

ICA Bremen Cotton Round Test

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

Bremen, 15.12.2014

Evaluation of the Test Results 2014 / 3

Tested Cotton:
Cotton Number:

Ivory Coast
RM 45

Number of Laboratories: **128**

Argentina	-	Mozambique	-
Australia	1	The Netherlands	1
Bangladesh	1	Pakistan	4
Brazil	3	Poland	2
China, PR	14	Russia	2
Czech Republic	4	Serbia	1
Egypt	4	Slovenia	2
France	1	South Africa	-
Germany	10	Spain	2
Greece	5	Sudan	1
Hungary	1	Switzerland	3
India	43	Tanzania	-
Iran	1	Thailand	2
Israel	1	Turkey	3
Italy	-	Uganda	-
Japan	2	United Kingdom	-
Kazakhstan	1	United States	5
Korea, R	1	Uzbekistan	2
Latvia	1	Vietnam, SR	2
Mali	1	Zimbabwe	-
Mauritius, Rep of	1		

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: **Ivory Coast (RM 45)**

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	0,026	0,037
Strength, g/tex	0,332	0,858
Length, UHM, inch	0,0065	0,0194
Length, UHM, mm	0,166	0,492

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		3.8	775	GB/T6498-05
17		3.5		
20		3.8		
22	3	3.7	Fibronaire	
29	6	3.9	Sheffield	ISO 2403
35	3	3.8	775	
37		3.9		
56	2	3.6	Fibronaire	JIS
67	4	3.5	Fibronaire	
70	6	3.8	MK.1	ASTMD3818-92
76	3	3.6	RM 1070	
77		(3.3)		
79		3.9	Sheffield	ASTMD1448
93	4	3.8		ASTMD1448
100	3	3.6	Fibronaire	ASTMD1448
102	3	3.8	Fibronaire	ICCS
115	4	3.8	Kaisokki	
126		3.8		
128		3.7	Fibronaire	ASTM
129	4	3.8	Sheffield	BS 3181
131	6	3.7		ASTM
132	3	3.7	775	DIN 53941
136	4	3.8	675	internal
142	3	3.8	80400	ISO
162	6	3.8	WIRA	
167		3.7	275	
168		3.8		
169	3	3.8	Sheffield	
177	3	3.6	DPM 60	DIN 53941
183	3	3.6	Fibronaire	ASTMD1448
186	6	3.7		USDA
193	3	3.8	Y145	GB/T6498-08
201	3	3.7	275	
203		3.6	900-1	
Average		3.73		
Median		3.75		
StdDev		0.10		
CV		2.7		
Min		3.5		
Max		3.9		
n		33		

PRESSLEY, STELOMETER								
Lab.	Pressley Tester				Stelometer			
	Rep.	PI (0)	PI (3.2)	Standard Test Method	Rep.	Bundle Tenacity gf/tex	Elongation %	Standard Test Method
29	7	8.0		ISO 3060				
35					6	24.4	5.6	
56	5	7.2		JIS				
76	6	7.3						
79		7.5		ASTMD1445				
93	6	7.6	3.6	ASTMD1445	6	20.2	8.1	ASTM 1445
102					5	20.6	6.6	ICCS
128		6.4	3.4	ASTM		22.9	5.5	ASTM
131	6	8.0	3.9	ASTM	6	22.1	6.3	ASTM
132					6	20.9	7.4	DIN ISO3060
136	4		(89.4)	internal				
162	6	8.0		TPPSI	6	20.0	5.3	
177	4	6.5		DIN 53942				
193					11	21.5	6.0	GB/T13783-92
206					10	22.3	5.5	ISO 3060
Average		7.39	3.63			21.66	6.26	
Median		7.47	3.6			21.5	6.0	
StdDev		0.61	0.29			1.43	0.96	
CV		8.19	8.02			6.59	15.33	
Min		6.4	3.4			20.0	5.3	
Max		8.0	3.9			24.4	8.1	
n		9	3			9	9	

Pressley	PI(0)	Av., gf/tex	39.61	StdDev, gf/tex	3.24	CV, %	8.19
	(3.2)	Av., gf/tex	24.71	StdDev, gf/tex	1.98	CV, %	8.02

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	%	%	%	
8	10	28.5	1.12	13.6	0.53	48	6.5		6.3
28	10	28.1	1.11	13.2	0.52	47			6.8
35	6	27.8	1.10	12.9	0.51	46			7.6
93	4	29.7	1.17	14.9	0.59	50			
102	5	28.3	1.11	13.0	0.51	46			
131	6	28.7	1.13	11.9	0.47	41			
132	10	28.8	1.13	13.1	0.52	46			
136	10	28.6	1.13	(23.2)	(0.92)	(81)			11.8
143	2	27.9	1.10	13.3	0.52	48			
Average		28.49	1.122	13.24	0.521	46.4			
Median		28.53	1.123	13.17	0.519	46.6			
StdDev		0.57	0.022	0.83	0.033	2.51			
CV		1.99	1.993	6.31	6.308	5.4			
Min		27.8	1.10	11.9	0.47	41			
Max		29.7	1.17	14.9	0.59	50			
n		9	9	8	8	8	1	0	4

COMB SORTER (further information see page "Multiple Devices")						Staple Length		
Lab.	Rep.	Instrument	N			W		
			ML	CV	< 12.5 mm	ML	CV	<12.5 mm
			mm	%	%	mm	%	%
131	6	Keisokki	22.75	38.2	19.7			

ALMETER (further information see page "Multiple Devices")						Staple Length		
Lab.	Rep.	N			W			
		ML	CV	< 12.5 mm	ML	CV	<12.5 mm	
		mm	%	%	mm	%	%	
58	3	18.9	40.3	25.5	21.9	34.3	13.0	
132	5	19.4	37.5	21.0	23.2	29.9	8.8	

Maturity, Fineness (further information see page "Multiple Devices")					
Lab	Fibrograph	Causticaire (18 % NaOH)	Microscopic Test		Gravimetric Fineness
	%	%	ASTM, %	BS, %	dtex
56		81			
70					1.45
79					1.49
129		69			
131		64			
177		73			1.46
193					1.64

IIC/SHIRLEY FM-TESTER <i>(further information see page "Multiple Devices")</i>				Maturity, Fineness
Lab.	Rep.	PM, %	MAT	FIN, mtex
28	5	82.4	0.95	147
37		77.9	0.89	159
70	6	83.0	0.94	147
93	4	80.5	0.91	144
102	2	73.2	0.82	155
128	8	75.0	0.84	158
186	6	78.7	0.89	150
Average		78.67	0.891	151.5
Median		78.73	0.89	150.0
StdDev		3.64	0.048	5.91
CV		4.63	5.397	3.9
Min		73.2	0.82	144
Max		83.0	0.95	159
n		7	7	7

HVI (table is divided into 3 pages)					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
4	USTER	900			1	2	2
5	USTER	1000 Line4		6	1	2	2
5-2	USTER	1000 Line5		6	1	2	2
6	USTER	1000			1	2	2
7	USTER			10	1	2	2
8	USTER	Spectrum I	ASTMD5867-05	10	10	10	10
9	Premier	ART		4	1	2	2
10	USTER	1000C	GB/T20392-06	3	1	2	2
10-10	USTER	1000C	GB/T20392-06	3	1	2	2
10-11	USTER	1000C	GB/T20392-06	3	1	2	2
10-12	USTER	1000C	GB/T20392-06	3	1	2	2
10-2	USTER	1000C	GB/T20392-06	3	1	2	2
10-3	USTER	1000C	GB/T20392-06	3	1	2	2
10-4	USTER	1000C	GB/T20392-06	3	1	2	2
10-5	USTER	1000C	GB/T20392-06	3	1	2	2
10-6	USTER	1000C	GB/T20392-06	3	1	2	2
10-7	USTER	1000C	GB/T20392-06	3	1	2	2
10-8	USTER	1000C	GB/T20392-06	3	1	2	2
10-9	USTER	1000C	GB/T20392-06	3	1	2	2
12	USTER	Spectrum I	SN/T1512-11	12	1	1	1
15	USTER	900 SA		6	1	2	2
24	USTER	Spectrum	USDA	10	1	2	2
25	USTER	1000		10	1	2	2
26	USTER	1000		10	1	2	2
28		CCS			5	10	5
31	USTER	900		6	1	2	2
32	USTER	900 A	internal	1	4	10	4
33	Premier	HFT	ICC		1	2	2
34	Premier			5	1	1	1
38	USTER	1000			1	2	2
41	USTER	Spectrum		5	5	5	5
43	USTER	1000			1	2	2
48	Premier	HFT	ASTMD5867-05	8	1	2	2
49	USTER	1000			1	2	2
52	USTER	1000M700	ASTM	6	6	6	6
54	USTER	Spectrum	USDA		1	2	2
56	USTER	Spectrum I	HVI Test Method	5	1	2	2
58	USTER	1000	internal	10	1	1	1
60	USTER	1000	ASTM	6	1	2	2
60-2	USTER	1000M700	ASTM	6	1	2	2
62	Premier	ART 2	ASTMD5867	6	1	2	2
64	USTER	Spectrum			1	2	2
68	USTER	1000	USDA	10	1	2	2
71	USTER		SN/T1512-11	6	1	2	2
71-2	USTER		SN/T1512-11	6	1	1	1
72	USTER	1000		10	2	2	2
75	USTER	Spectrum	SN/T1512-11	6	1	2	2
78	USTER	Spectrum I		6	1	2	2
79	USTER	900	ASTMD5867-05	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
90	USTER	1000	ASTMD5867	10	1	2	2
91	USTER	1000		6	1	2	2
93	USTER	900 A	ASTMD5867	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
96	USTER	1000	GB/T20392-06	5	1	2	2
98	USTER	1000	USDA, ASTM	12	1	2	4
99	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
100	Textechno	CCS-V5	ASTMD5867-05	6	5	3	8
101	USTER	1000	ASTMD5867-12	6	1	2	2
102	USTER	900 B	ASTMD5867	6	1	1	1
102-2	USTER	SW700V3.1.3.18	ASTMD5867	6	1	1	1
105	USTER	Spectrum	Manufacturer	6	1	2	2
106	Premier	ART		5	1	1	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
111	USTER		internal	6	1	2	2
113	Premier	ART	ASTMD5867-05	10	1	2	2
114	Premier	ART 2		5	1	2	2
115	Statex	Fibrotex	ASTM	6	1	2	
122	USTER	1000		10	1	2	2
123	USTER	Spectrum	ASTMD5867-05	10	1	1	1
126	Premier	HFT	ASTM	6	1	2	
128	USTER	Spectrum II	ASTMD5867-12	10	1	2	2
129	USTER	900 SA			1	2	2
130	Premier	ART 2		6	1	2	2
131	USTER	Spectrum II	USDA	6	1	2	2
132	Textechno	Fibrotest	ASTMD5867	10		1	
134	USTER	1000	ASTMD5867-95	6	1	2	2
135	USTER	Spectrum I	ASTMD5867-95	6	1	2	2
143	USTER	Spectrum		6	1	2	2
143-2	Premier	ART		6	1	2	2
146	Premier	Spectrum	Manufacturer	4	1	2	4
148	USTER	1000		6	1	2	2
154	USTER	900 A		10	1	2	2
162	USTER	900 A	HVI Mode	6	1	2	2
163	USTER	900	ASTMD5867-12	6	3	6	2
176	USTER	1000	HVICC	10	1	2	2
179	USTER	1000	SN/T1512-11		1	2	2
183	USTER	1000	ASTMD5867-05	6	1	2	2
186	USTER	900		10	2	10	
193	USTER	1000	GB/T20392-06	6	1	2	2
200	USTER	900 A	ASTMD5867	12	1	2	2
201	USTER	900		6	1	2	2
202	Premier	ART		10	2	2	2
203	USTER	900			1	2	2
204	Premier	HFT	GB/T20392-06	15	1	1	1
204-2	USTER	1000	GB/T20392-06	10	1	1	1
204-3	USTER	Spectrum I	GB/T20392-06	15	1	1	
206	USTER	900 B	GOST R53031-08	10	1	2	2
207	USTER	1000	ASTMD5867-12	10	1	2	2
207-2	USTER	1000	ASTMD5867-12	10	1	2	2
207-3	USTER	1000	ASTMD5867-12	10	1	2	2
207-4	USTER	1000	ASTMD5867-12	10	1	2	2
208	USTER	1000	ASTMD5867-12	10	1	2	2
209	Premier	ART 2	ASTM	6	1	2	2
209-2	MAG	HVT Expert 1201	ASTM	6	1	2	2
213	Premier	ART	ICC	5	1	2	2
214	Premier	ART 2	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
215	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
216	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
217	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
219	Premier	HFT		8	1	2	2
223	Premier	ART		4	1	1	1
234	Premier	ART 2		4	1	2	2
238	Premier	ART		10	1	2	2
242	USTER	Spectrum		6	1	2	2
242-2	USTER	1000		6	1	2	2
251	Premier	ART		10	2	2	2
267	Premier	ART		6	1	2	2
271	Premier	ART	internal	10	1	1	1
271-2	USTER	900	internal	10	1	1	1
272	Premier	ART		5	1	1	2
287	Premier	ART 2	USDA	10	1	2	2
288	Premier	ART 2	Manufacturer	5	5	5	5
289	Premier	ART	ICC	15	1	2	2
300	Premier	ART 2	ASTM	6	1	2	2
315	Premier	HFT		6	1	1	
318	Premier	HFT			1	1	
319	Premier	ART	ASTMD5867-95	10	1	2	2
320	MAG	HVT Expert 1201	ASTM	10	1	1	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, %
4	3.8		29.0		6.7
5	3.8		29.3		7.8
5-2	3.8		29.9		7.2
6	3.8		28.6		5.7
7	3.7		(24.8)		7.1
8	3.7		31.6		(9.9)
9	3.7		31.5		
10	3.8		28.5		
10-10	3.9		29.7		
10-11	3.9		28.3		
10-12	3.8		29.9		
10-2	3.9		29.5		
10-3	3.9		30.2		
10-4	3.9		29.2		
10-5	3.5		30.6		
10-6	3.9		28.4		
10-7	3.8		32.3		
10-8	3.8		29.7		
10-9	3.8		29.1		
12	3.7		29.8		7.0
15	3.8		32.2		7.1
24	3.8		31.9		5.3
25	3.8		29.7		7.0
26	3.9		29.4		7.4
28	3.8		30.7		
31	(3.5)	23.4	30.0	5.3	5.3
32	3.6		31.8		6.5
33	3.9	21.5			
34	3.8		32.4		6.8
38			32.2		(2.8)
41	3.7		30.0		(2.6)
43	3.7		28.6		4.6
48	3.7		29.1		5.5
49	3.8		29.5		6.8
52	3.8		31.0		8.2
54	3.8		28.8		4.0
56	3.7		30.4		5.6
58	3.8		29.1		7.7
60	3.9		28.5		(10.1)
60-2	3.9		29.8		6.1
62	3.7	20.7	32.1	6.6	5.6
64	3.7		31.5		
68	3.9		28.7		
71	3.7		28.8		7.3
71-2	(3.5)		30.7		6.2
72	3.9		27.7		
75	3.7		29.0		6.2
78	3.8		30.5		
79	3.8		30.2		6.2
89	3.8		30.6		
89-2	3.8		30.7		
89-3	3.8		29.3		
90	3.8		29.4		6.7

HVI		<i>(table is divided into 3 pages)</i> Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
91	3.8		28.3		5.0
93	3.8		32.5		7.4
96	3.9		28.9		5.7
98	3.8		29.5		
99	3.8		33.1		6.1
100	3.7		30.1		6.3
101	3.8		29.7		5.4
102	3.8		28.5		5.2
102-2	3.9		28.7		6.2
105	3.7		30.9		7.0
106	3.9		30.8		6.5
107	3.7		29.1		6.6
108	3.8		30.3		6.1
109	3.8		29.3		
111	3.8		29.1		5.1
113	3.8		30.4		6.7
114	3.7		30.0		6.6
115	3.8	20.7		5.3	
122	3.9		30.3		6.4
123	3.8	22.2	28.5	7.0	7.3
126	3.8				
128	3.8		28.8		6.6
129	3.8	22.4	27.3	6.3	6.2
130	3.7	22.6	31.6	6.3	6.6
131	3.7		29.7		5.4
132			33.2		6.0
134	3.7		29.7		8.3
135	3.8				6.7
143	3.7		29.9		7.7
143-2	3.8		30.5		6.8
146	3.9		32.9		
148	3.7		27.8		7.3
154	3.8		29.4		7.9
162	3.7		30.2		7.7
163	3.7	22.9		6.6	
176	3.9		29.1		6.0
179	3.9		29.2		4.9
183	3.8		28.4		5.4
186	3.7	21.2	29.9	6.5	6.2
193	3.7		29.4		5.0
200	3.8		28.7		
201	3.7		31.5		6.6
202	3.7		29.0		5.9
203	3.7		31.8		
204	4.0		29.0		6.4
204-2	3.8		29.0		7.1
204-3	3.9		29.3		8.6
206	3.8		32.5		6.0
207	3.8		29.7		6.3
207-2	3.8		28.8		6.7
207-3	3.8		29.5		7.2
207-4	3.8		28.5		7.9
208	3.8		28.8		7.0

HVI		<i>(table is divided into 3 pages)</i>				Micronaire, Tenacity, Elongation	
Lab.	Micronaire	Tenacity		Elongation			
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %		
209	3.8		30.1		6.2		
209-2	3.8		30.4		6.1		
213	4.0	21.2		6.4			
214	3.8		30.3		6.2		
215	3.8		30.2		6.2		
216	3.9		29.8		6.1		
217	3.9		29.9		5.5		
219	3.9		33.5				
223	3.6		(24.6)		5.8		
234	3.6		30.5		6.7		
238	3.6	23.1					
242	3.7		29.5		5.9		
242-2	3.7		28.6		7.2		
251	3.8	20.0		6.1			
267	3.7		29.1		6.7		
271	3.6		30.1		(3.3)		
271-2	3.8		30.2		(3.4)		
272	3.9		30.7		6.6		
287	3.8	21.9	31.7	5.5	6.7		
288	3.8	25.1		5.6			
289	3.7	22.5					
300	3.8		29.5		6.6		
315	3.7	21.8		6.1			
318	3.9		31.0				
319	3.7	23.8	29.1	5.4	5.5		
320	3.7	22.4		6.5			
Average	3.78	22.19	29.95	6.1	6.43		
Median	3.8	22.3	29.7	6.3	6.5		
StdDev	0.08	1.24	1.27	0.55	0.87		
CV	2.14	5.6	4.23	8.95	13.46		
Min	3.5	20.0	27.3	5.3	4.0		
Max	4.0	25.1	33.5	7.0	8.6		
n	128	18	118	15	87		

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
4				28.6	1.13	82.0
5				28.9	1.14	81.4
5-2				29.1	1.14	80.9
6				29.0	1.14	81.3
7				28.4	1.12	81.8
8				28.9	1.14	83.6
9				29.8	1.17	82.6
10				28.3	1.11	80.5
10-10				28.2	1.11	82.3
10-11				28.5	1.12	82.2
10-12				29.0	1.14	82.1
10-2				28.8	1.13	82.4
10-3				28.4	1.12	81.1
10-4				28.4	1.12	81.5
10-5				28.8	1.13	79.8
10-6				29.0	1.14	80.4
10-7				29.1	1.15	81.1
10-8				29.1	1.15	81.5
10-9				28.5	1.12	81.0
12				28.8	1.14	81.6
15				29.5	1.16	82.1
24				29.4	1.16	82.3
25				28.8	1.13	81.3
26				28.7	1.13	81.9
28				28.1	1.11	82.1
31	28.0	1.10	45.7	27.8	1.09	83.4
32				29.3	1.15	82.5
33	28.4	1.12	46.6			
34				28.2	1.11	82.6
38				29.5	1.16	83.8
41				28.7	1.13	82.0
43				28.7	1.13	81.6
48				29.4	1.16	81.7
49				28.9	1.14	82.0
52				28.4	1.12	81.5
54				28.2	1.11	81.1
56				28.7	1.13	82.1
58				28.7	1.13	82.0
60				28.5	1.12	81.2
60-2				28.4	1.12	80.8
62	28.6	1.12	46.9	29.0	1.14	82.1
64				28.6	1.13	81.8
68				28.2	1.11	81.1
71				28.8	1.13	
71-2				28.1	1.11	
72				28.1	1.11	81.7
75				28.2	1.11	81.4
78				28.3	1.11	82.0
79				29.5	1.16	81.4
89				29.1	1.15	81.2
89-2				29.1	1.15	82.1
89-3				29.2	1.15	81.5

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
90				29.2	1.15	82.8
91				28.1	1.11	81.0
93				29.6	1.17	82.9
96				28.4	1.12	81.6
98				28.4	1.12	81.1
99				28.1	1.11	81.9
100	27.4	1.08	44.7	28.6	1.12	83.5
101				28.8	1.13	81.3
102				28.5	1.12	81.6
102-2				28.7	1.13	82.0
105				28.3	1.12	81.3
106				28.9	1.14	81.9
107				28.0	1.10	81.4
108				28.2	1.11	80.9
109				28.8	1.13	82.3
111				28.5	1.12	82.1
113				28.7	1.13	82.1
114				28.9	1.14	81.9
115	27.7	1.09	46.1			
122				29.0	1.14	82.3
123	28.7	1.13	47.1	28.6	1.13	80.8
126				27.9	1.10	79.9
128				28.3	1.11	81.6
129	28.8	1.13	48.0	28.9	1.14	82.0
130	(13.7)	(0.54)	46.1	28.5	1.12	81.4
131				28.0	1.10	81.6
132				29.1	1.15	82.2
134				29.1	1.15	81.2
135				29.5	1.16	80.9
143				28.1	1.11	82.3
143-2				28.5	1.12	82.5
146				28.6	1.12	82.3
148				28.0	1.10	81.0
154				29.5	1.16	82.3
162				29.0	1.14	83.1
163	29.8	1.17	47.0			
176				28.8	1.13	82.2
179				28.9	1.14	81.8
183				28.8	1.13	82.5
186	27.3	1.08	47.8	29.0	1.14	82.0
193				28.9	1.14	82.3
200				28.7	1.13	81.1
201				28.2	1.11	81.2
202				28.8	1.13	83.1
203				28.8	1.13	
204				28.0	1.10	82.1
204-2				28.6	1.12	81.9
204-3				28.5	1.12	82.1
206				29.5	1.16	81.8
207				28.5	1.12	81.2
207-2				28.6	1.13	81.9
207-3				28.7	1.13	81.7

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
207-4				28.8	1.14	81.8
208				28.1	1.11	81.2
209				28.4	1.12	81.8
209-2				28.5	1.12	82.1
213	27.8	1.09	44.1			
214				28.5	1.12	81.9
215				28.4	1.12	81.5
216				28.5	1.12	82.0
217				28.9	1.14	82.0
219				29.4	1.16	83.7
234				29.4	1.16	82.5
238	27.7	1.09	48.0			
242				28.2	1.11	
242-2				28.4	1.12	
267				27.9	1.10	82.0
271				28.5	1.12	83.2
271-2				29.2	1.15	81.2
272				29.2	1.15	81.2
287	28.8	1.13	46.7	28.8	1.13	82.7
288	(30.8)	(1.21)	45.5			
289	28.9	1.14	45.4			
300				29.4	1.16	81.7
315	27.6	1.09	46.8			
318				28.9	1.14	83.4
319	28.5	1.12	47.0	28.6	1.13	80.2
320	28.5	1.12	45.0			
Average	28.28	1.113	46.36	28.69	1.130	81.82
Median	28.44	1.119	46.68	28.68	1.129	81.9
StdDev	0.67	0.026	1.12	0.43	0.017	0.74
CV	2.37	2.369	2.42	1.51	1.508	0.9
Min	27.3	1.08	44.1	27.8	1.09	79.8
Max	29.8	1.17	48.0	29.8	1.17	83.8
n	16	16	18	121	121	116

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
4	75	8.6	31-4	5	(0.80)	10
5	75	9.2	31-3	4	0.67	35
5-2	75	9.2	31-3	3	0.54	34
6	75	8.9	41	3	0.37	34
7	(70)	8.3	51-4		0.4	30
8	75	(10.7)	22-2	3	0.24	21
9	(70)	9.3	42-2			
10	75	8.7	41	3	0.36	41
10-10	74	9.0	41	3	0.57	52
10-11	75	8.9	41	3	0.36	38
10-12	76	9.0	41	3	0.46	54
10-2	74	9.1	41	3	0.47	30
10-3	75	9.2	22	3	0.4	35
10-4	75	9.2	32	3	0.44	46
10-5	75	9.0	41	3	0.29	45
10-6	74	9.1	32	2	0.23	25
10-7	75	9.0	41	3	0.36	45
10-8	75	8.9	41	3	0.46	47
10-9	74	9.0	41	3	0.38	38
12	75	8.8	31-4	2	0.26	20
15	75	8.8	31-4	2	0.2	17
24	75	8.4	41-4			
25	76	8.6	31-2	3	0.26	33
26	76	8.5	31-2	3	0.26	30
28	74	9.0				
31	74	8.9	41-3	5	0.27	26
32	73	8.9	41-3			
33	(69)	8.8	42-2			
34	73	(7.1)	41-2			
38	76	8.9	31-4	2	0.21	27
41	75	8.9	31-4		0.17	17
43	75	9.0	31-4		0.48	38
48	74	9.3	32-2			
49	75	8.7	31-4	3	0.31	31
52	77	(9.8)	22-1	3	0.37	30
54	76	9.5	31-3	4	0.55	29
56	73	8.7	41-3	1	0.14	13
58	75	8.90	31-4	3	0.37	34
60	75	8.6	34-4	3	0.36	38
60-2	76	8.6	31-4	3	0.29	35
62	76	8.8	31-3			
64	76	8.7	31-2	1	0.17	17
68	75	8.6	31-4	3	0.29	26
71	75	8.9	31-4		0.42	37
71-2	74	8.5	31-4		0.24	19
72	76	9.0	31-3		0.3	28
75	75	8.4	41-1	2	0.18	13
78	74	(7.4)	41-2		0.21	25
79	74	8.6	41-3	1	0.49	27
89	73	9.0	42-1	4	0.52	25
89-2	74	8.9	41-3	4	0.38	18
89-3	75	9.0	31-4	2	0.23	21
90	75	8.6	31-4		0.25	27

HVI <i>(table is divided into 3 pages)</i>				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
91	75	8.9	31-4	3	0.3	31
93	72	(10.1)	32-2	1	0.4	14
96	75	8.8				
98	75	8.8			0.25	23
99	75	8.6	31-3			
100	(89)	(9.9)				
101	75	8.8	31-4	3	0.32	39
102	75	8.6				
102-2	76	8.8	31-4	4	0.51	40
105	76	8.7	31-4	2	0.18	22
106	76	9.0	31-3			
107	76	9.2	31-3			
108	75	9.0	31-4	3	0.28	31
109	77	9.2	31-3			
111	75	8.6			0.52	40
113	(79)	8.6	21-1			
114	75	9.4	31-3			
122	74	8.9	41-3	4	0.47	36
123	74	8.7	41-3	2	0.27	21
128	75	9.1			0.32	31
129	73	9.6	32-2			
130	74	8.6	31-4			
131	74	(10.1)				
134	74	8.7	41	3	0.19	15
135	75	8.8	31-4	2	0.22	22
143	76	8.9	31-3	3	0.29	17
143-2	76	9.1	31-4	3	0.28	20
146	75	(7.4)	41-1	1	0.17	21
148	75	8.9	31-4	3	0.4	35
154	75	8.7	31-4	1	0.3	17
162	74	9.7	32-2			
163	74	8.4	41-3			
176	75	8.5	41-1	5	(0.75)	48
179	75	8.9	31-4	3	0.33	41
183	73	8.7	41-3	3	0.4	33
193	75	8.9	31-4	2	0.24	26
200	75	8.6	31-4		0.06	9
201	75	8.6	31-4	2	0.21	18
202	(70)	8.3	41-4			
203	74	(7.7)	41-1	3	0.3	20
204	75	(11.1)	22-1			
204-2	74	8.8	41-3	3	0.39	26
206	73	9.3	31-4			
207	76	8.7	31-4	3	0.37	31
207-2	75	8.7	31-4	3	0.3	29
207-3	76	9.0	31-3	2	0.24	24
207-4	76	8.6	31-2	2	0.27	26
208	75	8.7	31-4	3	0.34	32
209	75	8.8	31-2			
209-2	75	9.0	31-4			
213	74	(7.8)	41-1			
214	75	8.9	31-2			
215	75	8.8	31-2	2		

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
216	76	9.1	31-3			
217	75	8.3	41-1			
223	74	9.0	31-4			
234	(70)	(7.5)	51-1	3		
238	72	(10.5)	32-1			
242	75	8.1	41-1	3	0.29	22
242-2	77	8.6	31-1	3	0.39	36
251	72	(4.7)	51-7			
267	74	8.4	41-3			
271	73	8.6	41-3	7	(1.01)	59
271-2	73	9.2	31-4			
272	77	9.2	21-4			
287	75	9.0	31-4			
288	74	9.6	32-2			
289	73	8.8	41-3			
300	75	9.2	31-3			
319	73	(13.5)	24-1			
320	(71)	9.2	42-1			
Average	74.7	8.86			0.329	29.3
Median	74.8	8.9			0.3	29.0
StdDev	0.97	0.29			0.115	10.4
CV	1.3	3.29			34.949	35.6
Min	72	8.1			0.06	9
Max	77	9.7			0.67	59
n	116	109			76	79

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %		Maturity Ratio	
4		6.1				
5		7.3			0.85	
5-2		8.4				
6		(15.5)				
7		8.4				
8		9.4			0.85	
9		8.2				
10		(12.1)	83			
10-10		(24.9)	84			
10-11		9.1	84			
10-12		(16.4)	83			
10-2		(16.3)	86			
10-3		(16.0)			0.85	
10-4		(21.0)	85			
10-5		(20.8)	85			
10-6		(21.6)	86			
10-7		(18.5)	86			
10-8		(15.7)	84			
10-9		(19.0)	86			
12		9.8			0.85	
15		9.7			0.81	
24		8.1			0.86	
25		9.2			0.84	
26		9.3			0.84	
28		6.8	82		(0.95)	
32		10.1				
33					0.82	
34		8.1				
38		8.2			0.86	
41		7.1			0.85	
43		8.8				
48		8.1				
49		7.1			0.84	
52		9.1			0.84	
54		8.1			0.85	
56		10.4				
58		8.7			0.84	
60		9.60			0.82	
60-2		8.4			0.85	
62	5.8	8.8			0.9	
64		6.3			0.86	
68		9.0			0.85	
71					0.84	
71-2					0.84	
72		8.6				
75		7.4			0.84	
78		11.5			0.86	
89		9.3			0.84	
89-2		9.0			0.85	
89-3		8.5			0.85	
90		9.1			0.85	
91		10.1			0.86	
93		6.4				

HVI		Short Fibre Index, Maturity		
<i>(table is divided into 3 pages)</i>				
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio
99		8.3		0.79
100	8.2	8.2	(72)	0.81
101		9.1		0.86
102-2		8.1		0.85
105		8.7		
106		7.9		0.82
107		9.5		0.85
108		8.3		0.85
109		9.8	81	
111		7.7		0.79
113		7.8		0.82
114		9.0		0.86
115	4.9			
122		9.0		0.85
123	9.4	9.0		0.85
126		10.5		
128		9.3	(76)	0.85
130	5.0	9.5		0.86
132		6.4		
134		8.4		0.83
135		7.1		0.85
143		7.8		0.86
143-2		9.4		0.82
146		9.1		(0.92)
148		8.9		0.84
154		5.8		
162		6.1		
163	8.9			
176		8.4		0.85
179		9.3		0.86
183		8.7		0.86
186	10.0	6.9		
193		8.3		0.86
200		10.3		
201		9.7		0.81
202				0.81
203		8.1		0.82
204		9.2		0.82
204-2		8.1		0.84
204-3		6.7		0.88
207		9.1		0.85
207-2		8.9		0.85
207-3		8.7		0.84
207-4		8.6		0.84
208		9.9		0.85
209		8.2		0.79
209-2		8.5		0.8
213	9.5			
214		8.1		0.81
215		8.2		0.79
216		8.2		0.79
217		7.9		0.79
219		8.1		0.82

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %		Maturity Ratio	
234		8.3				
238					0.82	
242		7.6			0.85	
242-2		9.2			0.84	
251	5.4					
267		9.3			0.85	
271		9.1				
272		8.6			0.82	
288	8.0					
300		8.8			0.86	
315	11.3				0.82	
318		8.7			0.82	
319	10.0	10.0			0.82	
320	8.7				0.77	
Average	8.08	8.54	84.3		0.837	
Median	8.7	8.6	84.0		0.84	
StdDev	2.13	1.05	1.58		0.023	
CV	26.43	12.26	1.9		2.792	
Min	4.9	5.8	81		0.77	
Max	11.3	11.5	86		0.9	
n	13	96	13		80	

AFIS				General
Lab.	Manufacturer	Instrument	Std. Test Method	Repetitions
7	USTER			5
21	USTER	1190064		
22	USTER	Autojet		10
24	USTER	AFIS Pro	USDA	10
31	USTER			5
32	USTER	AFIS Pro 2		10
38	USTER			
39	USTER			
41	USTER			5
43	USTER			
51	USTER	AFIS Pro 2	ISO 9001	5
58	USTER		internal	10
62	USTER	AFIS Pro 2	ASTMD5866-95	6
75	USTER		ASTMD5866-12	5
90	USTER		Manufacturer	10
91	USTER	AFIS Pro 2		10
91-2	USTER	MN100		10
100	Textechno	CCS-V5	ASTMD5866-05	5
101	USTER	296350	B-PA F02	5
102	USTER		ICCS	3
105	USTER		Manufacturer	5
109	USTER			5
111	USTER	AFIS Pro	internal	5
123	USTER		ASTMD5866-05	10
123-2	USTER	AFIS Pro	ASTMD5866-05	10
123-3	USTER	AFIS Pro 2	ASTMD5866-05	10
128	USTER	Neptester	ASTM	4
129	USTER	AFIS Pro	ASTM5866	5
132	USTER			
134	USTER	AFIS Pro	ASTMD5848-95	5
142	USTER			5
143	USTER		ASTM5866	5
148	USTER	AFIS Pro		10
148-2	USTER	AFIS Pro 2		10
148-3	USTER	Neptester		10
154	USTER			10
163	USTER		ASTMD5866-12	5
176	USTER			10
183	USTER	AFIS Pro	ASTMD5866-95	5
186	USTER	AFIS Pro	Manufacturer	10
186-2	USTER	Afis old	Manufacturer	10
193	USTER	AFIS Pro	ASTMD5866-05	6
200	USTER			
207	USTER	AFIS Pro	ASTMD5866-05	10
208	USTER	AFIS Pro	ASTMD5866-05	10
238	USTER	AFIS Pro		10
271	USTER		internal	10
271-2	USTER		internal	10
272	USTER			5
288	USTER		Manufacturer	5

AFIS L								Length
Lab.	N							
	ML		CV	2.5 %		5%		SFC
	mm	inch	%	mm	inch	mm	inch	%
7	18.1	0.71	52.8	36.3	1.43	33.3	1.31	30.6
21	20.6	0.81	40.2	35.8	1.41	33.3	1.31	17.2
22	19.3	0.76	50.6	36.8	1.45	34.0	1.34	27.3
24	20.0	0.79	47.3			34.1	1.34	21.4
31	21.2	0.83	46.3	38.3	1.51	35.5	1.40	21.8
32	18.7	0.74	53.0			33.7	1.33	27.4
38	20.0	0.79	51.5	38.0	1.50	35.2	1.39	25.0
39	18.5	0.73	50.6	35.9	1.41	33.1	1.30	27.6
41	20.4	0.80	43.0	36.4	1.43	33.8	1.33	20.1
43	19.8	0.78	51.3			35.1	1.38	25.9
51	20.1	0.79	47.6			34.3	1.35	21.8
58	19.2	0.76	49.3	33.8	1.33	36.6	1.44	26.8
62	19.8	0.78				34.9	1.37	23.9
75	19.1	0.75	59.1			36.1	1.42	30.5
90	20.4	0.80	49.5	38.2	1.50	35.2	1.39	23.1
91	19.1	0.75	50.6			33.9	1.33	25.2
101	19.8	0.78	48.3			34.1	1.34	23.1
102	20.3	0.80	46.2	37.1	1.46	34.1	1.34	22.2
105	19.6	0.77	51.4	37.3	1.47	34.5	1.36	27.2
109	20.8	0.82	45.7	38.2	1.50	35.1	1.38	21.8
111	20.1	0.79	48.1			34.5	1.36	24.8
123	20.2	0.80	45.9			34.3	1.35	22.8
123-2	19.3	0.76	51.7			34.4	1.35	25.9
123-3	18.1	0.71	55.0			33.8	1.33	30.0
129	21.0	0.83	49.2			36.2	1.43	18.5
134	20.1	0.79				34.3	1.35	24.0
142	19.3	0.76		35.6	1.40	33.1	1.30	23.3
143	19.7	0.78	53.1	38.1	1.50	35.1	1.38	27.1
148	19.4	0.76				34.6	1.36	25.1
148-2	19.1	0.75				34.0	1.34	25.5
154	20.5	0.81	48.6	37.2	1.46	34.6	1.36	22.8
163	21.3	0.84	44.9	39.5	1.56	36.2	1.43	20.6
176	22.2	0.87	43.3	38.5	1.52	35.8	1.41	23.0
183	19.8	0.78	48.9			34.5	1.36	25.7
186	19.7	0.78	51.2			34.9	1.37	25.2
186-2	21.2	0.83	46.5	38.4	1.51	35.7	1.41	21.5
193	20.6	0.81	48.0			35.3	1.39	23.3
207	20.5	0.81	47.5			35.5	1.40	20.7
208	21.3	0.84	45.0			35.7	1.41	18.0
238								(8.2)
271	20.1	0.79	50.6	38.1	1.50	34.8	1.37	26.4
272	18.8	0.74	45.9	34.8	1.37	32.8	1.29	24.0
288	20.6	0.81	47.8	38.4	1.51	35.8	1.41	(8.0)
Average	19.94	0.785	48.8	37.18	1.464	34.66	1.365	24.1
Median	20.0	0.787	48.6	37.34	1.47	34.57	1.361	24.0
StdDev	0.89	0.035	3.59	1.42	0.056	0.94	0.037	3.15
CV	4.48	4.476	7.37	3.83	3.828	2.7	2.698	13.05
Min	18.1	0.71	40.2	33.8	1.33	32.8	1.29	17.2
Max	22.2	0.87	59.1	39.5	1.56	36.6	1.44	30.6
n	42	42	37	21	21	42	42	41

AFIS L						Length
Lab.	W					SFC %
	ML		CV %	UQL		
	mm	inch		mm	inch	
7	23.1	0.91	38.0	28.7	1.13	12.4
21	23.9	0.94	31.4	28.6	1.13	6.6
22	24.4	0.96	35.8	29.7	1.17	
24	24.5	0.96	34.1	29.6	1.17	6.9
31	25.7	1.01	34.0	30.9	1.22	
32	24.0	0.94	35.8	29.3	1.15	8.7
38	25.3	1.00	33.8	30.5	1.20	
39	23.2	0.91	36.0	28.6	1.13	10.2
41	24.1	0.95	33.2	29.2	1.15	7.7
43	25.1	0.99	36.5	30.5	1.20	8.6
51	(19.6)	(0.77)	(48.8)	29.8	1.17	7.0
58	23.9	0.94	36.0	29.4	1.16	9.9
62	24.6	0.97		30.2	1.19	8.0
75	25.7	1.01	37.5	31.4	1.24	8.5
90	25.4	1.00	34.3	30.6	1.20	7.1
91	24.0	0.94	36.2	29.3	1.15	8.5
100	22.3	0.88		29.8	1.17	12.4
101	24.4	0.96	33.6	29.5	1.16	7.6
102	24.7	0.97	33.8	29.6	1.17	7.6
105	24.6	0.97	36.4	30.2	1.19	9.3
109	25.1	0.99	34.6	30.4	1.20	
111	24.6	0.97	35.4	30.0	1.18	9.0
123	24.4	0.96	34.6	29.6	1.17	8.5
123-2	24.4	0.96	35.8	30.0	1.18	8.4
123-3	23.6	0.93	37.6	29.3	1.15	10.2
129	26.0	1.02	34.3	31.6	1.24	6.6
134	24.6	0.97		29.7	1.17	8.2
142	23.4	0.92		28.4	1.12	8.4
143	25.2	0.99	35.3	30.6	1.20	8.4
148	24.3	0.96		29.8	1.17	
148-2	24.1	0.95		29.6	1.17	8.5
154	25.3	1.00	32.1			6.7
163	25.6	1.01	34.7	31.3	1.23	7.7
176	26.4	1.04	31.2	31.3	1.23	9.0
183	24.6	0.97	35.9	30.0	1.18	9.4
186	24.8	0.98	35.6	30.3	1.19	8.0
186-2	25.9	1.02	33.1	31.0	1.22	6.9
193	25.2	0.99	35.0	30.2	1.19	7.9
207	25.1	0.99	34.7	30.4	1.20	6.6
208	25.6	1.01	33.4	30.7	1.21	5.6
238				29.9	1.18	
271	25.1	0.99	35.8	30.5	1.20	9.0
272	22.9	0.90	34.9	27.9	1.10	9.4
288	25.3	1.00	34.6	31.0	1.22	
Average	24.63	0.97	34.86	29.98	1.18	8.36
Median	24.64	0.97	34.8	29.97	1.18	8.4
StdDev	0.89	0.035	1.57	0.83	0.033	1.46
CV	3.63	3.632	4.51	2.78	2.782	17.43
Min	22.3	0.88	31.2	27.9	1.10	5.6
Max	26.4	1.04	38.0	31.6	1.24	12.4
n	42	42	36	43	43	37

AFIS D / M			Diameter, Maturity				
Lab.	D (N) µm	CV (D(N)) %	Fineness mtex	IFC %	Mat. Ratio		
22	12.6		148	9.3	0.82		
24			153	7.4	0.89		
31			149	7.7	0.85		
32			149	6.5	0.87		
38			141	6.2	0.85		
41							
43			155	6.3	0.9		
51			144	7.0	0.83		
58			143	10.5	0.79		
62			134	10.3	0.76		
75			150	8.5	0.85		
90			148	7.1	0.87		
91			147	7.4	0.86		
100			159		0.81		
101			150	7.6	0.88		
102			146	9.7	0.83		
105			143	8.9	0.82		
111			146	6.7	0.88		
123			147	9.8	0.84		
123-2			141	9.3	0.84		
123-3			151	7.7	0.87		
129			(102)	(33.4)	(0.54)		
134			147	8.0	0.85		
143			152	6.3	0.9		
148			149	7.1	0.88		
148-2			146	8.3	0.84		
154			133	13.6	0.78		
176			147	11.7	0.85		
183			149	7.9	0.86		
186			134	11.3	0.79		
186-2			143	9.6	0.79		
193			149	7.2	0.87		
207			141	10.3	0.82		
208	144	11.1	0.82				
238	146	7.3	0.88				
271	139	11.5	0.75				
272	10.7						
288			146	7.7	0.89		
Average			146.0	8.61	0.842		
Median			147.0	7.95	0.85		
StdDev			5.60	1.85	0.039		
CV			3.8	21.49	4.626		
Min			133	6.2	0.75		
Max			159	13.6	0.9		
n	2	0	35	34	35		

AFIS T				Trash
Lab.	Mean Diam. µm	Trash Cnt/g	Dust Cnt/g	V. F. M. %
21	218	63	(819)	1.43
22	299	57	390	1.63
32	329	59	338	1.46
43	309	51	351	1.44
51	201	68	391	1.43
58	302	(508)	446	1.71
62	(927)	52	352	1.15
90	315	57	357	1.38
91	315	51	336	1.46
100		42	(2300)	
101	284	(546)	478	1.6
102	290	54	377	1.42
111	292	(455)	398	1.42
129	296	35	384	0.98
134	306	52	330	1.11
142	219	68	(891)	1.53
143	293	63	443	1.46
148	356	68	317	1.79
148-2	312	65	413	1.57
154	274	72	512	1.54
183	327	69	391	1.8
186	302	61	402	1.41
186-2	315	68	388	1.63
193	327	57	298	1.21
207	302	50	319	1.03
208	305	50	291	0.94
272	270	37	296	0.73
Average	294.3	57.0	374.9	1.395
Median	302.0	57.0	380.5	1.435
StdDev	35.79	10.10	57.03	0.268
CV	12.2	17.7	15.2	19.19
Min	201	35	291	0.73
Max	356	72	512	1.8
n	25	24	24	26

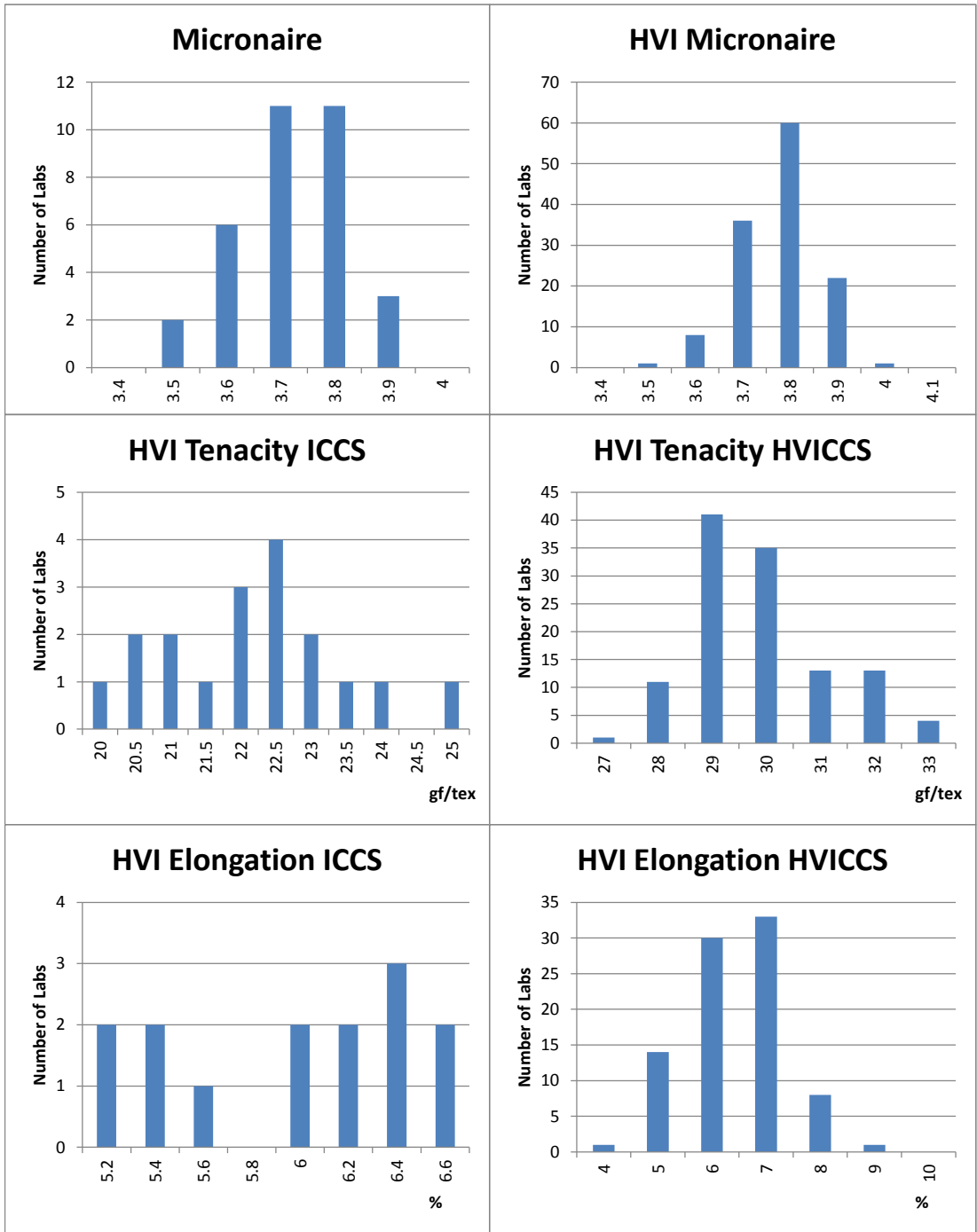
AFIS N		<i>(table is divided into 2 pages)</i>			Neps	
Lab.	Neps		SCN		Neps	SCN
	Mean Diameter μm	Cnt/g	Mean Diameter μm	Cnt/g		
7	794	215				
21	680	313				
22	722	268	1166		30	
24	751	317	1488		28	
31	719	272	1225		28	
32	724	279	1160		27	
38	676	243				
39	660	243				
41	669	265				
43	745	(408)	1330		33	
51	758	256	1450		30	
58	719	304	1138		17	
62	663	279	1343		30	
75	745	252	1214		28	
90	727	292	1343		23	
91	723	321	1294		22	
91-2	664	285				
100		(88)			7	
101	789	295	1311		(76)	
102	691	233	1038		30	
105	752	260	1338		23	
109	713	282	1189		19	
111	750	306	1227		36	
123	702	297	1090		27	
123-2	711	293	1007		26	
123-3	777	296	1271		45	
128		285				
129	(867)	206	1543		22	
132	667	260				
134	730	271	1187		35	
142	660	304				
143	716	306	1256		32	
148	719	248	1102		26	
148-2	699	280	1038		35	
148-3		245				
154	763	283	1424		38	
163	(855)	284.00	1270		(64)	
176	746	274	1160		38	
183	687	(460)	1089		16	
186	761	279	1151		45	
186-2	726	252	1196		23	
193	759	333	1553		31	
200	741	278	1378		29	
207	749	275	1369		32	
208	745	279	1287		30	
238	751	303	1343		26	

AFIS N		<i>(table is divided into 2 pages)</i>			Neps	
Lab.	Neps		SCN			
	Mean Diameter μm	Cnt/g	Mean Diameter μm	Cnt/g		
271	727	306	1151	22		
271-2	(923)	317	1475	(78)		
272	677	263				
288	696	318	814	16		
Average	721.4	279.0	1247.6	27.9		
Median	723.5	279.0	1241.5	28.0		
StdDev	35.97	27.70	157.21	7.85		
CV	5.0	9.9	12.6	28.1		
Min	660	206	814	7		
Max	794	333	1553	45		
n	44	47	38	36		

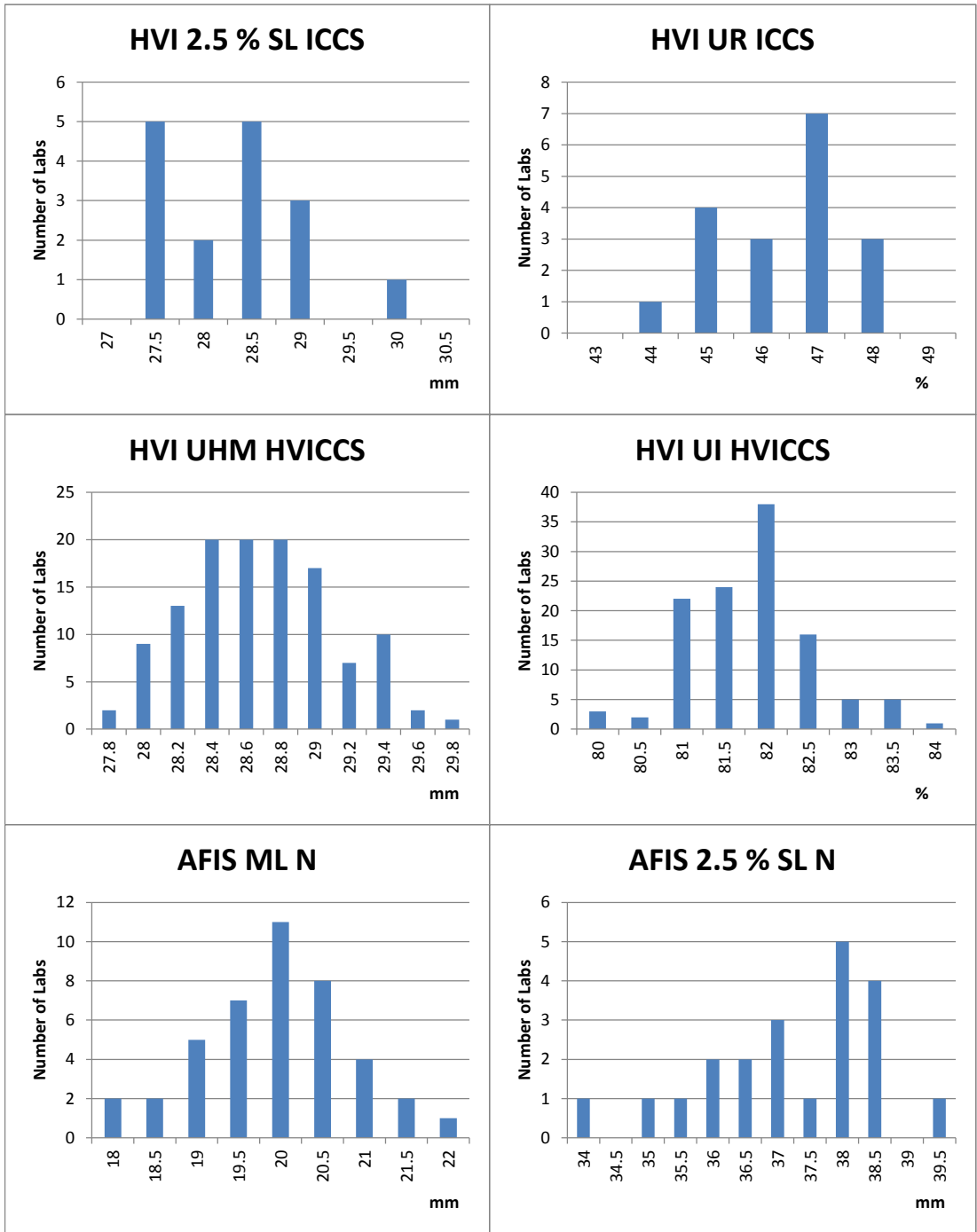
aQura <i>(further information see page "Multiple Devices")</i>						Length, Neps	
Lab.	Repetitions	5.0 % L (n)	50 % L (n)	SFC (n) <12.7 mm	SFC (w) <12.7 mm	Fibre Neps	SCN
		mm	mm	%	%	Cnt/g	Cnt/g
114	3	29.3		31.9	15.6	280	29
116	4	30.9	18.3	22.7	3.8	339	62
127	4	30.1	17.9	25.4	12.9	194	18
130	5	30.6	19.1	18.8	8.2	238	51
146	4	29.6		28.1	13.2	270	30
213	5	31.0	17.8	26.9	12.5	100	13
234	4	31.7		24.4	10.0	243	44
251	5	30.6	(25.1)	(6.5)	2.1	343	42
277	4	(35.1)	19.5	23.2	8.5	224	35
300	4	30.6		21.3	9.5	245	43
Average		30.49	18.52	24.74	9.62	247.6	36.7
Median		30.61	18.32	24.4	9.75	244.0	38.5
StdDev		0.73	0.72	3.89	4.24	70.19	14.85
CV		2.39	3.91	15.73	44.08	28.3	40.5
Min		29.3	17.8	18.8	2.1	100	13
Max		31.7	19.5	31.9	15.6	343	62
n		9	5	9	10	10	10

Multiple Devices <i>(information not provided in the respective table)</i>					General
Lab.	Device	Manufacturer	Instrument	Std. Test Method	Repetitions
8	DigitalFibrograph		730		10
28	DigitalFibrograph		CCS		10
28	FMT		CCS		5
35	DigitalFibrograph	USTER	730		6
37	FMT				
56	Causticaire		Micronaire	JIS	2
58	ALMeter			internal	3
70	GravFineness	SDL	MK.1	ISO 1973-95	5
70	FMT	SDL	MK.1	ASTMD3818-92	6
79	GravFineness			RSTUz620-94	
93	DigitalFibrograph			ASTM1447	4
93	FMT		WIRA	ISO	4
102	DigitalFibrograph			ICCS	5
102	FMT		FMT 3	ICCS	2
114	aQura	Premier			3
116	aQura	Premier			4
127	aQura	Premier			4
128	FMT		Micromat	ASTM	8
129	Causticaire		Microscope	IS 236	4
130	aQura	Premier			5
131	DigitalFibrograph		530	ASTM	6
131	CombSorter		Keisokki	manual	6
131	Causticaire		Fibroscope	British	
132	DigitalFibrograph		Fibrotest	ASTMD1447	10
132	ALMeter		AL100	DIN 53806	5
136	DigitalFibrograph		630	internal	10
143	DigitalFibrograph	USTER	330	ABNTNBR13154-94	2
146	aQura	Premier			4
177	Causticaire			DIN53943-4	3
177	GravFineness			ASTMD1577-90	4
186	FMT	SDL		USDA	6
193	GravFineness			GB/T6100-07	2
213	aQura	Premier			5
234	aQura	Premier			4
251	aQura	Premier			5
277	aQura	Premier			4
300	aQura	Premier		ASTM	4

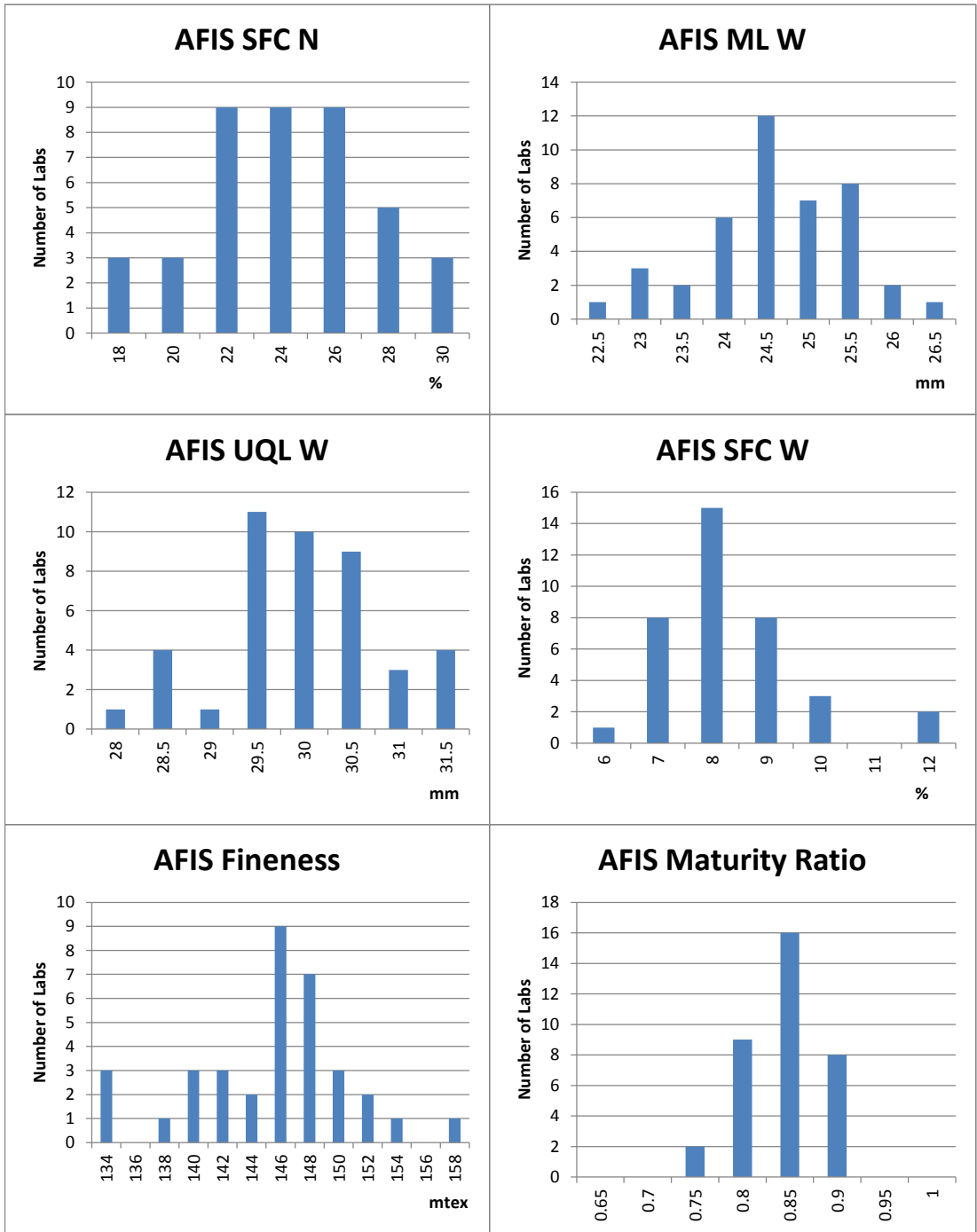
Graphics of selected round test data



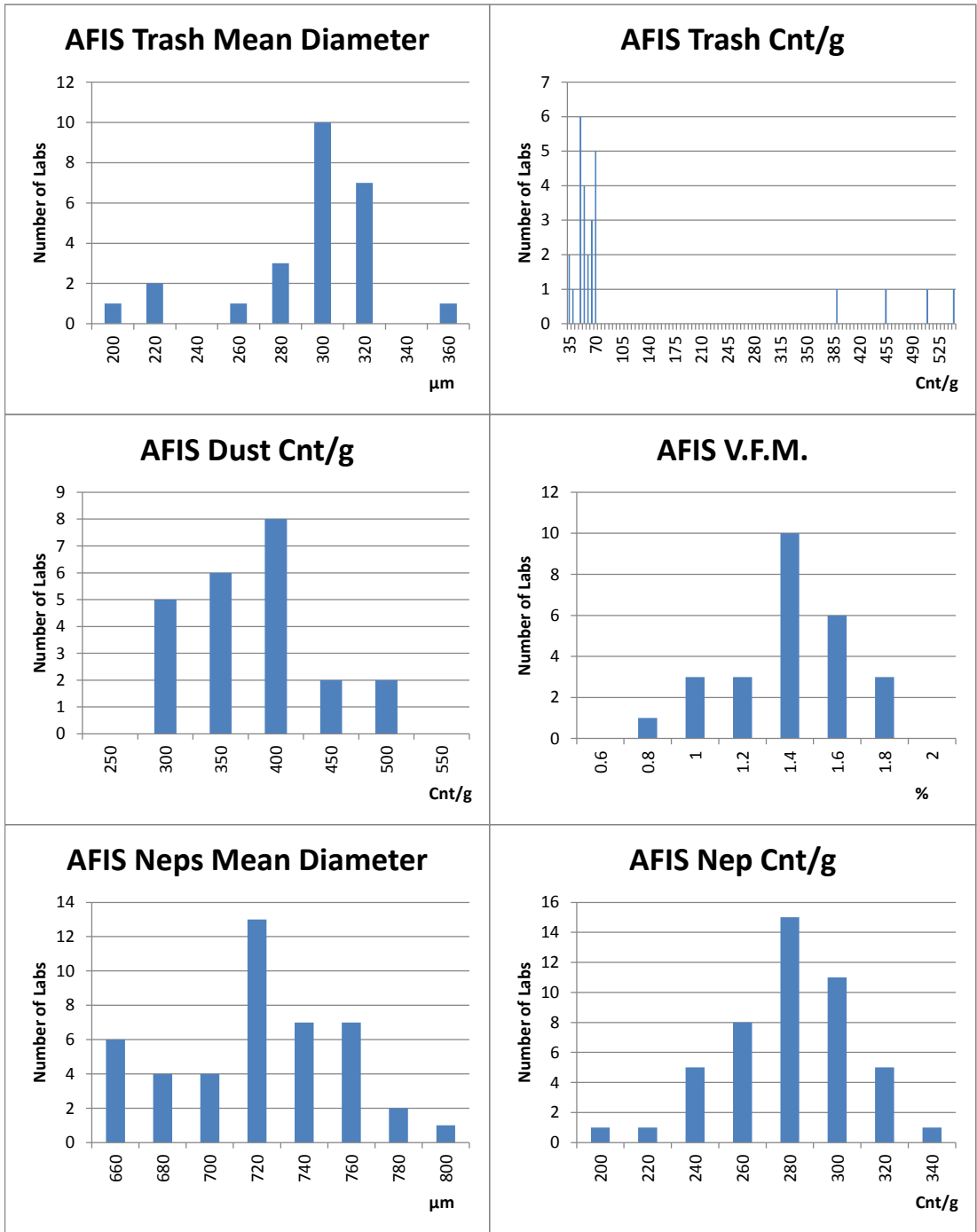
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