



International Cotton Advisory Committee



CSITC Global - Round Trial 2022 - 1 General Evaluation

Section One: Result Distribution
Section Two: Instrument Evaluation
Section Three: Within Limits Evaluation

Section One: Result Distribution

Content:

Mandatory Parameters

- Summary Table
- Distribution Graphs

Optional Parameters

- Summary Table
- Distribution Graphs

Executed By:
Faserinstitut Bremen e.V., Bremen, Germany*
USDA-AMS, Memphis, TN, USA

System Provided by:
Generation 10 Limited



This report is an outcome of the Project CFC/ICAC/33 – CSITC, which benefitted from support from the Common Fund for Commodities and the European Union, partners in Commodity Development.



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Global - Round Trial 2022 - 1

Inter-Instrument Averages, Inter-Instrument Variations, Typical within-instrument Variations

Micronaire							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			4.913	4.569	4.220	4.464	
Reference Values for Evaluation			4.913	4.569	4.220	4.464	
Number Of Instruments			82	82	81	81	82
Inter-Instrument Variation	based on 30 tests	SD	0.043	0.048	0.045	0.043	0.045
		CV %	0.9	1.0	1.1	1.0	1.0
	based on 6 tests	SD	0.051	0.055	0.050	0.051	0.052
		CV %	1.0	1.2	1.2	1.2	1.1
	based on single tests	SD	0.061	0.066	0.060	0.061	0.062
		CV %	1.3	1.5	1.4	1.4	1.4
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.025	0.022	0.023	0.023	0.023
		CV %	0.5	0.5	0.5	0.5	0.5
	between single tests on one day	SD	0.034	0.036	0.031	0.032	0.033
		CV %	0.7	0.8	0.7	0.7	0.7
	between all tests on different days	SD	0.043	0.040	0.037	0.042	0.041
		CV %	0.9	0.9	0.9	0.9	0.9

Strength							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			28.491	27.808	25.648	34.540	
Reference Values for Evaluation			28.491	27.808	25.648	34.540	
Number Of Instruments			82	82	81	81	82
Inter-Instrument Variation	based on 30 tests	SD	0.598	0.613	0.715	0.659	0.646
		CV %	2.1	2.2	2.8	1.9	2.2
	based on 6 tests	SD	0.659	0.740	0.843	0.816	0.765
		CV %	2.3	2.7	3.3	2.4	2.7
	based on single tests	SD	0.821	0.943	1.012	0.979	0.939
		CV %	2.9	3.4	3.9	2.8	3.3
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.328	0.336	0.331	0.398	0.348
		CV %	1.2	1.2	1.3	1.2	1.2
	between single tests on one day	SD	0.534	0.616	0.600	0.635	0.596
		CV %	1.9	2.2	2.3	1.8	2.1
	between all tests on different days	SD	0.630	0.685	0.714	0.772	0.700
		CV %	2.2	2.5	2.8	2.2	2.4

Length							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			1.1226	1.0609	1.0026	1.2104	
Reference Values for Evaluation			1.1226	1.0609	1.0026	1.2104	
Number Of Instruments			82	82	81	81	82
Inter-Instrument Variation	based on 30 tests	SD	0.0076	0.0068	0.0076	0.0083	0.0076
		CV %	0.7	0.6	0.8	0.7	0.7
	based on 6 tests	SD	0.0092	0.0091	0.0096	0.0103	0.0096
		CV %	0.8	0.9	1.0	0.8	0.9
	based on single tests	SD	0.0129	0.0133	0.0152	0.0140	0.0139
		CV %	1.1	1.3	1.5	1.2	1.3
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.0048	0.0058	0.0058	0.0055	0.0055
		CV %	0.4	0.5	0.6	0.5	0.5
	between single tests on one day	SD	0.0097	0.0110	0.0110	0.0095	0.0103
		CV %	0.9	1.0	1.1	0.8	0.9
	between all tests on different days	SD	0.0105	0.0120	0.0118	0.0111	0.0114
		CV %	0.9	1.1	1.2	0.9	1.0

Uniformity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			82.173	80.656	78.595	83.667	
Reference Values for Evaluation			82.173	80.656	78.595	83.667	
Number Of Instruments			82	82	81	81	82
Inter-Instrument Variation	based on 30 tests	SD	0.341	0.371	0.478	0.407	0.399
		CV %	0.4	0.5	0.6	0.5	0.5
	based on 6 tests	SD	0.440	0.467	0.548	0.464	0.480
		CV %	0.5	0.6	0.7	0.6	0.6
	based on single tests	SD	0.643	0.697	0.766	0.626	0.683
		CV %	0.8	0.9	1.0	0.7	0.8
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.238	0.263	0.263	0.192	0.239
		CV %	0.3	0.3	0.3	0.2	0.3
	between single tests on one day	SD	0.516	0.557	0.540	0.437	0.513
		CV %	0.6	0.7	0.7	0.5	0.6
	between all tests on different days	SD	0.563	0.594	0.600	0.502	0.565
		CV %	0.7	0.7	0.8	0.6	0.7

Color Rd							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			76.783	75.689	74.512	76.662	
Reference Values for Evaluation			76.783	75.689	74.512	76.662	
Number Of Instruments			81	81	80	80	81
Inter-Instrument Variation	based on 30 tests	SD	0.472	0.517	0.512	0.380	0.470
		CV %	0.6	0.7	0.7	0.5	0.6
	based on 6 tests	SD	0.513	0.551	0.515	0.400	0.495
		CV %	0.7	0.7	0.7	0.5	0.7
	based on single tests	SD	0.562	0.568	0.550	0.450	0.532
		CV %	0.7	0.7	0.7	0.6	0.7
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.146	0.180	0.124	0.116	0.141
		CV %	0.2	0.2	0.2	0.2	0.2
	between single tests on one day	SD	0.155	0.167	0.130	0.133	0.146
		CV %	0.2	0.2	0.2	0.2	0.2
	between all tests on different days	SD	0.236	0.252	0.183	0.194	0.216
		CV %	0.3	0.3	0.2	0.3	0.3

Color +b							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			8.540	7.681	10.666	13.155	
Reference Values for Evaluation			8.540	7.681	10.666	13.155	
Number Of Instruments			81	81	80	80	81
Inter-Instrument Variation	based on 30 tests	SD	0.167	0.165	0.177	0.219	0.182
		CV %	2.0	2.2	1.7	1.7	1.9
	based on 6 tests	SD	0.182	0.175	0.193	0.229	0.195
		CV %	2.1	2.3	1.8	1.7	2.0
	based on single tests	SD	0.206	0.200	0.205	0.255	0.217
		CV %	2.4	2.6	1.9	1.9	2.2
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.075	0.076	0.074	0.084	0.077
		CV %	0.9	1.0	0.7	0.6	0.8
	between single tests on one day	SD	0.096	0.079	0.079	0.085	0.085
		CV %	1.1	1.0	0.7	0.6	0.9
	between all tests on different days	SD	0.117	0.109	0.108	0.127	0.115
		CV %	1.4	1.4	1.0	1.0	1.2

Optional Parameters

Inter-Instrument Averages, Inter-Instrument Variations, Typical within-instrument Variations

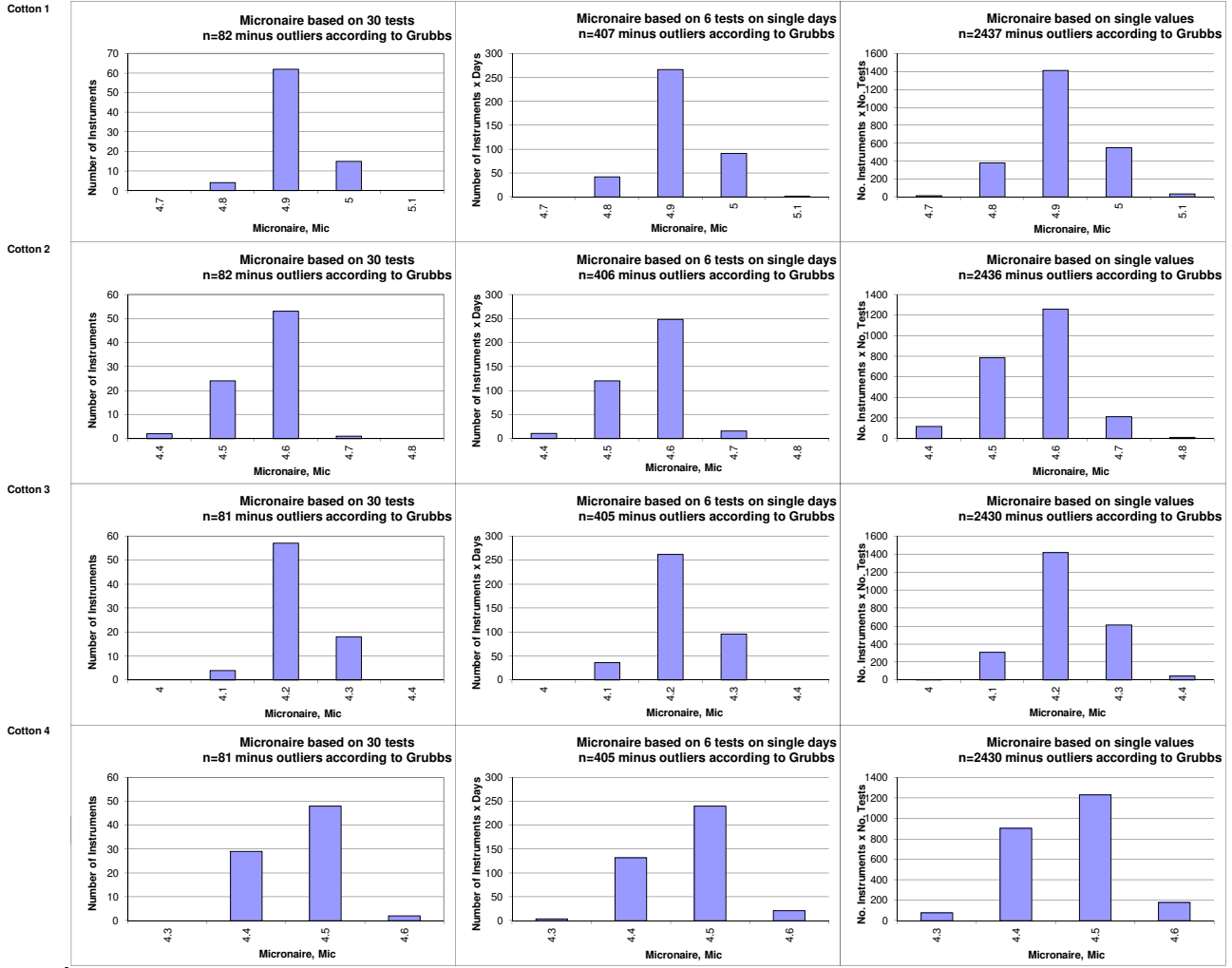
Trash Count							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			16.56	24.46	15.56	16.39	
Reference Values for Evaluation			16.56	24.46	15.56	16.39	
Number Of Instruments			66	66	65	65	66
Inter-Instrument Variation	based on 30 tests	SD	3.28	4.86	3.21	3.85	3.80
		CV %	19.8	19.9	20.7	23.5	21.0
	based on 6 tests	SD	3.79	5.31	3.73	4.12	4.24
		CV %	22.9	21.7	24.0	25.1	23.4
	based on single tests	SD	4.62	6.25	4.38	4.74	5.00
		CV %	27.9	25.6	28.2	28.9	27.6
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	1.62	2.49	1.45	1.38	1.73
		CV %	9.8	10.2	9.3	8.4	9.4
	between single tests on one day	SD	2.43	2.70	1.80	2.13	2.27
		CV %	14.7	11.0	11.6	13.0	12.6
	between all tests on different days	SD	2.93	3.99	2.53	2.66	3.03
		CV %	17.7	16.3	16.3	16.2	16.6

Trash Area							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.179	0.292	0.157	0.142	
Reference Values for Evaluation			0.179	0.292	0.157	0.142	
Number Of Instruments			65	65	64	64	65
Inter-Instrument Variation	based on 30 tests	SD	0.034	0.073	0.023	0.028	0.040
		CV %	19.3	24.9	14.9	19.7	19.7
	based on 6 tests	SD	0.040	0.084	0.033	0.032	0.047
		CV %	22.5	28.6	20.7	22.3	23.5
	based on single tests	SD	0.053	0.093	0.041	0.038	0.056
		CV %	29.9	31.7	26.0	26.7	28.6
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.025	0.037	0.018	0.014	0.024
		CV %	14.1	12.8	11.7	10.1	12.2
	between single tests on one day	SD	0.035	0.044	0.024	0.018	0.030
		CV %	19.4	15.0	15.5	12.4	15.5
	between all tests on different days	SD	0.040	0.064	0.033	0.029	0.042
		CV %	22.4	22.1	21.2	20.3	21.5

Maturity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			87.05	87.10	86.33	85.99	
Reference Values for Evaluation			87.05	87.10	86.33	85.99	
Number Of Instruments			59	59	59	59	59
Inter-Instrument Variation	based on 30 tests	SD	0.68	0.65	0.79	0.68	0.70
		CV %	0.8	0.7	0.9	0.8	0.8
	based on 6 tests	SD	0.74	0.71	0.68	0.72	0.71
		CV %	0.8	0.8	0.8	0.8	0.8
	based on single tests	SD	0.76	0.77	0.79	0.78	0.78
		CV %	0.9	0.9	0.9	0.9	0.9
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.12	0.12	0.12	0.14	0.12
		CV %	0.1	0.1	0.1	0.2	0.1
	between single tests on one day	SD	0.16	0.15	0.14	0.18	0.16
		CV %	0.2	0.2	0.2	0.2	0.2
	between all tests on different days	SD	0.31	0.25	0.25	0.31	0.28
		CV %	0.4	0.3	0.3	0.4	0.3

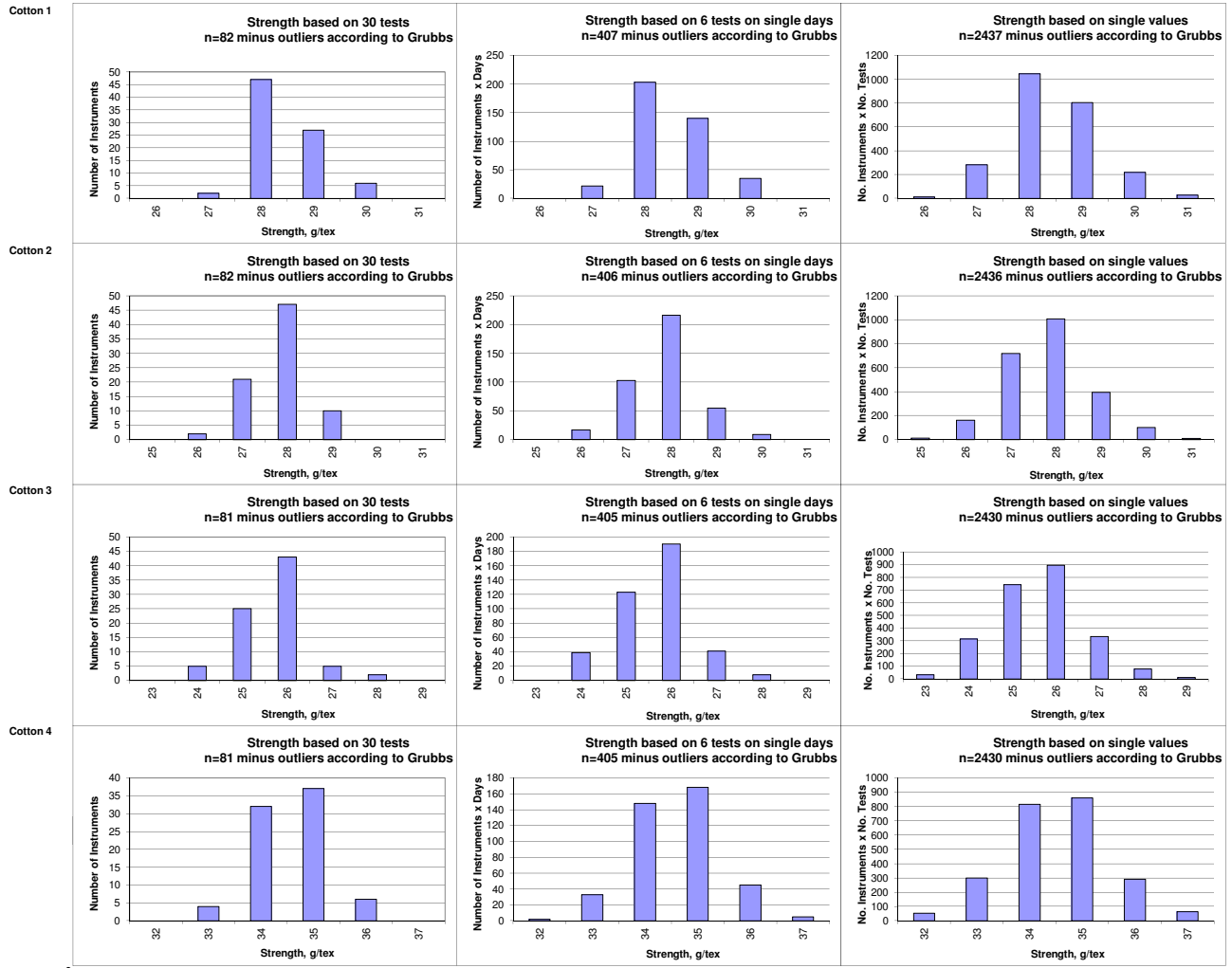
SFI							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			9.23	11.24	14.07	7.02	
Reference Values for Evaluation			9.23	11.24	14.07	7.02	
Number Of Instruments			69	69	68	68	69
Inter-Instrument Variation	based on 30 tests	SD	0.77	1.10	1.84	0.74	1.11
		CV %	8.3	9.8	13.1	10.6	10.4
	based on 6 tests	SD	0.83	1.14	1.83	0.78	1.14
		CV %	9.0	10.2	13.0	11.1	10.8
	based on single tests	SD	0.96	1.33	1.99	0.84	1.28
		CV %	10.4	11.8	14.2	11.9	12.1
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.25	0.34	0.41	0.19	0.30
		CV %	2.7	3.0	2.9	2.6	2.8
	between single tests on one day	SD	0.49	0.63	0.74	0.32	0.54
		CV %	5.3	5.6	5.2	4.5	5.2
	between all tests on different days	SD	0.56	0.77	0.92	0.36	0.65
		CV %	6.1	6.8	6.5	5.1	6.1

Test Result Distributions
Micronaire



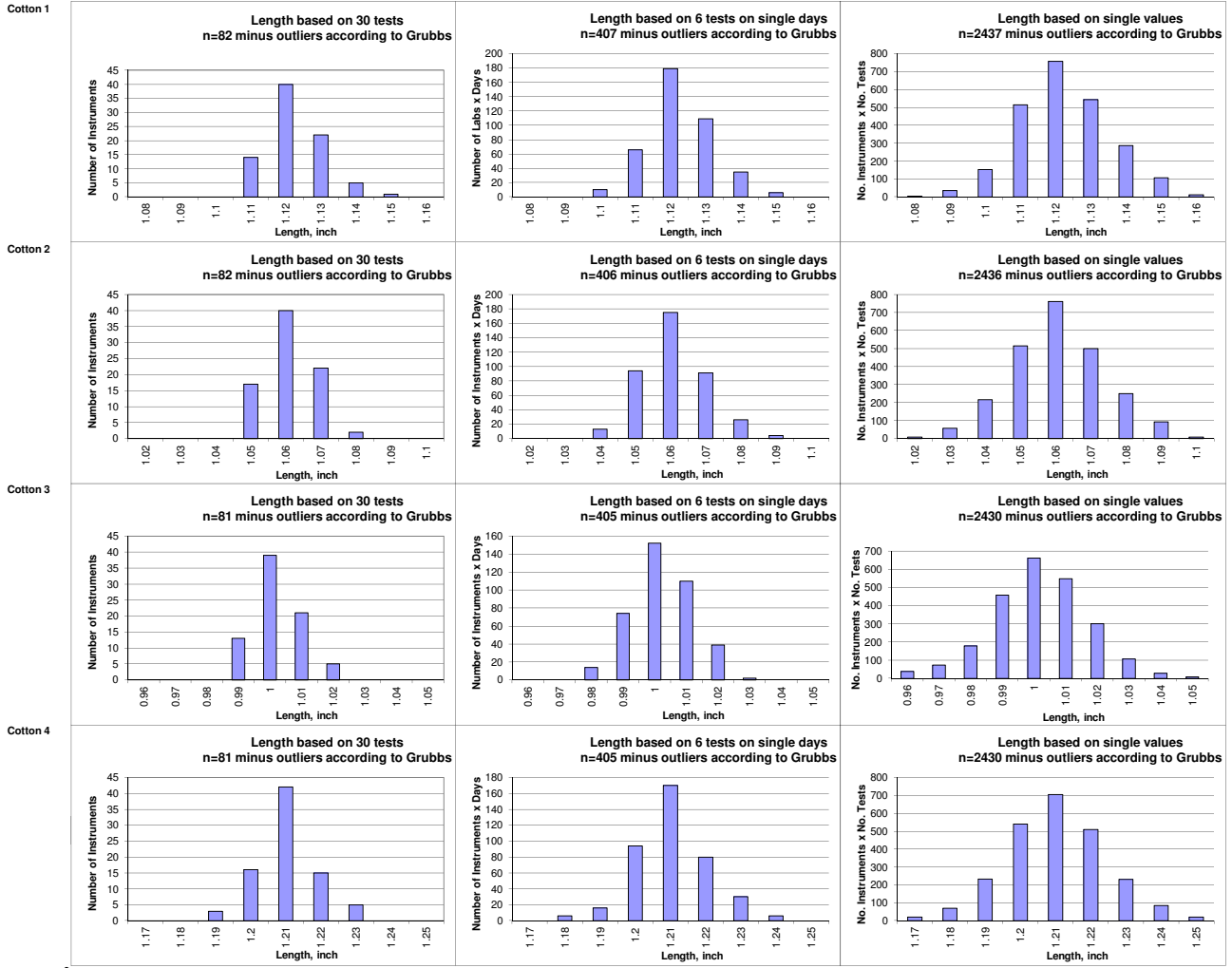
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Strength



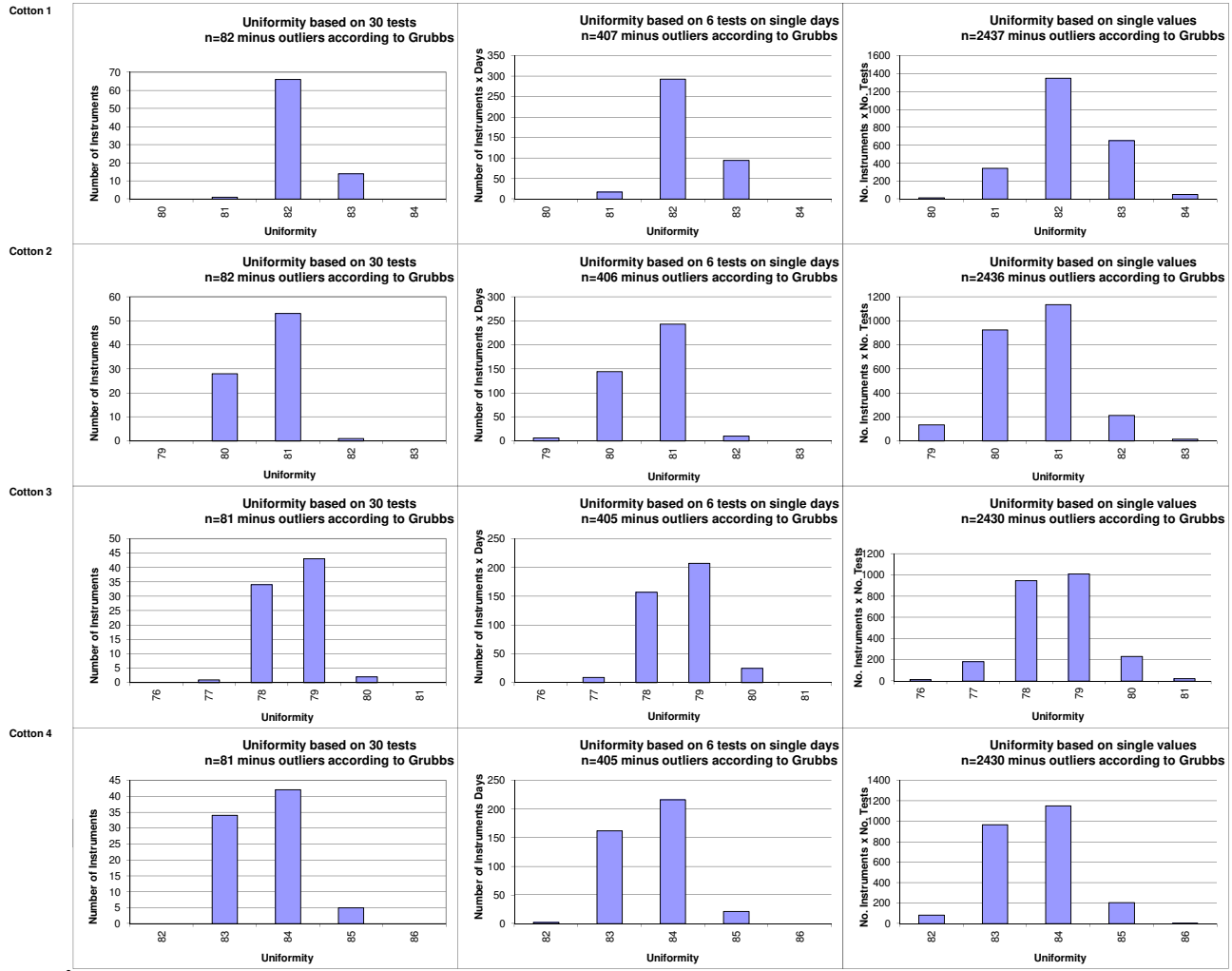
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Length



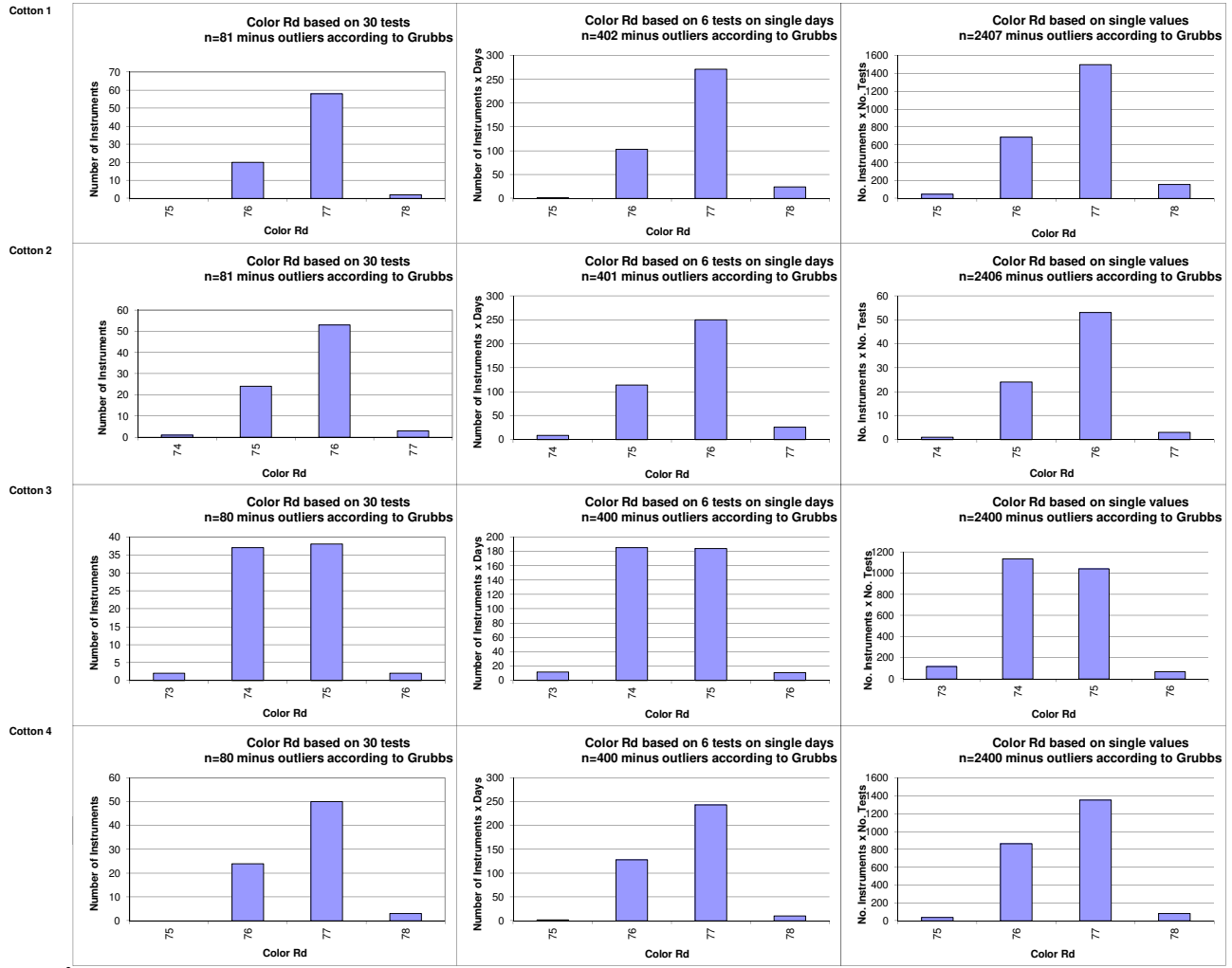
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Uniformity



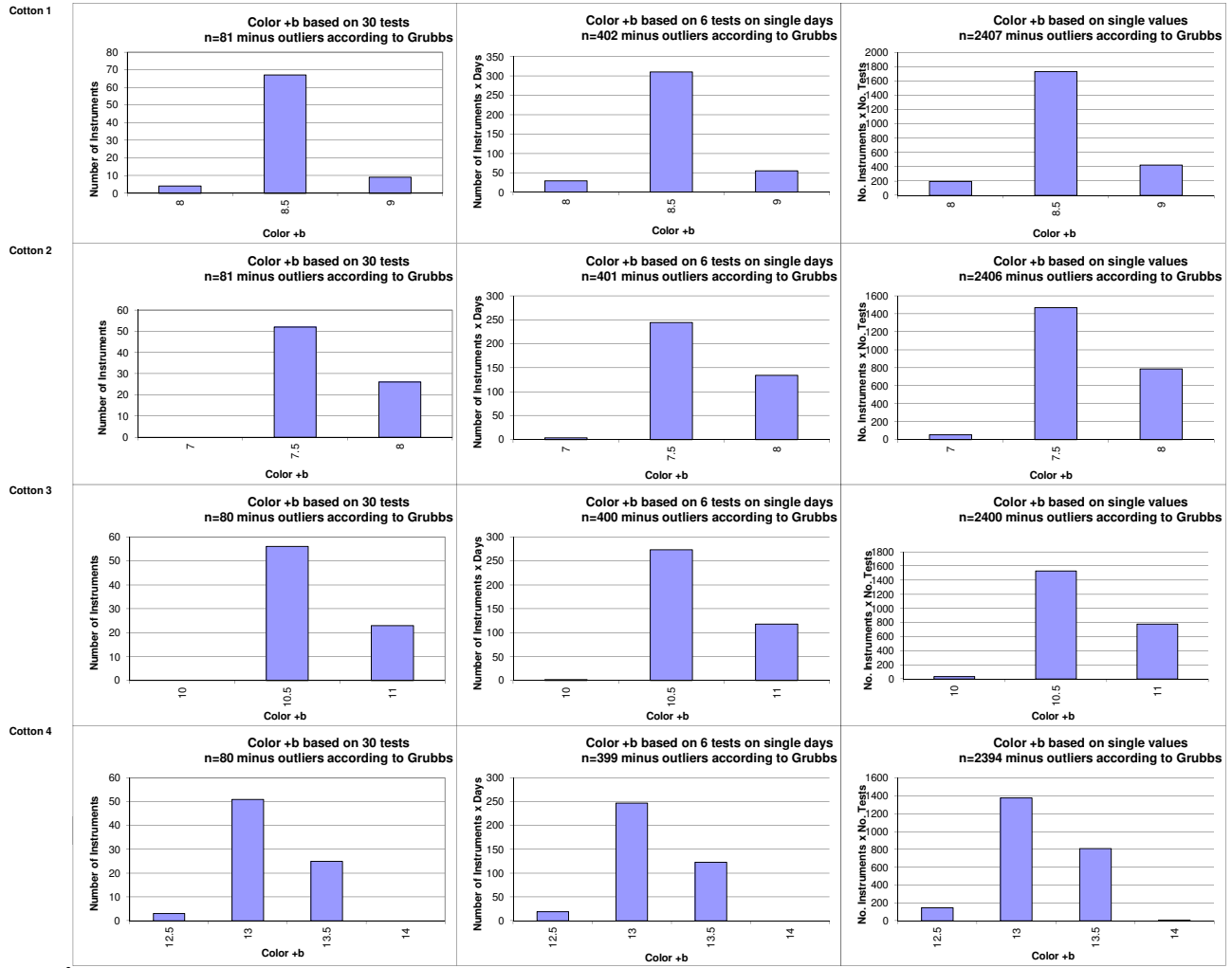
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd



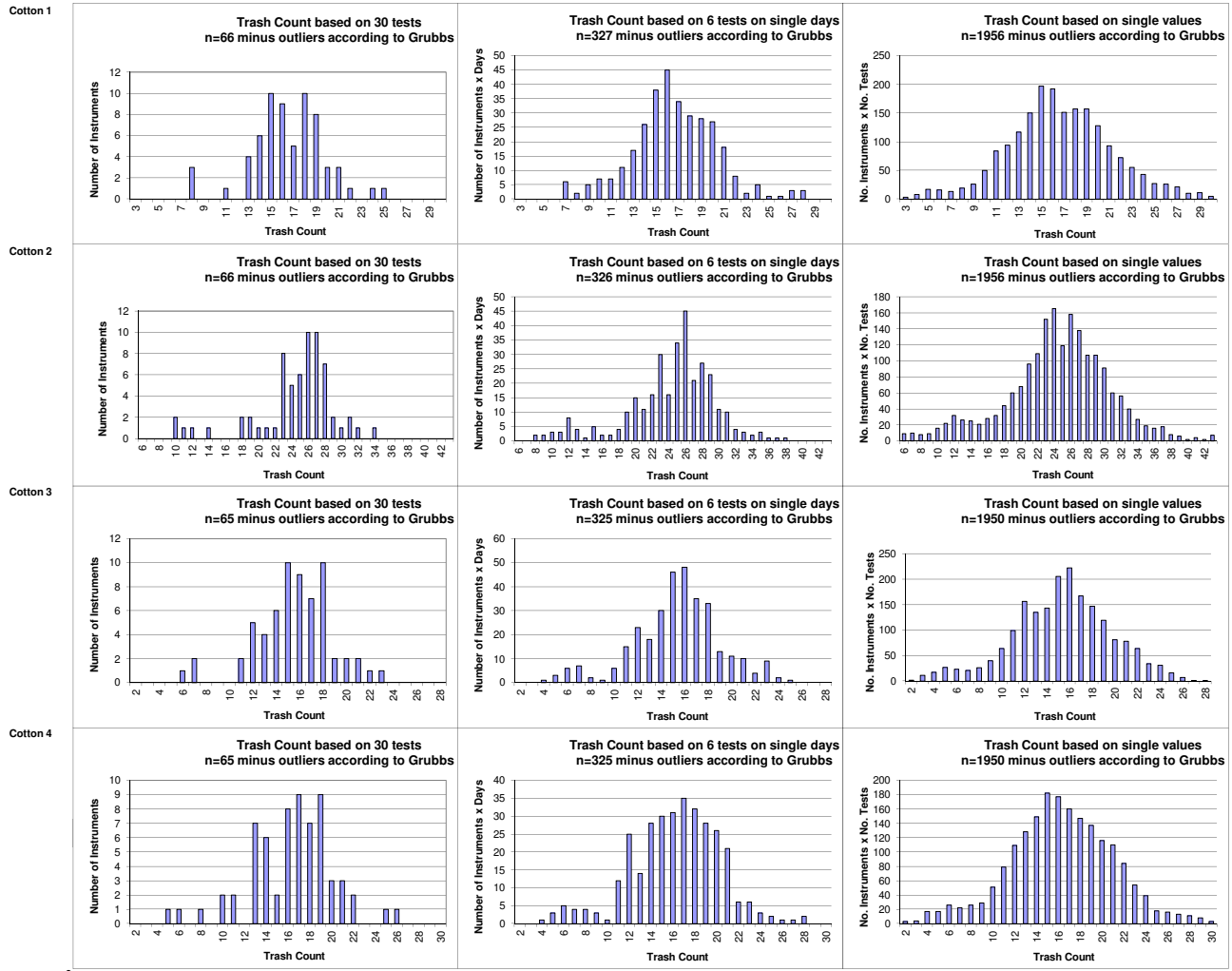
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(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b



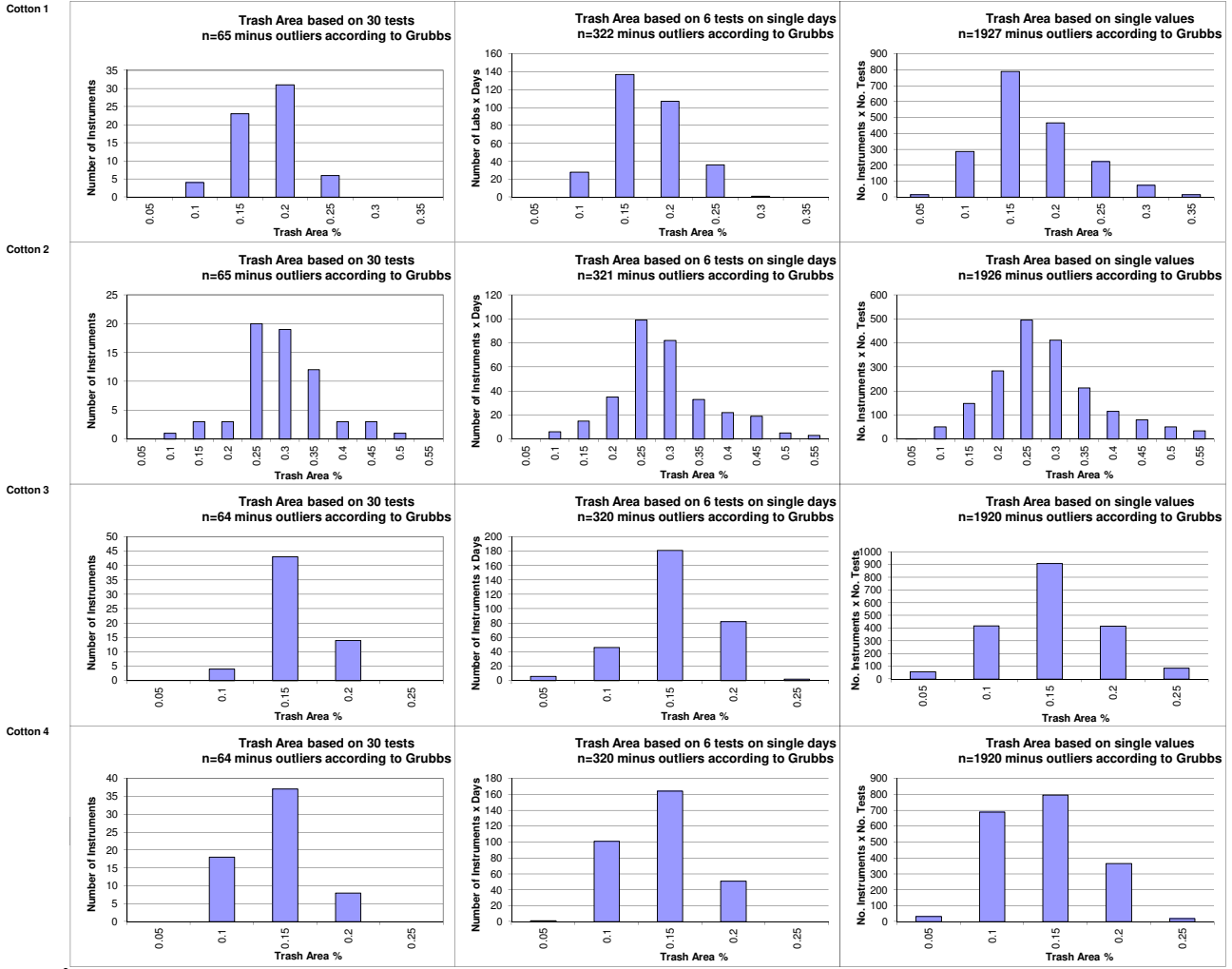
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count



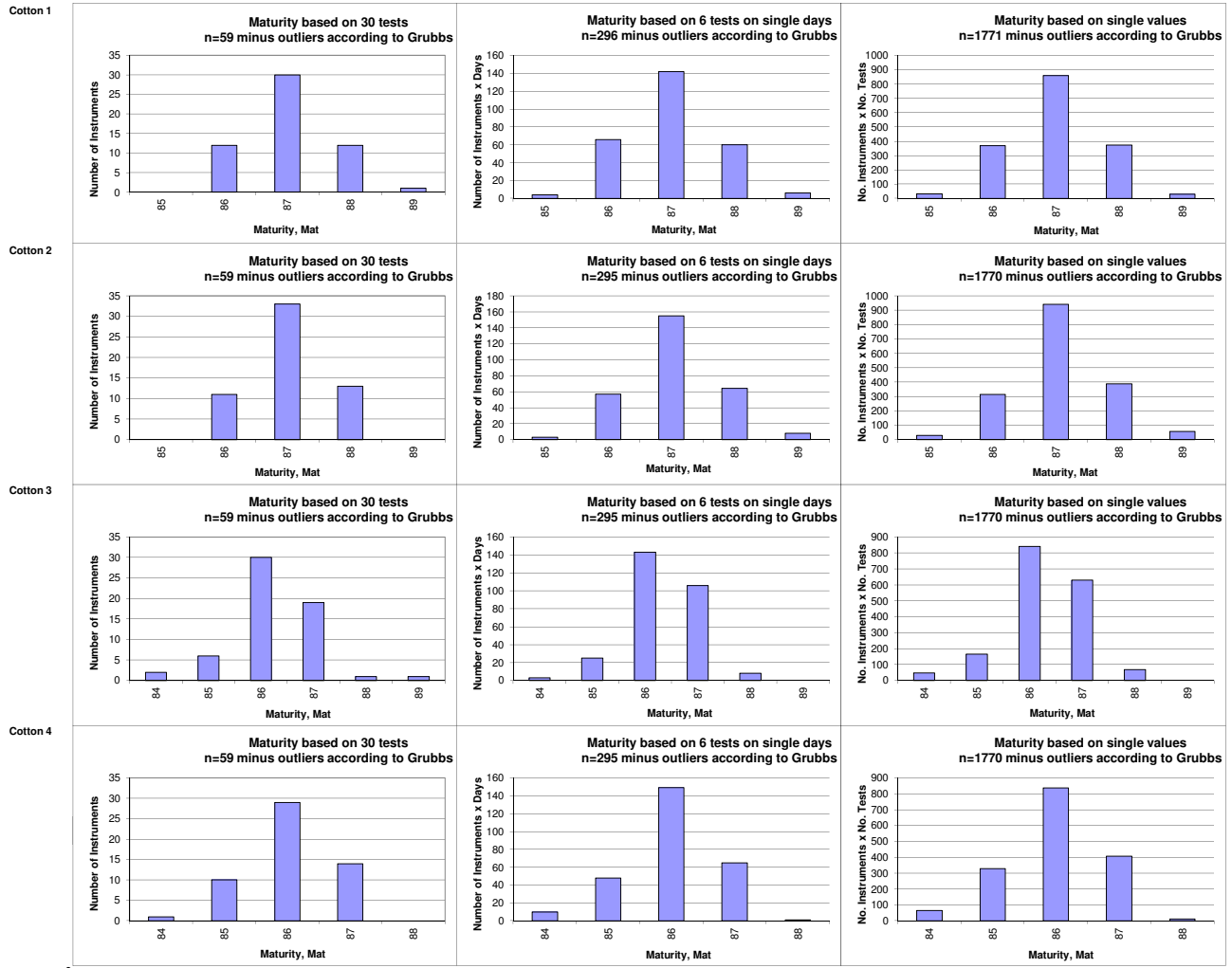
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Area



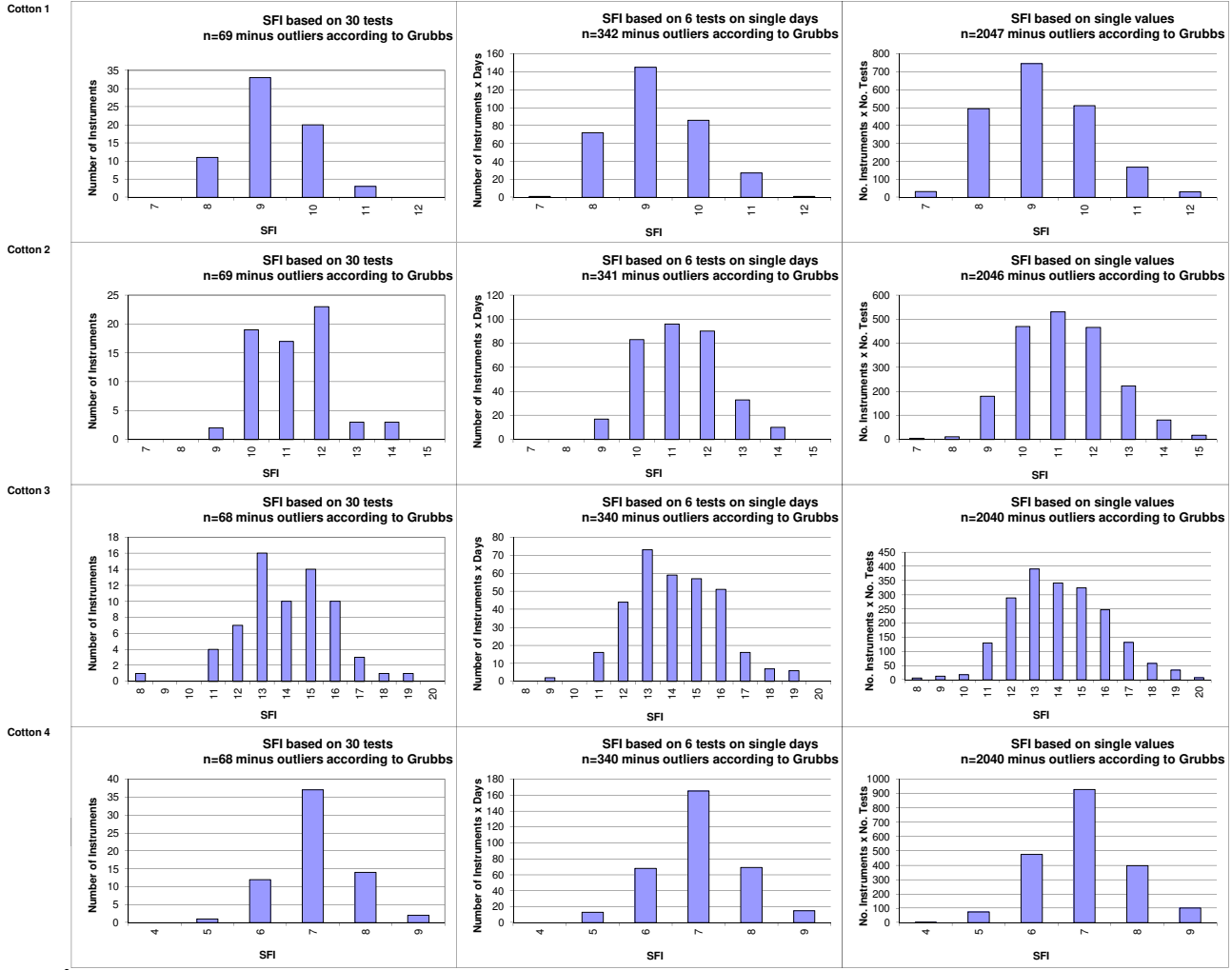
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Maturity



(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
SFI



(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)



International Cotton Advisory Committee



CSITC Global - Round Trial 2022 - 1 General Evaluation

Section One: Result Distribution
Section Two: Instrument Evaluation
Section Three: Within Limits Evaluation

Section Two: Instrument Evaluation

Content:

- Evaluation of Combined Parameters
- Evaluation of Single Parameters

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Faserinstitut Bremen e.V., Bremen, Germany*
USDA-AMS, Memphis, TN, USA

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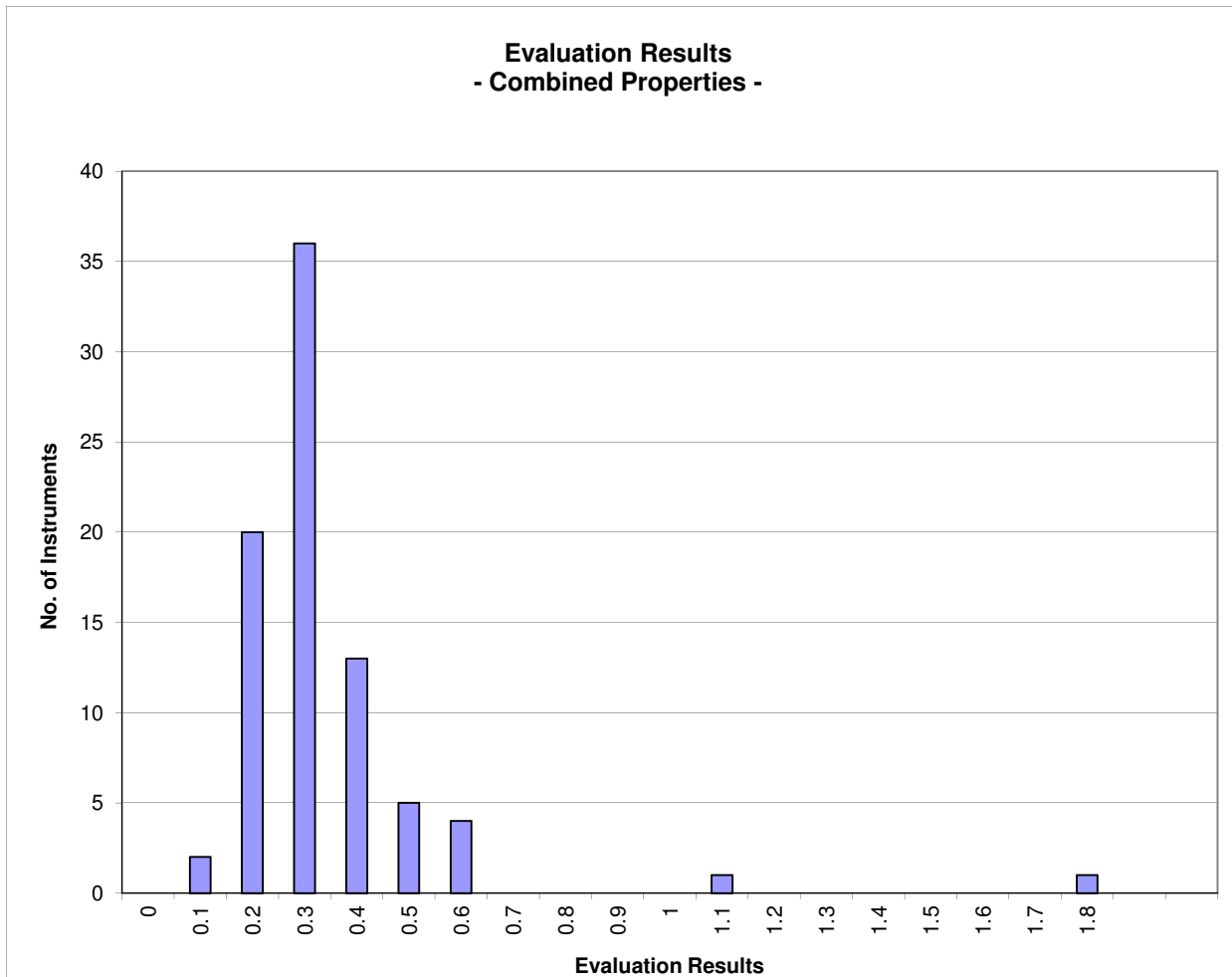
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2022 - 1

		Evaluation Combined Prop.
Statistics	Average	0.34
	Median	0.29
	Best Instrument	0.11
	Worst Instrument	1.81

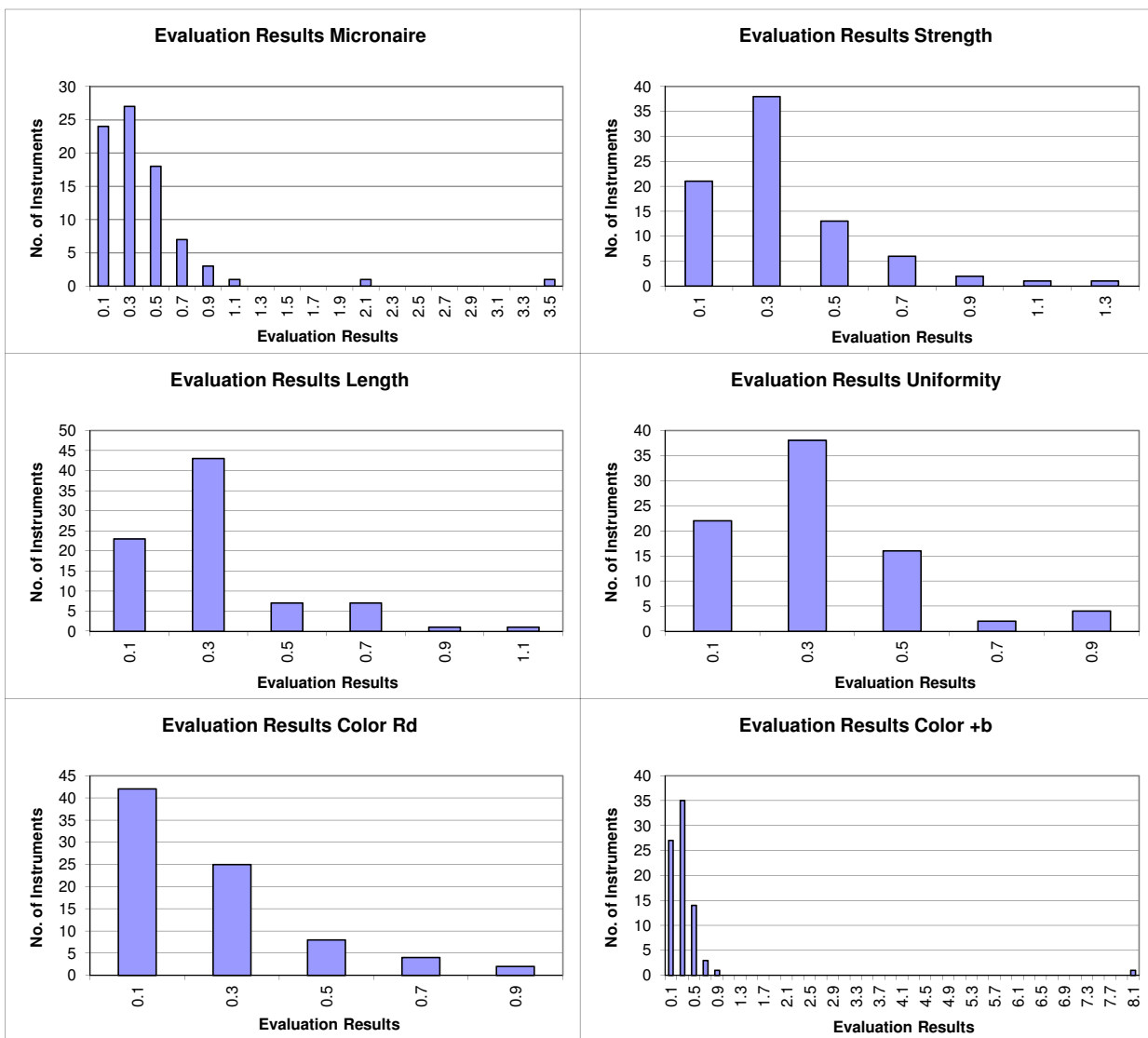


x-Axis shows midpoints of classes

The evaluation results are entered based on the unrounded values
(classes are defined as > lower limit and <= upper limit)

Instrument Evaluation
 - Graph of Single Properties -
 According to ICAC CSITC Task Force Recommendations
 Global - Round Trial 2022 - 1

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.41	0.35	0.32	0.32	0.26	0.40
	Median	0.32	0.29	0.29	0.30	0.20	0.27
	Best Instr.	0.06	0.05	0.07	0.05	0.02	0.06
	Worst Instr.	3.53	1.38	1.07	0.95	0.99	8.18



x-Axis shows midpoints of classes
 The evaluation results are entered based on the unrounded values



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Section Three: Within Limits Evaluation

Section Three: Within Limits Evaluation

Content:

- Based on Average of 30 Test Results
- Based on Single Test Results

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Within Limits Evaluation

Based on average of 30 test results for each sample

	Micronaire	Strength	Length	Uniformity	Color Rd	Color +b
Limits	0.20	2.0	0.030	2.0	1.5	0.5
	units	g/tex	inch	%	units	units
Average % Results within Limits	98.5	98.5	99.1	100.0	98.5	98.1
Completely within limits	97.6	95.1	96.3	100.0	96.3	96.3
% of Instruments $\geq 75\%$ within limits	97.6	98.8	100.0	100.0	97.5	98.8
% of Instruments $\geq 50\%$ within limits	98.8	100.0	100.0	100.0	100.0	98.8

Within Limits Evaluation

Based on Single Test Results

	Micronaire	Strength	Length	Uniformity	Color Rd	Color +b
Limits	0.20	2.0	0.030	2.0	1.5	0.5
	units	g/tex	inch	%	units	units
Average % Results within Limits	98.3	94.3	97.4	98.6	97.8	95.0
% of Instruments 100% within limits	80.5	23.2	46.3	58.5	75.3	48.1
% of Instruments $\geq 95\%$ within limits	97.6	68.3	81.7	91.5	93.8	76.5
% of Instruments $\geq 75\%$ within limits	97.6	96.3	100.0	100.0	96.3	96.3
% of Instruments $\geq 65\%$ within limits	97.6	97.6	100.0	100.0	97.5	96.3
% of Instruments $\geq 50\%$ within limits	98.8	100.0	100.0	100.0	100.0	98.8