



ICA Bremen
The Global Centre for Cotton Testing and Research

ICA Bremen Cotton Round Test

in Cooperation with Bremer Baumwollbörse
carried out by Bremen Fibre Institute (FIBRE)

Bremen, 15.09.2016

Evaluation of the Test Results 2016 / 2

Tested Cotton: **Benin** Number of Laboratories: **124**
Cotton Number: **RM 46**

Argentina	1	Mauritius, Rep of	-
Australia	-	Mozambique	1
Bangladesh	1	The Netherlands	1
Brazil	6	Pakistan	5
China, PR	19	Poland	1
Czech Republic	4	Russia	2
Egypt	4	Serbia	1
France	1	Slovenia	2
Germany	11	South Africa	1
Greece	4	Spain	3
Hungary	1	Sudan	-
India	25	Switzerland	2
Indonesia	1	Taiwan	1
Iran	1	Tanzania	1
Israel	-	Thailand	-
Italy	1	Tunisia	1
Japan	2	Turkey	4
Kazakhstan	1	United Kingdom	-
Korea, R	1	United States	7
Latvia	1	Uzbekistan	2
Mali	1	Vietnam, SR	3

For any questions, please mail to gerardi@faserinstitut.de

A joint venture between



Supported by



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Explanations:

test material

The sample material is generally unprocessed cotton lint without additional homogenisation from varying origins with a wide spectrum of properties. The Bremen Fibre Institute (FIBRE) usually avoids origins with high result variations.

In this Round Test the cotton is: **Benin (RM 46)**

The variation of the utilized cotton was measured at the Bremen Fibre Institute (FIBRE) with an Uster HVI 1000 with 10 tests on samples from 10 different layers of the bale with the following results:

HVI HVICCS	SD between bale layers (based on 10 tests per layer)	SD between single tests (based on 10 times 10 tests)
Mic	0,023	0,029
Strength, g/tex	0,234	0,622
Length, UHM, inch	0,005	0,011
Length, UHM, mm	0,136	0,287

The test material is not suitable as a reference for calibration.

result evaluation

The results of the participating laboratories for one test method and one parameter are grouped in one table implying that the used instruments yield comparable results despite different instrument types or different national standard test methods. The results are partitioned in different tables as soon as significant differences appear.

Based on the compilation of the results, an identification of outliers is carried out, which is according to Grubbs' Test for Outliers described in ISO 5725 with one slight modification: the algorithm is applied repeatedly to ensure that all outliers are excluded. All outliers are marked by putting the result in brackets. The statistical parameters for all tables and characteristics are calculated after the exclusion of outliers. For the usage of the statistical data, the different numbers of repetitions in each lab have to be considered.

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assessment of the laboratory performance

From the results, the bias of each laboratory can be calculated. Stability and repeatability cannot be assessed.

The ICA Bremen Cotton Round Test does not include any benchmarking or rating of the laboratories and their results. Rather the results can be used by each laboratory to evaluate its own performance.

- For estimating a bias to results of other laboratories, please calculate the difference between your result and either the average or the median of all laboratories (after exclusion of outliers).
- For evaluating the bias, the z-score calculation may be applied:

$$z = \frac{\text{your value} - \text{average (or median)}}{\text{StdDev}}$$

- If the z-score is between -1 and 1 your lab belongs to the better 68% of all labs and no measures are necessary. In the z-score range of -2 to 2 are 95 % of all values. The closer your z-score is to 2 (-2) the more urgently it is to take measures to improve performance. If your z-score is above 2 (below -2) a basic revision of all conditions will be necessary.
- For assessing permanent deviations, please monitor all deviations in subsequent ICA Bremen Round Tests or in comparison to other round trial programmes like the CSITC Round Trials or the USDA HVI Checktest.

laboratory numbers

The laboratory numbers for each laboratory are confident. The numbers are usually kept constant for subsequent Round Tests. In case that any laboratory has doubts in the anonymity of its number, a new laboratory number should be requested.

In case of more than one instruments of the same type, an adjunct number or character is given (e.g. 123-1 and 123-2). In order to distinguish between your instruments, please provide specific adjunct characters for each of your instruments with your data sheet.

registration and participation

To register a new laboratory to the ICA Bremen Round Test, please send the laboratory's contact details to Mrs Hannelore Gerardi – contact details provided below

In the case that a laboratory does not send any results back for a whole year's period, we have to exclude it from the participants.

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choice of test methods included in the round test

The ICA Bremen Round Test strives to include every commonly used test method.

- Test methods will remain included as long as sufficient participant numbers are given, although the Bremen Fibre Institute (FIBRE) maintains the right to exclude methods.
- Proposals for the inclusion of new methods/instruments/parameters are appreciated. For this, an adequate number of long term participants should be given.
- Test methods for stickiness are excluded due to difficulties in sample provision.

improvement of the ica bremen cotton round test

Any proposals for improving the Round Test are highly appreciated. For this, please contact Mr Axel Drieling – contact details provided below.

important notes

Please take care to fill in all the necessary information on the test forms (e.g. the test methods, the instrument types and the number of repetitions for each test). Please provide one or two reliable e-mail addresses to Mrs Gerardi - contact details are provided in the last section.

Contact

For any questions regarding the ICA Bremen Cotton Round Test, please contact:

- Mr Axel Drieling for general questions relating to the Round Test and cotton testing,
Tel. +49 421 218 58650, e-mail: axel@ica-bremen.org
- Mrs Hannelore Gerardi for questions relating to the realization of the current tests,
Tel. +49 421 218 58671, e-mail: gerardi@faserinstitut.de

With kind regards,

Axel Drieling
Hannelore Gerardi

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MICRONAIRE				
Lab.	Rep.	Mic.	Instrument	Standard Test Method
12		4.6	775	
17		4.4		
20		4.5		DIN 53941
22	3	4.5	Fibronaire	
29	6	4.3	Sheffield	ISO 2403
32	6	4.5	WIRA	
32-2	6	4.5	WIRA	
32-3	6	4.4	WIRA	
35	3	4.6	775	
37		4.4		
56	2	4.6	Fibronaire	JIS
70	6	4.5	FMT	ASTMD3818-92
92	6	4.6	DigiMic XT	ASTMD1448
93	4	4.6		ASTMD1448
100	10	4.6	675	ASTMD1448-97
102	6	4.6	Fibronaire	ICCS
112	2	4.6	Fibronaire	ASTMD1448
128		4.5	Fibronaire	ASTM
129	4	4.6	Sheffield	BS 3181
131	6	4.4		ASTM
132	3	4.6	775	DIN 53941
142	3	4.5	80400	ISO
155		4.5	275	DIN 53941
162	6	4.4	WIRA	
167	3	4.4	275	USDA
168		4.6		
169	3	4.5	Sheffield	
177	4	4.7	DPM 60	DIN 53941
183		4.3	Fibronaire	ASTMD1448
186		4.5	FMT	USDA
193	3	4.5	Y145	GB/T6498-08
201	3	4.6	275	
203		4.4	900-1	
240	7	4.4	FO19ASDLP5077172	ISO
Average		4.5		
Median		4.5		
StdDev		0.10		
CV		2.2		
Min		4.3		
Max		4.7		
n		34		

PRESSLEY, STELOMETER								
Lab.	Pressley Tester				Stelometer			
	Rep.	PI (0)	PI (3.2)	Standard Test Method	Rep.	Bundle Tenacity gf/tex	Elongation %	Standard Test Method
27						20.9		ASTM 5867
29	10	7.3		ISO 3060				
35					6	22.8	5.6	
46	10	(19.2)		ISO 3060				
46-2	10	(21.9)		ISO 3060				
56	5	7.6		JIS				
76	5	7.1						
92					6	22.8	6.5	ASTM 1445
93	6	7.6	4.3	ASTMD1445	6	23.0	7.5	ASTM 1445
100	8	7.8		ASTMD41452T				
112					3	19.4	6.8	ASTM 1445
128		6.5	3.7	ASTM		22.6	6.2	ASTM
131	6	7.7	3.7	ASTM	6	22.5	6.7	ASTM
162	6	7.4			6	20.9	5.4	
177	4	6.5		DIN 53942				
193					12	19.8	6.3	GB/T13783-92
Average		7.28	3.92			21.64	6.37	
Median		7.44	3.74			22.54	6.4	
StdDev		0.49	0.33			1.4	0.68	
CV		6.79	8.32			6.48	10.62	
Min		6.5	3.7			19.4	5.4	
Max		7.8	4.3			23.0	7.5	
n		9	3			9	8	

Pressley	PI(0)	Av., gf/tex	39.01	StdDev, gf/tex	2.65	CV, %	6.8
	(3.2)	Av., gf/tex	26.68	StdDev, gf/tex	2.22	CV, %	8.3

DIGITAL - FIBROGRAPH <i>(further information see page "Multiple Devices")</i>								Span Length	
Lab.	Rep.	2.5 % SL		50 % SL		UR	SFC (N)	SFC (W)	SFI
		mm	inch	mm	inch	%	%	%	
27		27.9	1.10	12.7	0.50	46			7.7
35	6	28.5	1.12	13.7	0.54	48			
92	6	28.9	1.14	13.7	0.54	48			8.8
93	4	28.5	1.12	14.1	0.56	50			
100	8	27.9	1.10	12.3	0.48	44		17.6	7.3
102	5	27.4	1.08	12.4	0.49	45			
131	6	28.3	1.11	13.1	0.52	47			
132	10	28.7	1.13	13.3	0.52	46			
143		27.8	1.09	12.7	0.50	46			
Average		28.20	1.11	13.12	0.517	46.5			
Median		28.25	1.112	13.14	0.517	46.4			
StdDev		0.47	0.019	0.63	0.025	1.6			
CV		1.7	1.7	4.8	4.8	3.5			
Min		27.4	1.08	12.3	0.48	44			
Max		28.9	1.14	14.1	0.56	50			
n		9	9	9	9	9	0	1	3

COMB SORTER <i>(further information see page "Multiple Devices")</i>						Staple Length		
Lab.	Rep.	Instrument	N			W		
			ML	CV	< 12.5 mm	ML	CV	<12.5 mm
			mm	%	%	mm	%	%
85	1					25.0	30.8	9.0
85-2	1	Keisokki				23.6	31.5	9.5
85-3	1	Keisokki				25.1	33.3	8.0
85-4	1	Keisokki				24.5	29.8	8.0

ALMETER <i>(further information see page "Multiple Devices")</i>						Staple Length	
Lab.	Rep.	N			W		
		ML	CV	< 12.5 mm	ML	CV	<12.5 mm
		mm	%	%	mm	%	%
58		19.5	40.5	24.5	22.7	33.8	12.1
112	5	22.61	34.12	12.59	26.01	37.32	4.4
132	5	19.4	39.4	22.1	23.8	30.7	9.1

Maturity, Fineness <i>(further information see page "Multiple Devices")</i>					
Lab	Fibrograph	Causticaire (18 % NaOH)	Microscopic Test		Gravimetric Fineness
	%	%	ASTM, %	BS, %	dtex
56		81			
70					1.71
85					1.72
85-2					1.85
85-3					2.01
85-4					1.80
112					2.10
129		72			
131		69			
177		92			1.54
193					1.89

IIC/SHIRLEY FM-TESTER (further information see page "Multiple Devices")				Maturity, Fineness
Lab.	Rep.	PM, %	MAT	FIN, mtex
32	6	78.9	0.88	193
32-2	6	77.7	0.86	195
32-3	6	79.4	0.88	190
37		89.1	0.98	167
70	6	90.3	1.04	166
93	4	96.0	0.86	161
100	8	80.9	0.91	184
102	2	81.6	0.92	174
128	8	87.0	0.99	176
186		81.7	0.92	189
Average		84.26	0.924	179.4
Median		81.66	0.915	180.0
StdDev		6.02	0.061	12.4
CV		7.1	6.6	6.9
Min		77.7	0.86	161
Max		96.0	1.04	195
n		10	10	10

HVI <i>(table is divided into 3 pages)</i>					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
9	Premier	ART		4	1	2	2
10	USTER	1000	GB/T20392-06	3	1	2	2
10-10	USTER	1000	GB/T20392-06	3	1	2	2
10-2	USTER	1000	GB/T20392-06	3	1	2	2
10-3	USTER	1000	GB/T20392-06	3	1	2	2
10-5	USTER	1000	GB/T20392-06	3	1	2	2
10-6	USTER	1000	GB/T20392-06	3	1	2	2
10-7	USTER	1000	GB/T20392-06	3	1	2	2
10-8	USTER	1000	GB/T20392-06	3	1	2	2
10-9	USTER	1000	GB/T20392-06	3	1	2	2
12	USTER	Spectrum I	SN/T1512-11	12	1	1	1
13	USTER	Spectrum	internal	10	1	1	1
14	Premier	HFT	GB/T20392-06	10	1	1	3
14-2	USTER	1000	GB/T20392-06	10	1	1	1
15	USTER	900 SA		6	1	2	2
18	USTER	1000	HVI User's Guide	24	1	2	2
19	USTER	1000	SN/T1512-11		1	2	2
23	USTER	900 A			1	2	2
25	USTER	1000		10	1	2	2
26	USTER	1000		10	1	2	2
27	USTER	900 A	ASTMD5867	6	1	2	2
28	Textechno	CCS-V5-3	ASTMD5867-05		3	6	2
31	USTER	900		6	1	2	2
32	USTER	900	internal	1	4	10	4
32-2	USTER	900	internal	1	4	10	4
41	USTER	Spectrum		5	5	5	5
43	USTER	1000			1	2	2
44	USTER	Spectrum	internal	10	1	1	1
48	Premier	HFT	ASTMD5867-12	8	1	2	2
49	USTER	1000	ASTM1776	6	1	2	2
50	USTER	1000		6	1	2	
50-2	USTER	1000		6	1	2	
50-3	USTER	1000		6	1	2	
52	USTER	1000M700	ASTM	6	6	6	6
53	Premier	ART	GB/T20392-06	5	1	2	2
54	USTER	Spectrum	USDA		1	2	2
56	USTER	Spectrum I	HVI Test Method	5	1	2	2
58	USTER	1000	internal	10	1	2	2
59	USTER	1000	USDA	10	1	2	2
59-2	USTER	1000	USDA	10	1	2	2
59-3	USTER	1000	USDA	10	1	2	2
59-4	USTER	Classing	USDA	10	1	2	2
59-5	USTER	Classing	USDA	10	1	2	2
59-6	USTER	Classing	USDA	10	1	2	2
60	USTER	1000M700	ASTM	6	1	2	2
60-2	USTER	1000	ASTM	6	1	2	2
61	USTER	900	ASTMD5867-05		1	2	2
61-2	MAG	HVT Expert 1201	ASTMD5867-05		1	2	2
62	Premier	ART 2	ASTMD5867	6	1	2	2
68	USTER	1000	USDA	6	1	2	2
71	USTER	1000	GB/T20392-06	6	1	2	2
71-2	USTER	Spectrum	GB/T20392-06	6	1	1	1
75	USTER	Spectrum	SN/T1512-11	6	1	2	2
78	USTER	1000		6	1	2	2
81	USTER	1000M700	ASTM	6	1	2	2

HVI <i>(table is divided into 3 pages)</i>					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
83	USTER	Spectrum I	SN/T1512-11	6	1	2	2
89	Premier	ART		6	1	2	2
89-2	Premier	ART		6	1	2	2
89-3	USTER	1000		6	1	2	2
89-4	USTER	1000		6	1	2	2
90	USTER	1000	ASTMD5867	10	1	2	2
91	USTER	1000		6	1	2	2
92	MAG	HVT Expert 1201	ASTMD5867	6	1	2	2
93	USTER	900 A	ASTMD5867	6	1	2	2
96	USTER	1000	GB/T20392-06	10	1	2	2
97	USTER	900 SA		6	2	2	
98	USTER	1000	USDA. ASTM	12	1	2	2
99	MAG	HFT 1401		10	1	2	2
100	Textechno	CCS-V5.2	ASTMD5867-05	12	1	2	2
101	USTER	1000	ASTMD5687-12	6	1	2	2
102	USTER	900 B	USDA	6	1	6	6
102-2	USTER	1000M700	ASTMD5867	6	6	6	6
103	USTER	1000	SN/T1512-11	6	1	2	2
105	USTER	Spectrum	Manufacturer	6	1	2	2
107	Premier	ART 2	ASTMD5867-05	6	1	2	2
108	USTER	1000	ASTMD5867-12	12	1	2	2
109	USTER	900		10	1	2	2
110	USTER	1000	SN/T1512-11	10	1	2	2
111	USTER	1000		6	1	2	2
112	USTER	1000	ASTMD5867	6	1	2	2
113	Premier	ART		10	1	2	2
114	Premier	ART 2		5	1	2	2
115	Statex	Fibrotex	ASTM	6	1	2	
121	USTER	1000	SN/T1512-11		1	2	2
122	USTER	1000		5	1	2	
123	USTER	1000	ASTMD5867	10	1	1	1
128	USTER	Spectrum I	ASTMD5867-12		1	2	2
129	USTER	900 SA	ASTMD5867	8			
131	USTER	Spectrum	USDA	6	1	2	2
132	Textechno	Fibrotest	ASTMD5867	1	0	10	0
133	USTER	1000		6	1	2	2
134	USTER	Classing	ASTMD5867-95	6	1	2	2
136	USTER	Classing	ASTMD5867-95	6	1	2	2
138	USTER	Spectrum I	ASTMD5867	6	1	2	2
139	Premier	ART 2	ASTMD5867-05	12	1	1	2
140	USTER	1000M700		10	10	10	10
141	USTER	1000	Mode 4	10	1	1	1
143	USTER	Spectrum		6	1	2	2
143-2	Premier	ART		6	1	2	2
144	USTER	Spectrum	ASTM	6	1	2	2
148	USTER	1000		6	1	2	2
154	USTER	900 A			1	2	2
158	USTER	900			1	2	2
158-2	USTER	900			1	2	2
160	USTER	Spectrum		5	5	5	
161	Premier	ART 2	USDA	5	1	2	2
162	USTER	900 A		6	1	2	2
163	USTER	900	ASTMD5867-12	6	3	6	2
170	USTER	1000	Manufacturer	6	1	2	2
172	USTER	900	ASTMD5867-12	6	1	2	2

HVI <i>(table is divided into 3 pages)</i>					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
176	USTER	1000		10	1	2	2
179	USTER	1000	SN/T1512-11	12	1	2	2
183	USTER	1000	ASTMD5867-05	6	1	2	2
186	USTER	900		10	1	2	
193	USTER	1000	GB/T20392-06		1	2	2
200	USTER	900 A	ASTMD5867	8	1	2	2
201	USTER	900		6	1	2	2
203	USTER	900			1	2	2
204	USTER	1000	GB/T20392-06	6	1	2	2
206	USTER	900 B	GOST 53030	6	1	2	2
209	MAG	HFT 1401	ASTMD5867-05	6	1	2	2
214	Premier	ART 2	ASTM	6	1	2	2
215	MAG	HFT 1401	ASTMD5867-05	6	1	2	2
218	MAG	HFT 1401	ASTMD5867-05	6	1	2	2
234	Premier	ART		4	1	1	2
242	USTER	Spectrum			1	2	2
242-2	USTER	1000		6	1	2	2
287	Premier	ART 2	USDA	10	1	2	2
320	MAG	HVT Expert 1201	ASTM	10	1	2	2

HVI		(table is divided into 3 pages)				Micronaire, Tenacity, Elongation	
Lab.	Micronaire	Tenacity		Elongation			
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %		
9	(4.2)		30.2				
10	4.4		28.7				
10-10	4.4		28.1				
10-2	4.4		28.6				
10-3	4.4		27.9				
10-4	4.5		28.3				
10-5	4.4		28.3				
10-6	4.4		28.1				
10-7	4.4		28.4				
10-8	4.5		28.9				
10-9	4.5		28.9				
12	4.5		29.3		6.8		
13	4.5		28.3		5.9		
14	4.5		28.7		6.5		
14-2	4.5		28.3		6.2		
15	4.6		30.6		8.5		
18	4.6		31.3		6.4		
19	4.5		28.7		6.7		
23	4.3		29.2		7.3		
25	4.5		29.0		7.0		
26	4.5		28.8		6.3		
27	4.6		28.3		6.8		
28	4.6		(25.4)		9.0		
31	4.4	21.3	27.6	5.3	5.5		
32	4.4		29.2		6.5		
32-2	4.5		30.1		6.5		
41	4.6		29.6		(1.6)		
43	4.6		28.4		5.4		
44	4.6		30.7		8.0		
48	4.4		29.4		5.8		
49	4.5		29.0		7.0		
50	4.5		28.1		7.6		
50-2	4.6		29.0		5.7		
50-3	4.6		28.6		6.6		
52	4.5		29.5		7.3		
53	4.5		27.4		6.6		
54	4.6		29.6		4.0		
56	4.5		29.1		5.7		
58	4.5		28.7		7.0		
59	4.3		28.5				
59-2	(4.3)		28.1				
59-3	(4.2)		28.6				
59-4	(4.2)		27.8				
59-5	(4.2)		28.3				
59-6	4.3		28.7				
60	4.5		26.8		6.5		
60-2	4.5		(25.7)		(11.8)		
61	4.4	21.7	30.5	5.7	5.6		
61-2	4.5	21.5	(25.1)	5.9	6.0		
62	4.5	20.1	29.3	6.2	6.2		
68	4.5		28.1				
71	4.5		28.3		7.9		
71-2	4.4		29.3		6.1		

HVI		<i>(table is divided into 3 pages)</i>				Micronaire, Tenacity, Elongation	
Lab.	Micronaire	Tenacity		Elongation			
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %		
75	4.6		28.0		5.7		
78	4.4		29.6				
81	4.6		27.8		7.0		
83	4.6		28.4		6.8		
89	4.5		29.2				
89-2	4.6		28.3				
89-3	4.5		28.5				
89-4	4.6		28.0				
90	4.4		29.6		7.3		
91	4.5		28.6		6.9		
92	4.6	22.5	28.7	6.5	6.6		
93	4.6		29.7		7.3		
96	4.4		28.3		7.2		
97	4.4		30.3		7.5		
98	4.5		29.1				
99	4.5		28.9		6.6		
100	4.6		30.9		6.4		
101	4.6		27.9		7.1		
102	4.6		28.0		5.2		
102-2	4.5		29.2		6.3		
103	4.6		28.5		5.6		
105	4.5		29.8		7.6		
107	4.4		30.5		6.5		
108	4.5		28.6		5.6		
109	4.5		31.3				
110	4.6		28.9		6.7		
111	4.6		28.7		6.1		
112	4.6		29.5		7.0		
113	4.5		28.9		6.5		
114	(4.1)		(32.5)		6.7		
115			(23.2)				
121	4.6		28.9		7.2		
122	4.5		28.6		6.6		
123	4.6	22.0	29.7	6.0	5.8		
128	4.5		28.1		5.9		
129	4.6	21.8	29.1	7.0	6.5		
131	4.5		30.3		6.8		
132			29.5		6.8		
133	4.7		28.7				
134	4.5		29.0		7.5		
136	4.6		29.9		5.6		
138	4.5		28.2		8.5		
139	4.5		28.7		6.8		
140	4.5		30.6		7.4		
141	4.5		29.1		7.2		
143	4.5		29.0		7.6		
143-2	4.5		29.1		6.8		
144	4.5		29.9				
148	4.5		27.5		7.3		
154	4.4		29.2		8.5		
158	4.5		29.8		6.8		
158-2	4.5		30.0		7.0		
160	4.6		31.1		9.2		

HVI		<i>(table is divided into 3 pages)</i> Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
161	(4.0)		27.7		
162	4.3		28.0		6.0
163	4.5	20.1		6.2	
170	4.5		29.5		7.7
172	4.4		29.1		6.1
176	4.6		28.2		6.1
179	4.6		28.1		7.8
183	4.5		26.9		9.6
186	4.6	19.8	28.3	6.0	5.8
193	4.6		27.9		8.5
200	4.5		28.2		
201	4.6		30.0		9.1
203	4.4		(48.0)		
204	4.6		27.2		9.3
206	4.5		(25.8)		6.2
209	4.5		28.8		6.4
214	4.5		28.7		6.5
215	4.5		29.9		5.4
218	4.5		30.0		5.5
234	4.5		30.5		6.7
242	4.4		26.9		6.3
242-2	4.6		29.0		5.6
287	4.6	20.1	30.1	5.9	6.7
320	4.4		30.5		7.1
Average	4.51	21.09	28.94	6.07	6.76
Median	4.51	21.4	28.85	5.98	6.7
StdDev	0.08	0.98	0.93	0.46	0.98
CV	1.7	4.6	3.2	7.6	14.5
Min	4.3	19.8	26.8	5.3	4.0
Max	4.7	22.5	31.3	7.0	9.6
n	121	10	122	10	96

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
9				28.7	1.13	83.4
10				28.9	1.14	81.6
10-10				29.2	1.15	83.7
10-2				28.8	1.13	82.0
10-3				28.4	1.12	81.2
10-4				28.6	1.13	81.7
10-5				28.8	1.13	81.6
10-6				28.9	1.14	80.7
10-7				28.5	1.12	81.7
10-8				29.4	1.16	82.3
10-9				27.5	1.08	82.7
12				28.3	1.12	83.5
13				27.7	1.09	82.1
14				28.7	1.13	83.1
14-2				28.3	1.11	82.6
15				29.2	1.15	83.9
18				28.6	1.13	82.6
19				28.6	1.13	82.3
23				28.9	1.14	83.0
25				28.5	1.12	83.9
26				28.7	1.13	82.7
27	27.9	1.10	45.6	28.9	1.14	84.3
28	29.0	1.14	48.6	29.2	1.15	82.6
31	28.4	1.12	48.7	28.5	1.12	84.7
32				28.4	1.12	83.5
32-2				28.5	1.12	83.0
41				27.8	1.09	82.4
43				28.7	1.13	82.3
44				27.9	1.10	83.7
48				28.7	1.13	83.4
49				28.6	1.13	82.9
50				28.0	1.10	81.4
50-2				29.2	1.15	84.1
50-3				28.0	1.10	83.4
52				28.3	1.11	82.9
53				28.4	1.12	81.8
54				28.5	1.12	82.5
56				28.2	1.11	82.2
58				28.8	1.13	83.1
59				28.3	1.11	81.9
59-2				28.0	1.10	82.0
59-3				28.3	1.11	82.2
59-4				28.6	1.13	82.3
59-5				27.8	1.09	81.8
59-6				28.6	1.13	82.5
60				28.1	1.11	81.9
60-2				27.7	1.09	81.5
61	29.2	1.15	48.0	29.1	1.15	84.0
61-2	28.5	1.12	48.0	27.8	1.09	81.0
62	28.6	1.12	47.9	28.8	1.13	83.0
68				28.6	1.13	82.9
71				28.7	1.13	82.6

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
71-2				28.6	1.13	82.4
75				27.7	1.09	82.0
78				28.2	1.11	
81				28.0	1.10	81.4
83				28.5	1.12	83.3
89				28.5	1.12	81.6
89-2				28.2	1.11	82.8
89-3				28.8	1.13	83.2
89-4				28.4	1.12	83.1
90				28.8	1.14	83.0
91				28.4	1.12	82.6
92	28.7	1.13	47.5	28.7	1.13	82.6
93				28.8	1.13	83.7
96				28.3	1.11	82.3
97				29.2	1.15	82.1
98				29.5	1.16	81.8
99				28.6	1.13	82.4
100				28.3	1.11	81.7
101				28.6	1.13	82.8
102				28.5	1.12	82.8
102-2				28.3	1.11	82.7
103				28.3	1.11	83.2
105				29.0	1.14	83.2
107				28.5	1.12	82.2
108				28.4	1.12	82.9
109				28.7	1.13	83.5
110				28.8	1.13	82.7
111				28.7	1.13	84.0
112				29.0	1.14	82.9
113				28.6	1.13	82.8
114				28.5	1.12	83.4
115				28.9	1.14	(86.0)
121				28.7	1.13	83.4
122				28.4	1.12	82.6
123	29.1	1.15	46.6	29.0	1.14	83.1
128				28.3	1.11	82.9
129	29.3	1.15	50.0	28.6	1.13	83.0
131				28.8	1.13	83.5
132				29.0	1.14	82.6
133				28.7	1.13	
134				28.6	1.13	83.4
136				28.9	1.14	81.8
138				28.3	1.11	82.8
139				(30.1)	(1.18)	82.5
140				29.0	1.14	83.0
141				28.9	1.14	83.6
143				28.4	1.12	83.2
143-2				28.2	1.11	82.5
144				28.8	1.13	82.6
148				28.8	1.13	83.0
154				29.5	1.16	84.7
158				28.4	1.12	83.8

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
158-2				28.4	1.12	83.1
161				27.8	1.10	
162				28.8	1.13	83.5
163	29.1	1.15	(13.5)			
170				28.5	1.12	82.5
172				28.0	1.10	81.5
176				29.1	1.14	82.5
179				27.9	1.10	83.3
183				28.7	1.13	83.1
186	27.9	1.10	48.4	28.0	1.10	82.5
193				28.3	1.11	82.1
200				28.4	1.12	83.0
201				29.2	1.15	83.0
203				28.1	1.11	
204				28.8	1.13	(79.9)
206				28.2	1.11	81.7
209				28.9	1.14	82.8
214				29.1	1.15	82.3
215				28.5	1.12	83.2
218				28.5	1.12	82.3
234				28.2	1.11	82.7
242				28.3	1.11	
242-2				28.8	1.13	
287	29.1	1.15	48.0	29.1	1.14	82.8
320				29.1	1.15	82.0
Average	28.74	1.131	47.93	28.56	1.124	82.71
Median	28.89	1.137	48.0	28.6	1.126	82.7
StdDev	0.48	0.019	1.13	0.4	0.016	0.75
CV	1.7	1.7	2.4	1.4	1.4	0.9
Min	27.9	1.1	45.6	27.5	1.08	80.7
Max	29.3	1.15	50.0	29.5	1.16	84.7
n	12	12	11	127	127	120

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
9	60	10.2	53-2			
10	74	9.3	32	2	0.28	27
10-10	76	9.6	22	2	0.23	27
10-2	74	9.3	32	2	0.27	28
10-3	74	9.2	32	2	0.28	26
10-4	74	9.2	32	0	0.27	
10-5	74	9.3	32	2	0.29	28
10-6	75	9.3	32	2	0.31	25
10-7	74	9.3	32	2	0.29	27
10-8	74	9.3	32	2	0.28	27
10-9	74	9.3	32	2	0.29	27
12	74	8.7	41-3	1	0.13	16
13	73	8.4	41-3		0.09	8
14	73	8.5	2			
14-2	74	8.8	41-3	3	0.36	19
15	75	9.2	31-3	2	0.2	14
18	75	8.7	31-4		0.14	19
19	74	8.8	31-4	2	0.18	21
23	74	8.5	41-3			
25	75	8.9	31-4	2	0.15	19
26	75	8.9	31-4	2	0.17	20
27	73	9.3	31-4	1	0.3	17
31	73	8.8	41-3		0.09	12
32	73	8.6	41-3			
32-2	71	8.6	41-4			
41	73	8.9	41-3		0.14	13
43	72	8.6	42-1		0.19	17
44	73	8.5	41-3		0.12	10
48	74	9.0	31-4			
49	74	8.9	41-3	2	0.17	19
52	74	9.3	32-2	2	0.27	28
53	73	8.5	41-3	3	0.23	3
54	73	8.7	41-3	2	0.21	15
56	73	8.7	41-3	1	0.1	12
58	75	8.8	31-4	2	0.22	23
59	77	10.5	22-1	2	0.26	28
59-2	77	10.4	22-1	2	0.27	22
59-3	76	10.8	12-2	2	0.23	19
59-4	75	10.6	22-2	2	0.2	26
59-5	75	10.3	22-2	2	0.2	17
59-6	76	10.2	22-1	2	0.3	23
60	75	8.4	41-1	2	0.18	21
60-2	75	9.5	32-1	2	0.17	19
61	78	8.6	21-2			
61-2	72	8.4	41-3			
62	75	8.6	31-4		0.06	2
68	74	8.4	41-3	1	0.11	13
71	75	9.0	31-4		0.19	22
71-2	75	6.7	41-2		0.08	4
75	74	8.4	41-3	8	0.09	1
78	73	8.6	41-3		1.01	28
81	74	8.8	41-3	1	0.16	17
83	74	8.9	31-4			

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
89	73	8.7	41-3	2	0.18	10
89-2	74	8.8	41-3	3	0.24	18
89-3	74	8.5	41-3	1	0.16	12
89-4	74	9.1	31-4	1	0.13	14
90	75	8.5	41-1		0.12	13
91	74	8.7	41-3	1	0.16	18
92	75	8.6	41-3			
93	75	9.5	41-4	3	0.28	30
96	75	8.7	41-3	2	0.27	36
98	74	8.7			0.13	17
99	74	9.0	31-4			
100	73	8.9	41-3		0.29	13
101	75	8.9	41-3	2	0.21	26
102	75	8.9	31-4	3	0.33	33
102-2	75	8.9	31-4	3	0.33	33
103	73	8.8	41-3	1	0.14	13
105	75	8.7	41	3	0.35	31
107	73	9.3	32-2	1		
108	73	8.9	41-3	1	0.15	15
109	73	8.5	41-3	572	0.2	22
110	74	9.4	32-2	3	0.23	28
111	74	8.8			0.17	21
112	74	8.8	41-3	1	0.12	19
113	74	9.0	31-3			
114	74	8.8	31-4			
121	74	9.1	31-4		0.19	28
122	74	9.4	32-2	19	0.15	581
123	75	9.0	31-4	2	0.18	16
128	74	8.9			0.18	34
129	73	8.8	41-3			
131	73	9.5			0.05	7
133	73	8.6	41-3	2	0.2	25
134	74	8.7	41-3		0.13	13
136	74	9.1	31-4		0.14	17
138	73	7.9	41-2	1	0.17	16
139	75	8.9	31-4	1	0.09	12
140	74	9.2	32-2	2	0.27	20
141	74	9.1	31-4		0.14	18
143	74	9.0	31-4	1	0.07	6
143-2	73	9.1	31-4	2	0.26	2
144	73	8.6	41	1	0.07	6
148	74	8.8	41-3	2	0.2	25
154	75	8.6	31-4			
158	75	8.1	41-1	1	0.1	7
158-2	74	8.3	41-3	1	0.1	10
161	73	14.5			0.14	22
162	74	9.3				
163	67	6.0	61-1			
170	75	9.1	31-4	1	0.13	14
172	74	8.4			0.15	9
176	17	8.4	41-3	3	0.29	30
179	74	8.7	41-3	2	0.21	27
183	73	9.1	42-1		0.15	23

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
193	75	8.9	41	2	0.18	19
200	74	8.8	31-4			
201	74	9.2	31-4	1	0.1	6
203	77	8.5	31-1	2	0.12	10
204	74	9.0	31-4		0.19	18
206	73	10.0	32-2			
209	74	9.2	32-2			
214	73	9.6	32-2			
215	76	8.4	31-3	1		
218	77	9.4	31-1			
234	71	8.4	41-4			
242	74	8.3			0.14	12
242-2	75	8.9	31-4	2	0.22	24
287	73	8.9	31-4			
320	72	8.5	41-4			
Average	73.4	8.96			0.198	24.6
Median	74.0	8.9			0.18	19.0
StdDev	5.5	0.79			0.112	58.9
CV	7.5	8.8			56.4	239.4
Min	17	6.0			0.05	1
Max	78	14.5			1.01	581
n	121	121			94	93

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio		
9		8.8				
10		(19.1)	86			
10-10		(18.5)	86			
10-2		(18.5)	86			
10-3		(19.8)	86			
10-4		(19.5)	85			
10-5		(19.7)	86			
10-6		(20.1)	86			
10-7		(19.5)	86			
10-8		(21.1)	86			
10-9		(18.5)	86			
12		8.8			0.89	
13		10.1			0.88	
14		8.2			0.83	
14-2		7.2			0.87	
15		7.5			0.84	
18		8.9			0.85	
19		8.8			0.87	
23		6.7				
25		8.8			0.86	
26		9.2			0.87	
27	7.7	7.4			0.87	
28		8.3	86		(0.97)	
32		9.8				
32-2		9.4				
41		7.2			0.89	
43		8.6				
44		8.5			0.92	
48		6.4				
49		7.3			0.84	
50		9.4			0.86	
50-2		8.9			0.87	
50-3		7.6			0.87	
52		8.3			0.86	
53		9.9			0.83	
54		7.9			0.9	
56		10.5				
58		8.3			0.86	
59		9.9			0.85	
59-2		10.0			0.85	
59-3		9.6			0.85	
59-4		9.2	85			
59-5		10.1	85			
59-6		9.1	85			
60		9.0			0.86	
60-2		10.1			0.83	
61	7.5	7.2				
62	5.0	8.3			(1.12)	
68		8.2			0.87	
71		7.5			0.86	
71-2		(13.1)			0.89	
75		10.7			0.88	
78		7.8			0.86	

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %		Maturity Ratio	
81		(14.7)			0.86	
89		9.6			0.86	
89-2		9.5			0.87	
89-3		7.1			0.86	
89-4		7.9			0.87	
90		8.8			0.86	
91		8.7			0.86	
92		9.0			0.86	
93		6.1				
96		8.0			0.86	
97		8.7			0.83	
98		9.1				
99		9.2			0.86	
100		7.6	(81)		0.91	
101		8.9			0.86	
102-2		7.9			0.87	
103		7.3			0.87	
105		9.7				
107		8.5			0.85	
108		7.2			0.88	
109		8.3			0.85	
110		8.2			0.87	
111		8.2			0.87	
112		8.4			0.86	
113		8.4			0.83	
114		8.2			0.88	
115		(3.0)	(32)		(0.44)	
121		8.6			0.86	
122		7.8			0.86	
123	12.3	(12.4)			0.87	
128		8.3	(77)		0.87	
129	8.2	8.0				
131					0.89	
132		9.1				
133		7.0	87			
134		7.3			0.86	
136		8.8			0.87	
138		11.0			0.92	
139		8.1				
140		7.8			0.86	
141		7.3			0.86	
143		8.6			0.88	
143-2		9.6			0.83	
144		8.9			0.89	
148		8.4			0.86	
154		(4.6)				
158		7.5			0.86	
158-2		7.6			0.85	
160		10.3			0.9	
161		10.8			0.86	
162		6.5				
163	10.1					
170		10.8			0.86	

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio		
172	6.3	8.1		0.88		
176		7.3		0.87		
179		8.0		0.86		
183		9.1				
186		6.9				
193		9.7		0.85		
200		8.0				
201		8.1		0.83		
203		8.5				
204		9.0		0.85		
209		8.5		0.83		
214		8.7		0.88		
215		8.4		0.84		
218		8.5		0.84		
234		8.7				
242		7.7		0.88		
242-2		8.8		0.87		
320	8.9	0.86				
Average	8.16	8.51	85.8	0.864		
Median	7.7	8.5	86.0	0.86		
StdDev	2.41	1.01	0.6	0.019		
CV	29.6	11.9	0.7	2.2		
Min	5.0	6.1	85	0.83		
Max	12.3	11.0	87	0.92		
n	7	107	15	85		

AFIS				General
Lab.	Manufacturer	Instrument	Std. Test Method	Repetitions
21	USTER	1190064		5
22	USTER	Autojet		10
27	USTER			
28	Textechno	CCS-V5	ASTMD5866-05	
31	USTER	4.22		5
32	USTER	AFIS Pro 2		10
32-2	USTER	AFIS Pro 2		10
32-3	USTER	AFIS Pro 2		10
41	USTER			5
43	USTER	AFIS Pro		
44	USTER	AFIS Pro	internal	10
51	USTER	AFIS Pro 2	ISO-9001	5
58	USTER	AFIS Pro 2	internal	10
62	USTER	908085	ASTMD5866-95	6
75	USTER		ASTMD5866-12	5
90	USTER	4.22	Manufacturer	10
91	USTER	MN100		
91-2	USTER	AFIS Pro 2		10
96	USTER	AFIS Pro 2	ASTMD5866-12	10
100	Textechno	CCS-V5.2	ASTMD5866-05	4
101	USTER	AFIS Pro		5
102	USTER			5
111	USTER	AFIS Pro		5
112	USTER	AFIS Pro	ASTMD5866	3
123	USTER		ASTMD5866-12	10
123-2	USTER	AFIS Pro	ASTMD5866-12	10
123-3	USTER	AFIS Pro 2	ASTMD5866-12	10
128	USTER	Neptester	ASTM	4
129	USTER	AFIS Pro		
132	USTER			
134	USTER	AFIS Pro	ASTMD5848-95	5
136	USTER	AFIS Pro 2	ASTMD5848-95	3
139	USTER	AFIS Pro 2	ASTMD5866-05	12
140	USTER	AFIS Pro		10
142	USTER			
143	USTER		ASTMD5866	5
144	USTER	AFIS Pro	ASTM	5
148	USTER	AFIS Pro		10
148-2	USTER	AFIS PRO2neu		10
148-3	USTER	Neptester 720		10
154	USTER			10
158	USTER	3000		5
170	USTER	AFIS Pro	Manufacturer	5
172	USTER			5
176	USTER	AFIS Pro		10
183	USTER	AFIS Pro	ASTMD5866-05	5
186	USTER	AFIS Pro	Manufacturer	10
193	USTER	AFIS Pro	ASTMD5866-12	6
200	USTER			
204	USTER		ASTMD5866-05	5

AFIS L								Length
Lab.	N							SFC %
	ML		CV	2.5 %		5%		
	mm	inch	%	mm	inch	mm	inch	
21	19.6	0.77	45.7	34.6	1.36	32.5	1.28	23.3
22	19.8	0.78	49.6	36.3	1.43	34.0	1.34	26.5
31	21.2	0.83		36.3	1.43	34.2	1.35	20.6
32	21.0	0.83	45.2			34.0	1.34	19.5
32-2	21.2	0.83	45.5			34.3	1.35	19.5
32-3	20.5	0.81	47.1			33.7	1.33	21.6
39	19.0	0.75	51.8	35.6	1.40	33.4	1.31	27.7
41	20.1	0.79	44.4	35.6	1.40	33.3	1.31	22.2
43	20.8	0.82	46.7			34.5	1.36	22.7
44	21.1	0.83	45.1			33.9	1.33	19.0
51	20.7	0.81	46.1			34.0	1.34	20.6
58	20.0	0.79	47.9			33.6	1.32	23.1
62	20.2	0.80						23.5
75	(17.1)	(0.67)	(63.8)			33.4	1.31	(35.7)
90	21.0	0.83	46.1	36.6	1.44	34.2	1.35	20.5
91-2	20.1	0.79	46.9			33.5	1.32	21.4
96	20.3	0.80				34.3	1.35	22.3
101	20.6	0.81	45.8			33.7	1.33	20.6
102	22.3	0.88	40.8	36.9	1.45	34.7	1.37	16.7
111	19.3	0.76	51.7			33.5	1.32	27.7
112	20.8	0.82	45.4			34.3	1.35	22.2
123	20.3	0.80	46.2			33.9	1.33	23.4
123-2	18.9	0.74	51.8			33.5	1.32	27.1
123-3	20.1	0.79	48.7			33.9	1.33	23.2
129	19.7	0.78	(58.2)			(36.4)	(1.43)	30.4
134	21.3	0.84						19.8
136	20.1	0.79	(32.8)					23.3
139	20.1	0.79				34.0	1.34	24.2
140						34.5	1.36	19.7
142	19.9	0.78	45.7	35.6	1.40	33.5	1.32	22.0
143	20.6	0.81	50.6	37.4	1.47	34.9	1.37	24.1
144	20.1	0.79				33.9	1.33	23.2
148	19.5	0.77	50.2					
148-2	19.4	0.76	50.0			33.4	1.31	25.3
154	21.0	0.83	47.5	36.1	1.42	34.1	1.34	22.1
158	19.4	0.76	51.5	35.6	1.40	33.5	1.32	26.7
170	19.6	0.77				33.5	1.32	23.6
172	21.6	0.85	42.4	36.6	1.44	34.5	1.36	18.9
176	21.1	0.83	47.8			34.8	1.37	22.6
183	20.8	0.82	46.6			34.3	1.35	21.7
186	20.5	0.81	47.0			34.2	1.35	21.8
193	21.3	0.84	44.1			34.0	1.34	20.1
204	19.2	0.76	50.2			33.3	1.31	25.4
Average	20.35	0.801	47.25	36.1	1.421	33.92	1.335	22.68
Median	20.3	0.799	46.8	36.2	1.425	33.95	1.337	22.3
StdDev	0.77	0.03	2.75	0.75	0.029	0.5	0.02	2.8
CV	3.8	3.8	5.8	2.1	2.1	1.5	1.5	12.3
Min	18.9	0.74	40.8	34.6	1.36	32.5	1.28	16.7
Max	22.3	0.88	51.8	37.4	1.47	34.9	1.37	30.4
n	41	41	32	12	12	38	38	41

AFIS L						Length
Lab.	W					SFC %
	ML		CV %	UQL		
	mm	inch		mm	inch	
21	23.7	0.93	32.2	28.7	1.13	8.3
22	24.9	0.98	33.7	30.0	1.18	8.8
28	24.8	0.97		(31.8)	(1.25)	
31	(30.9)	(1.22)		30.4	1.20	6.7
32	25.3	1.00	30.8	30.1	1.19	5.6
32-2	25.5	1.00	31.2	30.3	1.19	5.6
32-3	25.0	0.98	31.5	29.9	1.18	6.3
39	24.1	0.95	34.2	29.5	1.16	9.2
41	24.1	0.95	33.2	29.3	1.15	8.5
43	25.1	0.99	33.3	30.5	1.20	7.7
44	25.4	1.00	30.6	30.1	1.19	5.4
51	25.1	0.99	31.8	30.2	1.19	6.2
58	24.5	0.96	32.9	29.8	1.17	7.4
62	25.1	0.99		30.4	1.20	7.0
75	24.1	0.95	37.5	29.7	1.17	10.0
90	25.5	1.00	31.0	30.2	1.19	6.0
91-2	24.5	0.96	32.5	29.5	1.16	6.6
96	25.0	0.98		30.2	1.19	6.7
100	22.8	0.90		30.5	1.20	(17.8)
101	24.9	0.98	31.6	29.9	1.18	
102	25.9	1.02	29.1	30.6	1.20	5.3
111	24.4	0.96	34.0	29.7	1.17	9.0
112	25.2	0.99	33.6	30.2	1.19	7.7
123	24.7	0.97	33.3	29.9	1.18	8.4
123-2	24.0	0.94	35.3	29.5	1.16	8.9
123-3	24.8	0.98	33.3	30.0	1.18	7.1
129	26.4	1.04	35.2	(32.6)	(1.28)	8.3
134	25.4	1.00		30.2	1.19	6.6
136	24.6	0.97	(47.4)	29.5	1.16	7.6
139	24.9	0.98		30.0	1.18	8.0
140				30.2	1.19	6.5
142	24.0	0.94	32.0	29.2	1.15	7.5
143	25.8	1.02	32.6	30.8	1.21	6.7
144	24.6	0.97		29.8	1.17	7.7
148	24.5	0.96	34.5	29.8	1.17	
148-2	24.3	0.96	34.0	29.6	1.17	8.1
154	25.7	1.01	29.7	30.4	1.20	6.0
158	24.6	0.97	32.7	29.7	1.17	8.1
170	24.0	0.94		29.3	1.15	8.4
172	25.7	1.01	30.4	30.7	1.21	6.3
176	25.7	1.01	33.3	31.0	1.22	7.1
183	25.4	1.00	31.8	30.2	1.19	6.7
186	25.0	0.98	32.5	30.1	1.19	6.8
193	25.4	1.00	31.9	30.2	1.19	6.6
204	24.0	0.94	34.0	29.3	1.15	8.2
Average	24.84	0.978	32.68	29.98	1.18	7.31
Median	24.89	0.98	32.65	30.0	1.181	7.1
StdDev	0.69	0.027	1.71	0.47	0.019	1.14
CV	2.8	2.8	5.2	1.6	1.6	15.5
Min	22.8	0.90	29.1	28.7	1.13	5.3
Max	26.4	1.04	37.5	31.0	1.22	10.0
n	43	43	34	43	43	41

AFIS D / M		Diameter, Maturity			
Lab.	D (N) µm	CV (D(N)) %	Fineness mtex	IFC %	Mat. Ratio
22			164	7.0	0.86
28			183		0.97
31		7.4	163	8.6	
32			167	8.9	0.87
32-2			171	7.1	0.91
32-3			156	10.3	0.81
41	13.7				
43			166	7.9	0.89
44			171	6.6	0.91
51			160	6.3	0.86
58			164	8.0	0.88
62			183	6.2	0.87
75			169	7.1	0.89
90			164	5.7	0.89
91-2			167	6.3	0.91
96			159	8.3	0.86
100			184		0.91
101			171	6.3	0.91
102			155	10.8	0.82
111			166	6.6	0.89
112			177	4.2	0.98
123			167	7.0	0.89
123-2			164	7.2	0.88
123-3			163	6.5	0.91
134			164	5.5	0.9
136			169	7.6	0.9
139			164	6.8	0.9
140			164	7.6	0.88
143			168	5.5	0.93
144			170	4.5	0.94
148			170	5.9	0.91
148-2			163	7.3	0.88
154			148	10.9	0.82
158			163	6.4	0.89
170			174	9.1	0.89
172			169	5.3	0.9
176			160	11.7	0.79
183			167	5.7	0.91
186			158	8.1	(0.69)
193	29.0		164	5.6	0.91
204			161	8.9	0.86
Average			166.3	7.24	0.889
Median			165.0	7.0	0.89
StdDev			7.2	1.74	0.038
CV			4.4	24.0	4.3
Min			148	4.2	0.79
Max			184	11.7	0.98
n	2	1	40	38	38

AFIS T				Trash
Lab.	Total Trash		Dust	V. F. M.
	Mean Diameter μm	Cnt/g	Cnt/g	%
21	(200)	(638)	(601)	0.85
22	318	218	37	0.77
31	345	234	193	0.99
32	317	204	170	0.67
32-2	311	222	187	0.75
32-3	302	207	178	0.62
43		(28)	171	0.66
51	316	205	172	0.62
58	377	221	173	1.06
62	291	230	200	0.82
90	307	172	147	0.47
91-2	379	226	179	1.11
100		(520)		
101	307	180	155	0.56
102	(220)	(523)	(479)	0.89
111	273	294	258	0.8
112	299	161	137	0.4
129	319	165	134	0.67
134	334	188	151	0.59
136	298	238	205	0.6
140	338	173	140	0.7
142	280	317	275	0.85
143	296	227	32	0.63
148	341	195	160	0.85
148-2	338	234	196	0.91
154	296	286	244	0.9
158	289	273	230	0.76
176	344	178	138	0.49
183	327	221	184	0.86
193	321	168	28	0.62
Average	317.8	216.8	165.7	0.74
Median	316.5	219.5	172.0	0.75
StdDev	26.5	41.0	60.0	0.17
CV	8.3	18.9	36.2	23.4
Min	273	161	28	0.4
Max	379	317	275	1.11
n	26	26	27	29

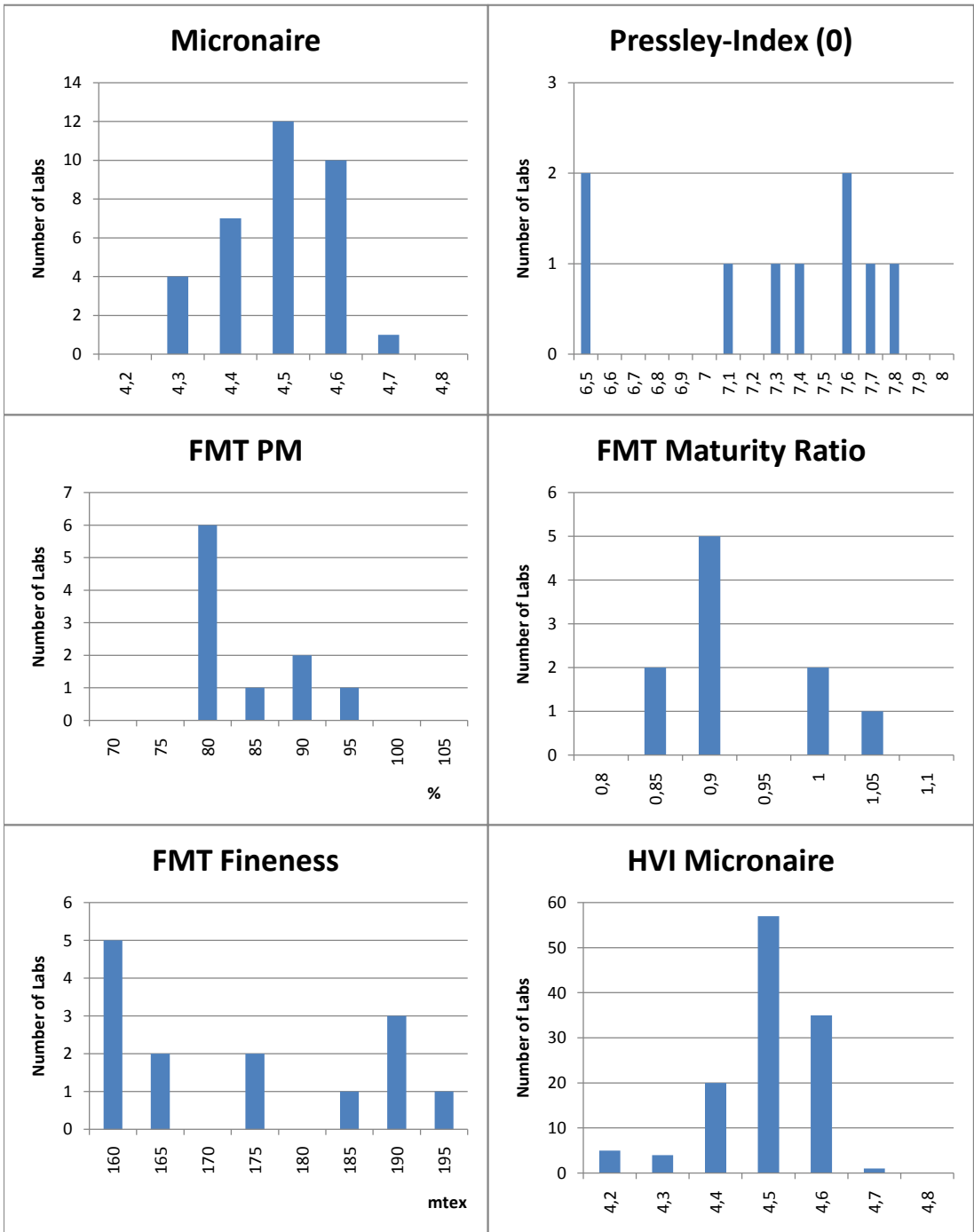
AFIS N		<i>(table is divided into 2 pages)</i>			Neps	
Lab.	Total Neps		SCN		Mean Diameter µm	Cnt/g
	Mean Diameter µm	Cnt/g	Mean Diameter µm	Cnt/g		
21	672	165				
22	717	166	1108		22	
27		173				
31	723	182	1204		23	
32	738	191	1071		33	
32-2	730	181	1013		31	
32-3	723	193	1044		28	
39	625	(114)				
41	664	196				
43	757	172	1220		31	
44	722	186	1191		28	
51	732	222	1224		35	
58	746	195	1247		33	
62	748	196	1286		29	
75	708	212	1087		28	
90	(980)	206	1219		28	
91	666	178				
91-2	708	249	1093		30	
96	708	221	1111		25	
100		(738)			7	
101	743	194	1185		36	
102	718	174	979		31	
111	747	189	1196		32	
112	688	169	1403		10	
123	710	216	1057		37	
123-2	698	230	1102		24	
123-3	731	210	1077		44	
128		185				
129	750	184	1215		39	
132	615	186				
134	701	200	1055		25	
136	722	211	1378		25	
139	716	217	1238		25	
140	686	235	1089		23	
142	649	160				
143	752	188	1278		34	
144	705	198	1157		21	
148	698	197	973		28	
148-2	736	196	1202		29	
148-3		185				
154	743	195	1244		34	
158	658	193	938		9	
170	764	206	1298		38	
172	757	173	1207		31	
176	727	184	993		38	
183	709	190	1054		22	

AFIS N		<i>(table is divided into 2 pages)</i>			Neps	
Lab.	Total Neps		SCN		Mean Diameter μm	Cnt/g
	Mean Diameter μm	Cnt/g	Mean Diameter μm	Cnt/g		
193	730	215	1238	30		
200	732	188	1225	23		
204	721	212	1178	25		
Average	713.5	195.0	1155.8	28.1		
Median	721.5	193.0	1185.0	28.5		
StdDev	34.4	19.1	110.0	7.7		
CV	4.8	9.8	9.5	27.6		
Min	615	160	938	7		
Max	764	249	1403	44		
n	44	47	39	40		

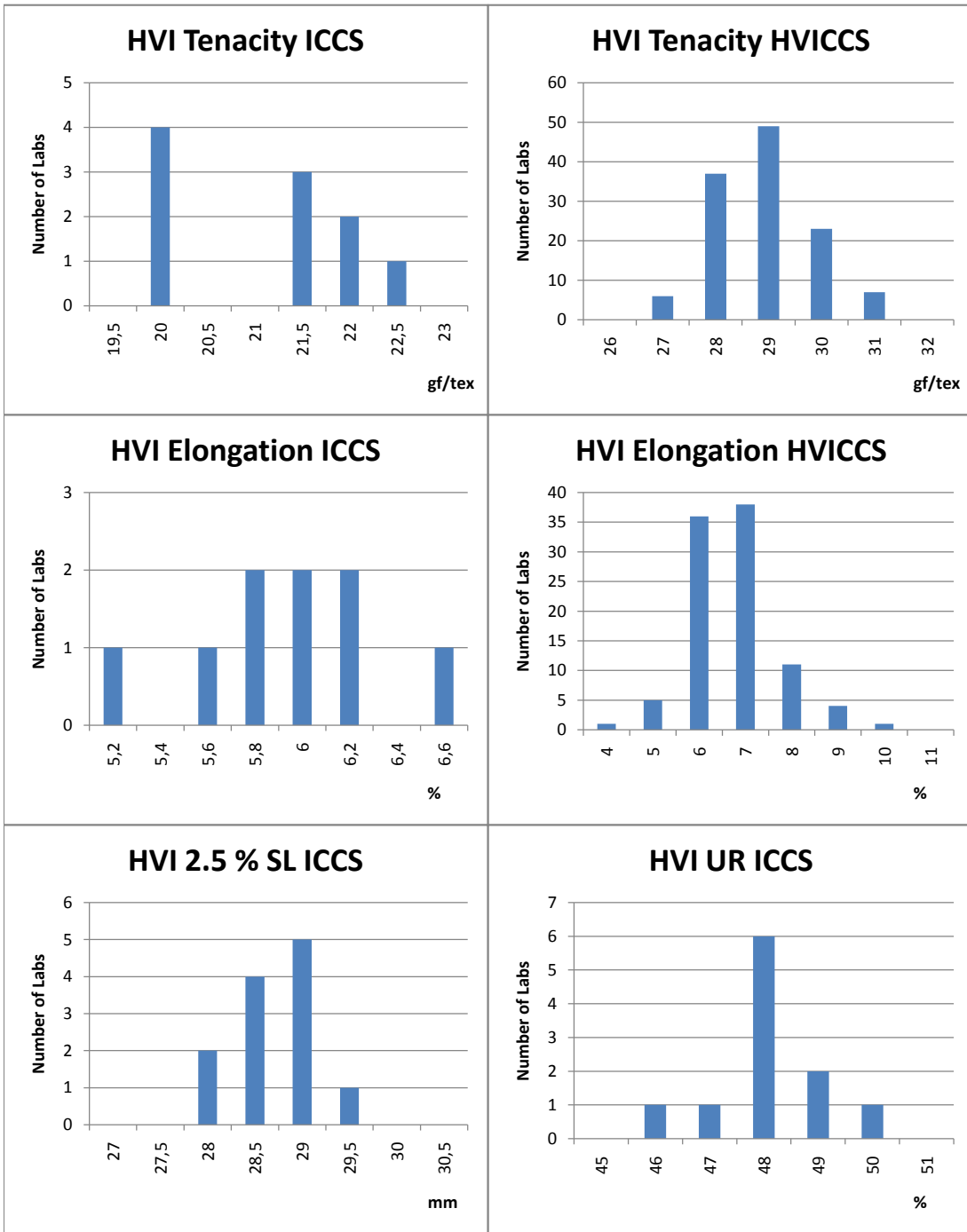
aQura <i>(further information see page "Multiple Devices")</i>						Length, Neps	
Lab.	Repetitions	5.0 % L (n)	50 % L (n)	SFC (n) <12.7 mm	SFC (w) <12.7 mm	Fibre Neps	SCN
		mm	mm	%	%	Cnt/g	Cnt/g
53	4	17.3		25.8	11.8	82	8
114		30.1		25.1	11.6	199	19
127	4	29.9		27.0	13.0	203	20
234	4	30.3		21.8	9.8	1431	38
Average							
Median							
StdDev							
CV							
Min							
Max							
n		4	0	4	4	4	4

Multiple Devices <i>(information not provided in the respective table)</i>					General
Lab.	Device	Manufacturer	Instrument	Std. Test Method	Repetitions
32	FMT		WIRA		6
32-2	FMT		WIRA		6
32-3	FMT		WIRA		6
35	DigitalFibrograph	USTER	730		6
37	FMT	SDL			
53	aQura	Premier			4
56	Causticaire		Micronaire	JIS	2
58	ALMeter	Peyer	AL 101	internal	
70	FMT	SDL		ASTMD3818-92	6
70	GravFineness			ISO 1973-95	5
85	CombSorter	Joh.Zw.		UNI10170-94	1
85	GravFineness			UNIENISO1973-88	10
85-2	CombSorter		Keisokki	UNI10170-94	1
85-2	GravFineness			UNIENISO1973-88	10
85-3	CombSorter		Keisokki	UNI10170-94	1
85-3	GravFineness			UNIENISO1973-88	10
85-4	CombSorter		Keisokki	UNI10170-94	1
85-4	GravFineness			UNIENISO1973-88	10
92	DigitalFibrograph		DigiLen	ASTMD5332	6
93	DigitalFibrograph			ASTMD1447	4
93	FMT		WIRA	ISO	4
100	FMT		WIRA	ASTMD3813-92	8
100	DigitalFibrograph		Fibrotest	ASTMD1447-07-12	8
102	DigitalFibrograph		530	ICCS	5
102	FMT		Micromat	ICCS	2
112	ALMeter				5
112	GravFineness				3
114	aQura	Premier			
127	aQura	Premier			4
128	FMT		Micromat	ASTM	8
129	Causticaire		Microscope	IS 236	4
131	DigitalFibrograph		530	ASTM	6
131	Causticaire		Fibroscope	British	
132	DigitalFibrograph		Fibrotest	ASTMD1447	10
132	ALMeter	Uster	AL100	DIN 53806	5
143	DigitalFibrograph	USTER	330	ABNTNBR13154-94	
177	Causticaire			DIN53943-4	4
177	GravFineness			ASTMD1577-90	4
186	FMT	SDL			
193	GravFineness			GB/T6100-07	2
234	aQura	Premier			4

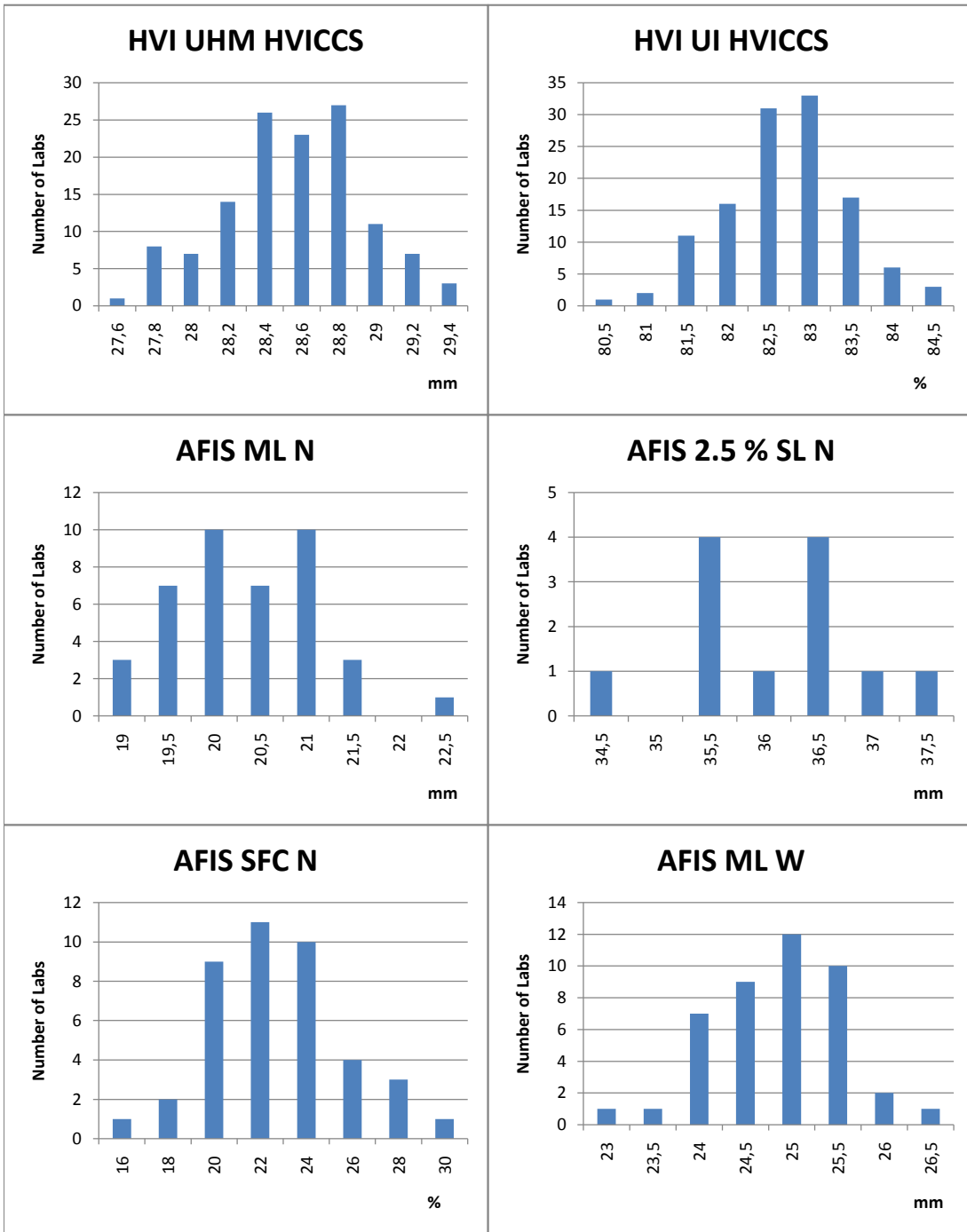
Graphics of selected round test data



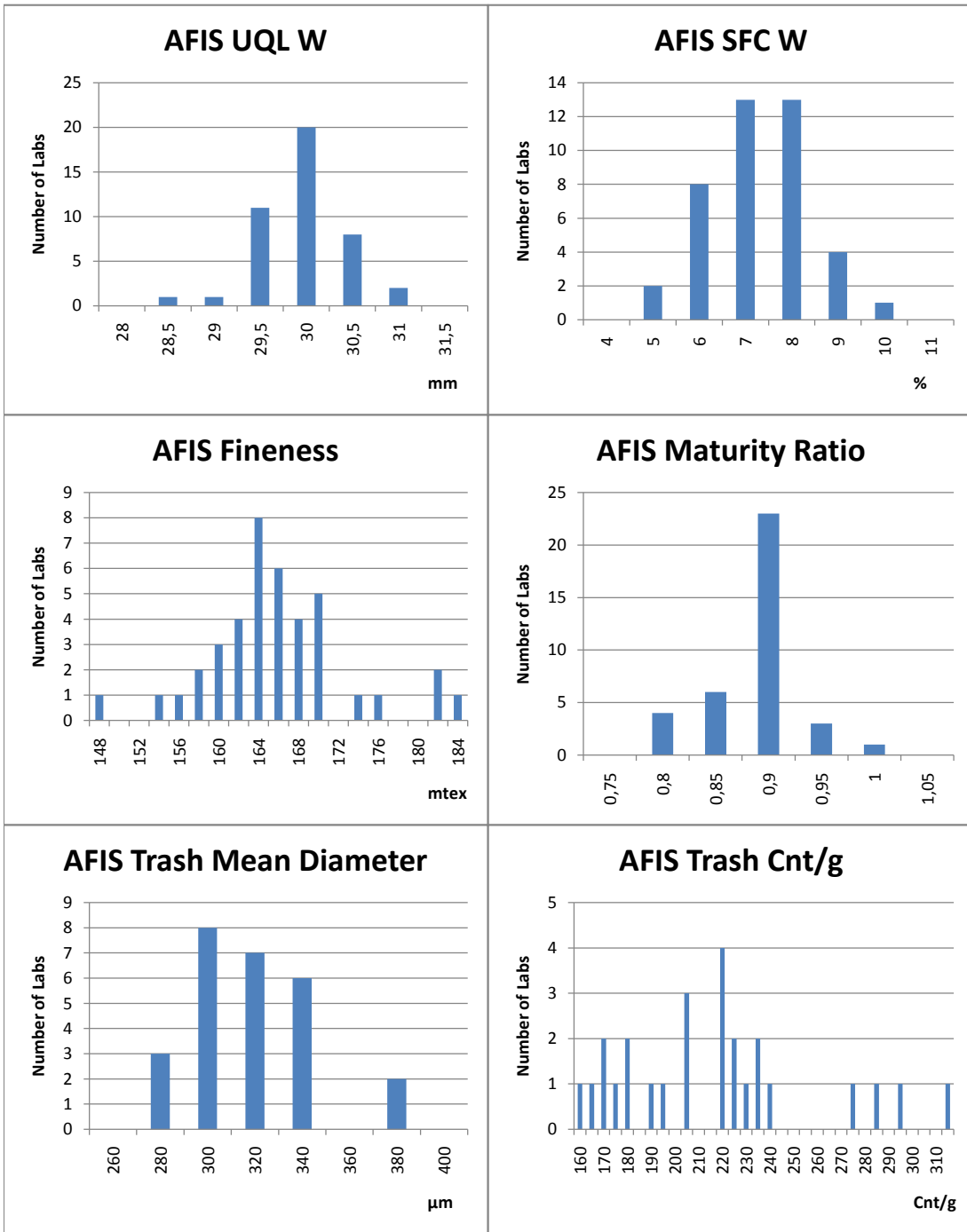
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