LASERSCAN - A QUICK TOUR

In July 2000 AWTA Ltd introduced LASERSCAN as its standard service for certifying the diameter and distribution of all wool produced in Australia.

What do you get from LASERSCAN?

LASERSCAN uses a laser beam, advanced electronics and computer software to provide accurate measurements of:

- ***Mean Fibre Diameter;***
- ***Standard Deviation of Diameter;***
- ***Coefficient of Variation of Diameter;***
- ***Comfort Factor; and***
- ***Fibre Curvature.***

These characteristics of raw wool are important in determining the characteristics of top and yarn produced from the wool.

Why choose LASERSCAN?

***Precision*:**
- Better than Projection Microscope
- Better than Airflow
- Better than OFDA

Interferences:
- Unaffected by: Medullation, Fibre Curvature, Variations in Distribution, Ellipticity, Colour

Calibration:
- Only one Calibration needed for both wool sliver and greasy wool
- Calibrated using Interwoollabs International Standards

Processing:
- For Australian raw wool LASERSCAN is more highly correlated with Airflow than competing instruments and shows no apparent average bias over the range of diameters normally encountered

Benefits:
- More accurate
- More information
- Better prediction of processing performance

How does LASERSCAN compare with other technologies?

LASERSCAN, on average, provides very similar results to Airflow, for Australian Merino wool. This means that there will be little impact on established core/comb comparisons.

For individual samples of greasy wool there are sometimes seemingly large differences from Airflow. However, over a range of mean fibre diameters 95% of the differences are generally in the range ± 0.5 microns. This is very close to the expected precision limits for greasy wool for any of the alternative technologies.

Nevertheless, some of these differences for individual samples are real. Unlike the Airflow instrument, the LASERSCAN is not affected by fibre density (often exhibited as medullation) and provides a more accurate measurement of the MFD in such cases than the Airflow. Unlike the Airflow, LASERSCAN is also not affected by Coefficient of Variation of Diameter. It is measuring the individual fibre snippets. Nor is it affected by fibre ellipticity or by fibre curvature.

How well does LASERSCAN perform in the real world?

The best measure of instrument performance can be obtained from inter-laboratory trials, where participating laboratories all test the same wool. Interwoollabs regularly organises such trials, where the participants are sent samples of tops to measure. In the last series of Interwoollabs trials the laboratories using LASERSCAN showed less variation between them than all the alternative technologies.

Worst **(Range in Mean Fibre Diameter between Laboratories)** **Best**

Projection Microscope **Airflow** **OFDA** **LASERSCAN**

Another way to assess the variability of these instruments is to compare the number of times the performance limits set by Interwoollabs were exceeded by each instrument over a number of trials.

NUMBER OF TIMES INTERWOOLLABS LIMITS WERE EXCEEDED*		
TRIAL	**LASERSCAN**	**OFDA**
95/2	0	5
96/1	0	9
96/2	2	7
97/1	1	4
97/2	0	7
98/1	0	5
98/2	0	7
99/1	0	4
99/2	0	4
00/1	0	1
00/2	0	1
01/1	0	6
01/2	0	5
02/1	0	1
02/2	1	3
TOTAL	**4**	**69**

* Derived from reports by INTERWOOLLABS to its members

AWTA Ltd has selected LASERSCAN as its instrument of choice after a long and exhaustive evaluation, which included assessment of:

- ***precision and accuracy;***
- ***speed;***
- ***reliability; and***
- ***cost.***

Who else uses LASERSCAN?

LASERSCAN is used by many of the world's biggest topmakers and spinners*, including:

- ***Geelong Wool Combing***
- ***Riverina Wool Combing***
- ***G.H. Michell & Sons***
- ***Nanhai Pindar***
- ***Peignage d'Auchel & Allouange***
- ***Peignage de la Tossee***
- ***Bremer Wollkammerei***
- ***Sudwolle***
- ***Zegna Baruffa***
- ***Filatura di Grignasco***
- ***Pettinatura Italiana***
- ***Pettinatura Lane di Romagnano Sesia***

* Derived from Interwoollabs official 1999 "List of Calibrated Laboratories"

FURTHER INFORMATION:

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