



**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, 18.12.2013

### Evaluation of the Test Results 2013 / 3

Tested Cotton:  
Cotton Number:

**Spain**  
**RM 49**

Number of Laboratories: **124**

Argentina	2	Mozambique	-
Australia	1	The Netherlands	-
Bangladesh	1	Pakistan	4
Brazil	4	Poland	2
China, PR	20	Portugal	-
Czech Republic	4	Russia	2
Egypt	3	Serbia	1
France	1	Slovenia	2
Germany	10	South Africa	-
Greece	7	Spain	3
Hungary	-	Sudan	1
India	29	Switzerland	3
Iran	-	Tanzania	1
Israel	1	Thailand	4
Italy	1	Turkey	2
Japan	2	Uganda	1
Kazakhstan	1	United Kingdom	1
Korea, R	1	United States	3
Latvia	-	Uzbekistan	2
Mali	1	Vietnam, SR	2
Mauritius, Rep of	1	Zimbabwe	-

For any questions, please mail to [gerardi@faserinstitut.de](mailto:gerardi@faserinstitut.de)

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## ICA Bremen Cotton Round Test 2013-3

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

### 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: **Spain (RM 49)**

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 11 different boxes with the following results:

HVI HVICCS	SD between 11 boxes (based on 10 tests per box)	SD between single tests (based on 11 times 10 tests)
Mic	0,048	0,073
Strength, g/tex	0,636	1,230
Length, UHM, inch	0,0070	0,0234
Length, UHM, mm	0,180	0,593

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](mailto: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](mailto:gerardi@faserinstitut.de)

With kind regards,

Axel Drieling  
Hannelore Gerardi

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MICRONAIRE				
Lab.	Rep.	Mic.	Instrument	Standard Test Method
12		3.9	775	GB/T6498-05
17		3.8		
29	5	4.3	Sheffield	ISO 2403
35	3	3.9	775	
56	2	3.8	Fibronaire	JIS
67	4	3.9	Fibronaire	
76	3	3.8	RM 1070	
77		3.6		
79		4.0	Sheffield	ASTMD1448
93	4	4.0		ASTMD1448
102	3	3.8	Fibronaire	ICCS
116	4	3.6	STATEX	
126	4	3.9	FMT	ASTM
127		3.8	900-1	
128	8	4.0	Fibronaire	ASTM
129	4	4.0	Sheffield	BS 3181
131	6	3.8		ASTM
132	3	3.8	775	DIN 53941
133	2	3.7	Port-AR	
136	4	4.0	675	internal
142	3	4.0	804000	ISO
152	3	3.9		
155		4.2		DIN 53941
162	5	3.8	WIRA	
167	2	3.9	275	
168		4.0		
169	3	4.1	Sheffield	
177	3	3.9	DPM 60	DIN 53941
183	3	4.0	Fibronaire	ASTMD1448
201	2	4.0	275	
Average		3.9		
Median		3.9		
StdDev		0.15		
CV		3.96		
Min		3.6		
Max		4.3		
n		30		

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	5	8.5		ISO 3060				
35					6	31.5	7.3	
46	10	10.8	4.8	ISO 3060				
56	5	9.5		JIS				
76	5	9.0						
79		9.0		ASTMD1445				
93	6	9.6	4.3	ASTMD1445	6	30.7	6.8	ASTM 1445
102					5	28.4	7.3	ICCS
116					10	28.1	7.8	
128	8	8.4	5.5	ASTM	8	30.5	6.5	ASTM
131	6	10.4	5.1	ASTM	6	30.1	7.2	ASTM
136	4		(96.1)	internal				
152	6	8.6						
162	5	9.3			5	27.2	6.8	
177	5	8.9		DIN 53942				
206					10	25.9	7.1	DIN ISO3060
Average		9.27	4.93			29.04	7.11	
Median		9.03	4.96			29.23	7.16	
StdDev		0.78	0.51			1.95	0.4	
CV		8.38	10.32			6.72	5.66	
Min		8.4	4.3			25.9	6.5	
Max		10.8	5.5			31.5	7.8	
n		11	4			8	8	

Pressley	PI(0)	Av., gf/tex	49.69	StdDev, gf/tex	4.16	CV, %	8.38
	(3.2)	Av., gf/tex	33.51	StdDev, gf/tex	3.46	CV, %	10.32

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	6	33.6	1.32	15.5	0.61	46	21.5		3.1
28	10	33.6	1.32	15.2	0.60	45			1.3
35	3	34.7	1.36	16.6	0.65	48			2.4
93	4	35.0	1.38	17.7	0.70	51			
102	5	34.9	1.37	16.2	0.64	46			
116	5	33.7	1.33	16.5	0.65	49			
131	6	31.2	1.23	13.8	0.54	44			
136	10	32.5	1.28	(27.1)	(1.07)	(83)			7.5
143		33.8	1.33	16.3	0.64	48			
Average		33.66	1.325	15.96	0.628	47.2			
Median		33.74	1.328	16.25	0.64	47.2			
StdDev		1.21	0.048	1.16	0.046	2.1			
CV		3.60	3.596	7.29	7.291	4.5			
Min		31.2	1.23	13.8	0.54	44			
Max		35.0	1.38	17.7	0.70	51			
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	%	%
85	1	Joh.-Zweigle				31.4	32.5	8.7
85-2	1	Keisokki				27.2	34.8	8.9
85-3	1	Joh.-Zweigle				33.4	32.2	8.0

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	22.2	43.1	23.2	26.3	34.9	10.6	
132	5	24.8	37.6	14.1	29.6	29.1	4.7	
152	5	26.4	30.5	6.6	28.8	25.9	27.0	

Maturity, Fineness (further information see page "Multiple Devices")					
Lab	Fibrograph	Causticaire (18 % NaOH)	Microscopic Test		Gravimetric Fineness
	%	%	ASTM, %	BS, %	dtex
56		82			
79					1.51
85					1.49
85-2					1.46
85-3					1.57
129		83			
131		70			
177		89			1.58



IIC/SHIRLEY FM-TESTER <i>(further information see page "Multiple Devices")</i>				Maturity, Fineness
Lab.	Rep.	PM, %	MAT	FIN, mtex
93	4	84.1	0.99	154
102	2	74.8	0.84	180
128	8	75.0	0.84	174
Average				
Median				
StdDev				
CV				
Min				
Max				
n		3	3	3

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
4	USTER	900			1	2	2
5	USTER	1000 Line4	CCAA BMP	12	1	2	2
5-2	USTER	1000 Line5	CCAA BMP	12	1	2	2
6	USTER	1000			1	2	2
7	USTER			5	1	2	2
8	USTER	Spectrum I	ASTMD5867-05	6	1	2	2
12	USTER	Spectrum I	SN/T1512-11	12	1	1	1
15	USTER	900 SA			1	2	2
16	USTER	Spectrum	SN/T1512-05	12	1	1	1
19	USTER	1000	SN/T1512-11		1	2	2
24	USTER	Spectrum	USDA	10	1	2	2
27	USTER	900 A	ASTMD5867-05	6	1	2	2
28	Textechno	Fibrotest		10			
31	USTER	900			1	2	2
33	Premier	HFT	ICC	5	1	1	1
34	Premier	HFT			1	1	1
36	USTER	1000			1	2	2
38	USTER	1000				2	2
41	USTER	Spectrum		5	5	5	5
43	USTER	1000			1	2	2
44	USTER	Spectrum		10	1	1	1
48	Premier	HFT	ASTMD5867-05	8	1	2	2
49	USTER	1000			1	2	2
53	Premier	ART	GB/T20392-06	5	1	2	2
56	USTER	Spectrum I	HVI Test Method	5	1	2	2
58	USTER	Spectrum	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	900 A	USDA	10	1	2	2
60	USTER	1000			1	2	2
60-2	USTER	1000M700		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		10	1	2	2
79	USTER	900			1	2	2
80	USTER	1000		10	1	1	14
83	USTER	Spectrum	SN/T1512-11	6	1	2	2
84	USTER	1000	USDA	12	1	1	1
87	USTER	1000	ASTMD5867-05	8	1	2	2
87-2	USTER	Spectrum	ASTMD5867-05	8	1	2	
88	USTER	Spectrum	Manufacturer	6	1	2	2
89	USTER	1000		6	1	2	2
90	USTER	1000	ASTMD5867	10	1	2	2
91	USTER	1000	ISO	6	1	2	2
93	USTER	900 A	ASTM5867	6	1	2	2
97	Premier	ART		6	1	1	2
98	USTER	1000	USDA. ASTM	12	1	2	4
101	USTER	1000	ASTMD5867-05	6	1	2	2
101-2	Premier	ART 2	ASTMD5867-05	6	1	2	2
102	USTER	900 B	USDA	6	3	6	4
102-2	USTER	Spectrum I	USDA	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
102-3	USTER	SW700V3.1.3.18	USDA	6	6	6	6
104	USTER	1000			1	2	
105	USTER	Spectrum	Manufacturer	6	1	2	2
105-2	USTER	Spectrum	Manufacturer	10	1	2	2
107	Premier	ART 2	ASTM2005	6	1	2	2
108	USTER	1000	ASTMD5867-12	12	1	1	1
114	USTER	900 SA		6	1	2	
117	USTER	Spectrum	SN/T1512-11	12	1	1	1
118	USTER	1000M700	ASTMD5867-05	5	1	2	2
120	USTER	900 SA	ASTM	10	1	2	2
121	USTER	1000	SN/T1512-11		1	2	2
122	USTER	1000		5	1	2	2
123	USTER	Spectrum	ASTMD5867-05	10	1	1	1
126	Premier	HFT	ASTM	6	1	2	
127	Premier				1	2	2
128	USTER	1000	ASTMD5867-12	10		2	2
129	Premier	ART	ASTM5867	6	1	2	2
130	Premier	ART 2		6	1	2	2
131	USTER	Spectrum II	ASTM	6	1	2	2
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
148	USTER	1000		6	1	2	2
154	USTER	900 A		10	1	2	2
156	USTER	Spectrum 1	USDA. ASTM	6	1	2	2
158	USTER	900		6	1	2	2
158-2	USTER	900			1	2	2
162	USTER	900		6		2	
170	Premier	ART		4	1	2	2
172	USTER	900	ASTMD5867-05	6	1	2	2
176	USTER	1000	HVICC	10	1	2	2
179	USTER	1000	SN/T1512-11	6	1	2	2
183	USTER	1000	ASTMD5867-05	6	1	2	2
200	USTER	900 A	ASTMD5867	18	1	2	2
201	USTER	900		6	1	2	2
202	Premier	ART		10	1	2	2
204	USTER	Spectrum I	GB/T20392-06	10	1	2	
204-2	Premier	HFT	GB/T20392-06	10	1	2	2
204-3	USTER	1000	GB/T20392-06	10	1	2	2
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
207-5	USTER	1000	ASTMD5867-12	10	1	2	2
208	USTER	1000	ASTMD5867-12	10	1	2	2
208-2	USTER	1000	ASTMD5867-12	10	1	2	2
213	Premier	ART	ICC	6	1	2	2
219	Premier	HFT		8	1	2	2
223	Premier	ART	ICC	4	1	1	1
234	Premier	ART		6	1	1	2
237	USTER	Spectrum II	ASTM	6	1	2	2
238	Premier	ART	ICC		1	2	2
242	USTER	Spectrum		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
242-2	USTER	1000		6	1	2	2
251	Premier	ART	ICC	5	1	2	2
271	Premier	ART	internal	10	1	1	1
271-2	USTER	900	internal	10	1	1	1
272	Premier	ART			1	1	2
287	Premier	ART 2	USDA	10	1	2	2
289	Premier	ART	ICC	15	1	1	1
295	Premier	HFT		4	1	2	
299	Premier	HFT	ICC	15	1	1	
300	Premier	ART	ISO	6	1	2	2
315	Premier	HFT			1	2	
318	Premier	HFT			1	1	
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	3.9		39.6		7.5
5	4.0		40.8		6.4
5-2	3.9		40.7		7.9
6	4.1		34.9		5.5
7	4.0		37.1		4.6
8	4.1		37.8		(10.8)
12	3.9		38.2		6.6
15	4.0		32.6		(10.1)
16	4.0		37.7		5.6
19	4.0		37.8		7.1
24	3.9		37.9		5.6
27	4.2		37.0		5.4
28			39.5		
31	3.9	27.4	40.8	6.0	5.9
33	4.0	25.0		6.1	
34	4.1		42.0		6.4
36	3.8		37.7		5.7
38			40.1		(3.2)
41	4.0		35.3		6.3
43	4.1		37.1		5.4
44	4.0		39.5		7.9
48	3.8	25.8	33.8	6.8	7.0
49	4.0		39.5		6.3
53	3.9		40.0		7.1
56	3.9		39.4		5.8
58	3.9		37.0		5.1
59	4.0		38.1		
59-2	4.0		38.9		
59-3	4.1		38.2		
60	3.9		36.8		(10.2)
60-2	3.8		41.0		5.8
64	3.8		39.3		
68	4.0		36.9		
71	4.1		37.1		7.4
71-2	4.0		38.5		6.3
72	4.0		38.2		
75	4.0		37.4		(3.4)
78	4.0		36.3		
79	3.9		43.0		7.5
80	4.0		38.9		7.5
83	3.8		38.9		7.1
84	4.2		37.4		5.0
87	4.0		38.1		8.9
87-2	4.0		38.4		7.4
88	4.2		39.2		6.7
89	4.0		37.5		
90	3.9		36.8		7.0
91	3.9		35.2		5.3
93	3.9		41.1		6.8
97	3.9	28.7			
98	4.0		36.9		
101	4.0		37.3		6.0
101-2	3.9		41.8		7.1

HVI		(table is divided into 3 pages) Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
102	3.8		38.1		5.8
102-2	3.9		39.6		5.2
102-3	4.0		36.1		7.0
104	4.0		39.2		
105	3.9		39.5		7.9
105-2	3.9		40.5		7.3
107	3.7		36.6		7.2
108	4.0		40.6		6.6
114	3.7	29.9		7.2	
117	4.1		37.0		6.5
118	4.1		38.9		7.6
120	4.2		39.4		7.0
121	4.0		39.6		7.1
122	4.1		38.0		6.4
123	3.8	25.5	35.3	7.1	6.9
126	3.9		38.2		7.4
127	(4.8)		(30.0)		
128			39.0		6.5
129	4.0	30.7	40.7	5.7	5.7
130	4.1		37.6		6.4
131	4.1		37.8		7.6
134	3.8		37.7		7.2
135	4.0		33.7		5.8
143	3.9		36.7		6.6
143-2	4.0		38.6		6.9
148	3.8		36.3		4.7
154	3.9		37.9		7.4
156	4.0		36.7		8.2
158	3.9		39.4		6.2
158-2	3.9		40.7		8.0
170	4.0		38.1		6.9
172	3.8		37.4		6.2
176	4.2		37.7		6.8
179	4.1		37.8		5.5
183	4.0		37.7		8.0
200	3.9		38.0		
201	4.0		37.5		6.2
202	(4.3)		(27.4)		5.6
204	3.8		39.4		7.5
204-2	4.1		38.7		6.7
204-3	4.1		38.2		6.9
206	4.0		40.5		6.1
207	4.0		37.8		7.5
207-2	4.0		39.0		7.2
207-3	4.1		37.5		7.5
207-4	4.1		36.5		6.0
207-5	4.1		36.8		6.2
208	4.0		37.6		
208-2	3.9		37.8		7.8
213	3.9	25.6		6.7	
219	4.0		(44.1)		
223	4.1	27.7		7.0	
234	3.9		38.5		6.8

HVI		(table is divided into 3 pages) Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
237	4.1		40.6		6.4
238	3.8	26.6			
242	4.1		35.7		5.4
242-2	3.9		35.7		7.3
251	3.9	27.2		6.6	
271	3.9		37.7		(3.4)
271-2	4.1		33.5		(2.1)
272	4.1		37.4		(1.3)
287	3.9	26.2	40.4	7.8	6.8
289	3.8	27.0		6.7	
295	3.9	27.7		6.5	
299	4.0	28.2		6.5	
300	3.9		41.7		7.0
315	3.9	27.3			
318	4.1		35.3		
320	3.8	26.1		6.7	
Average	3.97	27.21	38.14	6.67	6.63
Median	3.97	27.2	38.0	6.7	6.75
StdDev	0.11	1.55	1.86	0.53	0.87
CV	2.66	5.68	4.88	7.94	13.16
Min	3.7	25.0	32.6	5.7	4.6
Max	4.2	30.7	43.0	7.8	8.9
n	117	17	107	14	86

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
4				33.4	1.31	86.3
5				34.8	1.37	85.1
5-2				34.6	1.36	85.2
6				34.9	1.37	84.1
7				34.0	1.34	85.6
8				33.8	1.33	83.9
12				34.9	1.37	85.2
15				(31.8)	(1.25)	85.7
16				34.6	1.36	85.4
19				34.5	1.36	84.5
24				33.9	1.33	84.5
27				33.7	1.33	84.7
28				33.3	1.31	86.0
31	33.8	1.33	49.1	33.8	1.33	(89.4)
33	34.3	1.35	51.0			
34				35.3	1.39	83.4
36				34.2	1.35	85.1
38				34.2	1.35	85.0
41				33.3	1.31	85.2
43				34.5	1.36	84.9
44				35.1	1.38	86.0
48	34.6	1.36	48.4	34.7	1.37	85.4
49				34.4	1.36	85.4
53				34.1	1.34	(28.0)
56				34.6	1.36	85.9
58				34.2	1.35	83.6
59				34.6	1.36	83.9
59-2				34.5	1.36	84.5
59-3				34.1	1.34	83.9
60				34.8	1.37	85.4
60-2				34.4	1.35	84.6
64				34.6	1.36	85.0
68				34.5	1.36	85.1
71				34.4	1.36	
71-2				33.9	1.34	
72				35.5	1.40	85.1
75				34.1	1.34	85.7
78				32.9	1.30	84.2
79				34.8	1.37	86.6
80				34.8	1.37	85.2
83				34.4	1.35	84.8
84				34.0	1.34	84.1
87				34.8	1.37	84.7
87-2				34.2	1.35	84.5
88				34.5	1.36	84.3
89				35.4	1.39	85.6
90				34.6	1.36	86.0
91				34.0	1.34	84.4
93				35.3	1.39	85.2
97	34.8	1.37	44.1			
98				34.3	1.35	85.0
101				34.0	1.34	85.7



HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
101-2				34.7	1.37	86.4
102				33.9	1.33	85.2
102-2				34.4	1.36	84.3
102-3				34.5	1.36	85.0
104				35.2	1.39	(0.9)
105				33.9	1.33	85.5
105-2				33.8	1.33	85.5
107				33.6	1.32	84.1
108				33.9	1.34	84.4
114	34.0	1.34	50.6			
117				33.7	1.33	84.0
118				34.3	1.35	85.9
120				34.6	1.36	84.5
121				34.8	1.37	85.2
122				33.7	1.33	85.5
123	34.7	1.37	45.4	34.0	1.34	84.9
126				34.7	1.37	83.8
127				33.1	1.31	
128				34.2	1.35	85.8
129	34.4	1.35	43.0	33.8	1.33	85.0
130				33.8	1.33	85.1
131				33.9	1.33	84.4
134				34.8	1.37	85.1
135				34.1	1.34	84.7
143				34.1	1.34	85.0
143-2				34.1	1.34	85.0
148				33.6	1.32	84.6
154				35.3	1.39	85.6
156				34.0	1.34	85.3
158				35.1	1.38	85.9
158-2				34.8	1.37	86.0
162				(28.2)	(1.11)	
170				34.4	1.36	85.2
172				34.0	1.34	83.8
176				34.3	1.35	85.1
179				33.6	1.32	83.6
183				35.1	1.38	86.2
200				34.5	1.36	85.5
201				33.5	1.32	84.4
202				(28.0)	(1.10)	(81.4)
204				34.0	1.34	85.1
204-2				33.7	1.33	86.2
204-3				34.5	1.36	85.3
206				33.3	1.31	85.4
207				34.3	1.35	84.3
207-2				34.3	1.35	84.9
207-3				34.1	1.34	86.2
207-4				34.0	1.34	85.4
207-5				34.2	1.35	85.8
208				34.0	1.34	85.3
208-2				34.1	1.34	84.3
213	33.9	1.34	45.7			

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
219				34.4	1.35	84.8
223	33.2	1.31	45.3			
234				34.1	1.34	84.8
237				34.6	1.36	85.6
238	34.7	1.37	48.5			
242				33.3	1.31	
242-2				34.2	1.35	
251	34.5	1.36	45.2			
271				34.0	1.34	83.6
271-2				34.5	1.36	85.6
272				34.1	1.34	84.6
287	34.4	1.35	44.3	34.5	1.36	86.5
289	34.2	1.34	47.3			
295	35.5	1.40	46.9			
299	34.2	1.35	47.5			
300				34.8	1.37	83.6
315	34.1	1.34	47.5			
318				34.8	1.37	85.1
320	34.7	1.37	45.0			
Average	34.34	1.352	46.75	34.28	1.350	85.02
Median	34.4	1.354	46.9	34.24	1.348	85.1
StdDev	0.5	0.020	2.28	0.51	0.020	0.73
CV	1.46	1.457	4.88	1.49	1.495	0.86
Min	33.2	1.31	43.0	32.9	1.3	83.4
Max	35.5	1.4	51.0	35.5	1.4	86.6
n	17	17	17	108	108	101

HVI <i>(table is divided into 3 pages)</i>				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
4	65	12.0	44-1	3	0.12	10
5	65	11.6	43-3	3	0.35	25
5-2	65	11.9	43-3	3	0.41	38
6	66	11.2	33	3	0.51	44
7	64	11.4	43-3		0.72	71
8	66	12.8			0.34	28
12	66	11.3	43-3	5	0.65	48
15	66	11.6	43-3	4	0.3	31
16	66	12.1	3	4	0.56	48
19	65	11.3	43-4	5	0.63	51
24	66	11.2	43-3			
27	65	11.4	43-4	4	(1.00)	51
31	(63)	11.2	53-3	4	0.69	65
33	64	10.4	53-1		(4.52)	
34	63	11.4	43-4			
36	66	11.5		9	(57.95)	59
38	66	11.3	43.3	5	0.64	61
41	63	11.8	43-4		0.65	44
43	66	11.0	43-2	4	0.61	50
44	67	11.5	43-3		0.46	4
48	66	10.4	43-2			
49	66	11.4	43-3	5	0.65	59
53	64	11.8	43-3	8	(1.83)	(97)
56	67	11.1	43-3	2	0.25	26
58	66	11.4	43-3	1	0.11	18
59	67	11.4	43-3	4	0.49	37
59-2	67	11.3	43-3	3	0.39	50
59-3	66	12.1	43-3	4		52
60	67	11.9	33-4	5	0.66	70
60-2	67	10.9	43-1	4	0.5	51
64	66	11.6	43-3	4	0.45	35
68	67	10.8	3	3	0.37	38
71	67	11.3			0.67	52
71-2	66	11.6			0.43	31
72	67	11.5	43-3		0.53	52
75	66	10.9	43-2		0.38	29
78	66	11.7	43-3	4	0.47	41
79	65	12.3	44-1	5	0.77	34
80	66	11.6	43-3	4	0.52	65
83	66	(13.2)		3	0.28	26
84	67	11.5	43-3	4	0.51	51
87	67	11.4	43-3	4	0.58	41
88		10.9	43-2	4	0.51	41
89	67	11.3	43-3	4	0.56	60
90	67	11.2	43-3		0.37	39
91	66	11.4	43-3	4	0.59	51
93	65	12.2	44-1	4	0.3	44
97	67	(9.5)	42-2			
98	66	11.3			0.48	43
101	66	10.9	43-3	4	0.56	53
101-2	66	11.7	43-3	2	0.16	21
102	66	11.3				
102-2	66	11.5	43-3		0.39	33

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
102-3	67	11.6	33-4	5	0.62	60
104	66	11.1	43-3		0.58	51
105	67	11.3	43-3	4	0.46	47
105-2	65	11.7	43-3	4	(1.70)	38
107	65	12.1	44-1			
108	67	11.4	43-3	4	0.58	57
117	66	11.9	43-3	3	0.39	33
118	67	11.3	43-3	4	0.61	82
120	65	10.7	43-2			
121	67	11.4	3		0.76	51
122	67	11.7	33	4	0.53	52
123	66	11.8	43-3	5	0.63	49
127	68	10.1	43-2	8	(1.45)	(98)
128	67	11.3			0.46	48
129	65	12.0	44-1			
130	65	11.1	43-4			
131	65	11.8			0.52	40
134	64	11.4	43-4	4	0.45	43
135	67	10.9	43-2	5	0.71	64
143	67	11.6	3	2	0.21	16
143-2	66	10.7	3	7	(1.49)	71
148	66	11.4	43-3	5	0.63	58
154	66	11.4	43-3	1	0.5	29
156	66	11.4	43-3			
158	66	11.0	43-4	3	0.2	10
158-2	66	10.9	43-2	4	0.5	29
170	66	11.1	4	8	(2.05)	(113)
172	67	11.2		3	0.36	32
176	67	10.3		5	0.65	63
179	66	11.0	43	4	0.57	48
183	64	11.6	43-4	3	0.27	29
200	65	11.6	43-4			
201	66	10.8	4	5	0.47	33
202	65	11.6	43-2			
204-2	(62)	10.7	53-3			
204-3	64	11.1	43-4	5	0.71	49
206	(62)	12.4	44-2			
207	67	11.1	43-3	4	0.5	47
207-2	67	11.2	43-3	4	0.59	45
207-3	67	11.4	43-3	5	0.71	55
207-4	67	11.5	43-3	3	0.33	42
207-5	67	11.3	43-3	5	0.63	55
208	67	11.1	43-3	4	0.58	38
208-2	67	11.2	43-3	3	0.33	42
213	66	10.8	43-2			
219	66	11.1	43-3			
223	69	12.8	24-2			
234	65	11.4	4	8	0.7	(108)
237	64	11.6	43-4	3	0.35	42
238	(61)	(13.2)	44-4			
242	67	10.6	43-1	4	0.52	34
242-2	68	11.0	43-1	4	0.57	59
251	(60)	12.1	54-1			

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
271	65	10.4	43-2	8	(1.72)	83
271-2	65	11.3	43-4			
272	67	12.0	33-4			
287	65	11.5	43-3			
289	66	10.8	43-2			
300	65	11.0	43-4			
320	(62)	11.3	53-3			
Average	66.0	11.37				
Median	66.1	11.4		0.51	45.0	
StdDev	1.0	0.47		0.154	15.3	
CV	1.5	4.17		30.947	34.3	
Min	63	10.1		0.11	4	
Max	69	12.8		0.77	83	
n	106	110		78	83	

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio		
4		2.8				
5		6.2			0.87	
5-2		3.8			0.85	
6		4.2			(0.70)	
7		5.8				
8		7.1			0.86	
12		5.5			0.89	
15		3.0	72			
16		7.4			0.9	
19		7.8			0.85	
24		6.7			0.89	
27		6.2			0.87	
28		1.3				
33	3.5				0.84	
34		3.5			0.86	
36		9.8				
38					0.86	
41		4.3			0.88	
43		6.1				
44		7.0			0.91	
48	3.6	3.5				
49		3.5			0.86	
53		5.6			0.84	
56		7.0				
58		7.7			0.89	
59		4.4			0.86	
59-2		4.9			0.86	
59-3		5.5	86			
60		6.8			0.83	
60-2		7.1			0.86	
64		5.1			0.9	
68		4.5			0.85	
71					0.85	
71-2					0.9	
72		4.8				
75		5.4			0.9	
78		9.0			0.83	
80		6.1			0.85	
84		5.9	87			
87		7.8			0.84	
87-2		8.0			0.91	
88		6.8			0.91	
89		5.3			0.85	
90		6.9			0.85	
91		3.6			0.86	
93		3.5				
97					0.86	
101		7.3			0.86	
101-2		5.9	1			
102-2		5.9			0.9	
102-3		6.6			0.85	
104		4.8	86			
105		6.5				

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio		
105-2		3.5				
107		4.9			0.88	
108		6.4			0.86	
114	3.5					
117		6.7			0.9	
118		6.1			0.83	
120		3.8	85			
121		7.5			0.85	
122		6.3	7		0.86	
123	(6.0)	6.7				
126		4.2			0.86	
127		6.0			0.84	
128		5.8	77		0.86	
130		6.1			0.91	
131		8.1			0.93	
134		5.2			0.85	
135		4.9				
143		5.3			0.89	
143-2		4.2			0.85	
148		5.4			0.86	
154		2.2				
156		7.3			(0.95)	
158		5.1			0.85	
158-2		5.5			0.84	
170		3.5			0.85	
172		4.9			0.89	
176		6.5			0.86	
179		4.8			0.87	
183		4.5			0.85	
200		3.0				
201		6.0			0.86	
202		9.4			0.83	
204		4.5			0.9	
204-2		6.1			0.85	
204-3		3.7			0.86	
207		7.2			0.85	
207-2		6.3			0.85	
207-3		5.6			0.85	
207-4		7.0			0.86	
207-5		7.7			0.86	
208		6.2			0.85	
208-2		5.7			0.85	
213	3.5					
219					0.86	
223	3.5					
234		3.5			0.84	
237		5.4			0.91	
238					0.84	
242		5.9			0.89	
242-2		5.0			0.85	
251	3.5				0.85	
271		4.6				
272		3.5			0.85	

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %		Maturity Ratio	
289	3.5					
295	3.5				0.85	
299	3.5					
300		3.5			0.85	
315	4.6				0.85	
318		3.8			0.85	
320	5.0				(0.78)	
Average	3.75	5.56	62.6		0.864	
Median	3.5	5.6	80.8		0.86	
StdDev	0.53	1.59	36.5		0.023	
CV	14.15	28.59	58.4		2.652	
Min	3.5	1.3	1		0.83	
Max	5.0	9.8	87		0.93	
n	11	97	8		83	



AFIS				General
Lab.	Manufacturer	Instrument	Std. Test Method	Repetitions
4	USTER			10
5	USTER	720		5
7	USTER			5
21	USTER	1190064	ISO-9001	5
24	USTER		USDA	10
27	USTER	Neptester 720		5
31	USTER			5
38	USTER			
39	USTER			6
41	USTER			5
43	USTER			5
44	USTER	AFIS Pro	internal	10
51	USTER	AFIS Pro 2	ISO-9001	5
58	USTER		internal	10
59	USTER			5
75	USTER		ASTMD5866-12	5
80	USTER			10
88	USTER	AFIS Pro	Manufacturer	5
90	USTER			10
91	USTER	AFIS Pro 2		10
91-2	USTER	MN100		10
101	USTER	296350	PAF02-11-05	5
102	USTER		ICCS	3
105	USTER		Manufacturer	6
105-2	USTER		Manufacturer	10
114	USTER	AFIS Pro		4
118	USTER		ASTMD5866-05	5
120	USTER		ASTM	10
122	USTER	506198		3
123	USTER		ASTMD5866-05	10
123-2	USTER	AFIS Pro	ASTMD5866-05	10
123-3	USTER	AFIS Pro 2	ASTMD5866-05	10
128	USTER		ASTM	5
134	USTER	AFIS Pro	ASTMD5848-95	5
143	USTER		ASTMD5866	5
148	USTER	AFIS Pro 2		10
148-2	USTER	AFIS Pro		10
148-3	USTER	Neptester 720		10
154	USTER			10
158	USTER			5
172	USTER		ASTMD5866-05	5
176	USTER			10
183	USTER	AFIS Pro	ASTMD5866-05	5
200	USTER			
207	USTER	AFIS Pro	ASTMD5866-05	10
208	USTER	AFIS Pro	ASTMD5866-05	
238	USTER	AFIS Pro		
271	USTER		internal	10
272	USTER			5

AFIS L								Length
Lab.	N							
	ML		CV	2.5 %		5%		SFC
	mm	inch	%	mm	inch	mm	inch	%
4	21.2	0.83	60.4	44.1	1.74	41.0	1.61	32.6
7	20.8	0.82	60.1	44.2	1.74	41.1	1.62	30.3
21	22.3	0.88	50.2	42.4	1.67	39.7	1.56	22.9
24	26.0	1.02	41.5			41.1	1.62	13.7
31	24.4	0.96	47.9	43.9	1.73	41.1	1.62	19.6
38	23.7	0.93	53.3	44.2	1.74	41.5	1.63	22.8
39	20.7	0.81	59.4	42.5	1.67	39.6	1.56	29.6
41	23.5	0.93	48.0	43.0	1.69	40.2	1.58	19.9
43	22.6	0.89	(7.2)			41.9	1.65	25.8
44	23.7	0.93	48.7			41.2	1.62	20.1
51	22.6	0.89	54.0			39.4	1.55	23.7
58	23.0	0.91	50.5	43.0	1.69	40.2	1.58	22.5
75	23.7	0.93				41.3	1.63	21.5
80	19.1	0.75	(69.1)			(8.5)	(0.33)	37.0
88	24.0	0.94				41.2	1.62	18.4
90	21.9	0.86	56.8	43.0	1.69	40.4	1.59	27.1
91	23.5	0.93	50.6			40.6	1.60	20.6
101	22.8	0.90	55.5	45.1	1.78	42.0	1.65	27.0
102	24.4	0.96	48.6	43.8	1.72	41.1	1.62	20.8
105	23.6	0.93	53.5	44.7	1.76	41.9	1.65	24.5
105-2	25.1	0.99	45.5	45.5	1.79	41.9	1.65	17.2
114	24.3	0.96		43.6	1.72	40.7	1.60	19.7
118	25.8	1.02	44.8	45.3	1.78	42.6	1.68	16.1
120	21.0	0.83	56.9			38.8	1.53	28.2
122	23.3	0.92	48.4			39.7	1.56	18.6
123	23.7	0.93	49.1			40.7	1.60	21.3
123-2	23.1	0.91	53.4			41.1	1.62	22.9
123-3	21.4	0.84	56.0			39.0	1.54	26.2
134	23.6	0.93				40.1	1.58	21.9
143	22.3	0.88	57.5	43.8	1.72	40.8	1.61	26.8
148	22.8	0.90	50.9			39.9	1.57	21.8
148-2	23.7	0.93	50.6			41.4	1.63	21.3
154	23.9	0.94	48.5	42.0	1.65	39.4	1.55	19.8
158	21.7	0.85	57.7	42.5	1.67	39.7	1.56	28.2
172	26.4	1.04	44.2	45.2	1.78	42.7	1.68	15.7
176	23.1	0.91	53.4	44.5	1.75	41.4	1.63	23.5
183	23.4	0.92	50.3			40.9	1.61	22.1
207	23.8	0.94	49.8			41.0	1.61	19.5
208	23.8	0.94	48.7			40.6	1.60	18.7
271	22.4	0.88	55.0	43.4	1.71	40.6	1.60	26.8
272	21.8	0.86	53.7	43.2	1.70	39.6	1.56	24.4
Average	23.12	0.91	51.81	43.77	1.723	40.73	1.603	22.95
Median	23.37	0.92	50.6	43.8	1.724	40.85	1.608	22.1
StdDev	1.47	0.058	4.65	1.01	0.04	0.93	0.037	4.71
CV	6.37	6.368	8.97	2.31	2.307	2.29	2.291	20.54
Min	19.1	0.75	41.5	42.0	1.65	38.8	1.53	13.7
Max	26.4	1.04	60.4	45.5	1.79	42.7	1.68	37.0
n	41	41	35	22	22	40	40	41

AFIS L						Length
Lab.	W					SFC %
	ML		CV %	UQL		
	mm	inch		mm	inch	
4	28.9	1.14	40.1	36.4	1.43	
7	28.3	1.11	38.0	35.7	1.41	
21	27.9	1.10	34.6	34.6	1.36	7.2
24	30.5	1.20	29.3	36.1	1.42	3.5
31	29.9	1.18	32.3	36.3	1.43	5.3
38	30.4	1.20	31.7	36.7	1.44	
39	28.0	1.10	35.9	34.9	1.37	7.8
41	28.8	1.13	32.5	35.1	1.38	5.5
43	29.7	1.17	(4.7)	36.6	1.44	7.0
44	29.4	1.16	33.6	36.0	1.42	5.7
51	(22.1)	(0.87)	33.8	35.7	1.41	5.7
58	28.8	1.13	33.7	35.3	1.39	6.4
75	30.1	1.19		36.5	1.44	4.7
80	27.9	1.10	36.5	34.5	1.36	8.5
88	29.6	1.16		36.2	1.42	4.6
90	28.9	1.14	34.1	35.4	1.39	6.8
101	29.7	1.17	36.4	37.2	1.46	
102	30.0	1.18	31.1	36.2	1.43	5.4
105	30.5	1.20	33.9	37.1	1.46	6.4
105-2	30.2	1.19	33.2	36.8	1.45	5.2
114	29.8	1.17		36.3	1.43	
118	30.9	1.22	30.9	37.2	1.46	4.2
120	27.7	1.09	35.6	34.3	1.35	7.8
122	28.8	1.13	32.0	34.8	1.37	4.5
123	29.4	1.16	32.8	35.5	1.40	6.0
123-2	29.6	1.17	33.5	36.3	1.43	5.5
123-3	28.1	1.11	34.6	34.4	1.35	6.6
134	29.5	1.16		35.6	1.40	5.8
143	29.6	1.17	33.4	36.1	1.42	6.1
148	28.7	1.13	33.3	35.0	1.38	5.7
148-2	29.8	1.17	33.3	36.4	1.43	5.6
154	29.6	1.17	29.4	35.0	1.38	4.3
158	28.9	1.14	33.7	35.2	1.39	6.9
172	31.5	1.24	29.6	37.6	1.48	3.8
176	29.7	1.17	33.9	36.3	1.43	5.9
183	29.2	1.15	34.7	35.8	1.41	6.4
207	29.7	1.17	32.3	36.1	1.42	4.7
208	29.5	1.16	31.9	35.6	1.40	4.5
238				36.2	1.43	
271	29.2	1.15	35.1	36.1	1.42	7.5
272	28.2	1.11	35.3	34.5	1.36	6.6
Average	29.36	1.156	33.6	35.84	1.411	5.83
Median	29.5	1.161	33.6	36.07	1.42	5.7
StdDev	0.87	0.034	2.28	0.83	0.033	1.2
CV	2.96	2.957	6.78	2.32	2.317	20.51
Min	27.7	1.09	29.3	34.3	1.35	3.5
Max	31.5	1.24	40.1	37.6	1.48	8.5
n	39	39	35	41	41	35

AFIS D / M		Diameter, Maturity			
Lab.	D (N) µm	CV (D(N)) %	Fineness mtex	IFC %	Mat. Ratio
4			157	6.8	0.92
24			152	7.0	0.91
31			146	7.5	0.88
38			133	7.2	0.83
41	12.3				
43			142	5.9	0.93
44			148	5.8	0.9
51			138	6.6	0.86
58			144	9.6	0.83
75			166	4.0	0.98
80			158	8.3	0.93
88			157	5.1	0.93
90			151	6.3	0.91
91			154	5.1	0.95
102			145	10.4	0.85
105			150	7.2	0.89
105-2			142	10.0	0.86
114			152	6.1	0.93
118			152	5.4	0.91
120			169	7.0	0.95
122			160	5.5	0.94
123			152	8.7	0.88
123-2			145	6.9	0.91
123-3			146	6.0	0.9
134			159	4.9	0.95
143			141	6.5	0.87
148			152	5.4	0.92
148-2			152	5.5	0.94
154			134	11.4	0.83
158			145	8.7	0.87
172			147	6.3	0.89
176			152	5.5	0.92
183			143	5.9	0.91
207			147	7.5	0.9
208			148	8.6	0.88
238			154	5.3	0.93
271			133	(13.0)	(0.76)
272	9.9				
Average			149.1	6.85	0.903
Median			149.0	6.5	0.91
StdDev			8.3	1.71	0.037
CV			5.5	24.9	4.105
Min			133	4.0	0.83
Max			169	11.4	0.98
n	2	0	36	35	35

AFIS T				Trash
Lab.	Mean Diam. µm	Trash Cnt/g	Dust Cnt/g	V. F. M. %
4	255	104	1024	2.64
21	194	69	1588	1.82
31	237	88	1020	1.98
38	257	126	1284	2.59
43	301	120	958	2.98
51	265	87	926	1.95
58	246	118	1279	2.47
88	243	104	1074	2.12
90	274	83	802	1.92
91	269	87	837	2.09
102	246	(174)	1821	(4.49)
105-2	245	(1091)	998	1.82
114	272	96	790	2.19
134	260	86	879	1.81
143	236	87	1144	1.96
148	260	98	951	2.07
148-2	293	148	1055	3.11
154	234	119	1400	2.56
158	238	135	1803	(331.00)
183	256	121	1185	2.36
207	251	89	1029	2.27
208	264	96	926	2.09
272	214	105	1761	2.74
Average	252.6	103.1	1153.7	2.264
Median	255.0	98.0	1029.0	2.12
StdDev	23.1	19.8	318.0	0.384
CV	9.1	19.2	27.6	16.984
Min	194	69	790	1.81
Max	301	148	1821	3.11
n	23	21	23	21

AFIS N		<i>(table is divided into 2 pages)</i>			Neps	
Lab.	Neps		SCN		Mean Diameter µm	Cnt/g
	Mean Diameter µm	Cnt/g	Mean Diameter µm	Cnt/g		
4	657	264				
5		175				
7	775	154				
21	701	251				
24	759	197	1217		28	
27					(246)	
31	740	260	1184		28	
38	744	194	1179		22	
39	641	134				
41	648	252				
43	739	291	1225		35	
44	746	242	1386		26	
51	744	261	(1)		41	
58	725	207	1192		18	
59	710	241	1137		16	
75	711	207	1171		24	
80	703	226	1001		25	
88	706	268	1102		33	
90	750	258	1257		36	
91	719	220	1182		27	
91-2	664	202				
101	775	219				
102	697	261	959		42	
105	706	177	1142		16	
105-2	715	254	1130		36	
114	694	242	1037		11	
118	724	144	1270		13	
120	634	168	1141		46	
122	735	229	1332		28	
123	695	194	1098		24	
123-2	686	192	886		26	
123-3	736	205	1239		21	
128		212				
134	728	199	1124		29	
143	710	245	1060		32	
148	716	224	1042		32	
148-2	717	194	985		28	
148-3		153				
154	742	268	1242		42	
158	740	294	1096		50	
172	738	199	1094		32	
176	728	235	1058		36	
183	704	275	1113		24	
200	755	216	1311		30	
207	735	279	1205		35	
208	748	226	1323		31	

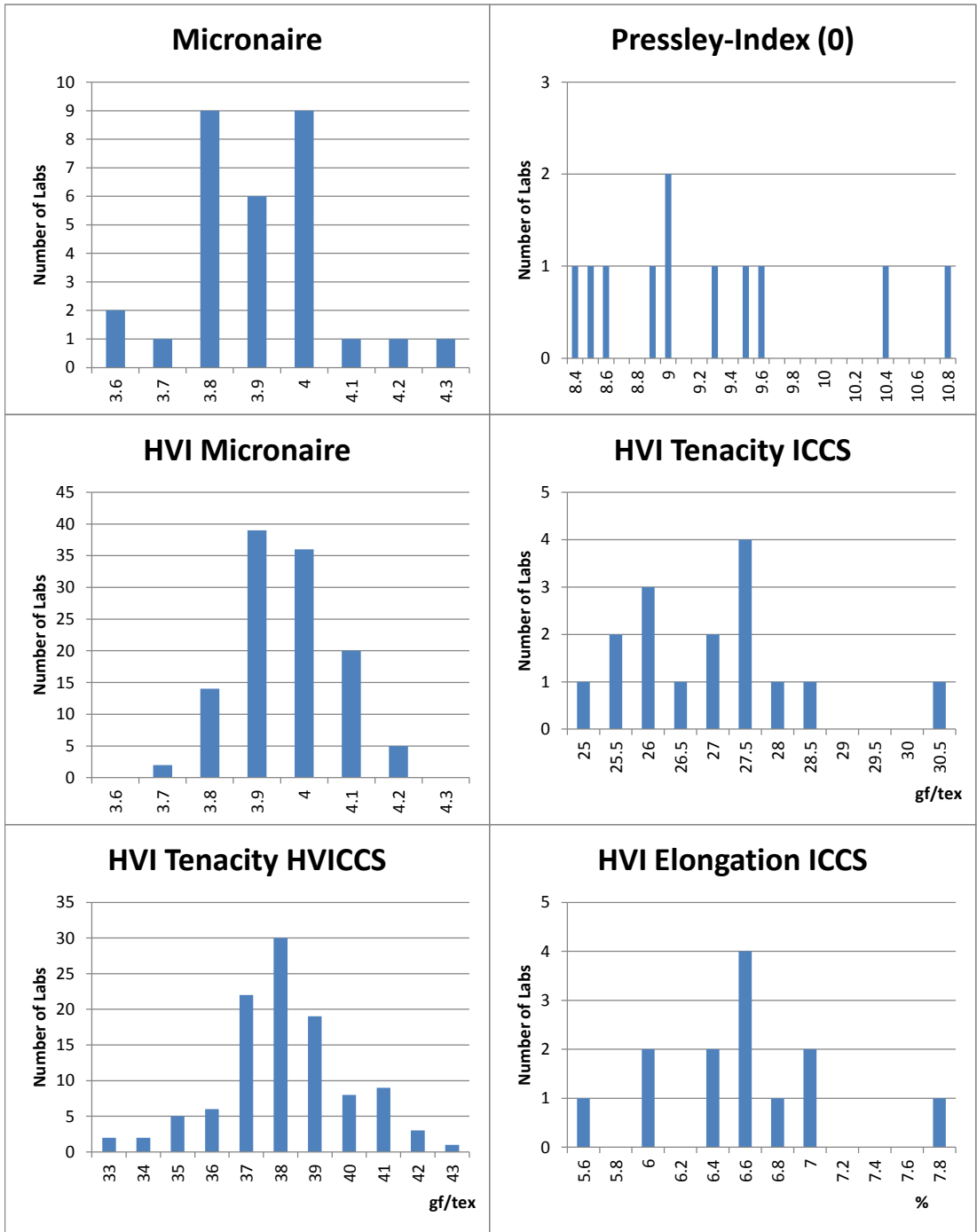
AFIS N		<i>(table is divided into 2 pages)</i>			Neps	
Lab.	Neps		SCN			
	Mean Diameter $\mu\text{m}$	Cnt/g	Mean Diameter $\mu\text{m}$	Cnt/g		
238	735	190	1190	26		
271	707	241	1254	21		
272	656	208				
Average	716.4	221.8	1154.6	28.9		
Median	719.0	222.0	1156.5	28.0		
StdDev	33.6	38.8	110.5	8.9		
CV	4.7	17.5	9.6	30.6		
Min	634	134	886	11		
Max	775	294	1386	50		
n	45	48	36	37		

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	36.8	18.6	32.8	9.2	101	12
97	4	37.4	21.0	16.8	6.2	252	(103)
101	4	36.1		27.5	11.1	253	34
116	4	36.5	19.6	23.6	8.7	186	30
130	4	36.4	23.7	20.2	8.4	149	21
170	4	35.8	20.7	23.5	9.8	146	26
213	5	36.2	20.0	22.5	9.3	100	11
234	4	36.2	21.9	19.0	7.8	130	25
251	5	35.6	23.4	15.6	6.0	248	26
300	4	36.9		19.8	7.5	183	34
Average		36.4	21.11	22.12	8.4	174.8	24.3
Median		36.31	20.85	21.37	8.56	166.0	26.0
StdDev		0.53	1.79	5.13	1.58	59.8	8.4
CV		1.47	8.49	23.2	18.78	34.2	34.6
Min		35.6	18.6	15.6	6.0	100	11
Max		37.4	23.7	32.8	11.1	253	34
n		10	8	10	10	10	9

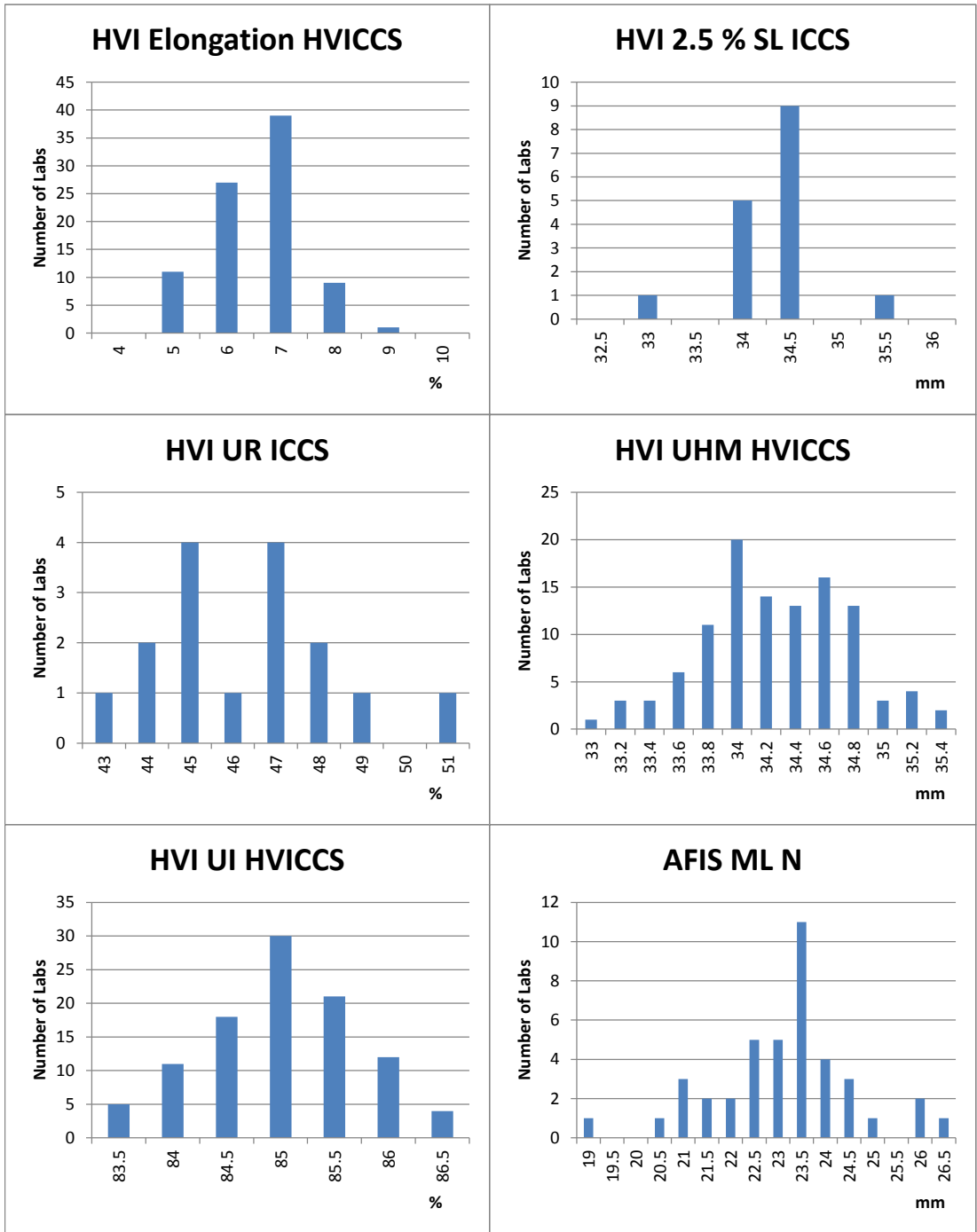


Multiple Devices <i>(information not provided in the respective table)</i>					General
Lab.	Device	Manufacturer	Instrument	Std. Test Method	Repetitions
8	DigitalFibrograph		730	ASTM1447	6
28	DigitalFibrograph		Fibrotest		10
35	DigitalFibrograph	USTER	730		3
53	aQura	Premier			4
56	Causticaire		Micronaire	JIS	2
58	ALMeter	Peyer		internal	3
79	GravFineness			RSTUz620-94	4
85	CombSorter	Joh.Zw.		UNI10170-94	1
85	GravFineness			UNIENISO1973-98	5
85-2	GravFineness			UNIENISO1973-98	5
85-2	CombSorter		Keisokki	UNI10170-94	1
85-3	CombSorter		Joh.-Zweigle	UNI10170-94	1
85-3	GravFineness			UNIENISO1973-98	5
93	DigitalFibrograph			ASTM1447	4
93	FMT		WIRA	ISO	4
97	aQura	Premier			4
101	aQura	Premier			4
102	DigitalFibrograph		530	ICCS	5
102	FMT		FMT 3	ICCS	2
116	DigitalFibrograph		Auto Span AS101		5
116	aQura	Premier			4
128	FMT		Micromat	ASTM	8
129	Causticaire		Microscope	IS 236	4
130	aQura	Premier			4
131	Causticaire		Fibroscope	British	
131	DigitalFibrograph		530	ASTM	6
132	ALMeter	Peyer	AL100	DIN 53806	5
136	DigitalFibrograph		630	internal	10
143	DigitalFibrograph	USTER	330	ABNTNBR13154-94	
152	ALMeter	Peyer			5
170	aQura	Premier			4
177	Causticaire			DIN53943-4	3
177	GravFineness			ASTMD1577-90	4
213	aQura	Premier			5
234	aQura	Premier			4
251	aQura	Premier			5
300	aQura	Premier		ISO	4

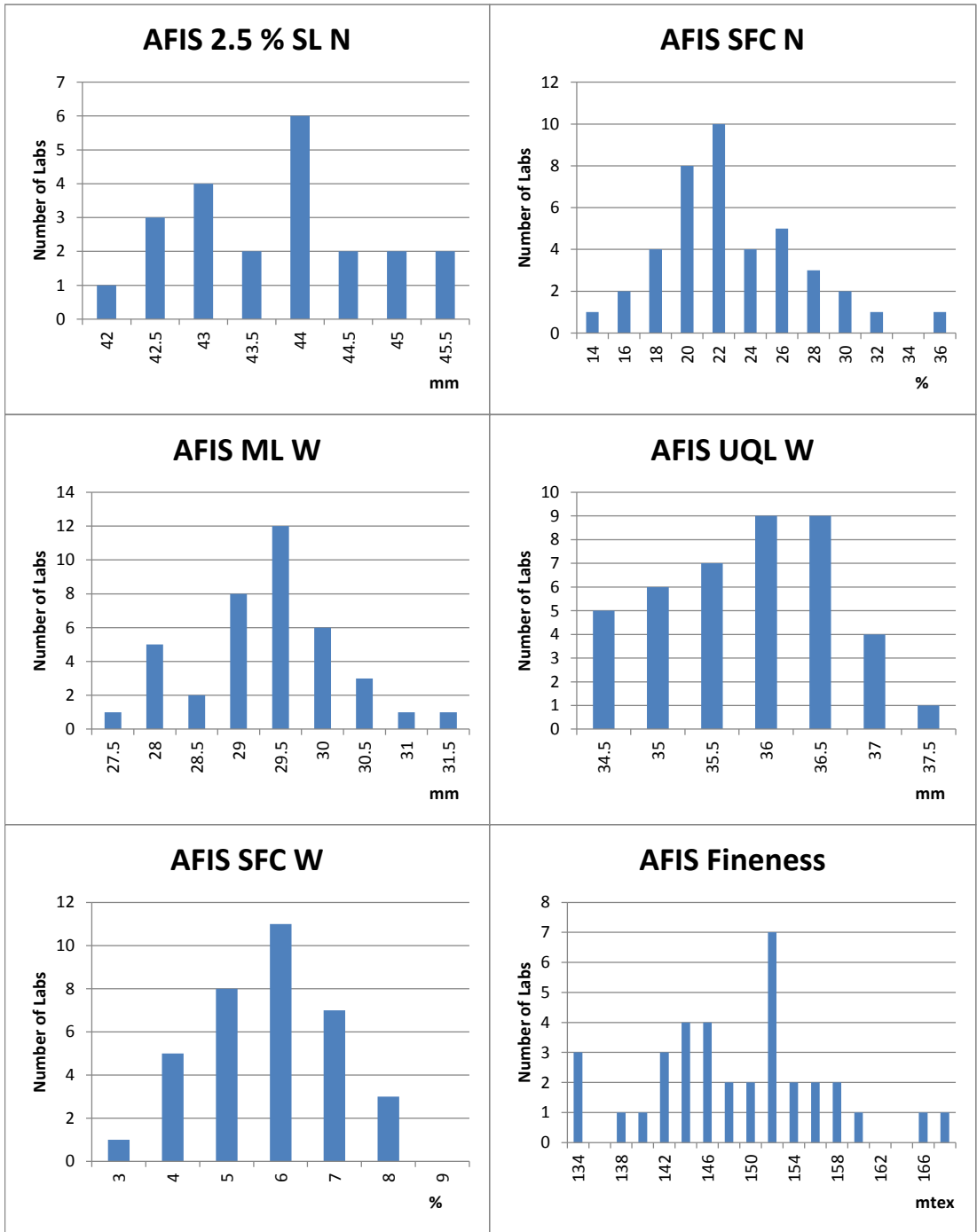
Graphics of selected round test data



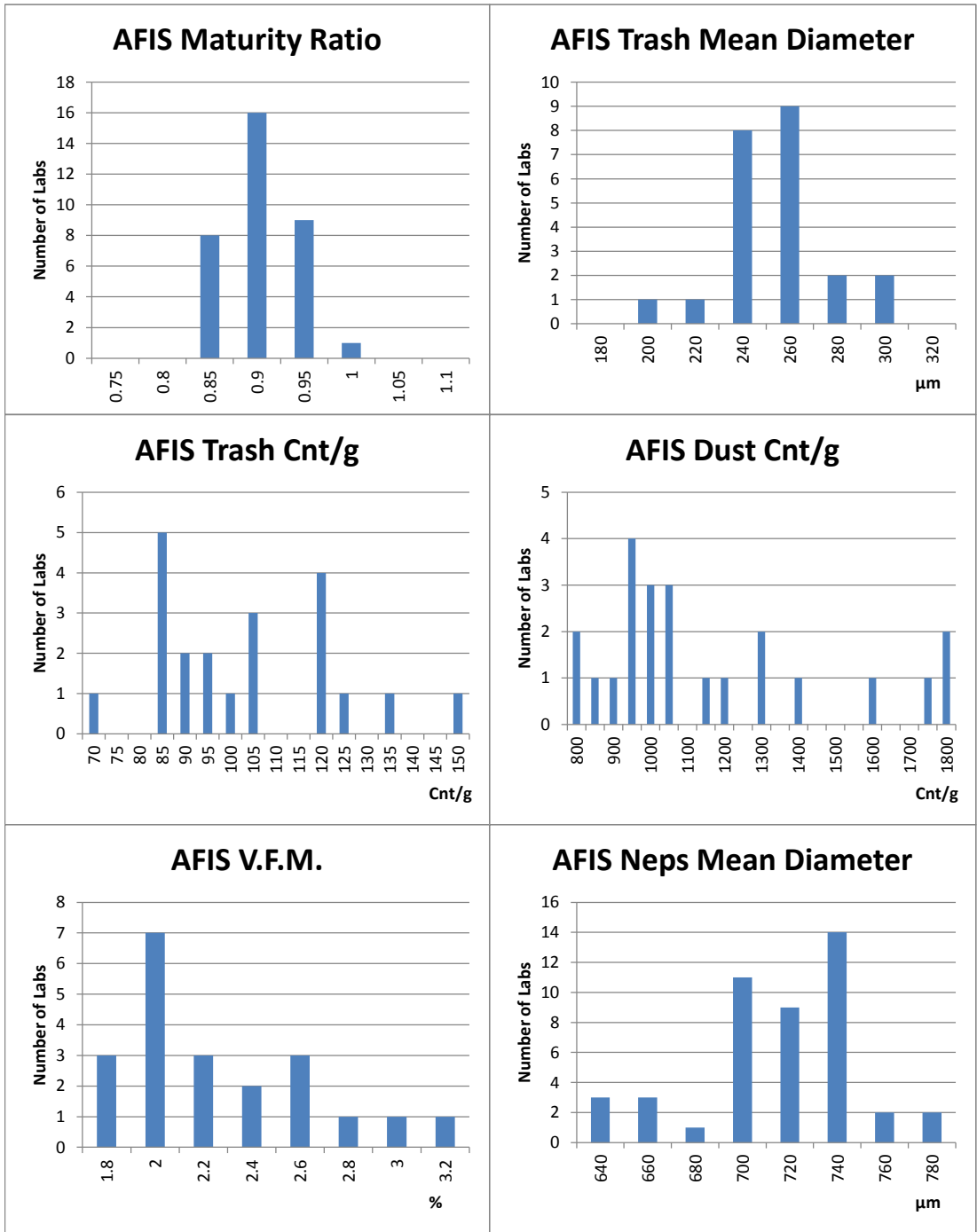
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Graphics of selected round test data



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