



International Cotton Advisory Committee



**CSITC
Global - Round Trial 2018 - 3
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
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Global - Round Trial 2018 - 3

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

Micronaire							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			4.238	5.068	4.994	4.240	
Reference Values for Evaluation			4.238	5.068	4.994	4.240	
Number Of Instruments			143	143	143	143	143
Inter-Instrument Variation	based on 30 tests	SD	0.052	0.047	0.061	0.051	0.053
		CV %	1.2	0.9	1.2	1.2	1.1
	based on 6 tests	SD	0.057	0.054	0.067	0.055	0.058
		CV %	1.3	1.1	1.3	1.3	1.3
	based on single tests	SD	0.068	0.064	0.077	0.063	0.068
		CV %	1.6	1.3	1.5	1.5	1.5
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.025	0.022	0.026	0.024	0.024
		CV %	0.6	0.4	0.5	0.6	0.5
	between single tests on one day	SD	0.037	0.034	0.037	0.035	0.036
		CV %	0.9	0.7	0.7	0.8	0.8
	between all tests on different days	SD	0.045	0.041	0.047	0.041	0.044
		CV %	1.1	0.8	0.9	1.0	0.9

Strength							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			22.761	29.524	27.765	33.346	
Reference Values for Evaluation			22.761	29.524	27.765	33.346	
Number Of Instruments			142	142	142	142	142
Inter-Instrument Variation	based on 30 tests	SD	0.604	0.837	0.852	0.628	0.730
		CV %	2.7	2.8	3.1	1.9	2.6
	based on 6 tests	SD	0.730	0.936	0.920	0.782	0.842
		CV %	3.2	3.2	3.3	2.3	3.0
	based on single tests	SD	0.878	1.071	1.048	0.978	0.994
		CV %	3.9	3.6	3.8	2.9	3.5
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.313	0.332	0.344	0.320	0.327
		CV %	1.4	1.1	1.2	1.0	1.2
	between single tests on one day	SD	0.506	0.510	0.532	0.585	0.533
		CV %	2.2	1.7	1.9	1.8	1.9
	between all tests on different days	SD	0.596	0.624	0.624	0.679	0.631
		CV %	2.6	2.1	2.2	2.0	2.3

Length							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.9534	1.0781	1.1366	1.2221	
Reference Values for Evaluation			0.9534	1.0781	1.1366	1.2221	
Number Of Instruments			143	143	143	143	143
Inter-Instrument Variation	based on 30 tests	SD	0.0094	0.0102	0.0104	0.0086	0.0097
		CV %	1.0	0.9	0.9	0.7	0.9
	based on 6 tests	SD	0.0115	0.0113	0.0117	0.0107	0.0113
		CV %	1.2	1.0	1.0	0.9	1.0
	based on single tests	SD	0.0155	0.0145	0.0157	0.0149	0.0152
		CV %	1.6	1.3	1.4	1.2	1.4
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.0061	0.0056	0.0054	0.0058	0.0057
		CV %	0.6	0.5	0.5	0.5	0.5
	between single tests on one day	SD	0.0108	0.0088	0.0098	0.0101	0.0099
		CV %	1.1	0.8	0.9	0.8	0.9
	between all tests on different days	SD	0.0122	0.0103	0.0111	0.0116	0.0113
		CV %	1.3	1.0	1.0	0.9	1.0

Uniformity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			76.785	83.241	82.918	85.010	
Reference Values for Evaluation			76.785	83.241	82.918	85.010	
Number Of Instruments			142	142	142	142	142
Inter-Instrument Variation	based on 30 tests	SD	0.558	0.465	0.441	0.460	0.481
		CV %	0.7	0.6	0.5	0.5	0.6
	based on 6 tests	SD	0.640	0.547	0.535	0.544	0.566
		CV %	0.8	0.7	0.6	0.6	0.7
Typical within-instrument Variation (Median)	based on single tests	SD	0.840	0.729	0.750	0.711	0.757
		CV %	1.1	0.9	0.9	0.8	0.9
	between different days with each 6 tests	SD	0.293	0.261	0.261	0.265	0.270
		CV %	0.4	0.3	0.3	0.3	0.3
Typical within-instrument Variation (Median)	between single tests on one day	SD	0.570	0.483	0.525	0.463	0.510
		CV %	0.7	0.6	0.6	0.5	0.6
	between all tests on different days	SD	0.627	0.537	0.583	0.531	0.570
		CV %	0.8	0.6	0.7	0.6	0.7

Color Rd							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			78.191	74.312	68.117	77.540	
Reference Values for Evaluation			78.191	74.312	68.117	77.540	
Number Of Instruments			141	141	141	141	141
Inter-Instrument Variation	based on 30 tests	SD	0.565	0.628	0.538	0.556	0.572
		CV %	0.7	0.8	0.8	0.7	0.8
	based on 6 tests	SD	0.623	0.636	0.614	0.582	0.614
		CV %	0.8	0.9	0.9	0.8	0.8
Typical within-instrument Variation (Median)	based on single tests	SD	0.661	0.688	0.662	0.629	0.660
		CV %	0.8	0.9	1.0	0.8	0.9
	between different days with each 6 tests	SD	0.171	0.189	0.197	0.176	0.183
		CV %	0.2	0.3	0.3	0.2	0.2
Typical within-instrument Variation (Median)	between single tests on one day	SD	0.149	0.205	0.193	0.180	0.182
		CV %	0.2	0.3	0.3	0.2	0.2
	between all tests on different days	SD	0.243	0.303	0.286	0.276	0.277
		CV %	0.3	0.4	0.4	0.4	0.4

Color +b							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			9.263	11.029	7.972	13.027	
Reference Values for Evaluation			9.263	11.029	7.972	13.027	
Number Of Instruments			141	141	141	141	141
Inter-Instrument Variation	based on 30 tests	SD	0.205	0.269	0.250	0.301	0.256
		CV %	2.2	2.4	3.1	2.3	2.5
	based on 6 tests	SD	0.223	0.285	0.273	0.323	0.276
		CV %	2.4	2.6	3.4	2.5	2.7
Typical within-instrument Variation (Median)	based on single tests	SD	0.245	0.313	0.289	0.409	0.314
		CV %	2.6	2.8	3.6	3.1	3.1
	between different days with each 6 tests	SD	0.089	0.093	0.078	0.098	0.090
		CV %	1.0	0.8	1.0	0.8	0.9
Typical within-instrument Variation (Median)	between single tests on one day	SD	0.073	0.085	0.077	0.094	0.082
		CV %	0.8	0.8	1.0	0.7	0.8
	between all tests on different days	SD	0.130	0.147	0.124	0.161	0.140
		CV %	1.4	1.3	1.6	1.2	1.4

Optional Parameters

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

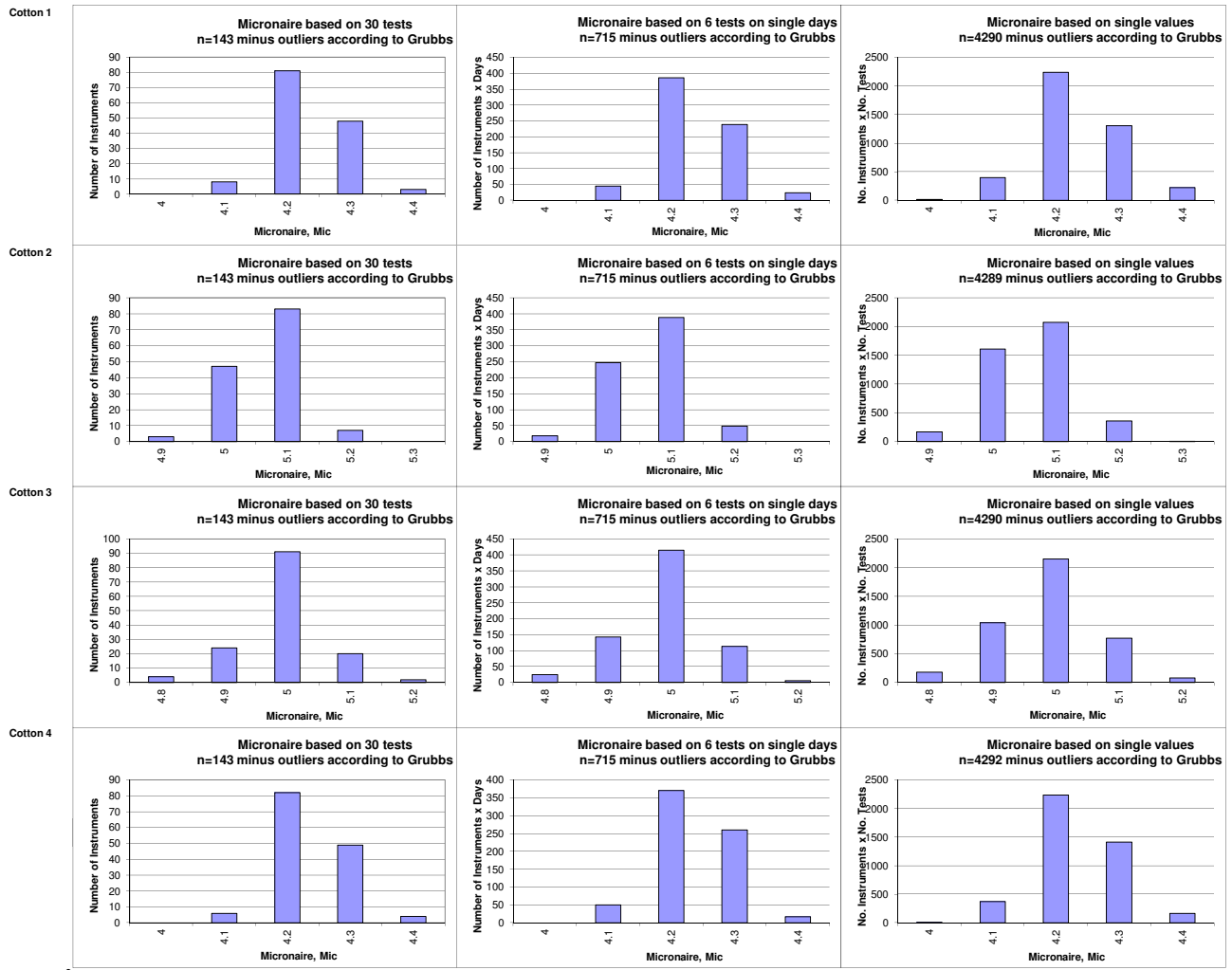
Trash Count							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			28.73	15.40	31.14	18.42	
Reference Values for Evaluation			28.73	15.40	31.14	18.42	
Number Of Instruments			101	101	101	101	101
Inter-Instrument Variation	based on 30 tests	SD	8.84	5.34	8.30	5.36	6.96
		CV %	30.8	34.7	26.6	29.1	30.3
	based on 6 tests	SD	9.53	5.31	8.84	6.00	7.42
		CV %	33.2	34.5	28.4	32.6	32.2
	based on single tests	SD	10.10	5.84	9.62	6.57	8.03
		CV %	35.2	37.9	30.9	35.7	34.9
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	2.46	1.66	2.70	1.83	2.16
		CV %	8.6	10.8	8.7	9.9	9.5
	between single tests on one day	SD	3.11	2.31	3.42	2.57	2.85
		CV %	10.8	15.0	11.0	14.0	12.7
	between all tests on different days	SD	3.99	2.94	4.58	3.18	3.67
		CV %	13.9	19.1	14.7	17.3	16.2

Trash Area							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.222	0.145	0.397	0.236	
Reference Values for Evaluation			0.222	0.145	0.397	0.236	
Number Of Instruments			101	101	101	101	101
Inter-Instrument Variation	based on 30 tests	SD	0.047	0.037	0.091	0.059	0.058
		CV %	21.1	25.6	22.9	24.9	23.6
	based on 6 tests	SD	0.056	0.041	0.106	0.067	0.067
		CV %	25.5	27.9	26.6	28.2	27.1
	based on single tests	SD	0.067	0.051	0.133	0.088	0.085
		CV %	30.0	35.2	33.5	37.2	34.0
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.023	0.020	0.049	0.034	0.032
		CV %	10.5	14.0	12.3	14.6	12.8
	between single tests on one day	SD	0.031	0.027	0.065	0.048	0.043
		CV %	14.0	18.5	16.4	20.3	17.3
	between all tests on different days	SD	0.040	0.034	0.091	0.060	0.056
		CV %	18.2	23.1	23.0	25.5	22.4

Maturity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			85.73	87.91	87.26	85.96	
Reference Values for Evaluation			85.73	87.91	87.26	85.96	
Number Of Instruments			93	93	93	93	93
Inter-Instrument Variation	based on 30 tests	SD	0.77	1.28	1.33	1.14	1.13
		CV %	0.9	1.5	1.5	1.3	1.3
	based on 6 tests	SD	0.78	0.93	1.23	1.08	1.01
		CV %	0.9	1.1	1.4	1.3	1.2
	based on single tests	SD	0.91	1.07	1.25	1.12	1.09
		CV %	1.1	1.2	1.4	1.3	1.3
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.15	0.12	0.14	0.14	0.14
		CV %	0.2	0.1	0.2	0.2	0.2
	between single tests on one day	SD	0.19	0.16	0.19	0.21	0.19
		CV %	0.2	0.2	0.2	0.2	0.2
	between all tests on different days	SD	0.35	0.26	0.35	0.31	0.31
		CV %	0.4	0.3	0.4	0.4	0.4

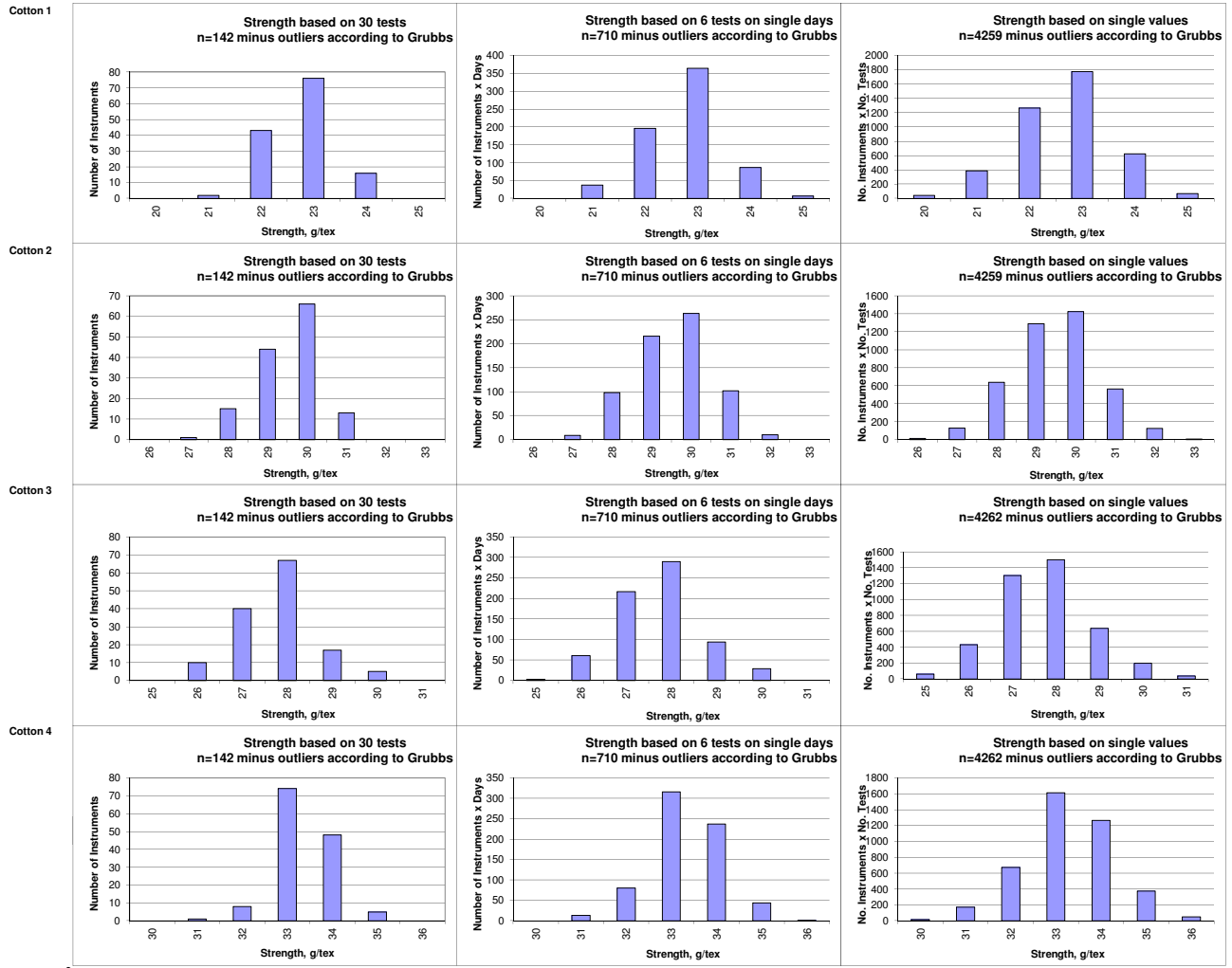
SFI							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			17.90	7.95	8.71	6.47	
Reference Values for Evaluation			17.90	7.95	8.71	6.47	
Number Of Instruments			103	103	103	103	103
Inter-Instrument Variation	based on 30 tests	SD	1.99	0.98	0.73	0.85	1.14
		CV %	11.1	12.4	8.3	13.1	11.3
	based on 6 tests	SD	2.12	0.98	0.74	0.84	1.17
		CV %	11.8	12.3	8.5	13.0	11.4
	based on single tests	SD	2.32	1.07	0.90	0.88	1.29
		CV %	13.0	13.5	10.4	13.6	12.6
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.45	0.21	0.22	0.14	0.26
		CV %	2.5	2.7	2.6	2.1	2.5
	between single tests on one day	SD	0.86	0.41	0.45	0.27	0.50
		CV %	4.8	5.2	5.1	4.2	4.8
	between all tests on different days	SD	0.99	0.49	0.47	0.30	0.56
		CV %	5.5	6.1	5.4	4.7	5.4

Test Result Distributions
Micronaire



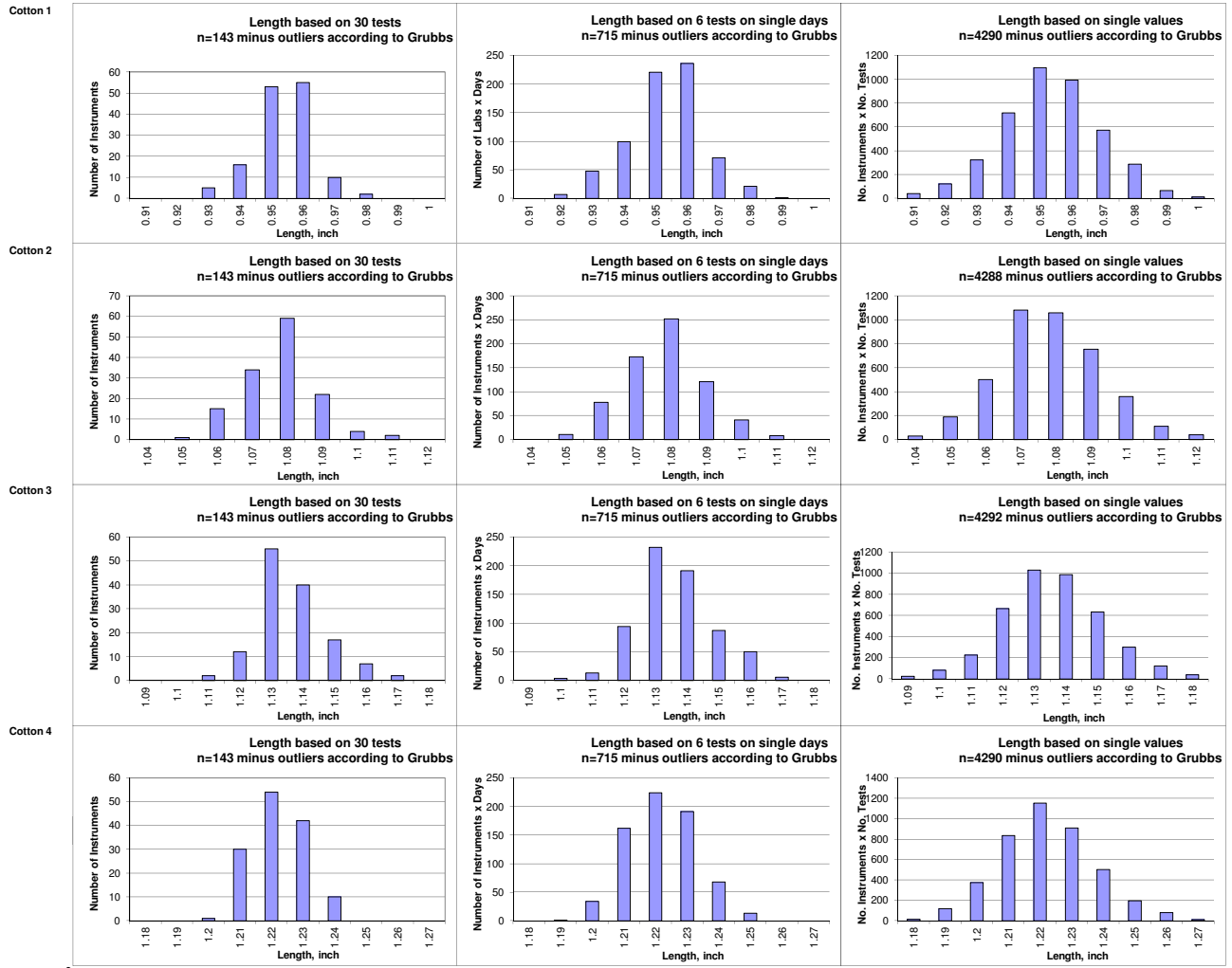
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Strength



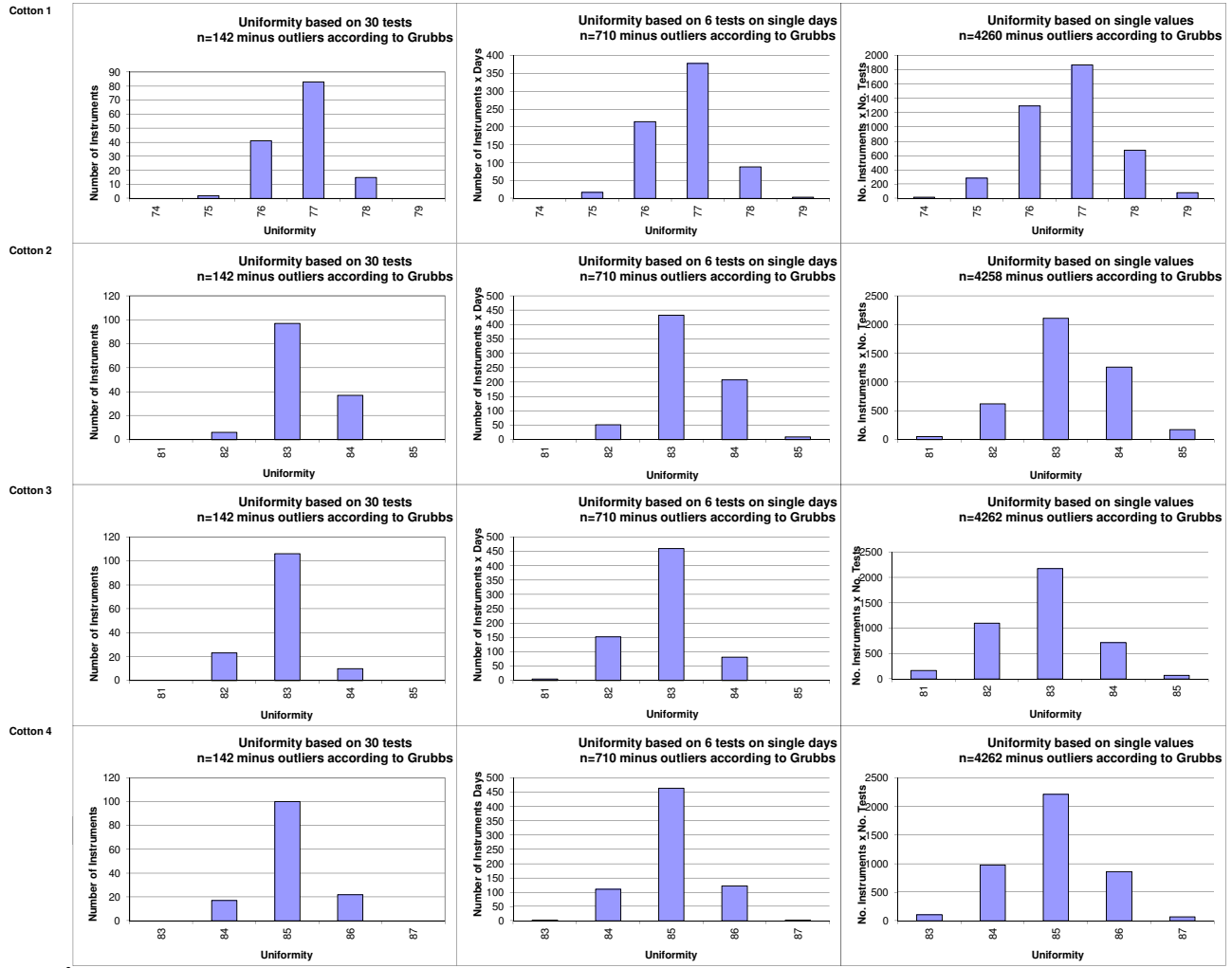
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Length



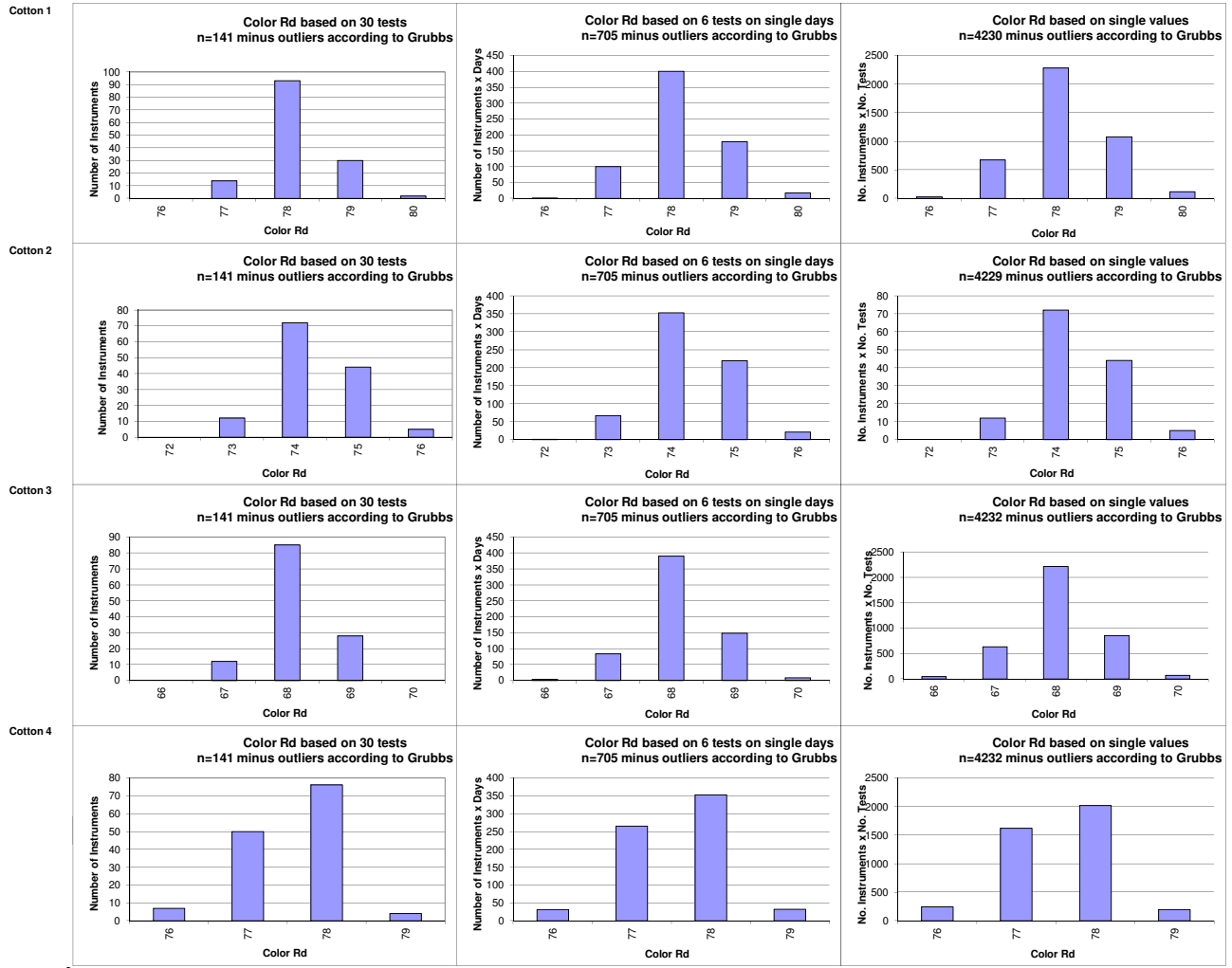
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Uniformity



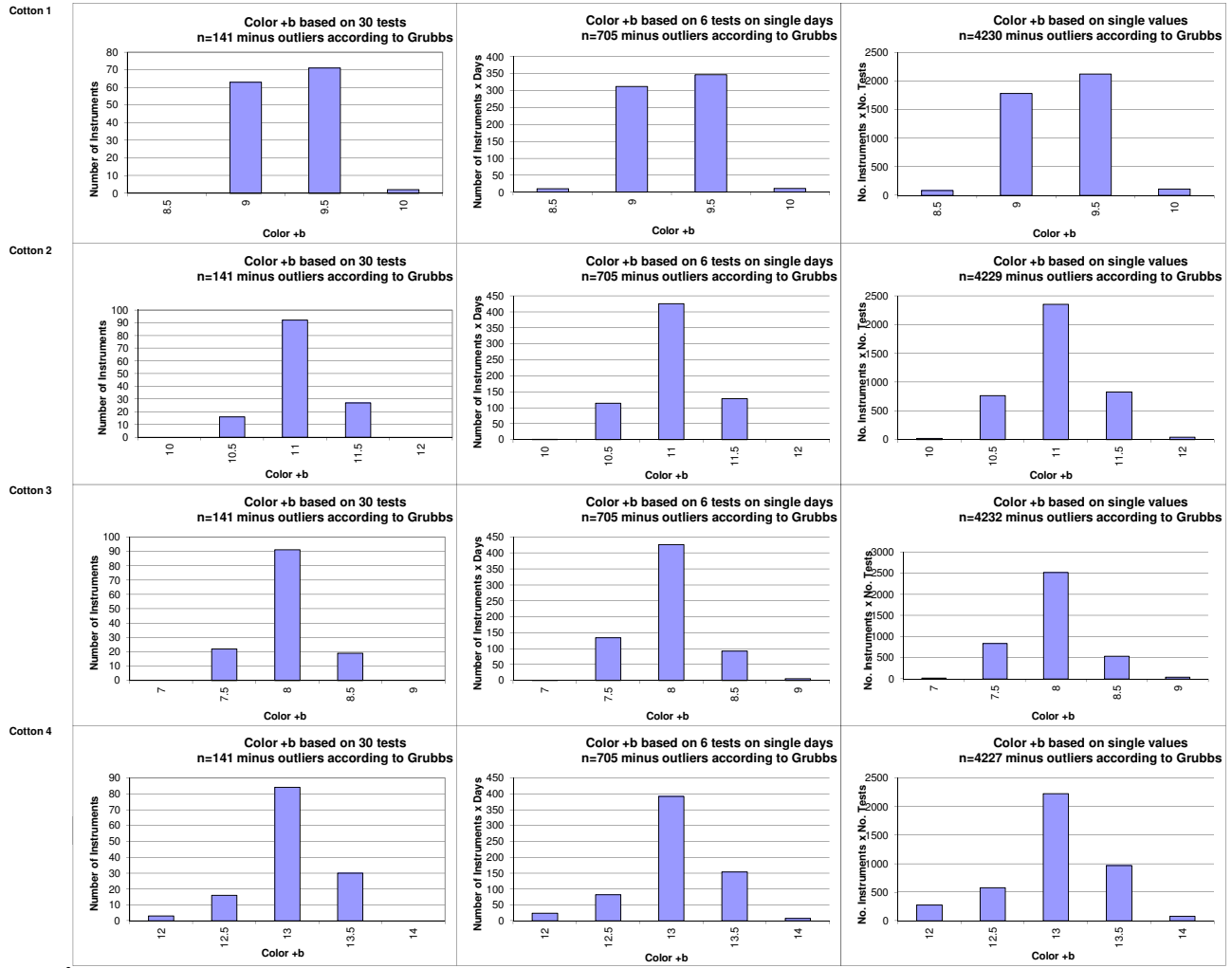
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd



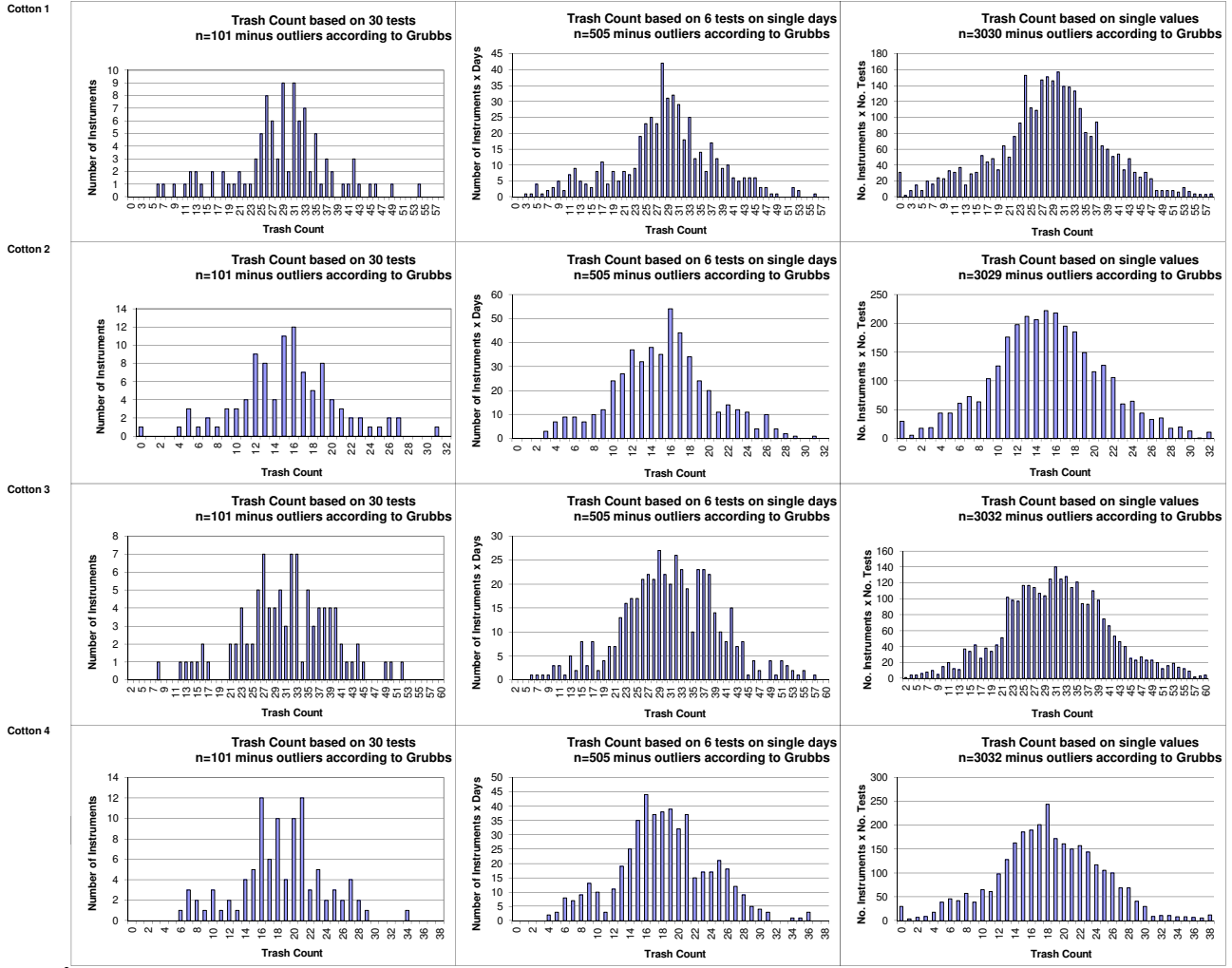
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(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b



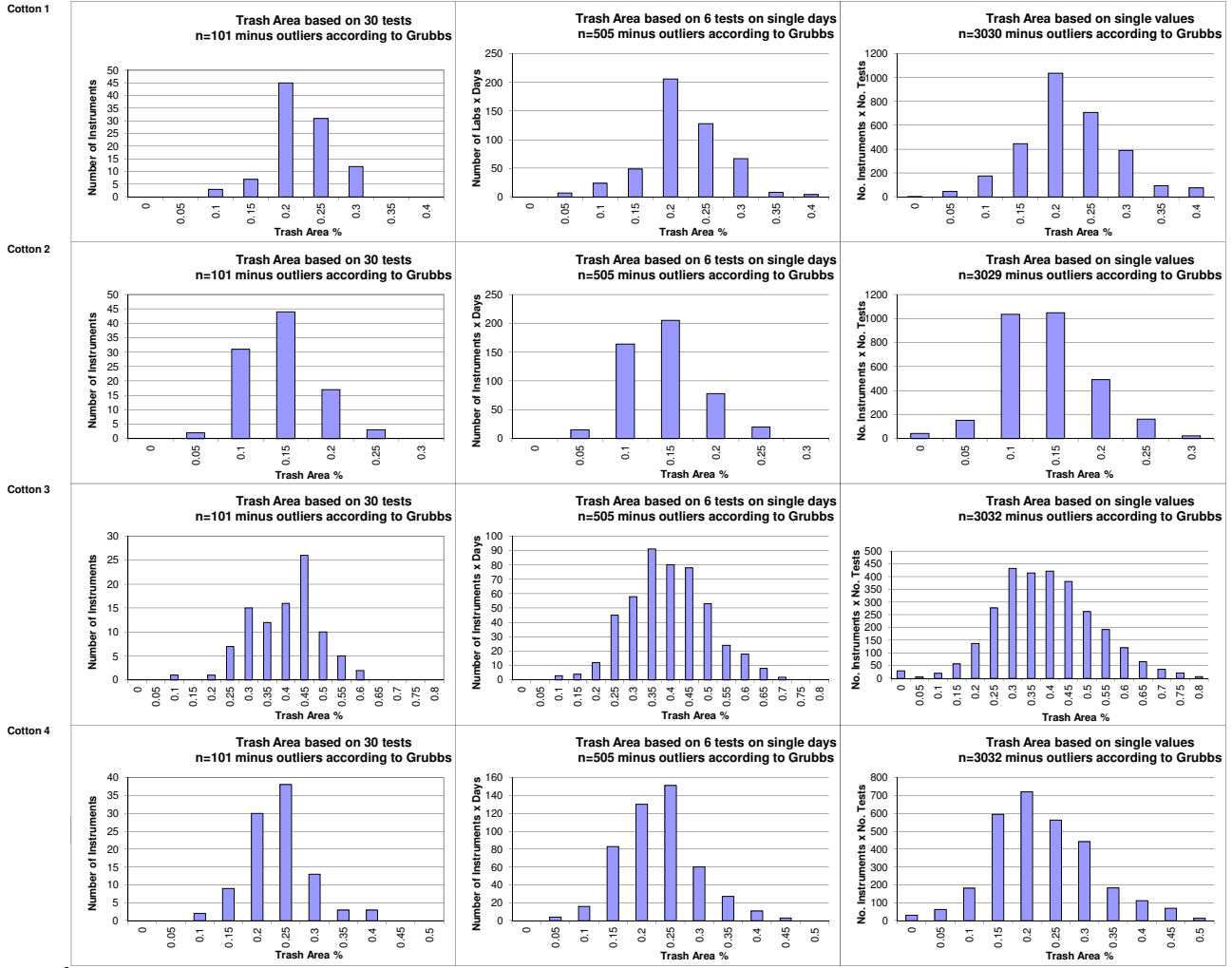
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count



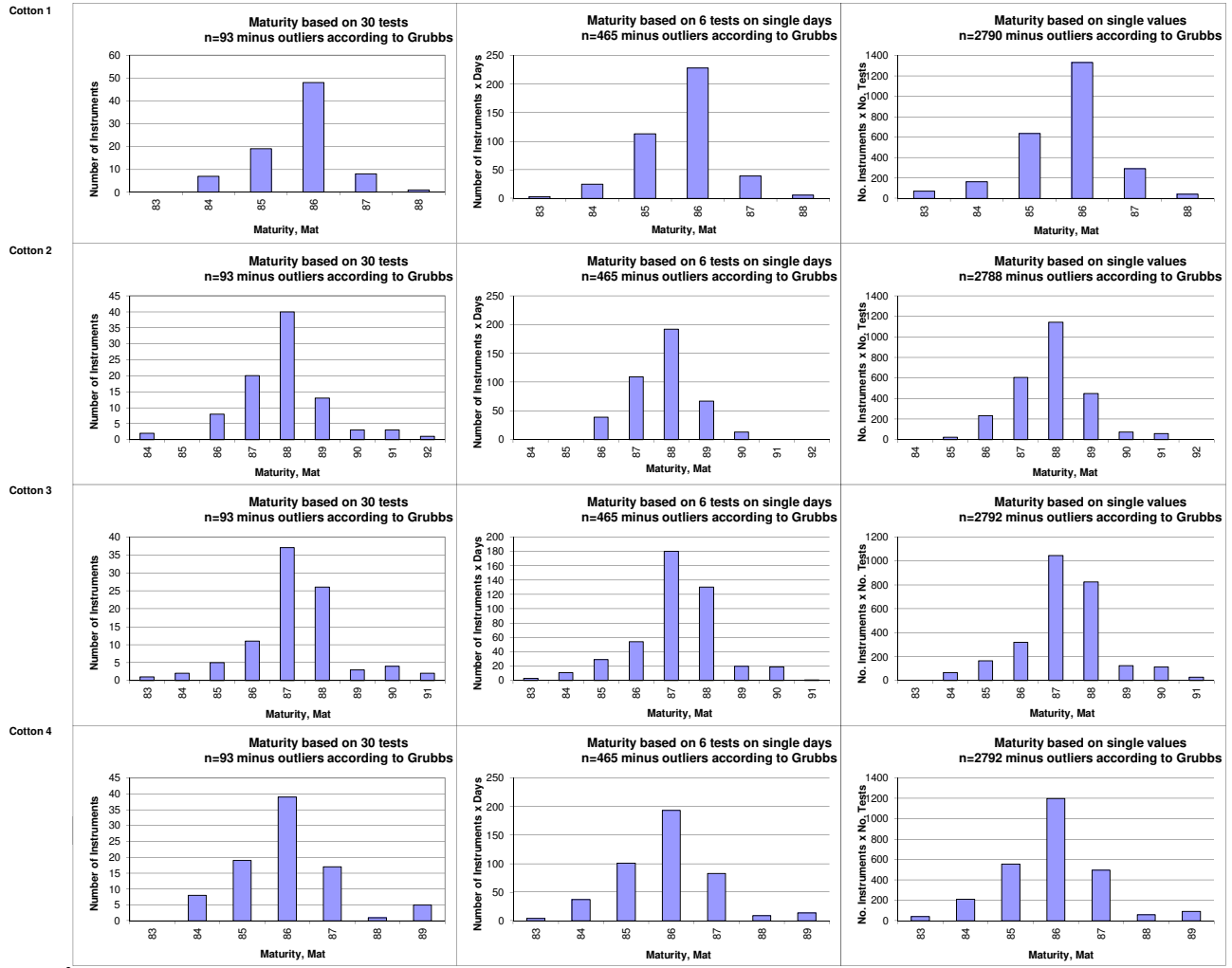
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Area



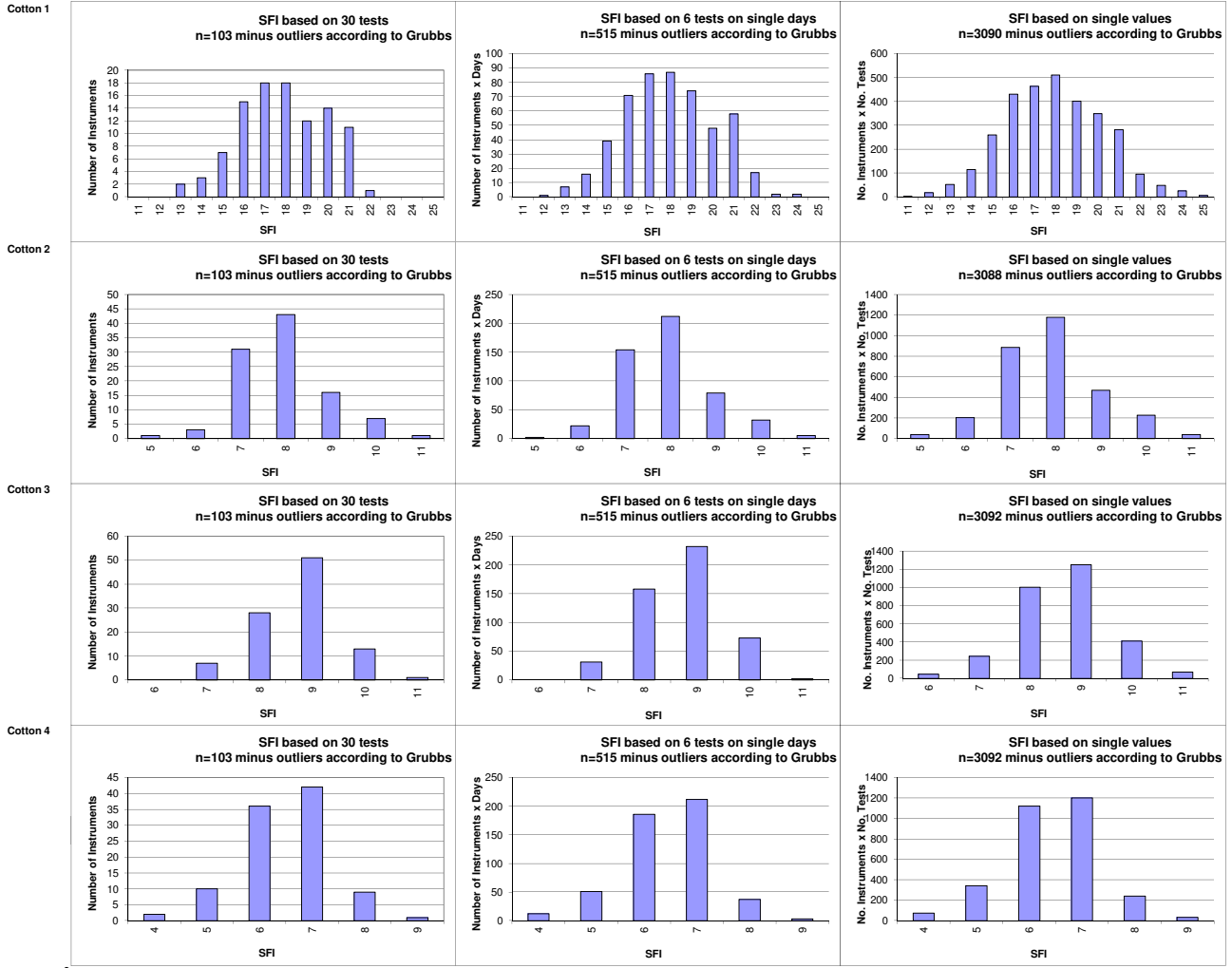
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

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 2018 - 3 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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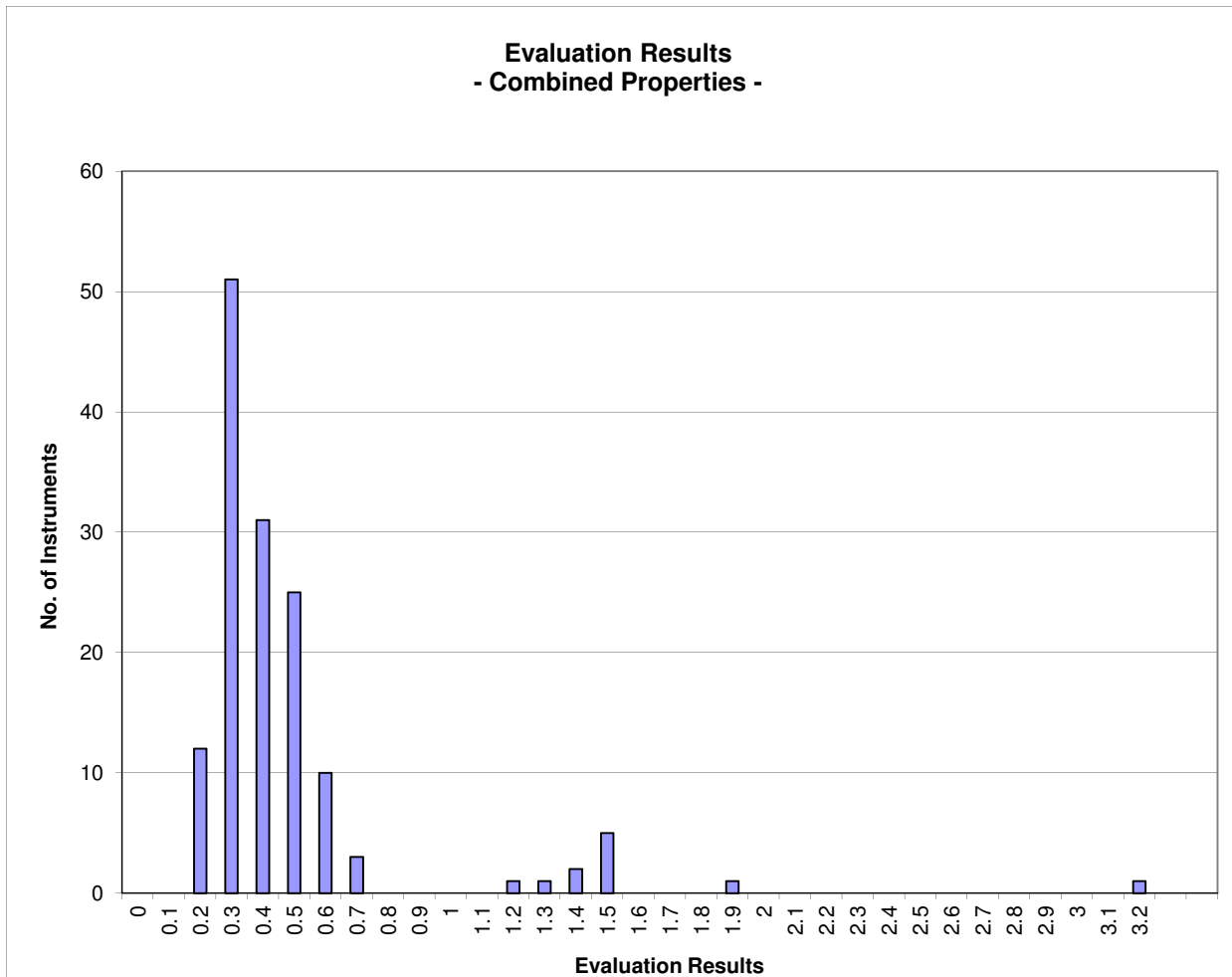
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2018 - 3

		Evaluation Combined Prop.
Statistics	Average	0.48
	Median	0.36
	Best Instrument	0.18
	Worst Instrument	3.17

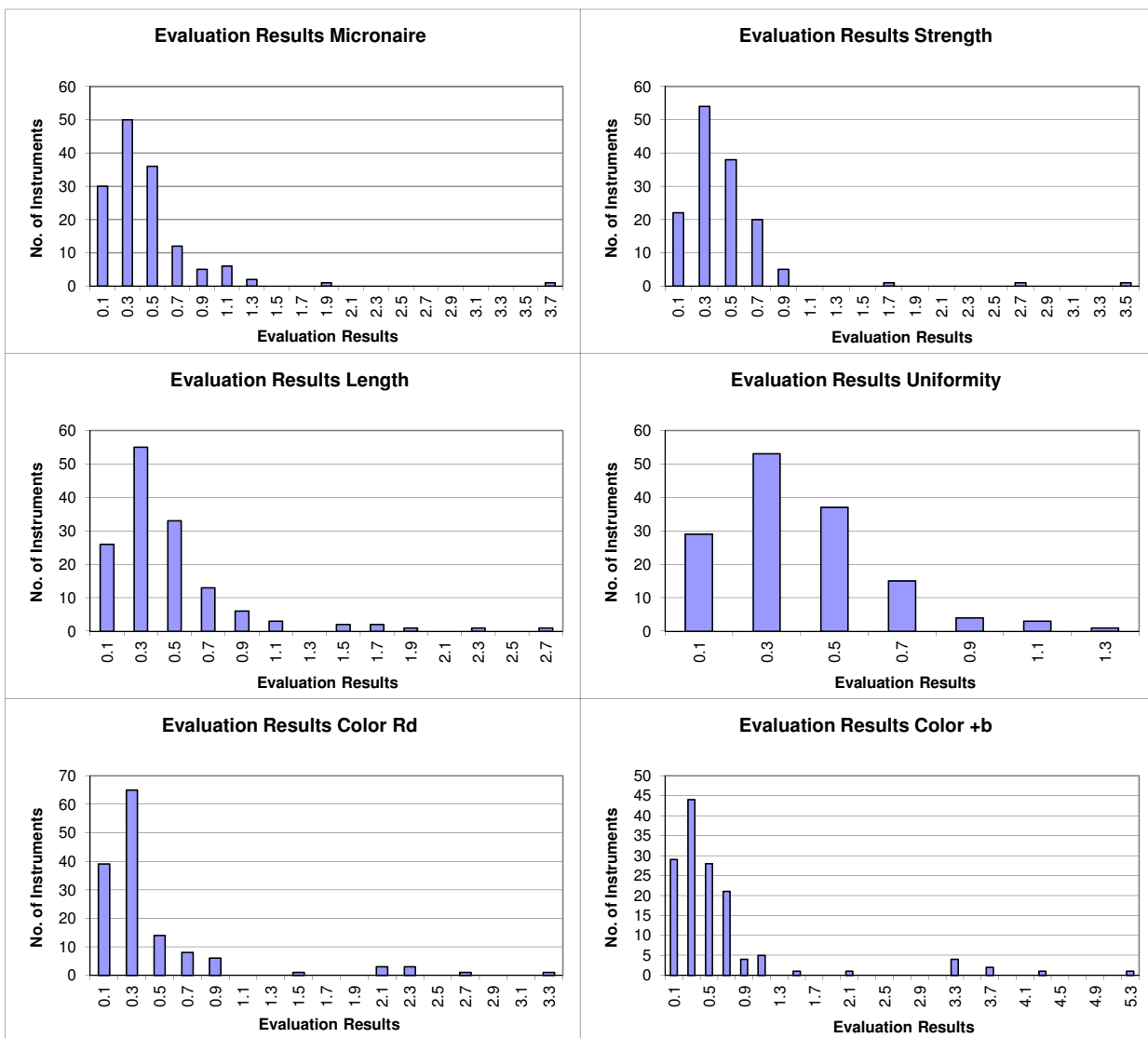


x-Axis shows midpoints of classes

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 2018 - 3

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.45	0.44	0.47	0.41	0.45	0.62
	Median	0.37	0.37	0.37	0.37	0.28	0.39
	Best Instr.	0.05	0.05	0.07	0.09	0.06	0.06
	Worst Instr.	3.78	3.42	2.79	1.35	3.30	5.24



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



International Cotton Advisory Committee



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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	99.0	96.3	96.3	99.6	94.0	88.8
Completely within limits	97.2	90.1	90.9	98.6	85.8	73.8
% of Instruments $\geq 75\%$ within limits	98.6	97.9	95.1	100.0	92.2	88.7
% of Instruments $\geq 50\%$ within limits	100.0	97.9	99.3	100.0	98.6	95.7

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	97.8	92.9	94.5	98.0	92.3	85.3
% of Instruments 100% within limits	61.5	20.4	33.6	54.2	58.9	29.1
% of Instruments $\geq 95\%$ within limits	90.2	63.4	81.8	89.4	78.7	48.9
% of Instruments $\geq 75\%$ within limits	97.9	96.5	93.7	98.6	87.2	78.7
% of Instruments $\geq 65\%$ within limits	98.6	97.9	95.1	100.0	90.8	84.4
% of Instruments $\geq 50\%$ within limits	100.0	97.9	97.9	100.0	96.5	93.6