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Chairman: J.W. MARLER (Australia) **Report No: RWG 01**

A comparison of New Zealand scoured wool test results 2003 to 2007

By

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SUMMARY

This paper shows a brief graphical summary of New Zealand scoured wool test results. Commercial data is depicted for the years 2007 and 2003 and compared. Though only a proportion of New Zealand scoured wool production is analysed there are enough measurements to be representative of the whole.

From this comparison it can be concluded that the test data profile of New Zealand scoured wool did not change significantly in the four year period. The parameters which were found to exhibit any change of note were residual grease and wool colour.

This paper is for information only and there are no commercial implications.

INTRODUCTION

This paper describes the distributions of commercial test results on New Zealand scoured wool. These data were extracted from the SGS test database with each observation representing a commercial consignment. Data from 2003 and 2007 is presented to examine differences and similarities in these relevant parameters over the 4 year period.

The measurement analysed are the qualitative properties which normally appear on SGS scoured wool package certificates and length after carding.

Though the dataset does not encapsulate the entire New Zealand scoured production, it contains a significant enough proportion to be representative. The objective of this analysis is to depict the population of scourments produced in New Zealand and is purely informative in nature. Suggestions in the discussion as to the cause and effect have not been researched and are speculative. They serve only to indicate likely influences on observations made.

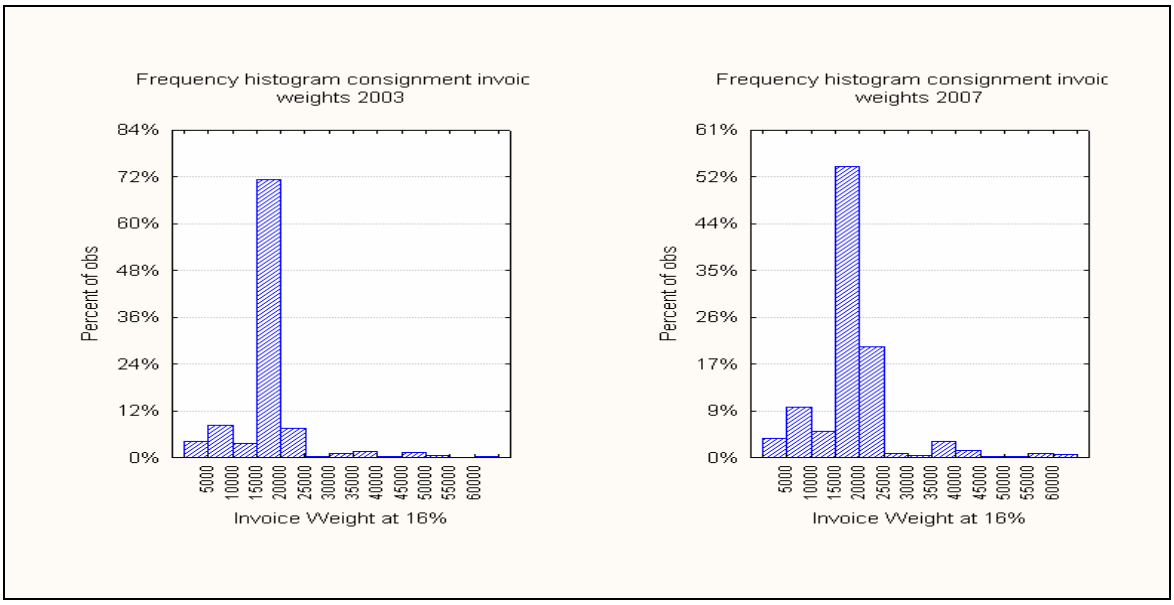
RESULTS AND DISCUSSION

The table below shows the means and percentage change for 2003 and 2007. The population mean values are relatively similar and the percentage differences small for most results. The percentage change for Dichloromethane extract and yellowness (Y-Z) are exaggerated due to the means being close to zero. Nevertheless both of these represent an improvement in overall quality of the deliveries.

Table of Means							
year	ASH	Colour Y	Colour Y-Z	Fibre Diameter	DCM ext	VMB %	Barbe
2003	0.86	65.97	0.80	34.89	0.24	0.12	94.17
2007	0.90	65.82	0.50	35.05	0.20	0.11	91.86
Difference %	5%	0%	-38%	0%	-17%	-8%	-2%

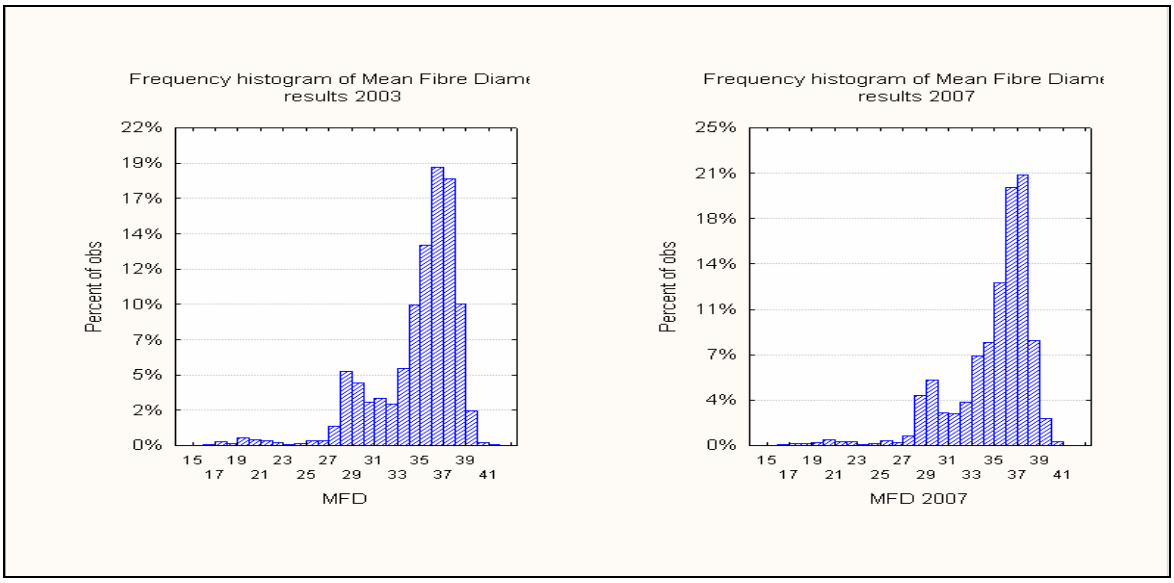
Invoice Mass (IWTO-19)

The invoice weights at 16% do show a shift in the size of consignments. In 2003 nearly ¾ of the deliveries were between 15,000kg and 20,000kg. In 2007 a significant part of the distribution shifted into the 20,000kg to 25,000kg interval. This could be due to improved packing density in the containers and scour press performance.

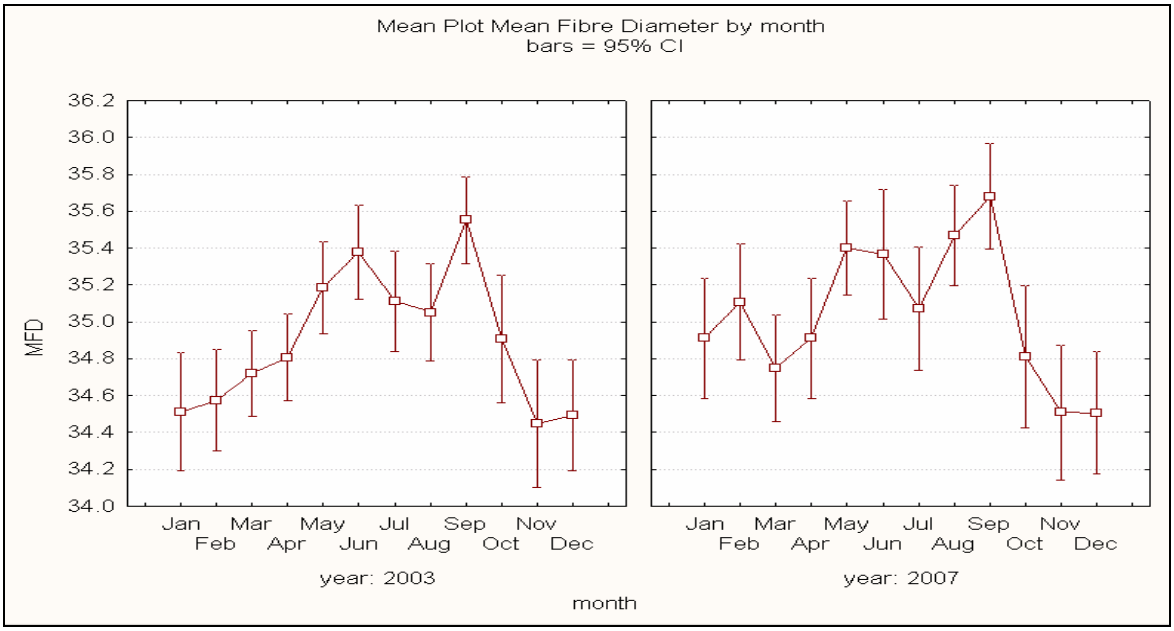


Mean Fibre Diameter (IWTO-28 and 12)

The frequency histograms below show the distribution of results for the two years examined. The distributions are very similar and as expected for New Zealand wool the bulk of the deliveries represent carpet and mid micron wool types. A small amount of New Zealand merino wool is scoured and can be seen in the histograms but the bulk of this wool is exported from New Zealand in greasy form.

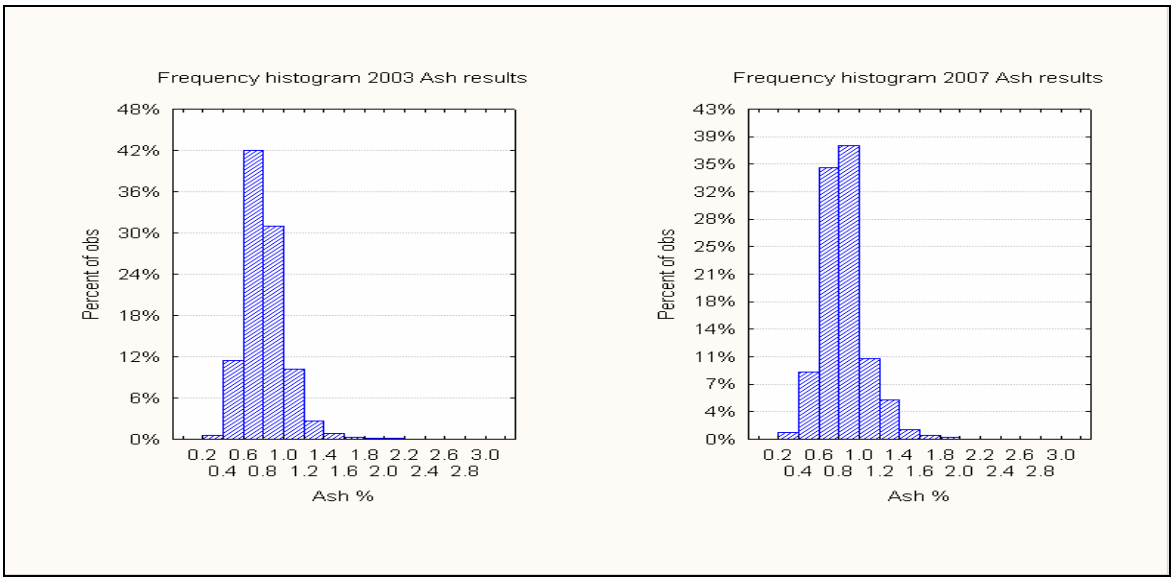


The time series plot below show the seasonal trends in Mean Fibre Diameter. 2003 and 2007 follow the same pattern. It is suggested the mean is influenced by seasonal and market factors, such as demand for finer hand knitting types and availability of lambs wool and merino consignments. Export volumes in June through September are dominated by stronger wools. The bars represent the 95% confidence intervals of the mean.



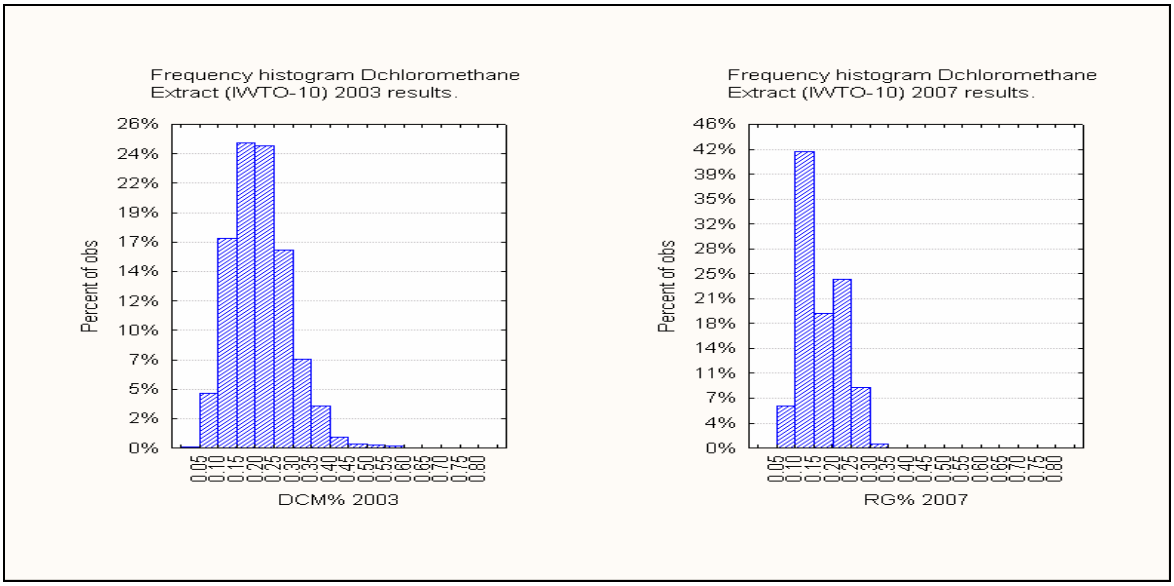
Ash (IWTO-19)

The residual ash content distributions are shown in histograms below. Again the populations show similar distributions.



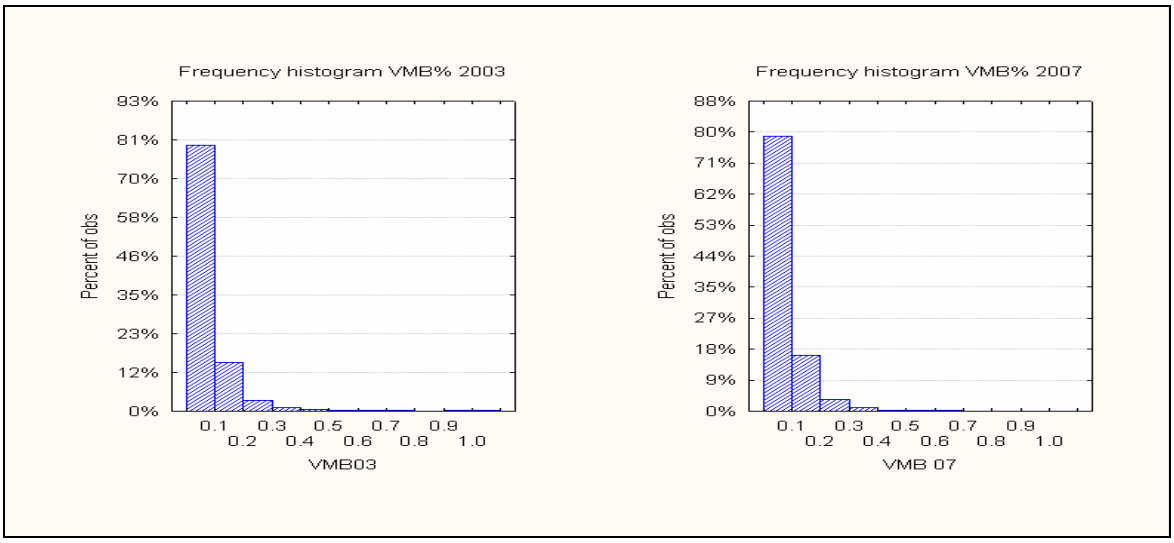
Dichloromethane extract (IWTO-10)

Dichloromethane extract results are indicative of the quantity of grease remaining on the fibre after scouring. Though maintaining the same distribution shape the average result is lower and there is less variation in the population as a whole. The New Zealand scouring industry has been investing heavily in processing and quality control technology. The lower residual grease levels are probably indicative on the scouring improvements made over the last four years.

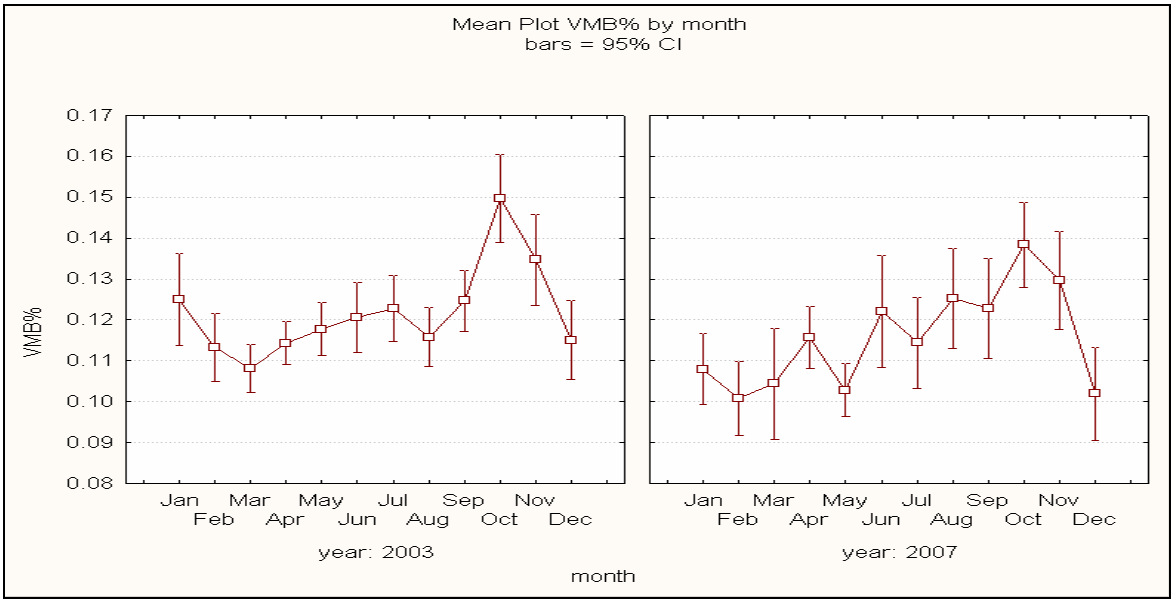


VM Base (IWTO-19)

The distribution of vegetable matter (VM) in the deliveries has not changed in the four year period. The slight reduction in the mean result could be due to improved farming practices or improved removal in scour processing. By international standards the level of VM in New Zealand wool is very low.

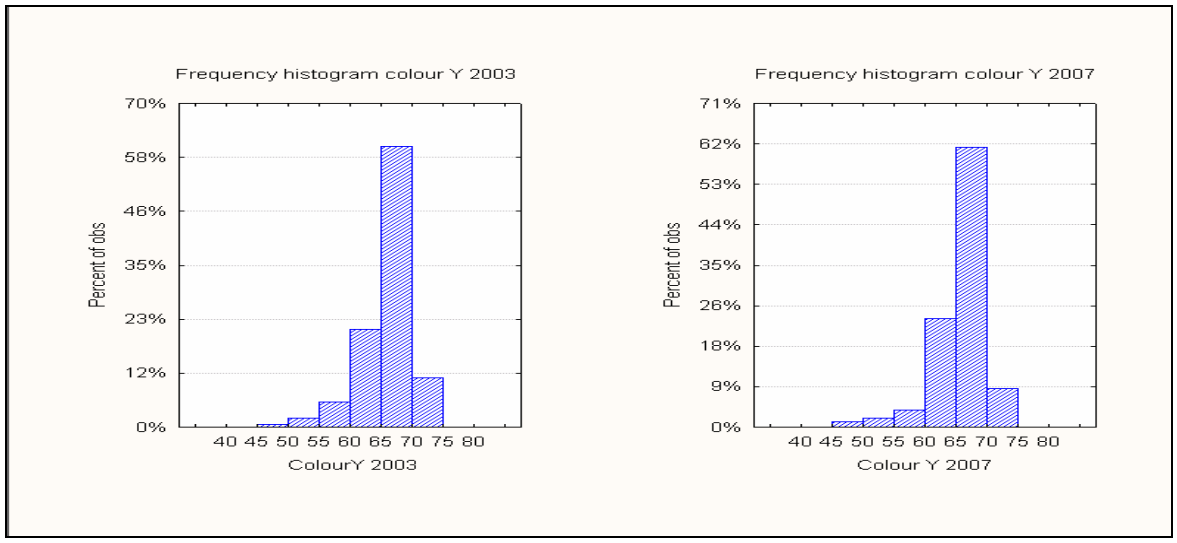


The time series plot for VM below exhibits some seasonality. VM levels tend to be higher in the spring and early summer months where plant growth and seed production is especially high.

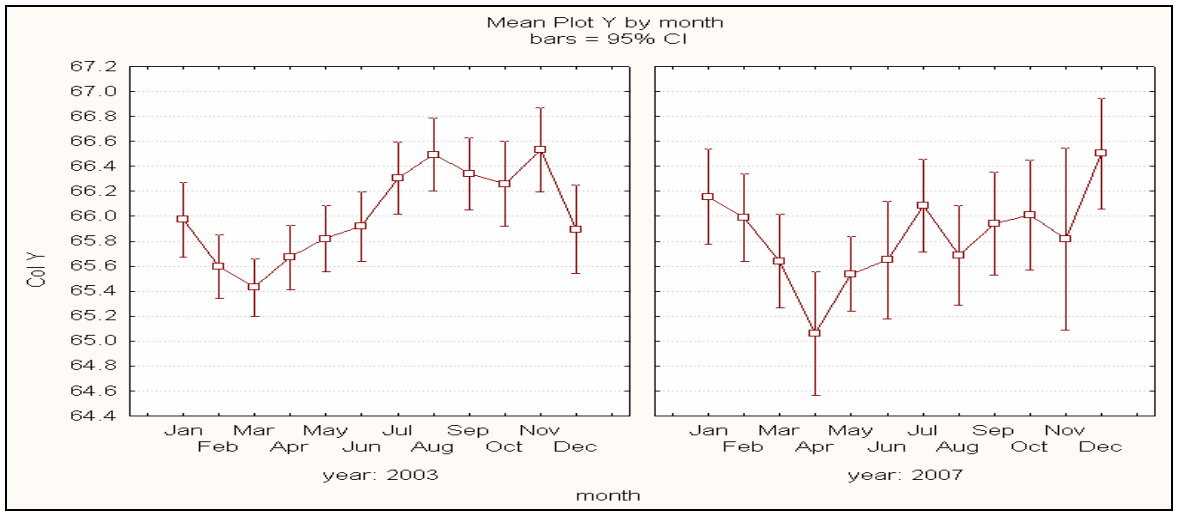


Colour (IWTO-56)

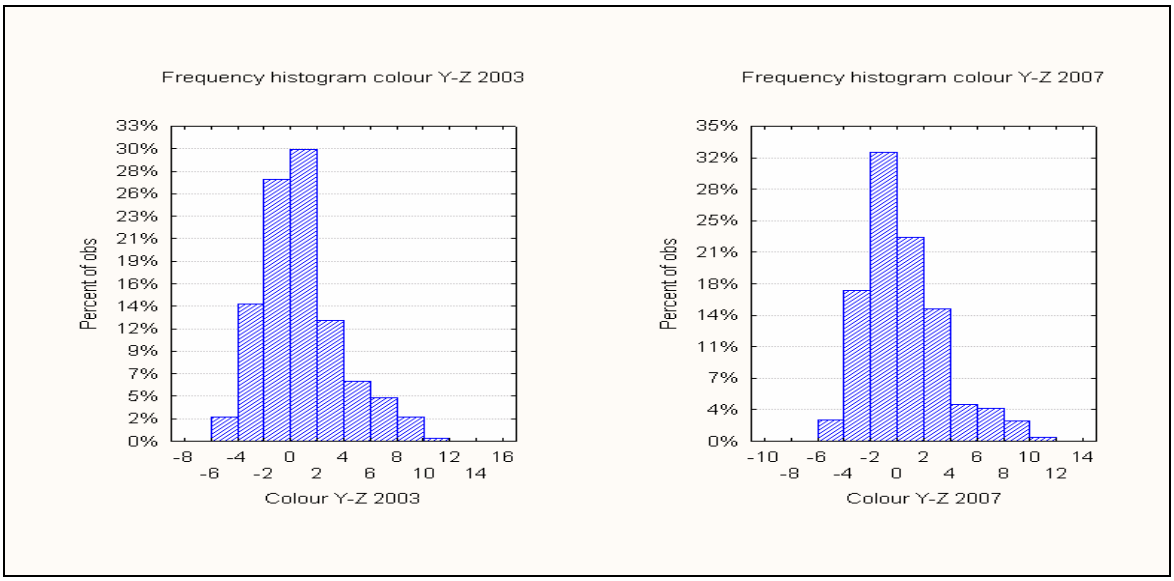
It should be noted that the colour values used here are “base colour” in the C2 colour space, this is the illuminant traditionally most often used for the sale of New Zealand wool. The Y tristimulus value from wool colour measurement is often referred to as “brightness”, there was little difference in the certified Y values between 2003 and 2007. It should be noted that NZ wool is normally on the basis of “clean” or “base” colour, which is the underlying colour capability of the wool, rather than any indication of scouring efficiency. Improvements in scouring efficiency suggested elsewhere would not affect the base colour values shown here.



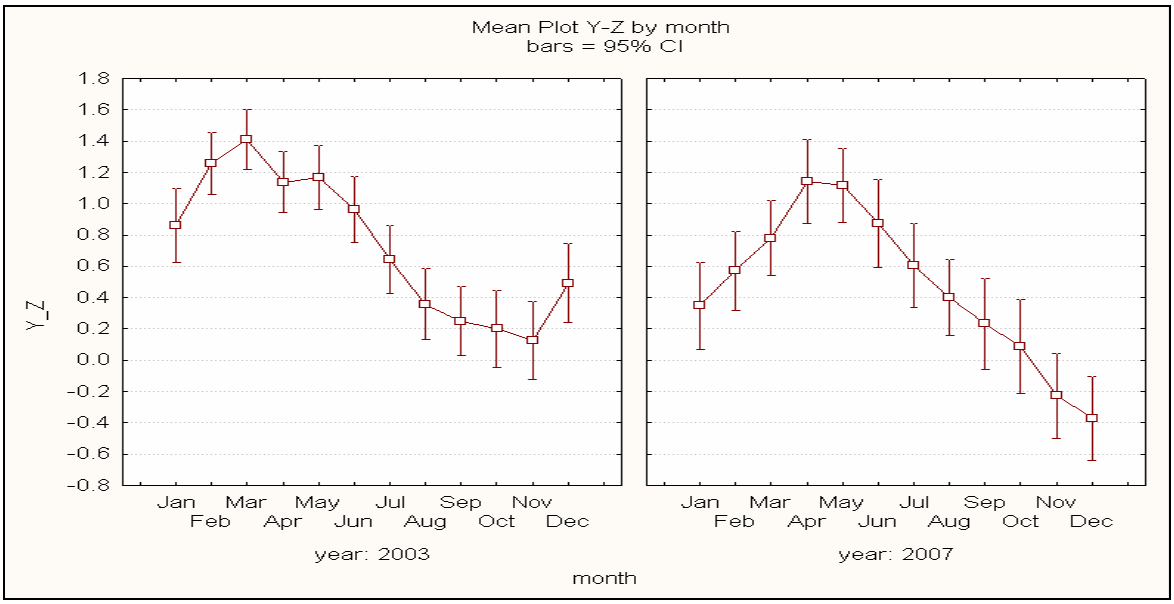
The time series plot below of Y colour values exhibited some degree of seasonality, but not strongly so. Colour may be influenced to some extent by weather conditions over the season prior to shearing.



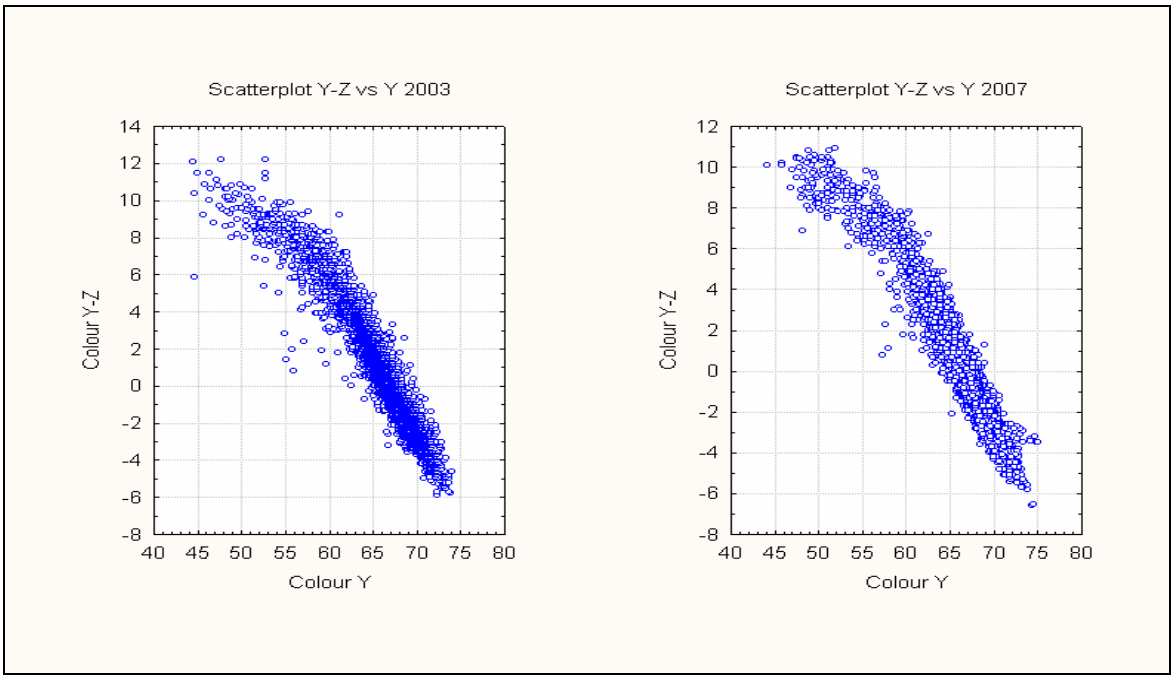
The Y-Z colour value is usually described as a representation of the degree of yellow in a blended wool sample. Yellowness is affected by environmental conditions especially moisture and temperature. The slight improvement in average yellowness between 2007 and 2003 could be due to changing farming practices or simply the weather conditions in the preceding growing periods.



The seasonal effects on Y-Z colour can be seen in the plot below. Average yellowness tends to be slightly poorer in the high rainfall months. During these months there are less wools of good colour available. The seasonal effect on the mean colour of any month nevertheless is relatively small (in the order of 1.5 units).



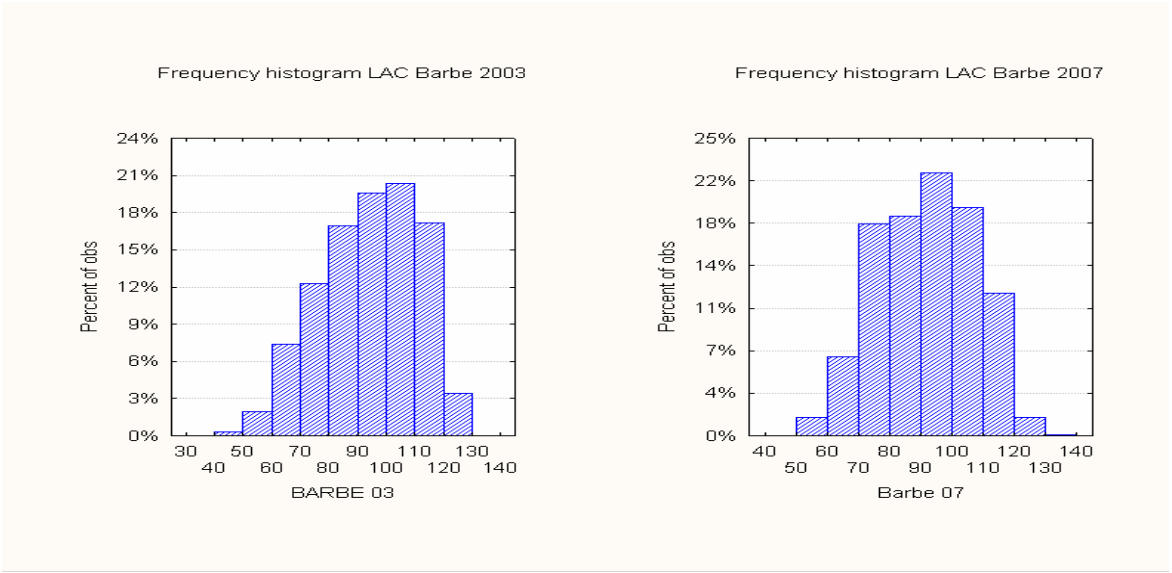
The scatter plot below shows the relationship between Y-Z and Y in the two years. The relationship is very similar confirming that the measurement system is stable. The results indicate the relatively tight range of yellowness that can be associated with any particular level of brightness.



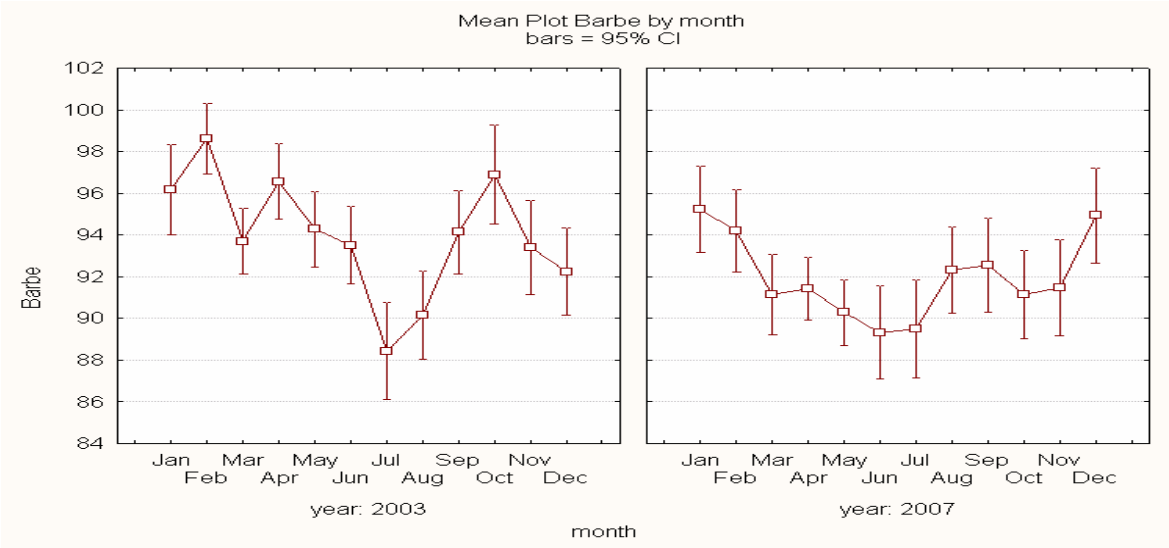
Length after Carding (NZS8719)

Length after Carding is widely used in New Zealand as a scoured wool length measurement, and is most appropriate for consignments destined for the semi worsted processing system.

The certified length is expressed as LAC Barbe. The frequency histograms show little change in scoured consignments between 2003 and 2007.



There is some indication of seasonal changes in Length after Carding results. This could be due to availability of the various length types, or changes in buying activity in different wool markets.



Length after carding Hauteur is sometimes requested to be reported. This measurement is closely related to Barbe and derived from the same test data. The frequency histogram for Hauteur shows little change between 2003 and 2007 except there is slightly less variability in the length of 2007 results.