended procedures.

To view the AWI OFFM trial design and results go to:
http://www.wool.com.au/Testing_and_Handling/On_farm_testing/OFFM_technology_trials/page__2194.aspx

To view other publications go to:
www.iwgofda.com and tab on Research Papers

Recently under separate cover we received advice that at a seminar Mr. McColl claimed “that the OFDA2000 machines were now readily available for purchase due to a huge drop in demand, and support, for the technology in Australia”.

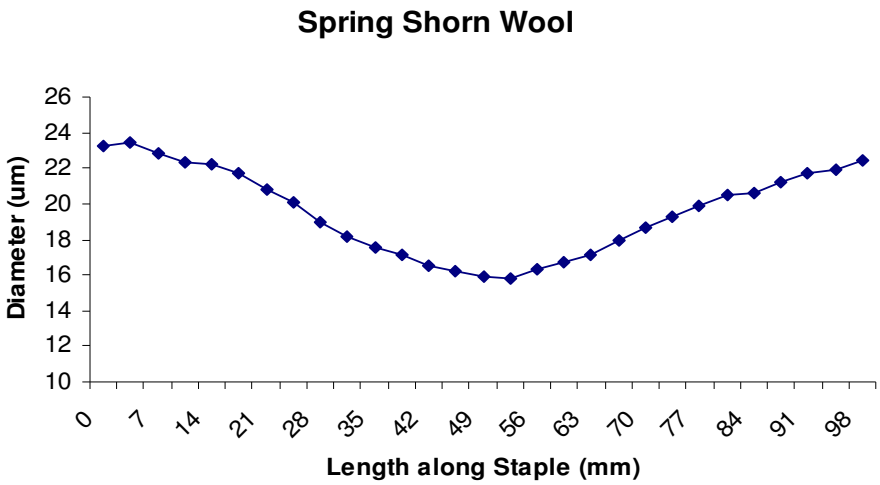
This is absolutely not true. Should Mr. McColl request a quote, from IWG, to supply an OFDA2000 instrument, he will quickly realise that he is speaking without knowledge of the facts.
The facts are that we are enjoying a continuing strong demand from across the world for OFDA2000 instruments and the IWG software.

In the current year export demand has lifted sales again and at increased pricing.

Mr. McColl has the opportunity to update his instruments should he wish to incorporate the advanced OFDA2000 technology, in order to service his clients.

There may well be an issue with other on farm instruments with respect their availability for purchase.

Below is a typical OFDA2000 along staple micron profile. The tip of the staple is to the left of the graph and the base or de-fleecing point is to the right of the graph.
In this graph the micron variation along the staple is 7.9 microns (23.9um to 16.0um).



The main issues we need to consider when viewing a typical along staple micron profile include:

- At what point would we guillotine the staple to measure side by side grown fibres to evaluate the "true" genetic potential of the animal being measured?
- What effect does this variation of along staple micron have on the micron CVD?
- What effect does this variation of along staple micron have on processing performance?
- When a processor buys a consignment of animal fibres they buy all the variation within the consignment not just the base measurement.

Other observations include:

- In any given flock of fibre animals the normal along staple micron distribution will include animals that do not show such extremes of variation under any circumstances.
- Through out the growing period of the fleece an even distribution of feed will reduce variation in the along staple micron profile.
- Selecting for lower micron CVD can be used as an indirect selection tool to increase staple strength.

On the next page is an information sheet regarding along staple micron profile prepared by the Western Australian Department of Agriculture.

What is the Fibre Diameter Profile?

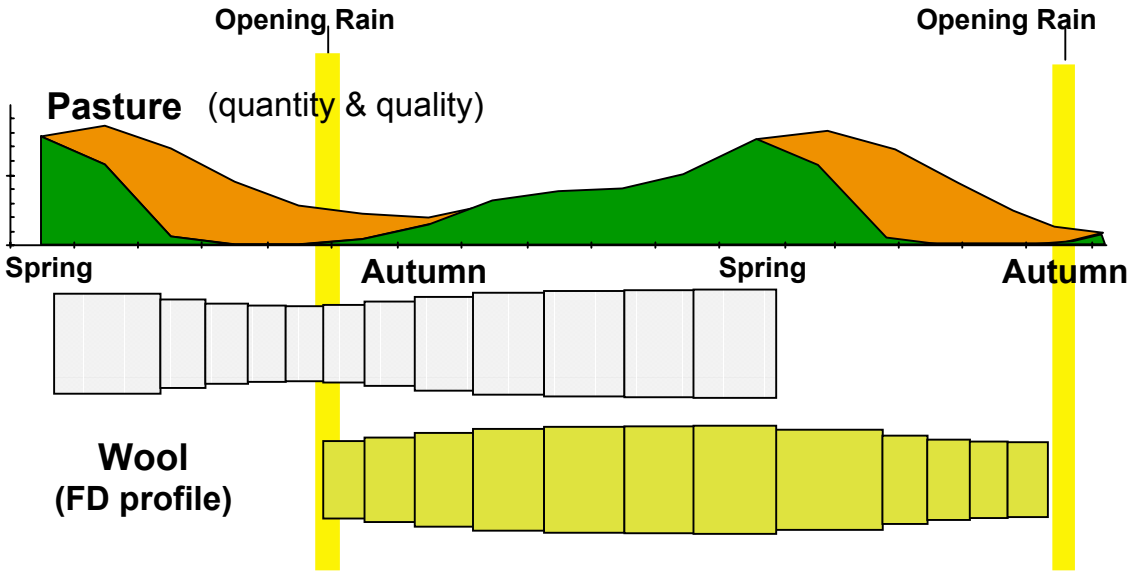
The diameter along a wool fibre varies by as much as 8 microns in young sheep, and 5 microns in adult sheep over a year. Diameter is finer in late summer when feed quality and quantity are low, and broader in spring when plentiful green feed is available. We call the changes in fibre diameter throughout the year, the fibre diameter profile.

Why is it Important?

The fibre diameter profile relates to what micron wool you will produce as well as the variation in fibre diameter. Other wool qualities such as staple length, strength and position of break are also influenced by the fibre diameter profile.

Knowing the fibre diameter profile and how to manipulate it gives you, the grower, tremendous power over what type of wool can be produced. There are real benefits to keeping fibre diameter as even as possible throughout the year by tactical increases in stocking rate whilst grazing on green feed. The result is finer and stronger wool.

Some farmers have improved their profits considerably by increasing grazing pressure during winter/spring, thereby increasing their wool cut per hectare. Whilst fleece weights may be down, this is counteracted by improvements in wool quality (micron and strength).



How Do I Measure Fibre Diameter Profile?

A new instrument called the OFDA 2000 can now rapidly measure the diameter profile of a greasy staple and this will become available towards the end of 1999 after extensive testing by Agriculture Western Australia.

However, you can already get an idea of your diameter profile by taking a staple every month from several sheep (say 20) within the flock. The staple should be taken from the same position on each sheep. The fibre diameter at the base of the staple can be measured from 2 mm snippets cut at the base and combining all these snippets for measurement using conventional fibre testing (i.e. OFDA 100 or LaserScan). Talk to your nearest fibre test house about this. Fibre diameter can then be plotted every month to produce a fibre diameter profile.

For further information contact: Chris Oldham (9368 3511) or Andrew Peterson (9368 3662)

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