
Supplementary Report to the In-shed Sampling Group

Peter Sommerville- 31 March, 1998

This report is an update of the statistical analysis presented to the working group meeting on the 10th March, 1998. It includes an analysis of the data from the trial conducted by the Esperance group. The approach used in the previous report has been adopted in this case also. The relevant facts that can be derived from the data are stated without qualification. Qualification of these facts can be an item for discussion at the next meeting of the group..

The statistical analysis is summarised in the attached tables and graphs.

The analysis was conducted using the International Wool Textile Organisations standard IWTO-0. This standard is designed to test for two types of bias:

- Relative bias i.e. whether or not two different test procedures deliver results which, on average, are significantly different.
- Level dependent bias i.e. whether or not two different test procedures deliver results which are significantly different, in a consistent direction, over the range measured.

NSW FARMERS

The following relative biases were detected:

- Wool Base (fleece wools only)
- Staple Length, and
- Coefficient of Variation in Staple Length.

The following level dependent biases were detected:

- Vegetable Matter Base

An error in Table 1 has been corrected. One lot where the sampling had not been conducted correctly was removed from the analysis for level dependent bias, but it had not been removed from the analysis for relative bias.

SEYMOUR GROUP

The following relative biases were detected:

- Wool Base (all lots and also fleece lots);

The following level dependent biases were detected:

- Wool Base
- Mean Fibre Diameter
- Staple Length

ESPERANCE GROUP

The following relative biases were detected:

- Vegetable matter base;
- Coefficient of Variation in Staple Length

There were no level dependent biases evident from the data.

Fewer lots were available for analysis for this trial than for the other trials, and no skirting lines were included in the data.

NSW FARMERS

TABLE 1: All Lots - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	41	41	41	38	38	38	38	38	39
Mean Difference (certificate-report)	-0.21	0.02	-0.09	-2.29	2.26	-0.74	-1.08	-1.26	2.34
Standard Deviation of Differences	0.74	0.32	0.66	3.78	2.95	3.52	6.02	12.47	12.71
t-value	-1.80	0.49	-0.89	-3.74	4.73	-1.29	-1.11	-0.63	1.14
Significance at 95%	NS	NS	NS	S (***)	S (***)	NS	NS	NS	NS

Note: *** denotes significance at the 0.1% level of confidence

TABLE 2: Fleece Wool - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	33	33	33	31	31	31	31	31	31
Mean Difference (certificate-report)	-0.26	0.04	0.02	-2.48	2.29	-0.26	-1.32	-1.94	3.26
Standard Deviation of Differences	0.72	0.32	0.42	3.58	2.92	3.30	6.18	12.65	12.48
t-value	-2.11	0.66	0.33	-3.87	4.36	-0.44	-1.19	-0.85	1.45
Significance at 95%	S	NS	NS	S (***)	S (***)	NS	NS	NS	NS

Note: *** denotes significance at the 0.1% level of confidence

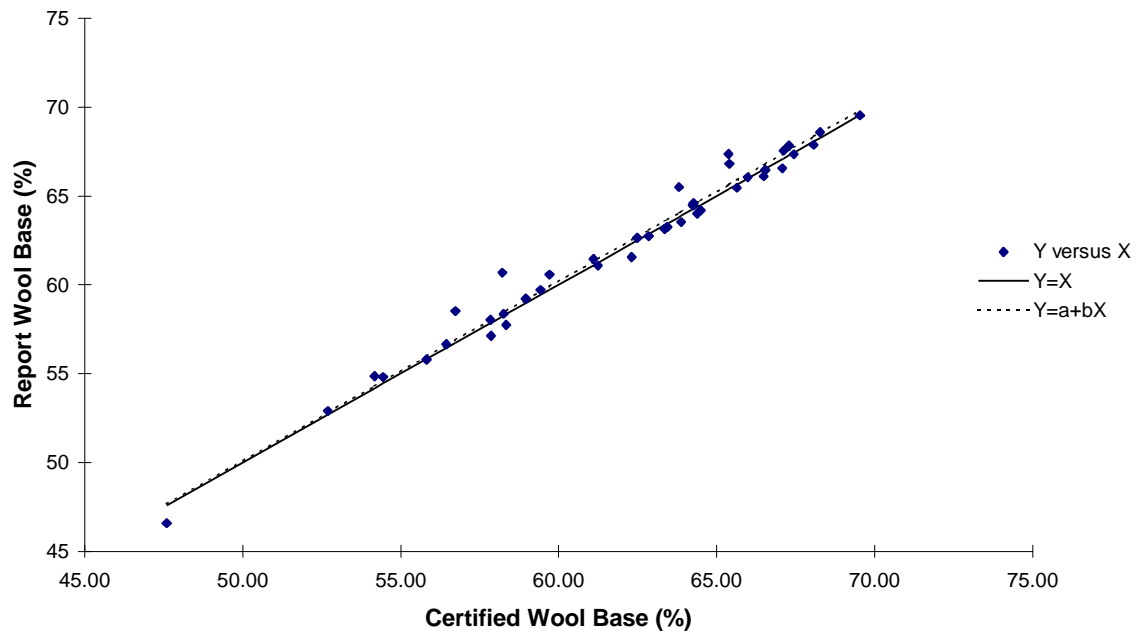
TABLE 3: Skirting Wool - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	8	8	8	7	7	7	7	7	7
Mean Difference (certificate-report)	0.01	-0.02	-0.58	-1.43	2.14	-2.86	0.00	1.71	-1.71
Standard Deviation of Differences	0.87	0.33	1.18	4.79	3.29	3.98	5.57	12.09	13.95
t-value	0.03	-0.22	-1.38	-0.79	1.72	-1.90	0.00	0.38	-0.33
Significance at 95%	NS	NS	NS	NS	NS	NS	NS	NS	NS

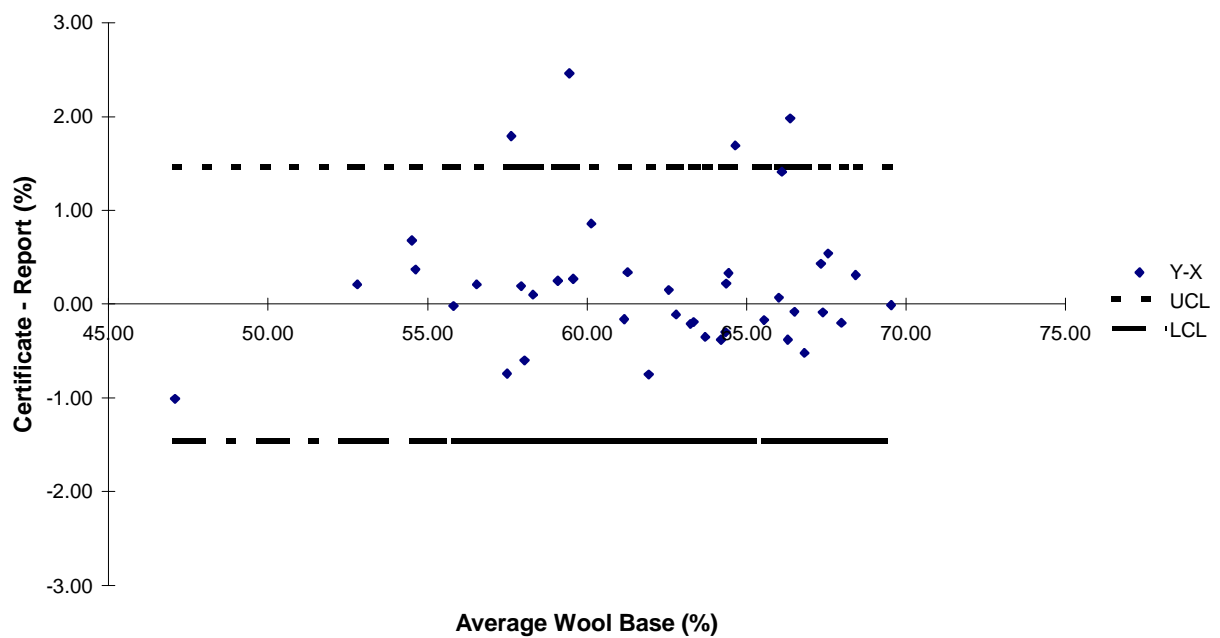
TABLE 4: All Lots - Summary of statistics relating to level dependent bias

Characteristic Examined	Statistic	WB	MFD	VMB	SL	CVL	SS
Slope of results plotted against one another	Observations	41	41	41	38	38	38
	Geometric Mean Slope	1.010	0.996	1.148	1.113	1.026	0.902
	t-value	-0.41	0.15	-3.74	-1.69	-0.21	1.23
	Significance at 95%	NS	NS	S	NS	NS	NS
Slope of the differences	Observations	41	41	41	38	38	38
	Geometric Mean Slope	0.010	-0.004	0.139	0.111	0.031	-0.112
	t-value	0.42	-0.15	4.02	1.79	0.21	-1.17
	Significance at 95%	NS	NS	S	NS	NS	NS

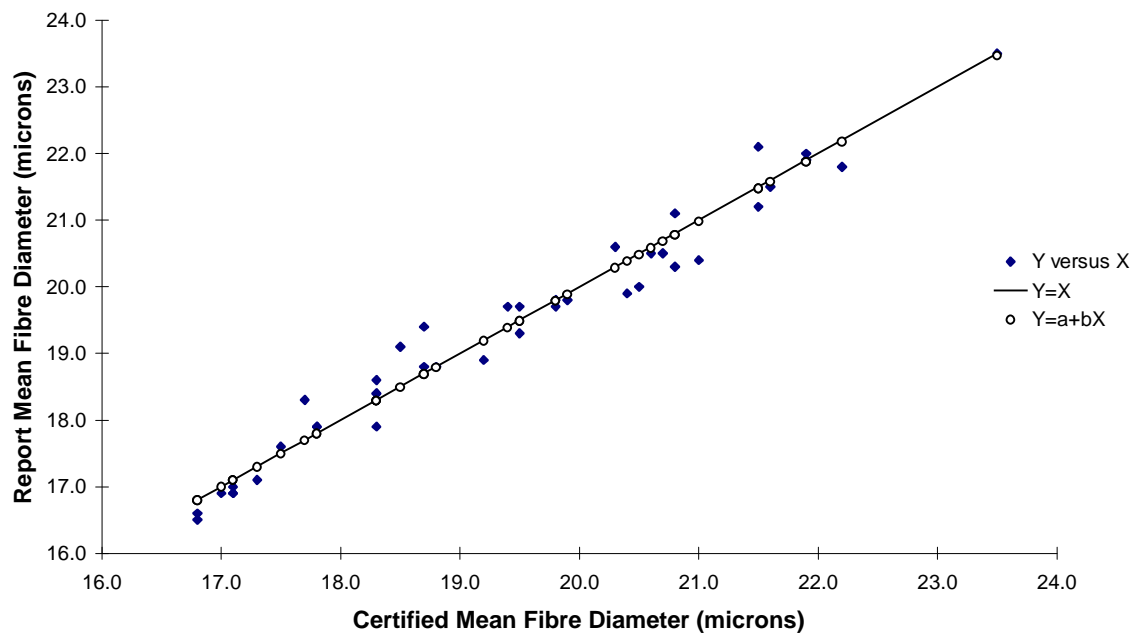
Comparison of Wool Base



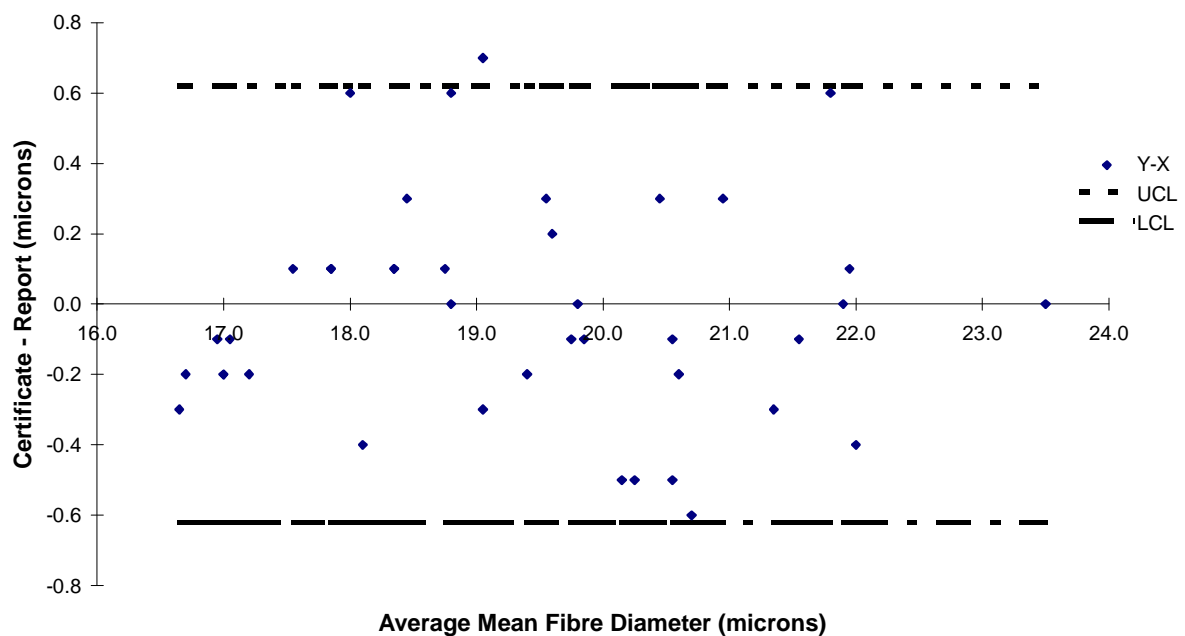
Wool Base Difference



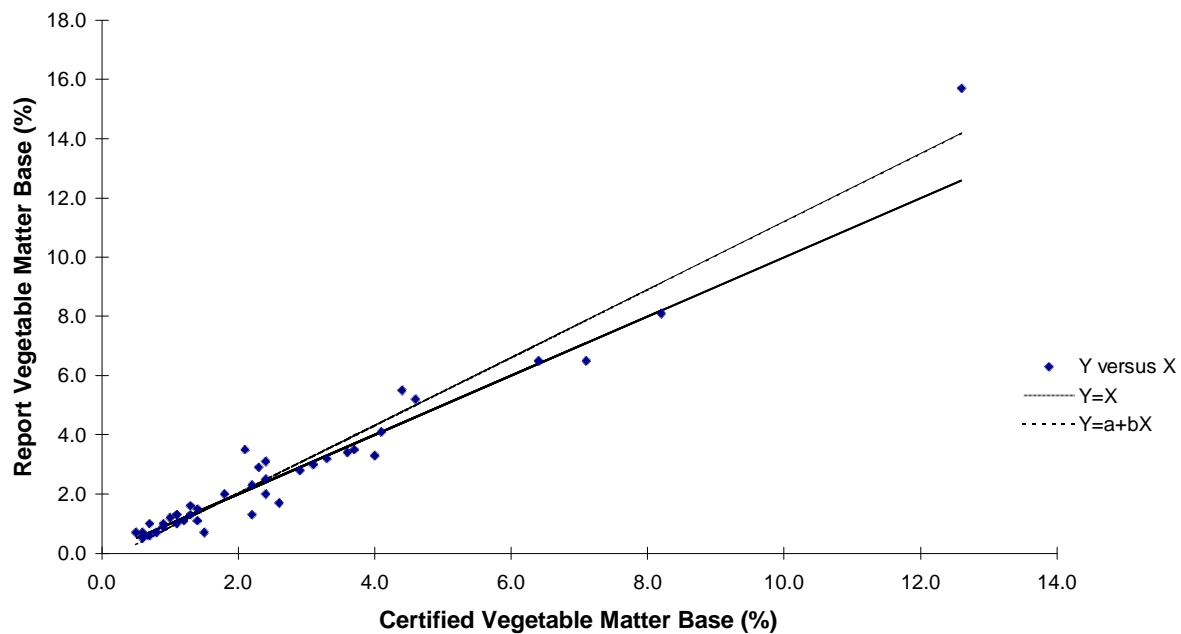
Comparison of Mean Fibre Diameter



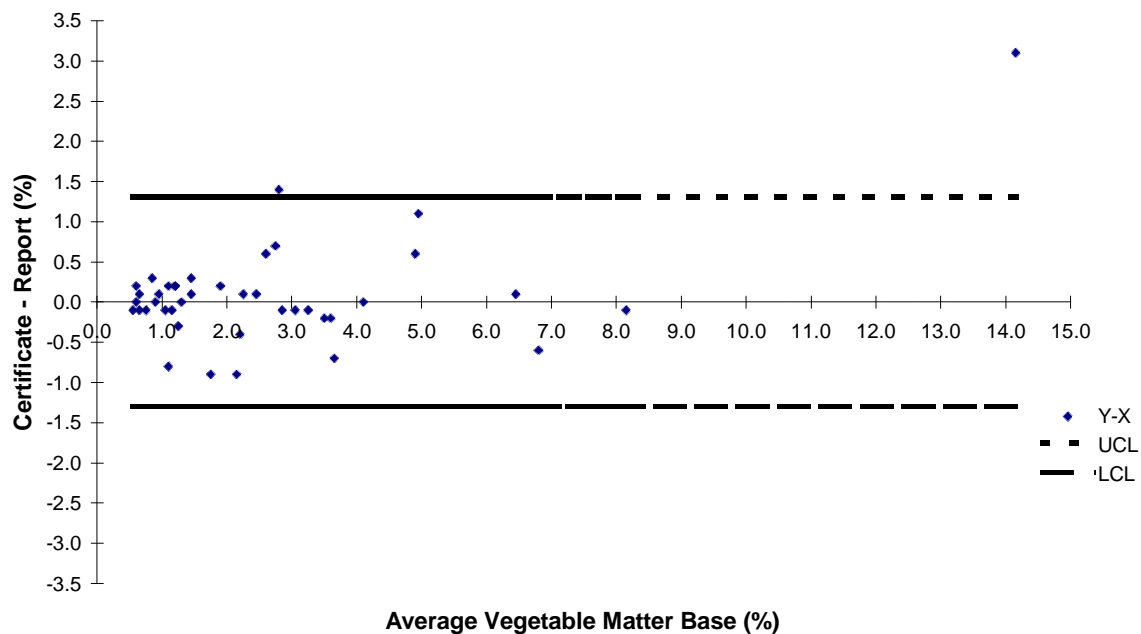
Mean Fibre Diameter Difference



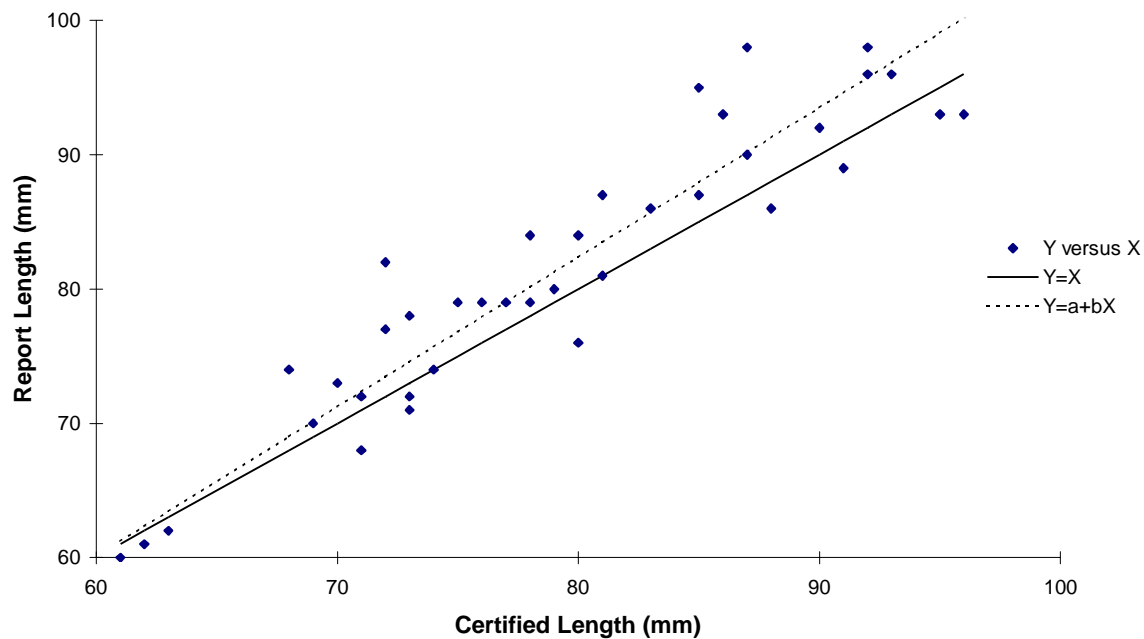
Comparison of Vegetable Matter Base



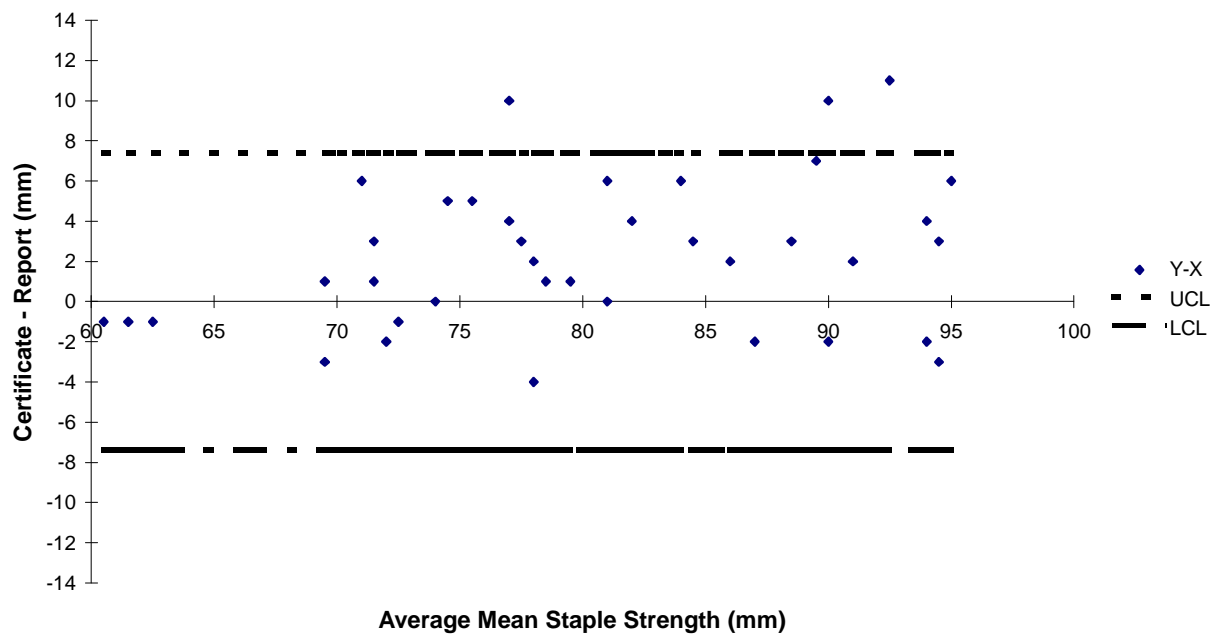
Vegetable Matter Base Difference



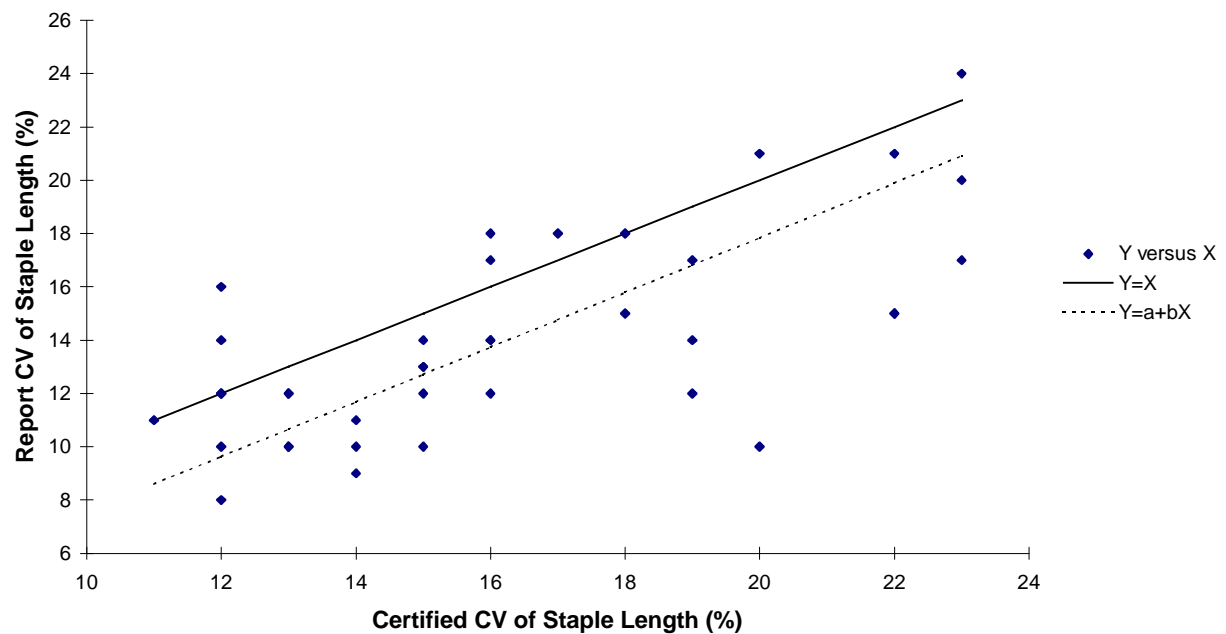
Comparison of Mean Staple Length



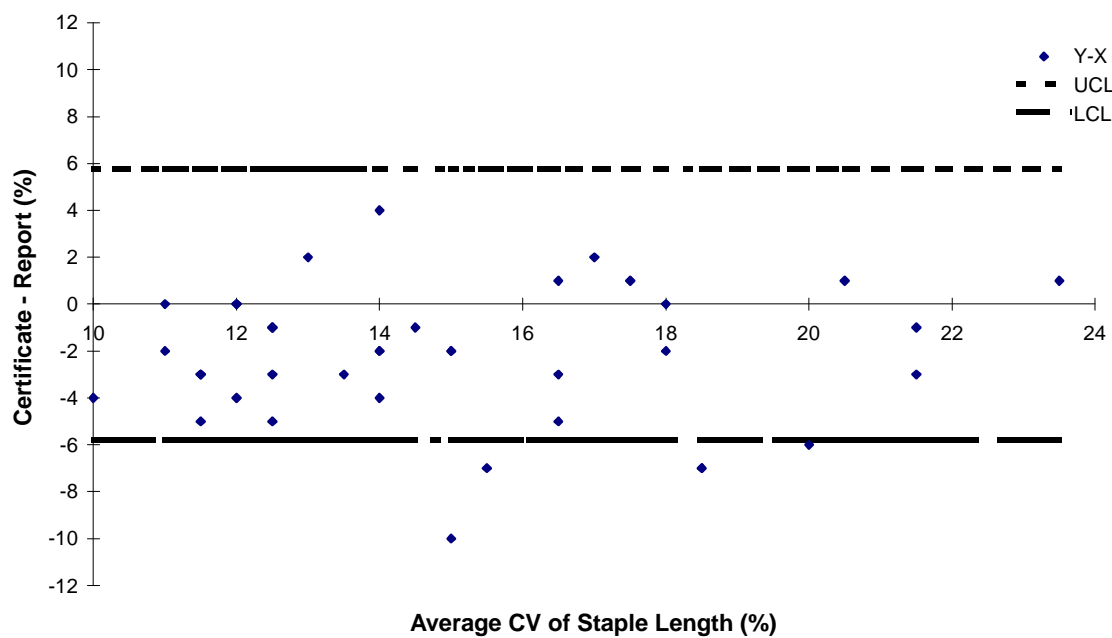
Mean Staple Length Difference



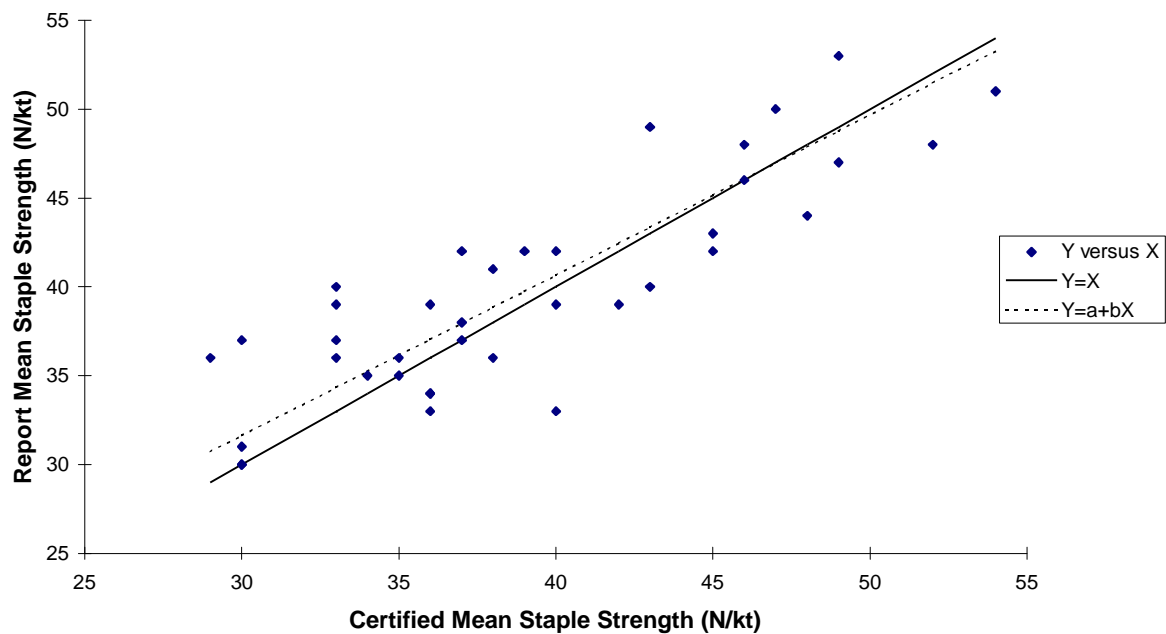
Comparison of CV of Staple Length



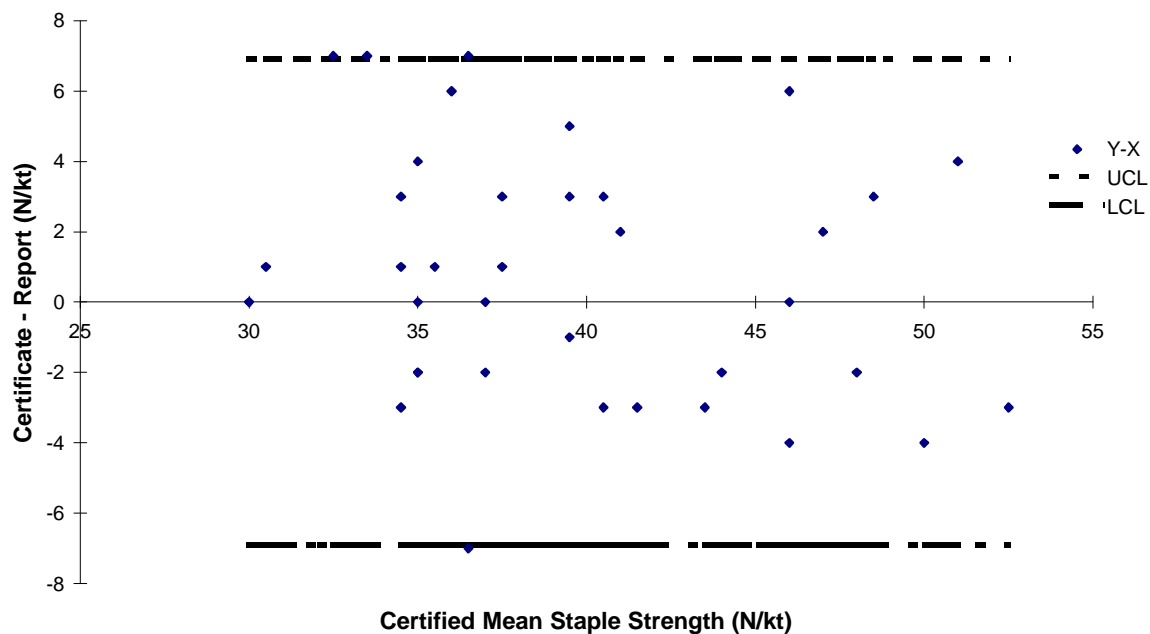
CV of Staple Length Difference



Comparison of Mean Staple Strength



Mean Staple Strength Difference



SEYMOUR GROUP

TABLE 1: All Lots - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	42	42	42	42	42	42	42	42	42
Mean Difference (certificate-report)	-0.24	-0.04	-0.01	-0.10	-0.14	-0.14	1.33	0.50	-1.83
Standard Deviation of Differences	0.56	0.32	0.24	4.94	3.08	3.17	10.54	12.63	9.42
t-value	-2.79	-0.87	-0.19	-0.13	-0.30	-0.29	0.82	0.26	-1.26
Significance at 95%	S	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2: Fleece Wool - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	32	32	32	32	32	32	32	32	32
Mean Difference (certificate-report)	-0.33	-0.01	-0.02	-1.00	-0.03	0.09	2.25	-0.88	-1.38
Standard Deviation of Differences	0.48	0.33	0.14	4.47	2.85	3.24	10.38	11.82	9.75
t-value	-3.90	-0.21	-0.74	-1.26	-0.06	0.16	1.23	-0.42	-0.80
Significance at 95%	S	NS	NS	NS	NS	NS	NS	NS	NS

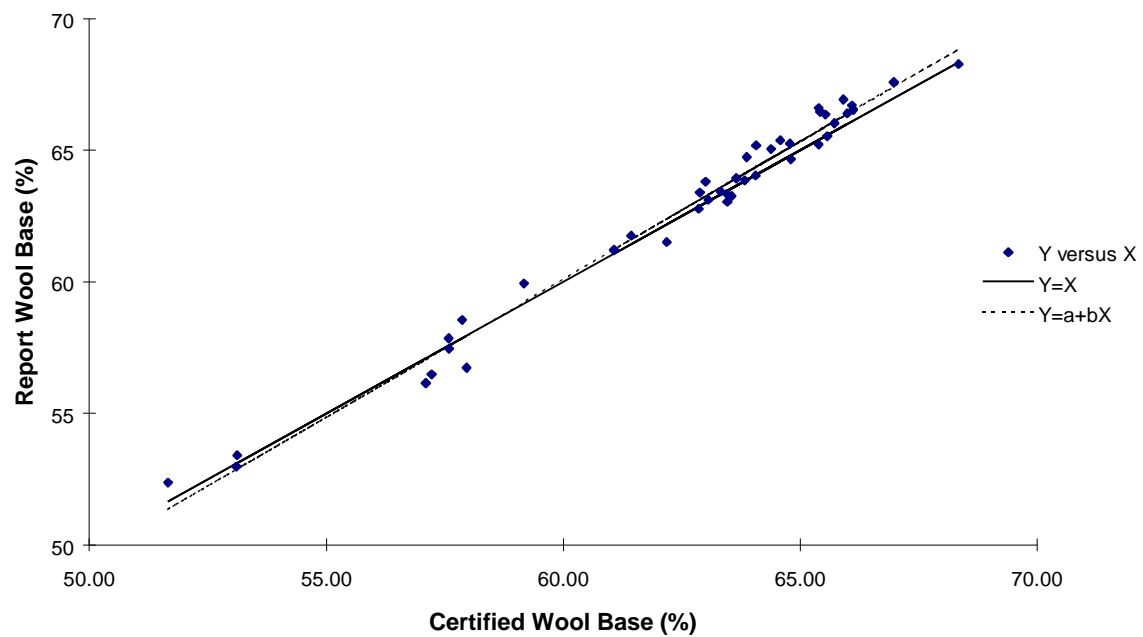
TABLE 3: Skirting Wool - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	10	10	10	10	10	10	10	10	10
Mean Difference (certificate-report)	0.04	-0.14	0.03	2.80	-0.50	-0.90	-1.60	4.90	-3.30
Standard Deviation of Differences	0.72	0.27	0.43	5.47	3.89	2.96	11.05	14.75	8.62
t-value	0.19	-1.66	0.22	1.62	-0.41	-0.96	-0.46	1.05	-1.21
Significance at 95%	NS	NS	NS	NS	NS	NS	NS	NS	NS

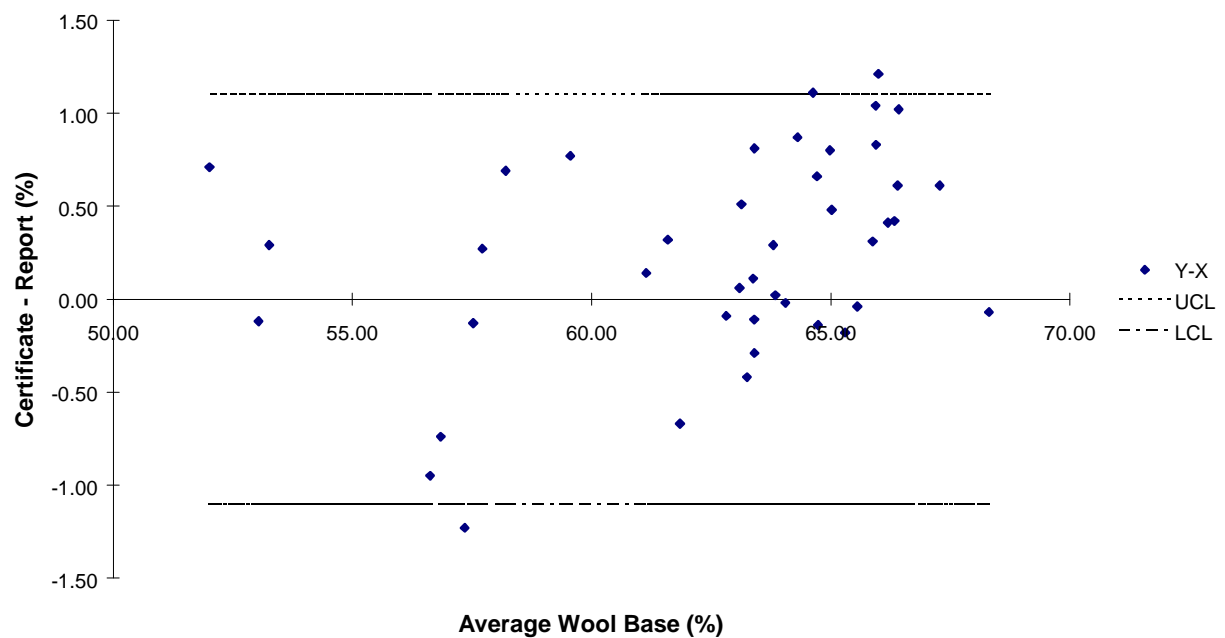
TABLE 4: All Lots - Summary of statistics relating to level dependent bias

Characteristic Examined	Statistic	WB	MFD	VMB	SL	CVL	SS
Slope of results plotted against one another	Observations	42	42	42	42	42	42
	Geometric Mean Slope	1.049	0.929	0.870	1.298	1.075	0.948
	t-value	-2.30	2.14	1.85	-3.32	-0.64	0.67
	Significance at 95%	S	S	NS	S	NS	NS
Slope of the differences	Observations	42	42	42	42	42	42
	Geometric Mean Slope	0.048	-0.075	-0.149	0.273	0.085	-0.058
	t-value	2.36	-2.07	-1.73	3.82	0.66	-0.65
	Significance at 95%	S	S	NS	S	NS	NS

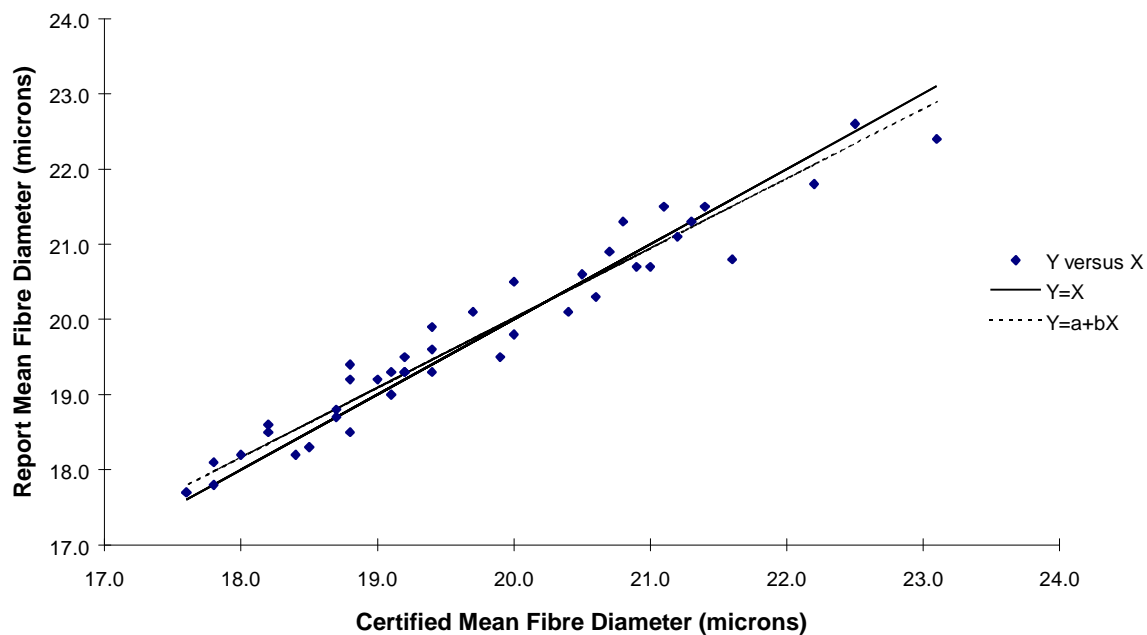
Comparison of Wool Base



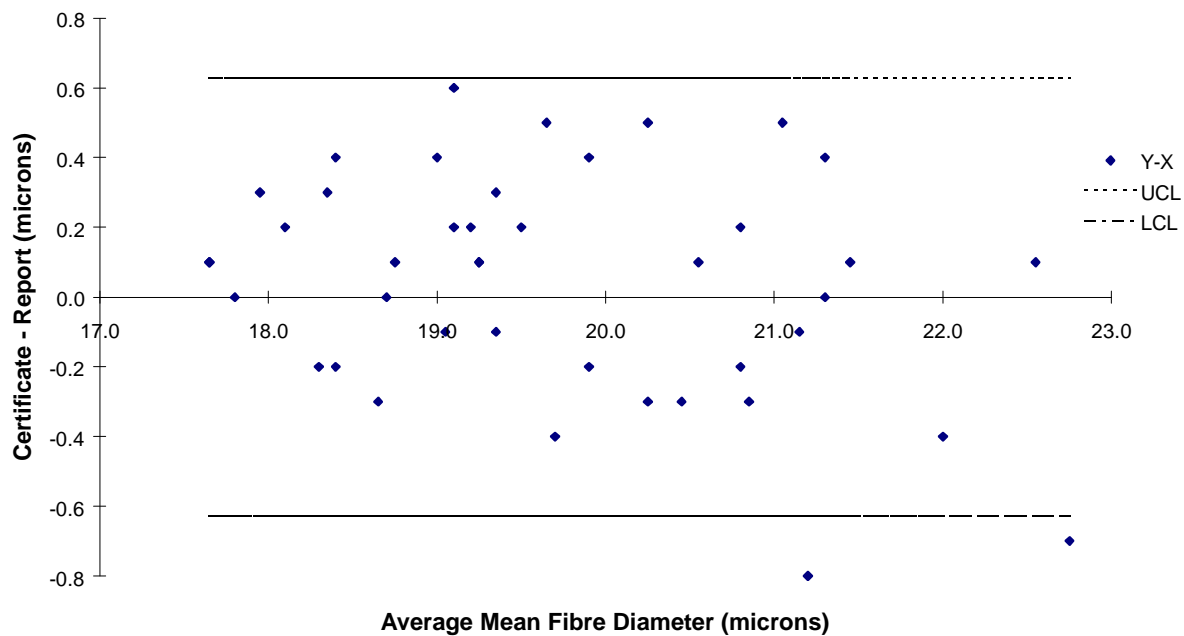
Wool Base Difference



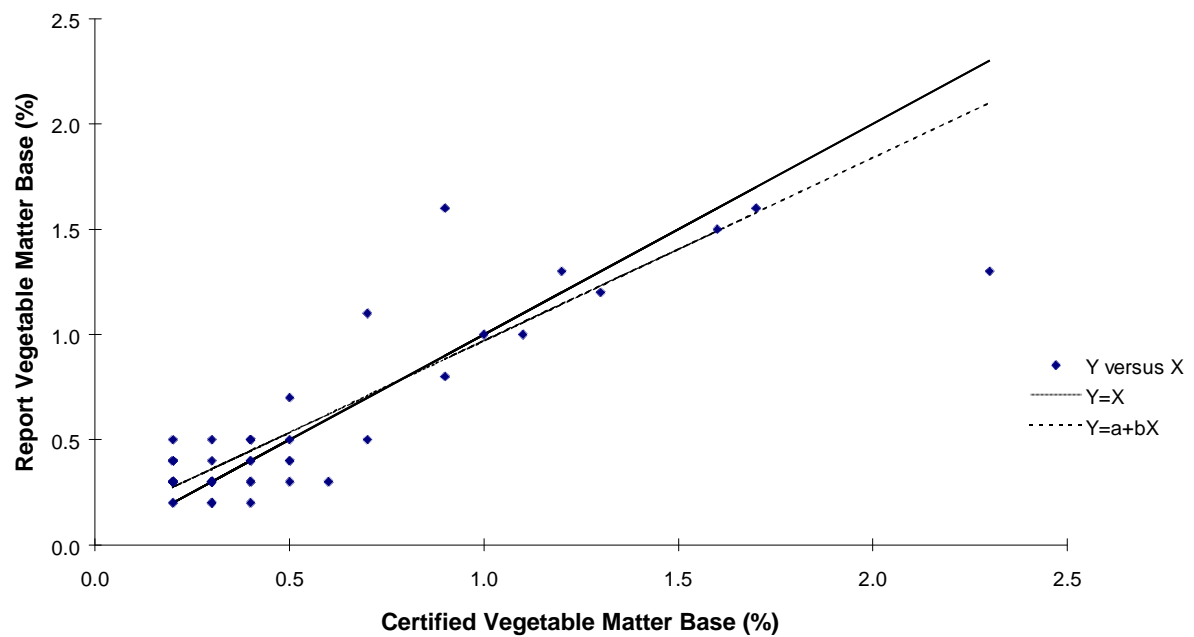
Comparison of Mean Fibre Diameter



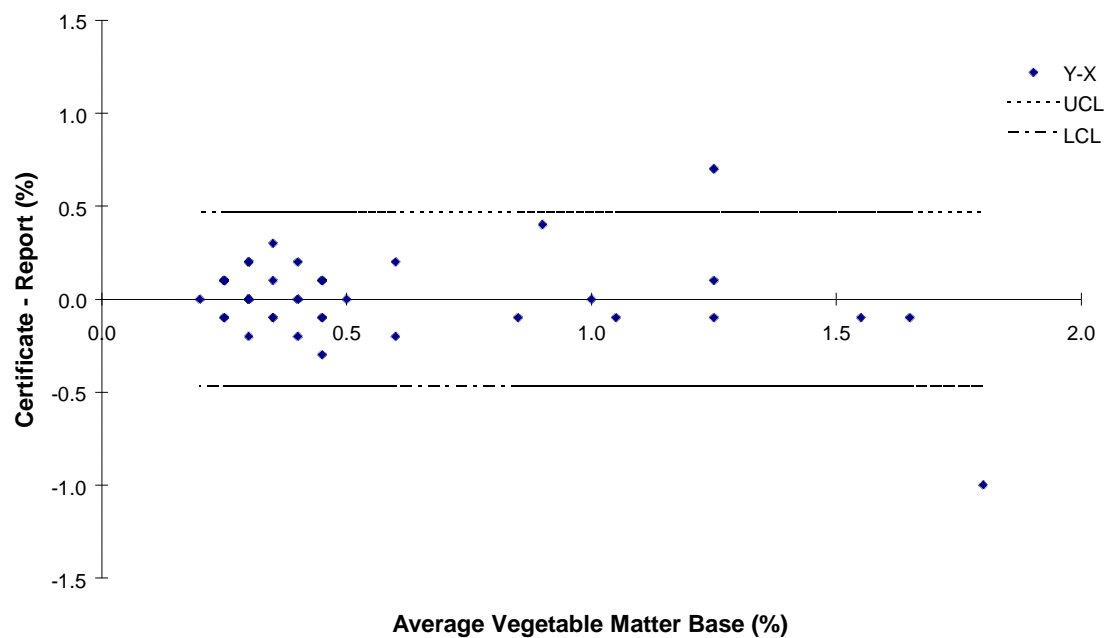
Mean Fibre Diameter Difference



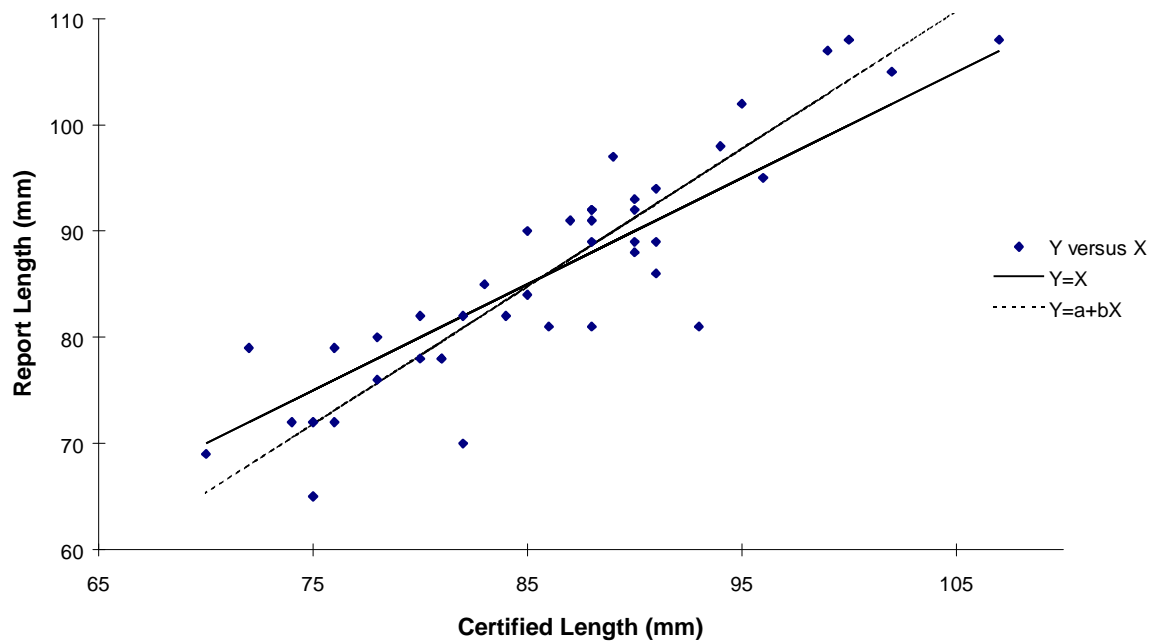
Comparison of Vegetable Matter Base



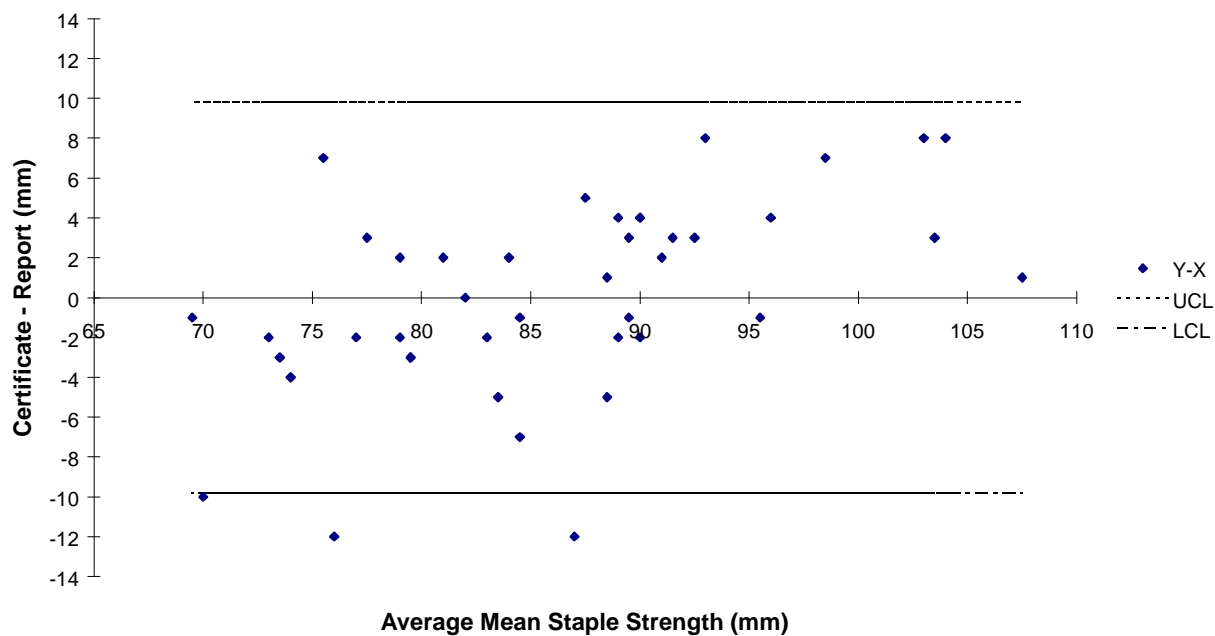
Vegetable Matter Base Difference



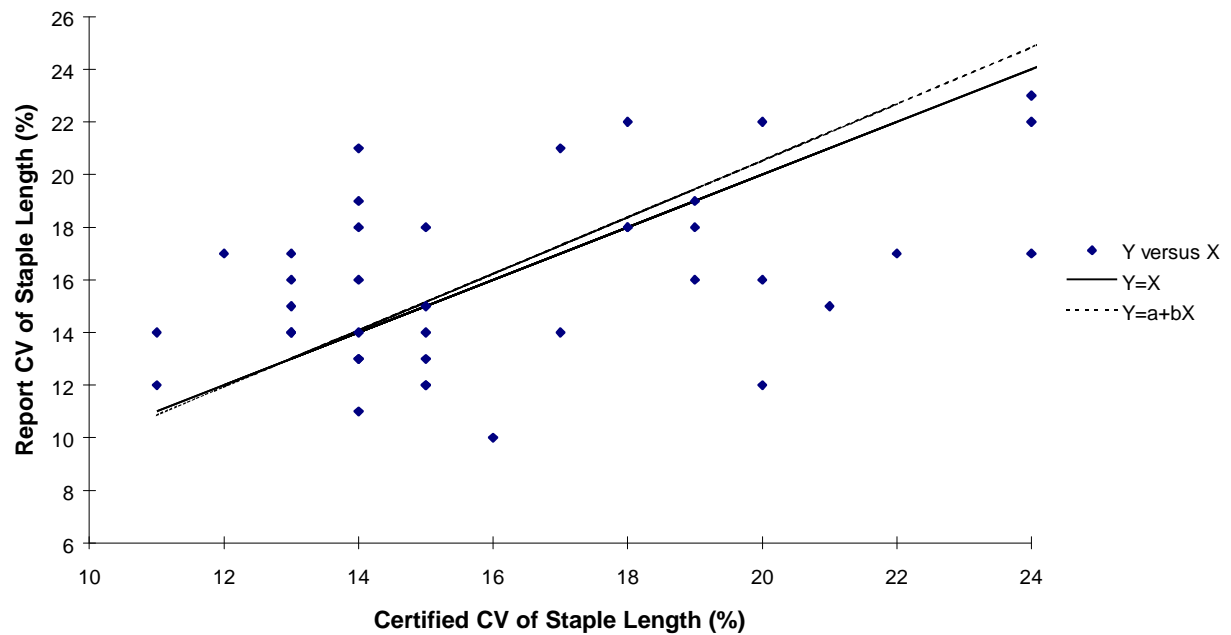
Comparison of Mean Staple Length



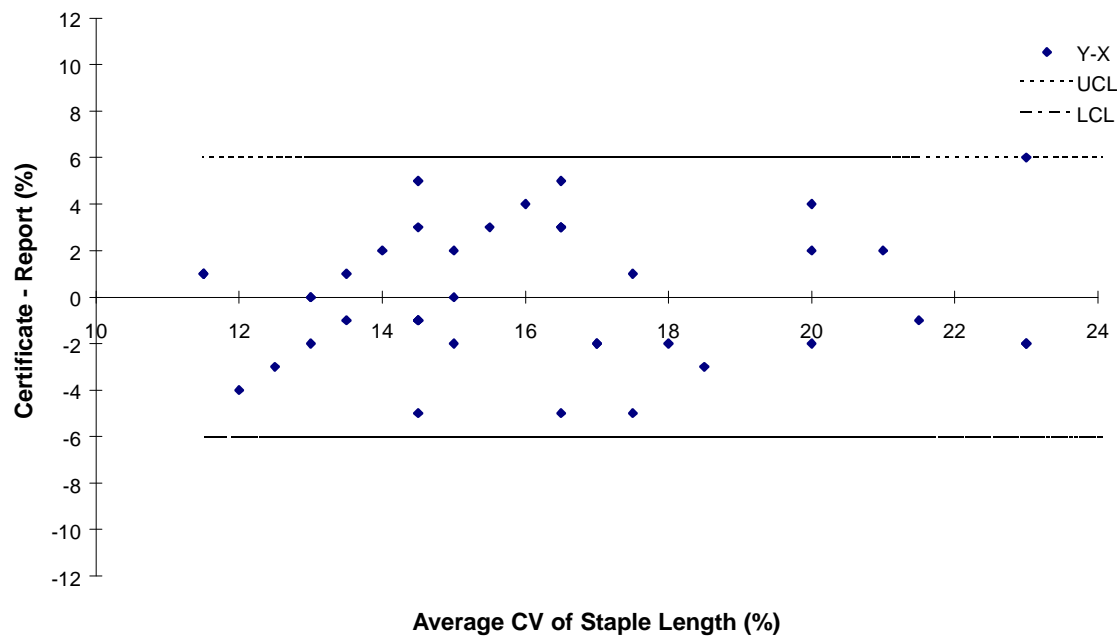
Mean Staple Length Difference



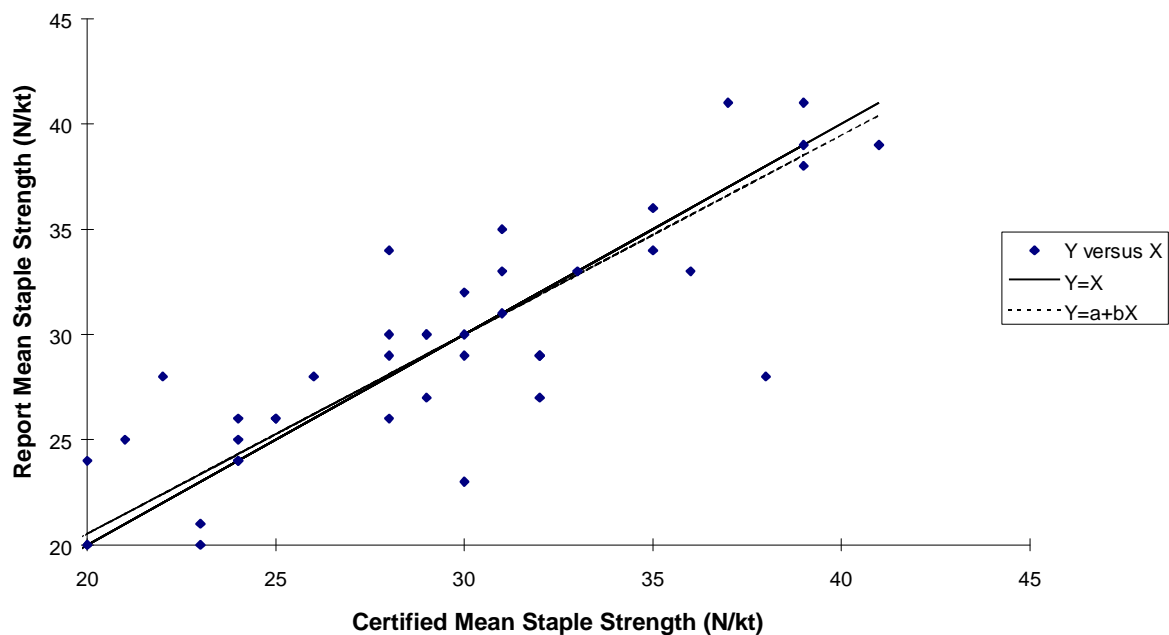
Comparison of CV of Staple Length



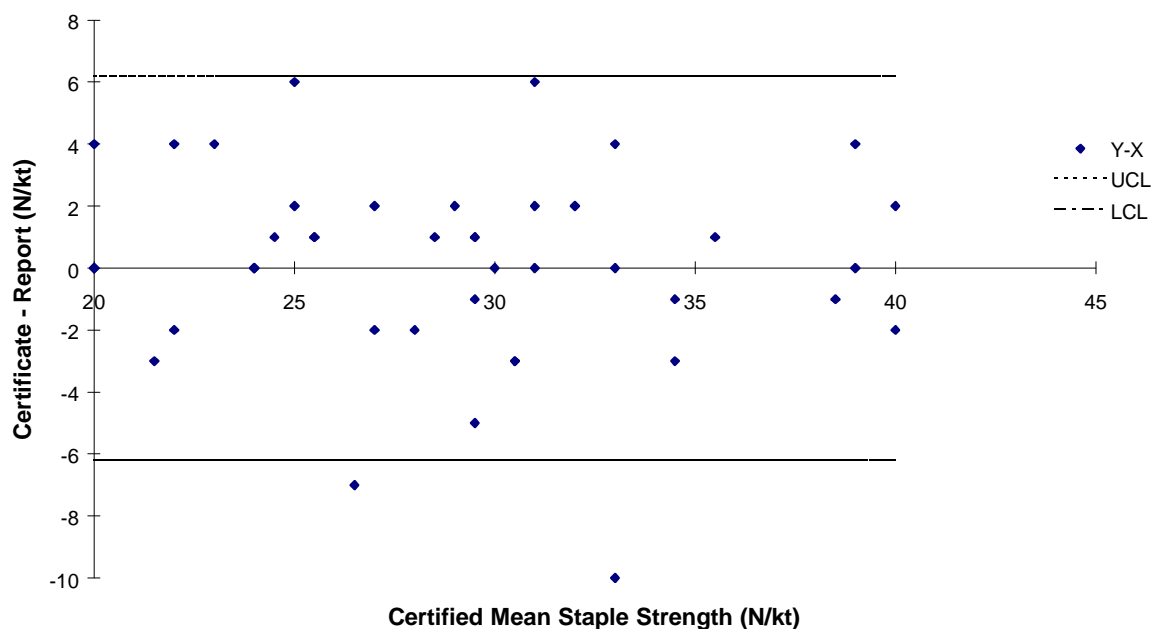
CV of Staple Length Difference



Comparison of Mean Staple Strength



Mean Staple Strength Difference



ESPERANCE GROUP

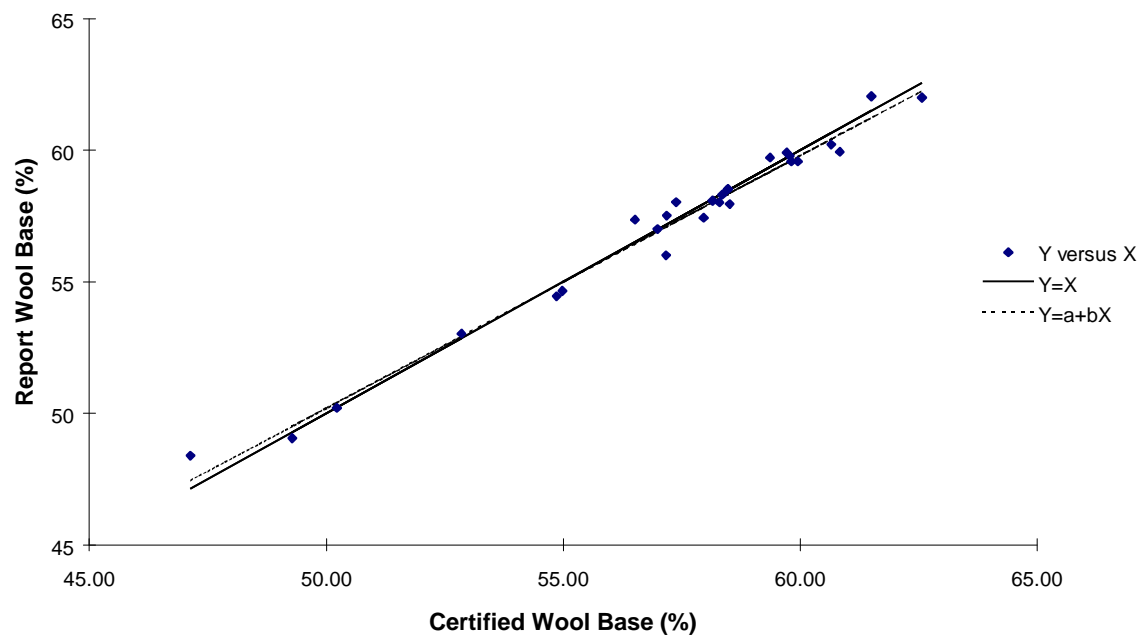
TABLE 1: All Lots - Summary of statistics relating to relative bias

Statistic	WB	MFD	VMB	SL	CVL	SS	Position of Break		
							Tip	Middle	Base
Observations	27	27	27	27	27	27	27	27	27
Mean Difference (certificate-report)	0.07	-0.05	-0.28	0.52	-1.30	0.15	-0.89	0.67	0.22
Standard Deviation of Differences	1.37	0.29	0.31	4.46	2.28	4.29	15.53	15.01	5.64
t-value	0.25	-0.87	-4.71	0.60	-2.95	0.18	-0.30	0.23	0.20
Significance at 95%	NS	NS	S	NS	S	NS	NS	NS	NS

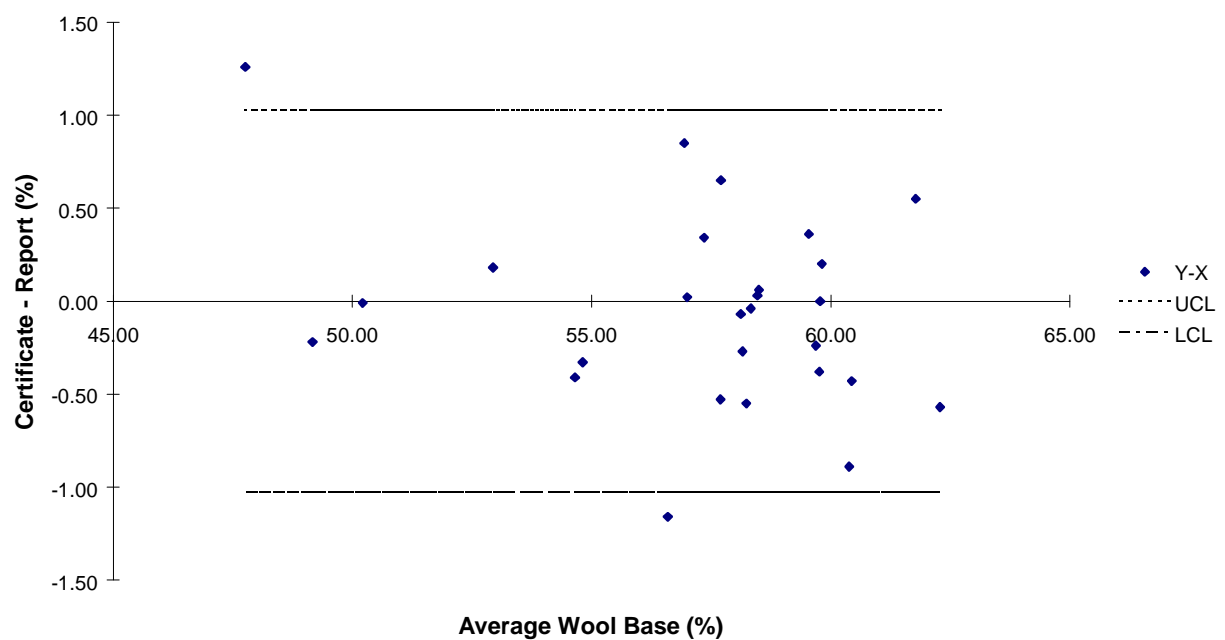
TABLE 2: All Lots - Summary of statistics relating to level dependent bias

Characteristic Examined	Statistic	WB	MFD	VMB	SL	CVL	SS
Slope of results plotted against one another	Observations	27	27	27	27	27	27
	Geometric Mean Slope	0.960	0.964	1.073	0.999	1.000	1.043
	t-value	1.51	0.88	-1.01	0.01	0.00	-0.83
	Significance at 95%	NS	NS	NS	NS	NS	NS
Slope of the differences	Observations	27	27	27	27	27	27
	Geometric Mean Slope	-0.041	-0.037	0.073	-0.001	0.084	0.043
	t-value	-1.48	-0.87	1.05	-0.01	0.49	0.84
	Significance at 95%	NS	NS	NS	NS	NS	NS

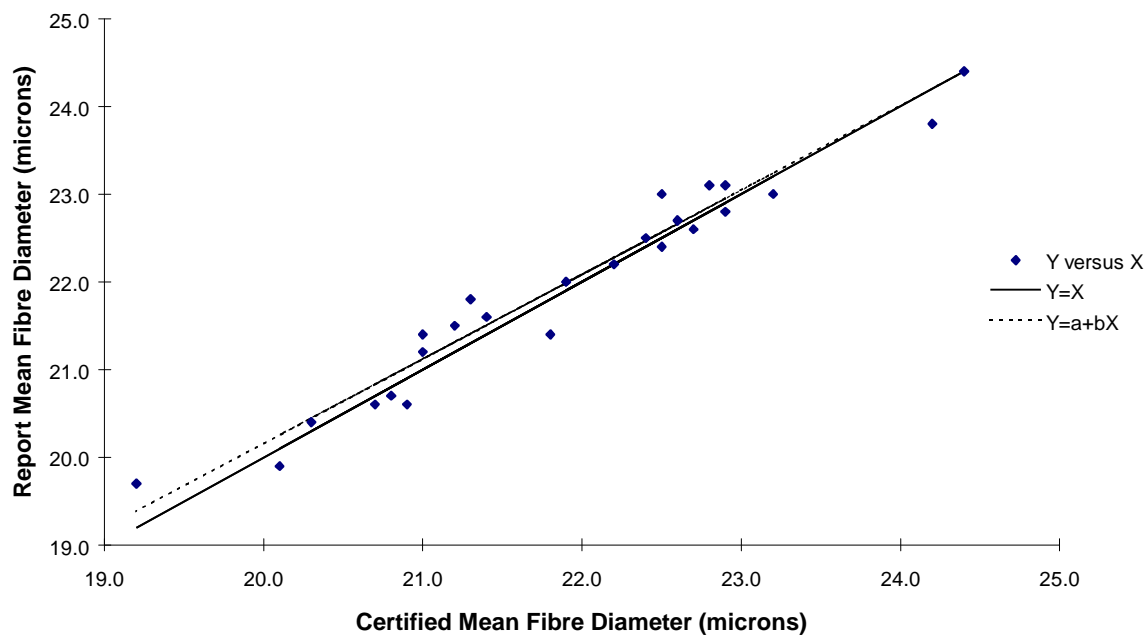
Comparison of Wool Base



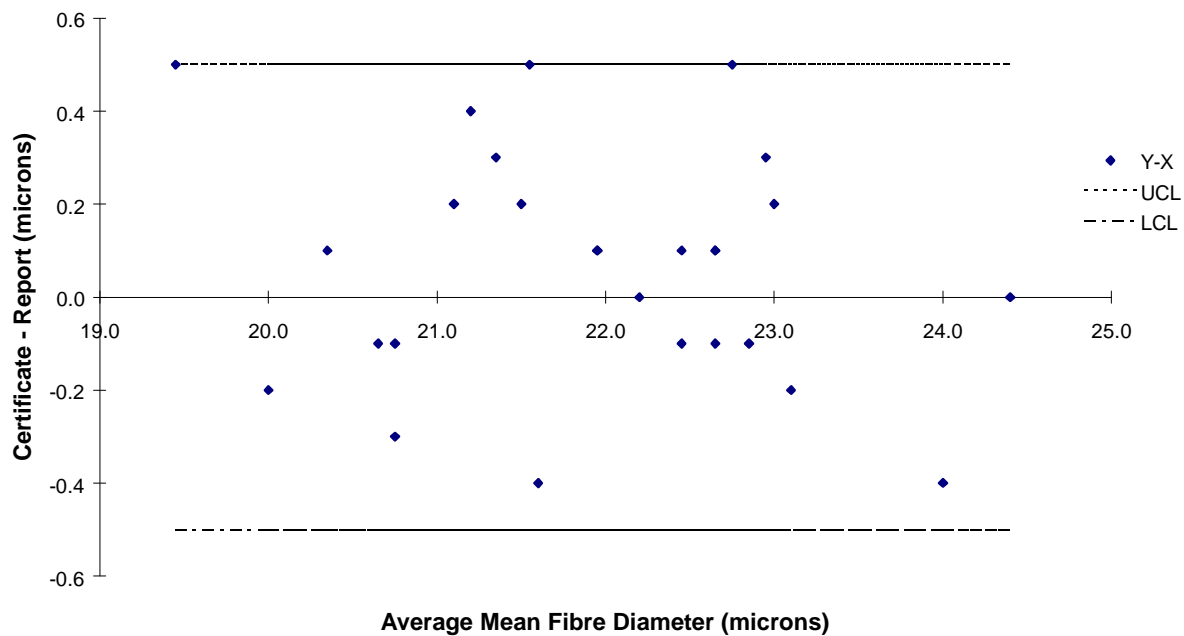
Wool Base Difference



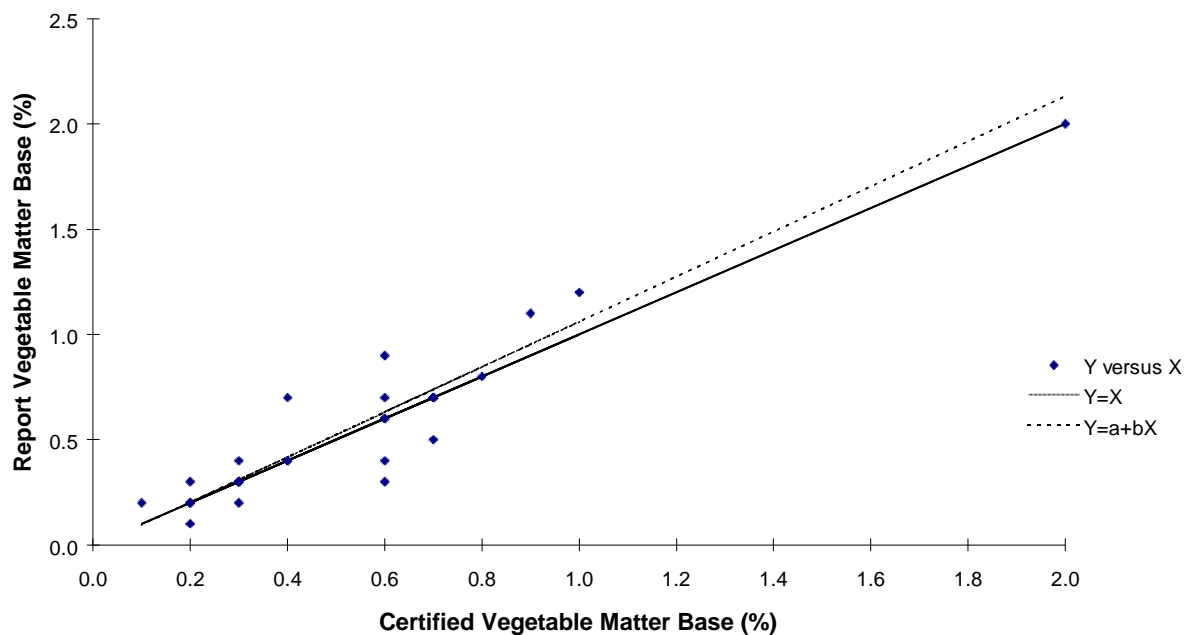
Comparison of Mean Fibre Diameter



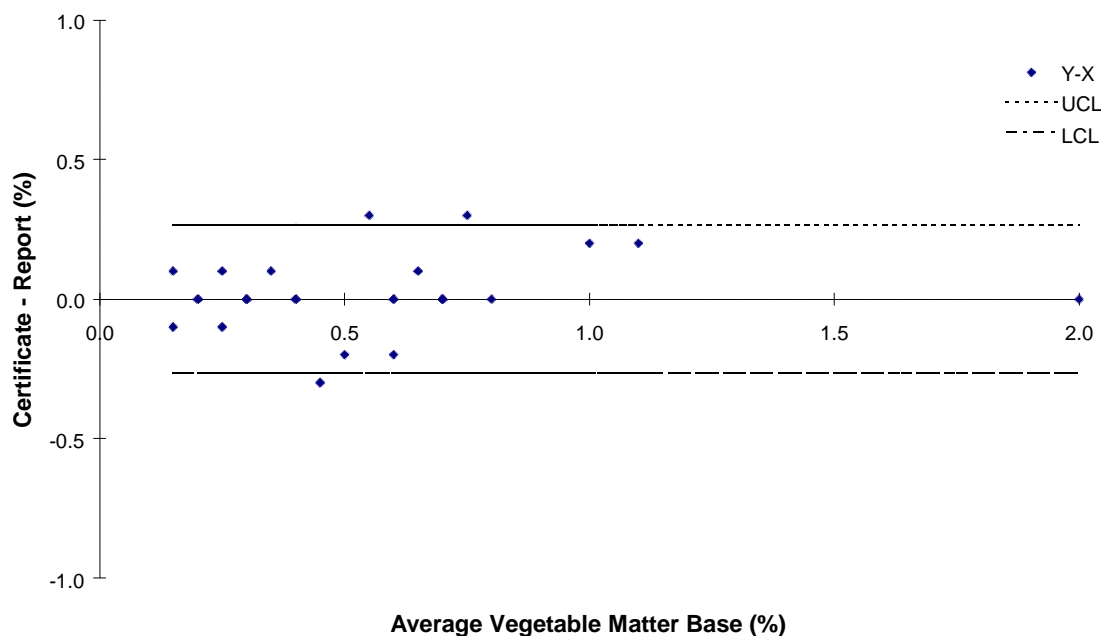
Mean Fibre Diameter Difference



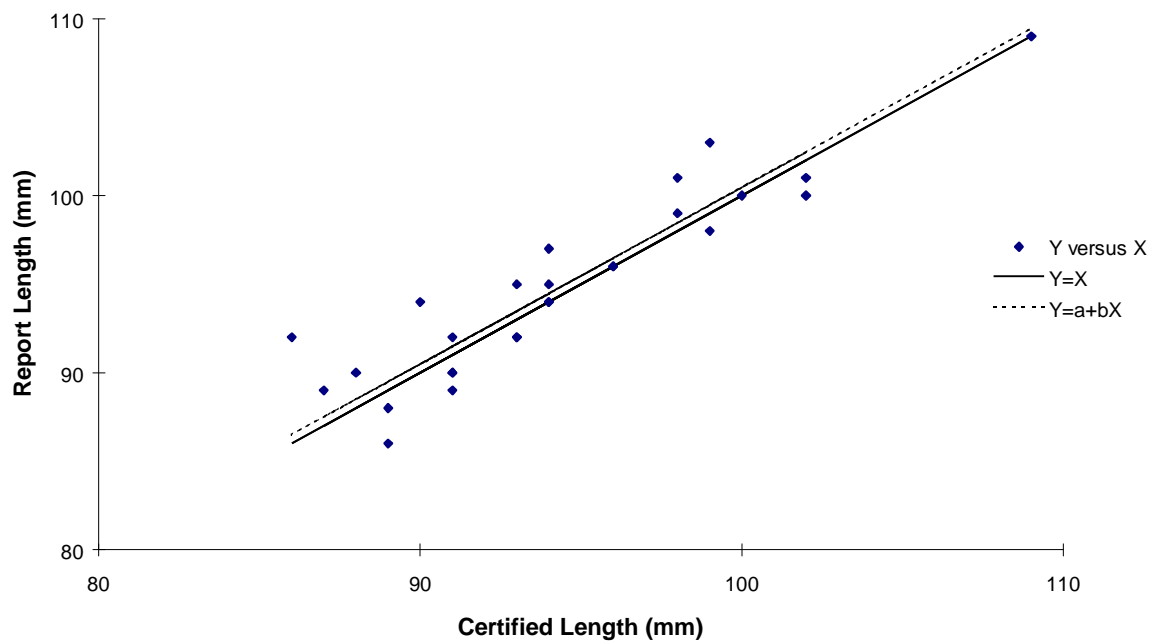
Comparison of Vegetable Matter Base



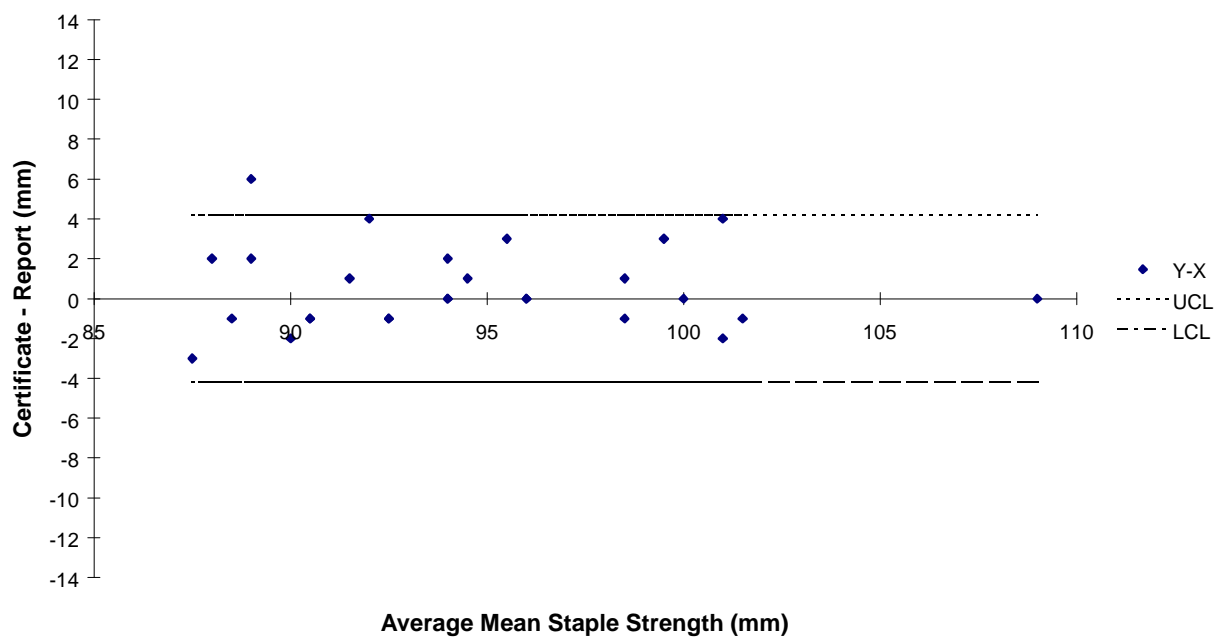
Vegetable Matter Base Difference



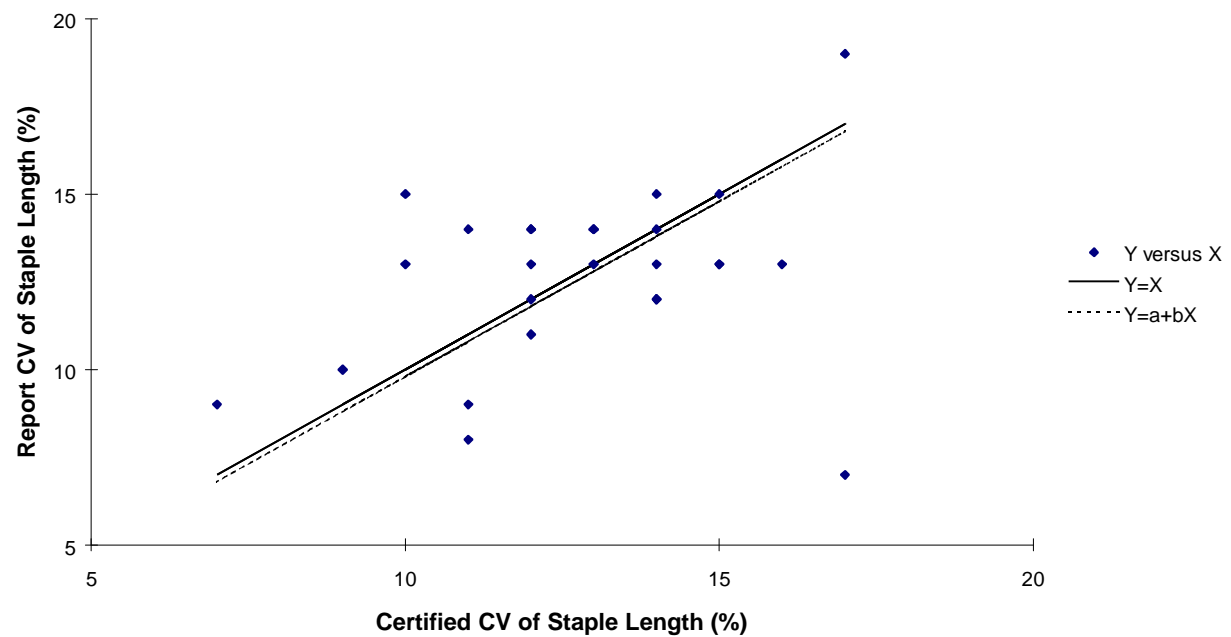
Comparison of Mean Staple Length



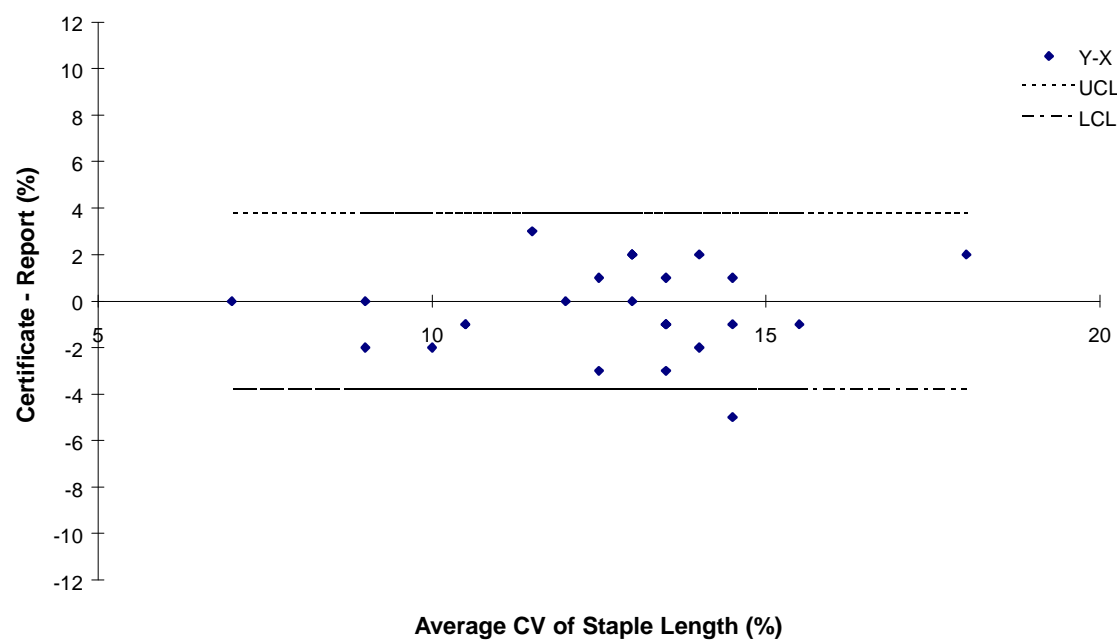
Mean Staple Length Difference



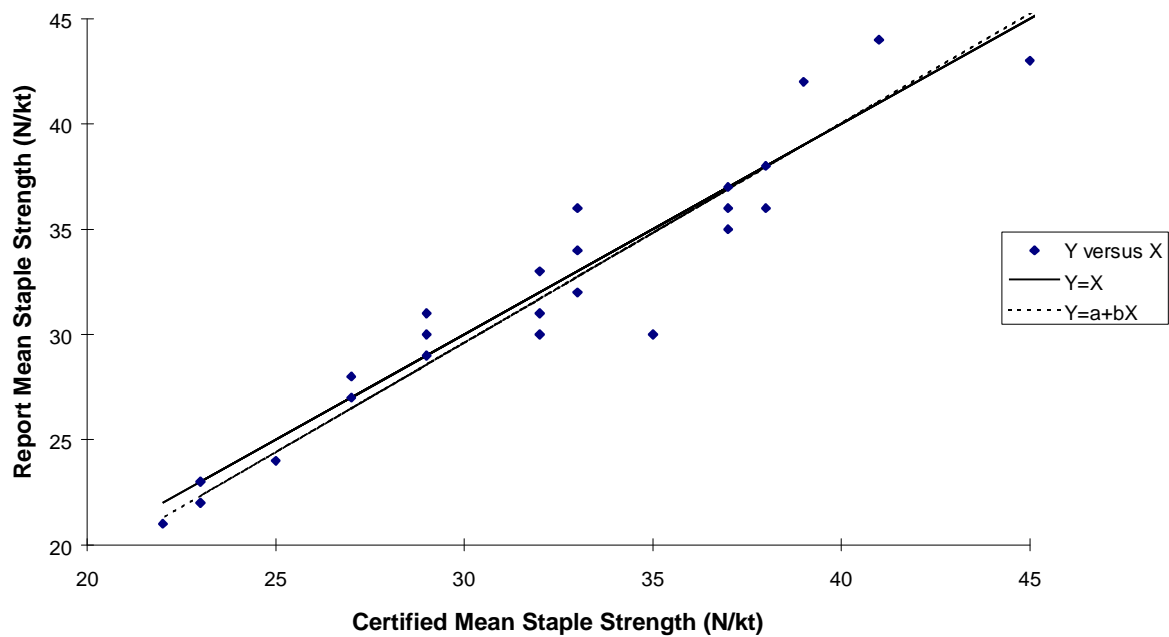
Comparison of CV of Staple Length



CV of Staple Length Difference



Comparison of Mean Staple Strength



Mean Staple Strength Difference

