



International Cotton Advisory Committee



CSITC Global - Round Trial 2020 - 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
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Global - Round Trial 2020 - 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)			4.568	4.249	4.147	3.989	
Reference Values for Evaluation			4.568	4.249	4.147	3.989	
Number Of Instruments			104	104	104	104	104
Inter-Instrument Variation	based on 30 tests	SD	0.050	0.057	0.071	0.061	0.060
		CV %	1.1	1.3	1.7	1.5	1.4
	based on 6 tests	SD	0.061	0.058	0.073	0.064	0.064
		CV %	1.3	1.4	1.8	1.6	1.5
	based on single tests	SD	0.070	0.067	0.082	0.072	0.073
		CV %	1.5	1.6	2.0	1.8	1.7
Typical within-instrument Variation (Median)	between different days	SD	0.026	0.022	0.024	0.022	0.023
	with each 6 tests	CV %	0.6	0.5	0.6	0.6	0.6
	between single tests	SD	0.036	0.032	0.033	0.031	0.033
	on one day	CV %	0.8	0.7	0.8	0.8	0.8
	between all tests	SD	0.043	0.041	0.042	0.039	0.041
	on different days	CV %	0.9	1.0	1.0	1.0	1.0

Strength							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			27.888	28.986	24.264	33.342	
Reference Values for Evaluation			27.888	28.986	24.264	33.342	
Number Of Instruments			104	104	104	104	104
Inter-Instrument Variation	based on 30 tests	SD	0.674	0.876	0.790	0.705	0.761
		CV %	2.4	3.0	3.3	2.1	2.7
	based on 6 tests	SD	0.778	0.990	0.856	0.794	0.855
		CV %	2.8	3.4	3.5	2.4	3.0
	based on single tests	SD	0.970	1.142	0.973	0.982	1.017
		CV %	3.5	3.9	4.0	2.9	3.6
Typical within-instrument Variation (Median)	between different days	SD	0.328	0.370	0.312	0.373	0.346
	with each 6 tests	CV %	1.2	1.3	1.3	1.1	1.2
	between single tests	SD	0.615	0.609	0.463	0.587	0.569
	on one day	CV %	2.2	2.1	1.9	1.8	2.0
	between all tests	SD	0.691	0.700	0.550	0.685	0.656
	on different days	CV %	2.5	2.4	2.3	2.1	2.3

Length							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			1.0645	1.0375	1.0013	1.1890	
Reference Values for Evaluation			1.0645	1.0375	1.0013	1.1890	
Number Of Instruments			104	104	104	104	104
Inter-Instrument Variation	based on 30 tests	SD	0.0089	0.0079	0.0095	0.0087	0.0088
		CV %	0.8	0.8	0.9	0.7	0.8
	based on 6 tests	SD	0.0106	0.0097	0.0106	0.0100	0.0102
		CV %	1.0	0.9	1.1	0.8	1.0
	based on single tests	SD	0.0145	0.0141	0.0134	0.0133	0.0138
		CV %	1.4	1.4	1.3	1.1	1.3
Typical within-instrument Variation (Median)	between different days	SD	0.0053	0.0051	0.0053	0.0055	0.0053
	with each 6 tests	CV %	0.5	0.5	0.5	0.5	0.5
	between single tests	SD	0.0107	0.0105	0.0087	0.0091	0.0098
	on one day	CV %	1.0	1.0	0.9	0.8	0.9
	between all tests	SD	0.0119	0.0112	0.0097	0.0105	0.0108
	on different days	CV %	1.1	1.1	1.0	0.9	1.0

Uniformity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			80.634	80.223	80.221	83.401	
Reference Values for Evaluation			80.634	80.223	80.221	83.401	
Number Of Instruments			104	104	104	104	104
Inter-Instrument Variation	based on 30 tests	SD	0.432	0.365	0.469	0.474	0.435
		CV %	0.5	0.5	0.6	0.6	0.5
	based on 6 tests	SD	0.527	0.452	0.576	0.540	0.524
		CV %	0.7	0.6	0.7	0.6	0.6
	based on single tests	SD	0.764	0.677	0.749	0.699	0.722
		CV %	0.9	0.8	0.9	0.8	0.9
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.249	0.262	0.284	0.235	0.257
		CV %	0.3	0.3	0.4	0.3	0.3
	between single tests on one day	SD	0.539	0.510	0.500	0.447	0.499
		CV %	0.7	0.6	0.6	0.5	0.6
	between all tests on different days	SD	0.599	0.559	0.567	0.488	0.553
		CV %	0.7	0.7	0.7	0.6	0.7

Color Rd							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			75.427	77.650	74.043	74.616	
Reference Values for Evaluation			75.427	77.650	74.043	74.616	
Number Of Instruments			102	102	102	102	102
Inter-Instrument Variation	based on 30 tests	SD	0.625	0.550	0.623	0.634	0.608
		CV %	0.8	0.7	0.8	0.8	0.8
	based on 6 tests	SD	0.655	0.594	0.659	0.672	0.645
		CV %	0.9	0.8	0.9	0.9	0.9
	based on single tests	SD	0.673	0.640	0.668	0.680	0.665
		CV %	0.9	0.8	0.9	0.9	0.9
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.211	0.152	0.155	0.154	0.168
		CV %	0.3	0.2	0.2	0.2	0.2
	between single tests on one day	SD	0.206	0.154	0.141	0.148	0.162
		CV %	0.3	0.2	0.2	0.2	0.2
	between all tests on different days	SD	0.324	0.213	0.223	0.231	0.248
		CV %	0.4	0.3	0.3	0.3	0.3

Color +b							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			7.582	11.940	13.962	13.539	
Reference Values for Evaluation			7.582	11.940	13.962	13.539	
Number Of Instruments			102	102	102	102	102
Inter-Instrument Variation	based on 30 tests	SD	0.212	0.315	0.288	0.344	0.290
		CV %	2.8	2.6	2.1	2.5	2.5
	based on 6 tests	SD	0.233	0.317	0.298	0.311	0.290
		CV %	3.1	2.7	2.1	2.3	2.5
	based on single tests	SD	0.270	0.350	0.307	0.324	0.313
		CV %	3.6	2.9	2.2	2.4	2.8
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.087	0.090	0.086	0.097	0.090
		CV %	1.1	0.8	0.6	0.7	0.8
	between single tests on one day	SD	0.085	0.085	0.086	0.098	0.089
		CV %	1.1	0.7	0.6	0.7	0.8
	between all tests on different days	SD	0.128	0.140	0.134	0.157	0.140
		CV %	1.7	1.2	1.0	1.2	1.2

Optional Parameters

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

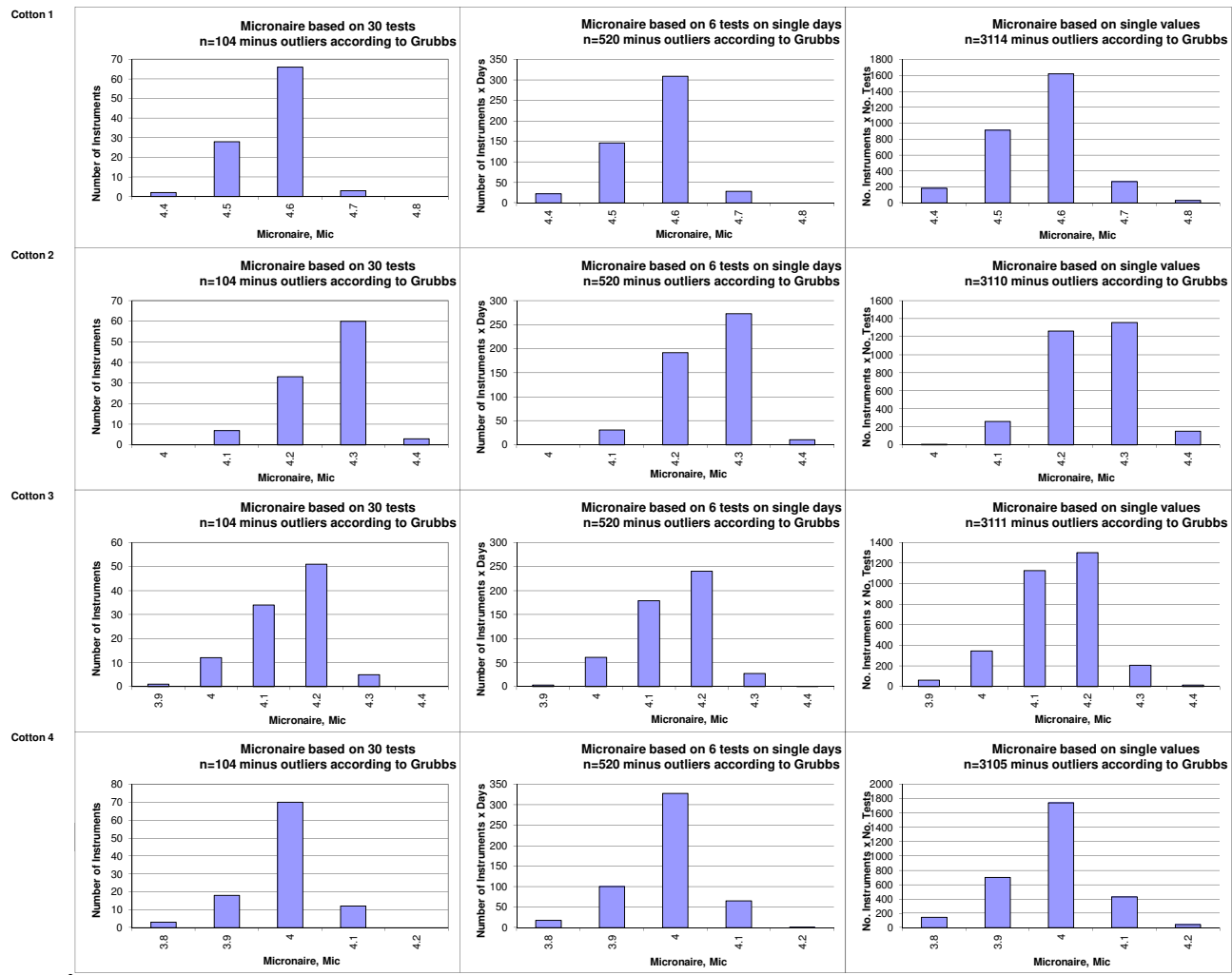
Trash Count							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			24.29	17.22	17.55	29.96	
Reference Values for Evaluation			24.29	17.22	17.55	29.96	
Number Of Instruments			80	80	80	80	80
Inter-Instrument Variation	based on 30 tests	SD	6.26	4.41	4.32	7.90	5.72
		CV %	25.8	25.6	24.6	26.4	25.6
	based on 6 tests	SD	6.60	4.83	4.61	8.24	6.07
		CV %	27.2	28.1	26.3	27.5	27.3
	based on single tests	SD	7.99	5.75	5.27	8.74	6.94
		CV %	32.9	33.4	30.0	29.2	31.4
Typical within-instrument Variation (Median)	between different days	SD	2.17	1.50	1.79	1.88	1.83
	with each 6 tests	CV %	8.9	8.7	10.2	6.3	8.5
	between single tests	SD	3.01	2.49	2.43	3.33	2.82
	on one day	CV %	12.4	14.5	13.9	11.1	13.0
	between all tests	SD	4.04	3.22	3.09	3.84	3.55
	on different days	CV %	16.6	18.7	17.6	12.8	16.4

Trash Area							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.277	0.173	0.236	0.264	
Reference Values for Evaluation			0.277	0.173	0.236	0.264	
Number Of Instruments			80	80	80	80	80
Inter-Instrument Variation	based on 30 tests	SD	0.072	0.037	0.068	0.071	0.062
		CV %	26.0	21.5	28.8	27.0	25.8
	based on 6 tests	SD	0.092	0.044	0.081	0.072	0.072
		CV %	33.1	25.6	34.4	27.3	30.1
	based on single tests	SD	0.106	0.057	0.094	0.088	0.087
		CV %	38.4	33.1	40.0	33.4	36.2
Typical within-instrument Variation (Median)	between different days	SD	0.037	0.022	0.035	0.026	0.030
	with each 6 tests	CV %	13.2	12.4	14.7	9.8	12.5
	between single tests	SD	0.056	0.031	0.051	0.037	0.044
	on one day	CV %	20.1	18.0	21.6	14.1	18.5
	between all tests	SD	0.076	0.042	0.067	0.051	0.059
	on different days	CV %	27.6	24.3	28.3	19.3	24.9

Maturity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			87.23	85.80	85.34	85.64	
Reference Values for Evaluation			87.23	85.80	85.34	85.64	
Number Of Instruments			72	72	72	72	72
Inter-Instrument Variation	based on 30 tests	SD	0.76	0.75	0.77	1.15	0.86
		CV %	0.9	0.9	0.9	1.3	1.0
	based on 6 tests	SD	0.72	0.78	0.71	1.03	0.81
		CV %	0.8	0.9	0.8	1.2	0.9
	based on single tests	SD	0.77	0.95	0.79	0.98	0.87
		CV %	0.9	1.1	0.9	1.1	1.0
Typical within-instrument Variation (Median)	between different days	SD	0.13	0.15	0.08	0.14	0.12
	with each 6 tests	CV %	0.2	0.2	0.1	0.2	0.1
	between single tests	SD	0.16	0.20	0.10	0.17	0.16
	on one day	CV %	0.2	0.2	0.1	0.2	0.2
	between all tests	SD	0.25	0.35	0.17	0.26	0.26
	on different days	CV %	0.3	0.4	0.2	0.3	0.3

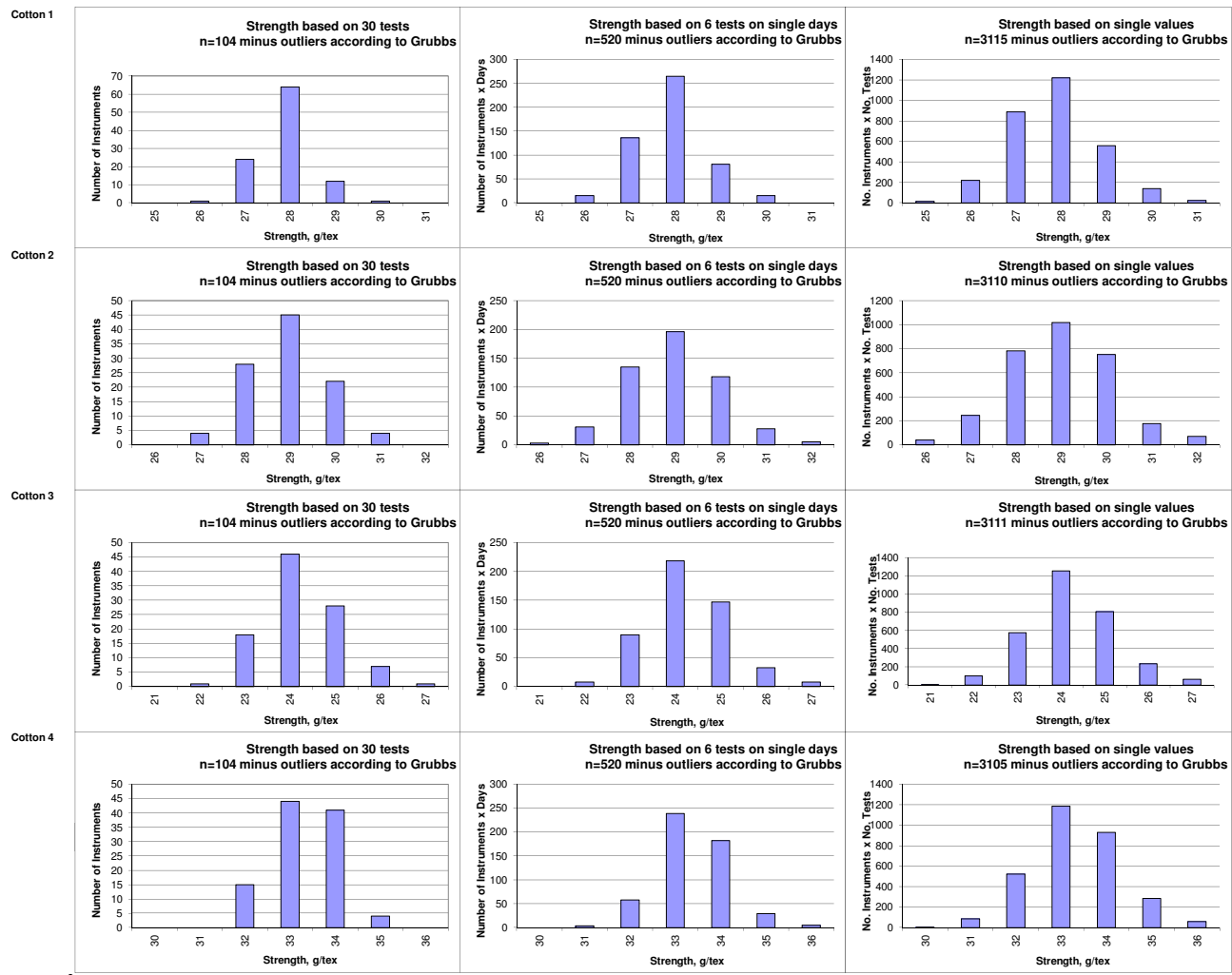
SFI							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			11.07	11.34	12.37	7.58	
Reference Values for Evaluation			11.07	11.34	12.37	7.58	
Number Of Instruments			83	83	83	83	83
Inter-Instrument Variation	based on 30 tests	SD	1.00	1.08	1.33	0.79	1.05
		CV %	9.1	9.5	10.8	10.4	9.9
	based on 6 tests	SD	1.08	1.14	1.38	0.82	1.10
		CV %	9.8	10.0	11.2	10.8	10.4
	based on single tests	SD	1.26	1.28	1.51	0.88	1.23
		CV %	11.4	11.3	12.2	11.6	11.6
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.35	0.31	0.37	0.17	0.30
		CV %	3.1	2.8	3.0	2.3	2.8
	between single tests on one day	SD	0.62	0.59	0.65	0.33	0.55
		CV %	5.6	5.2	5.2	4.3	5.1
	between all tests on different days	SD	0.70	0.67	0.73	0.37	0.62
		CV %	6.4	5.9	5.9	4.9	5.8

Test Result Distributions
Micronaire



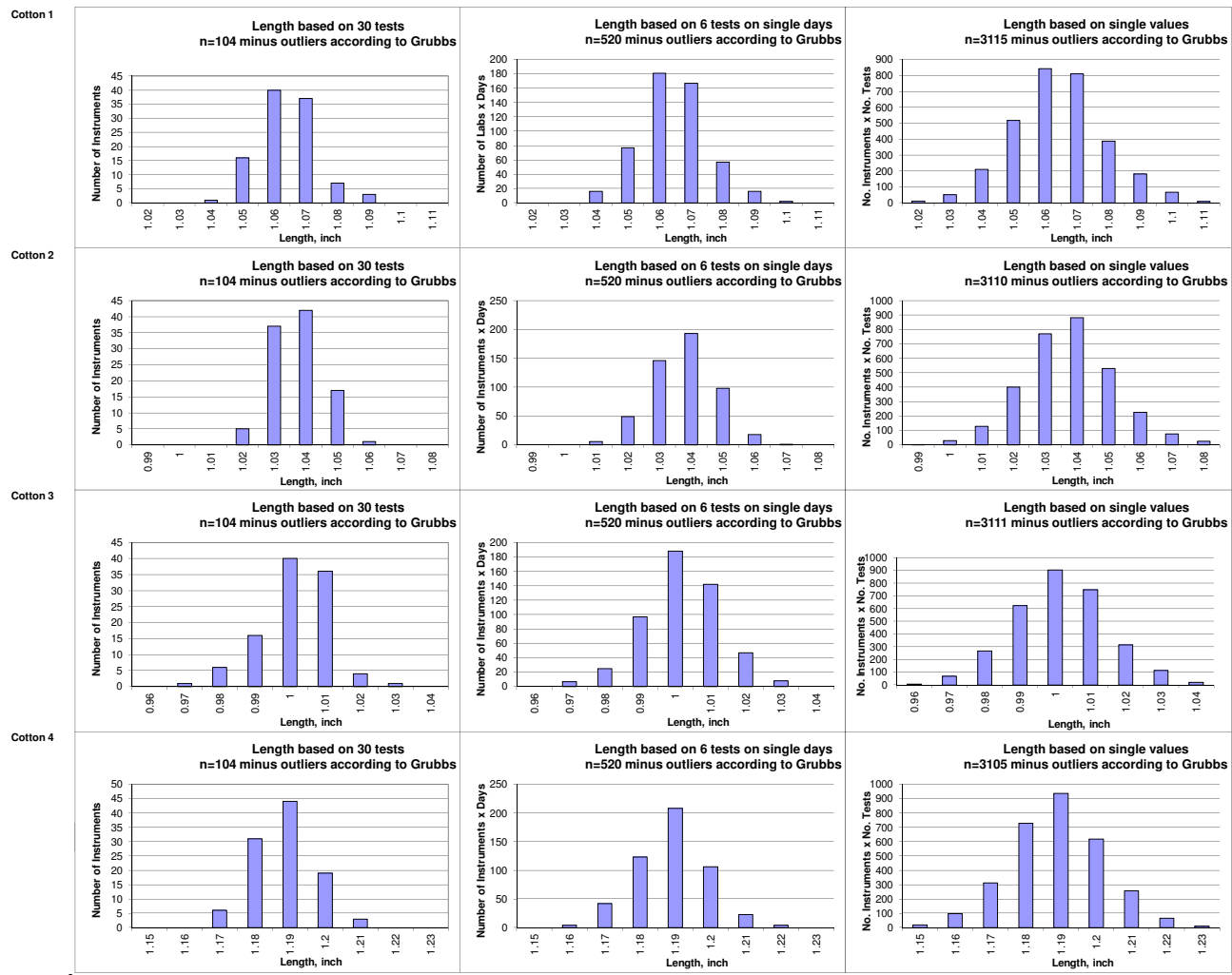
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Strength



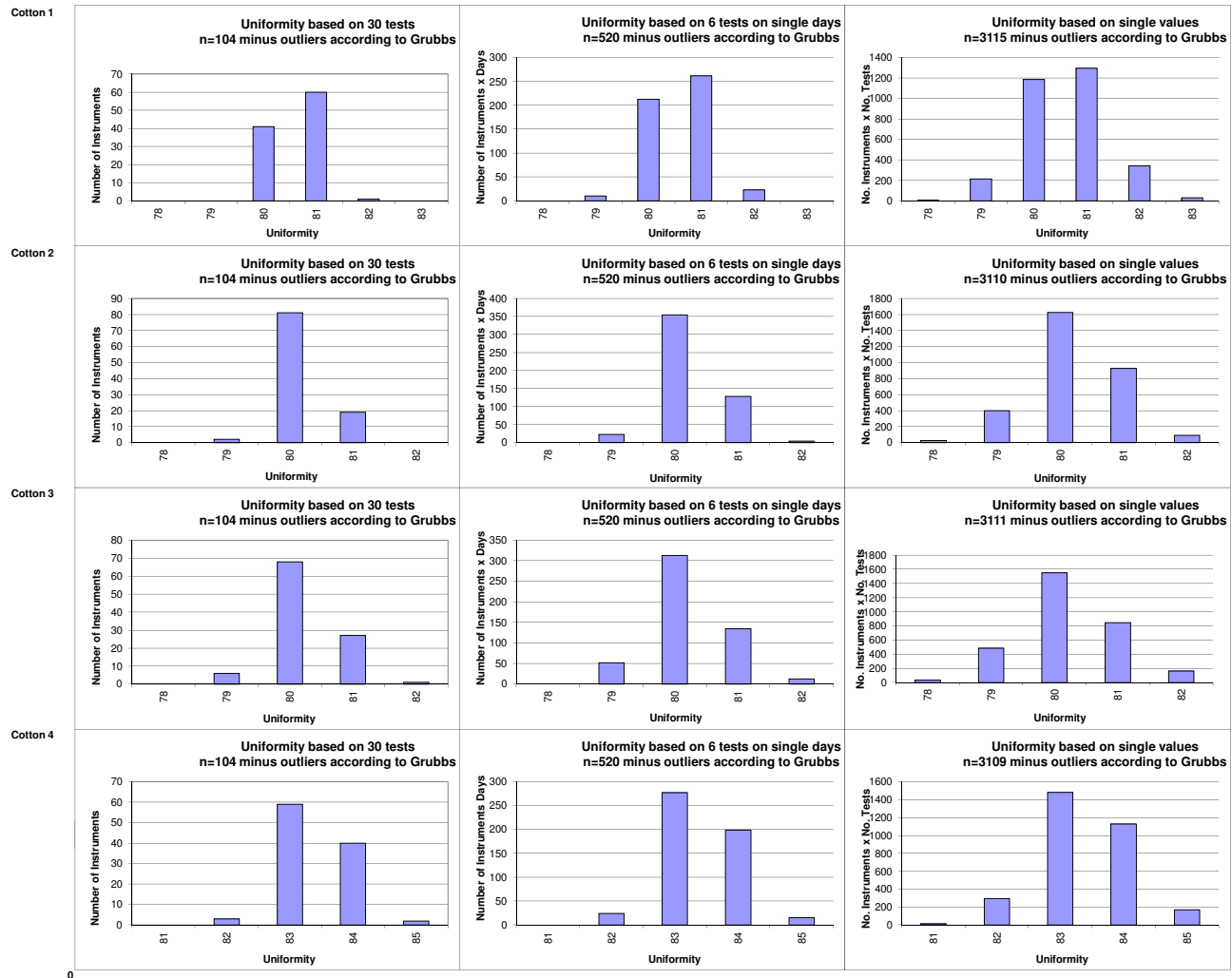
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
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Test Result Distributions
Length



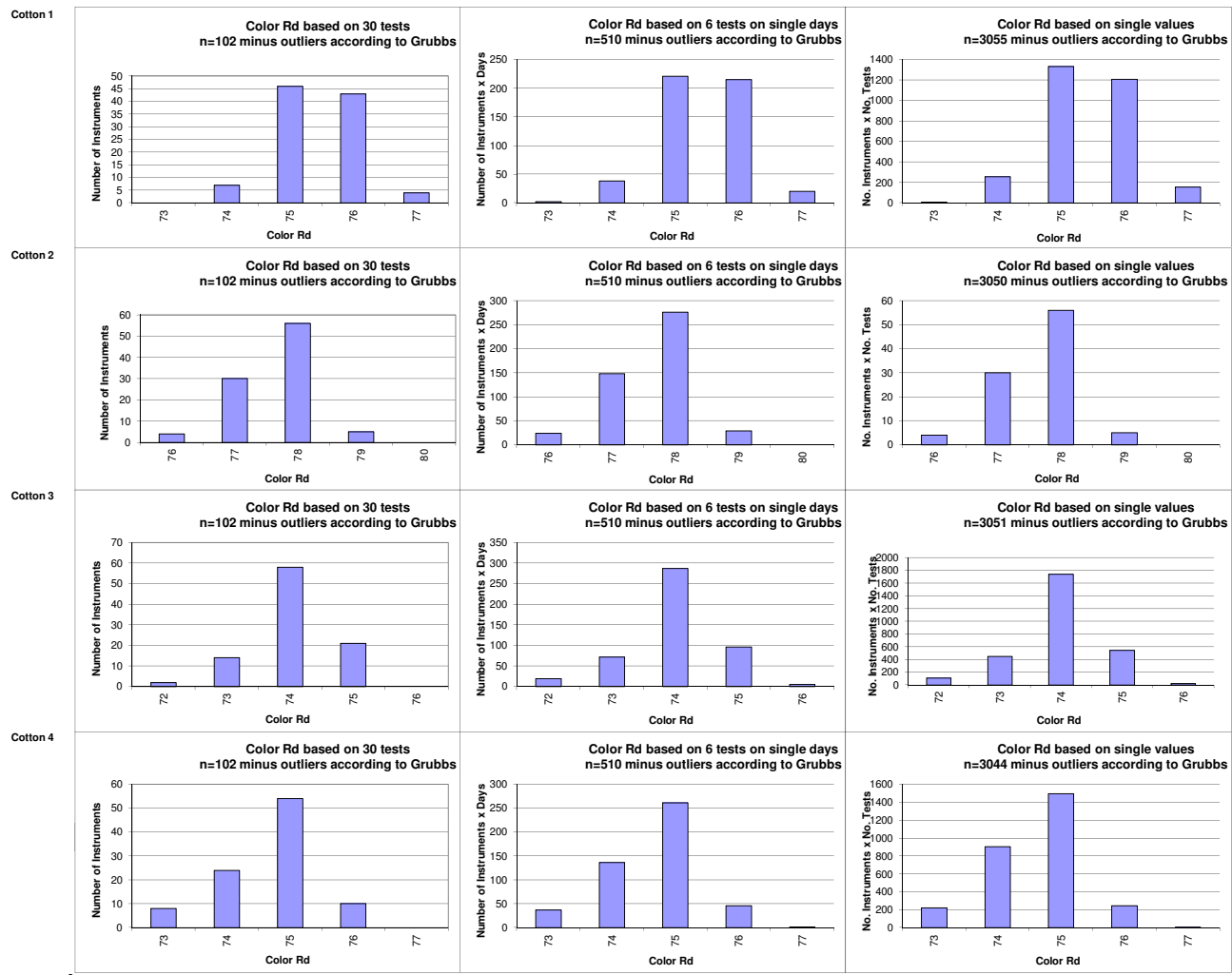
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Uniformity



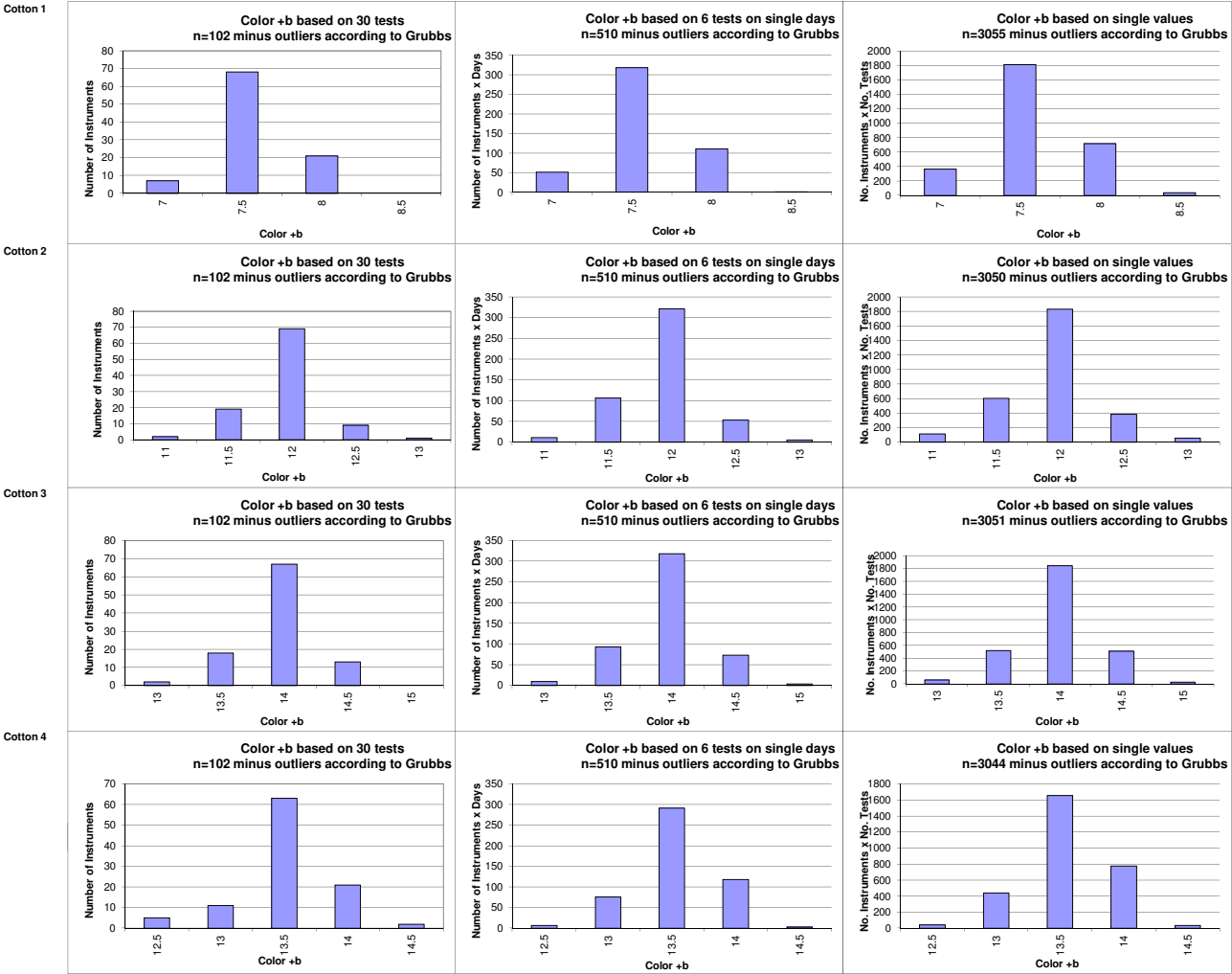
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(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd

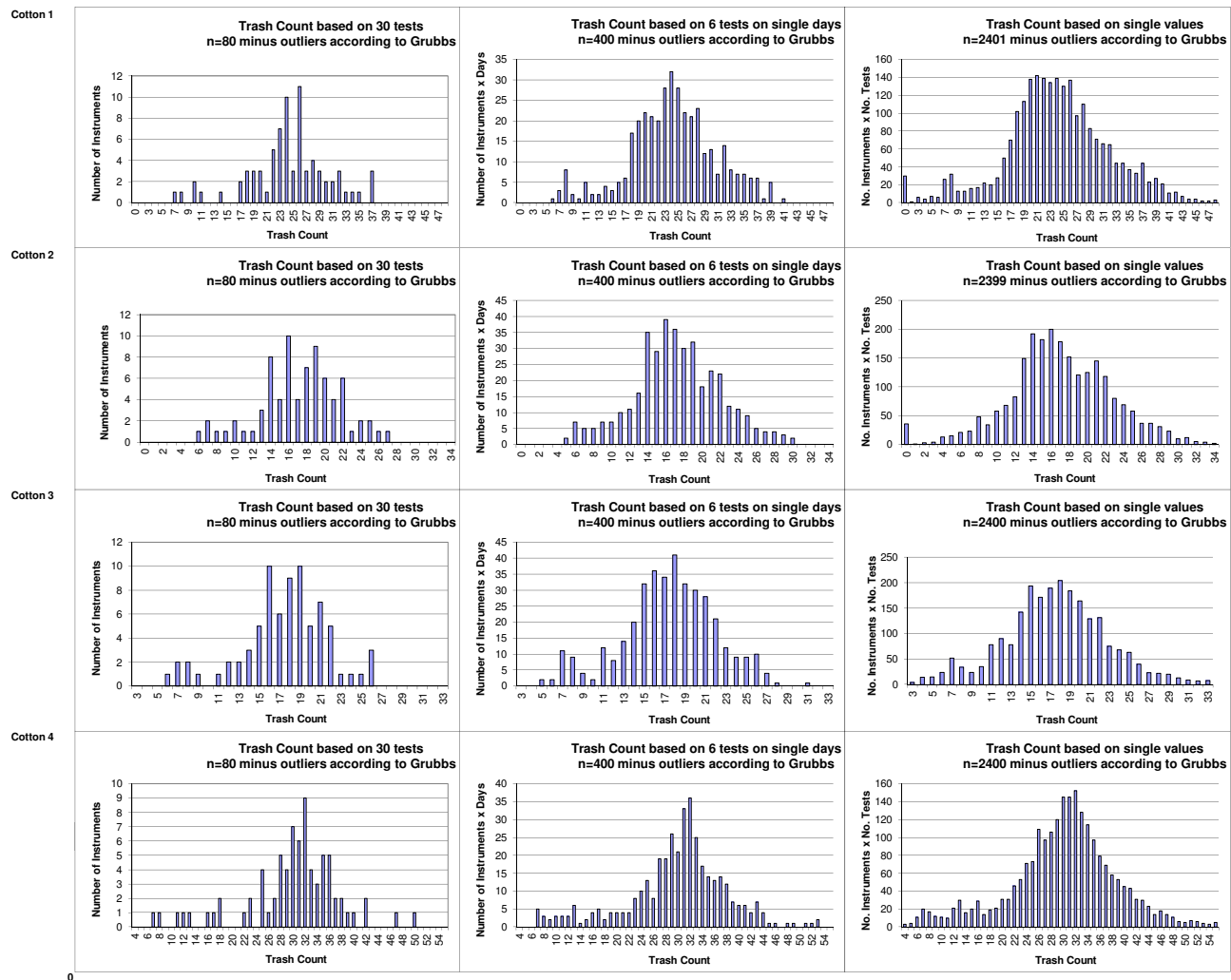


(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b

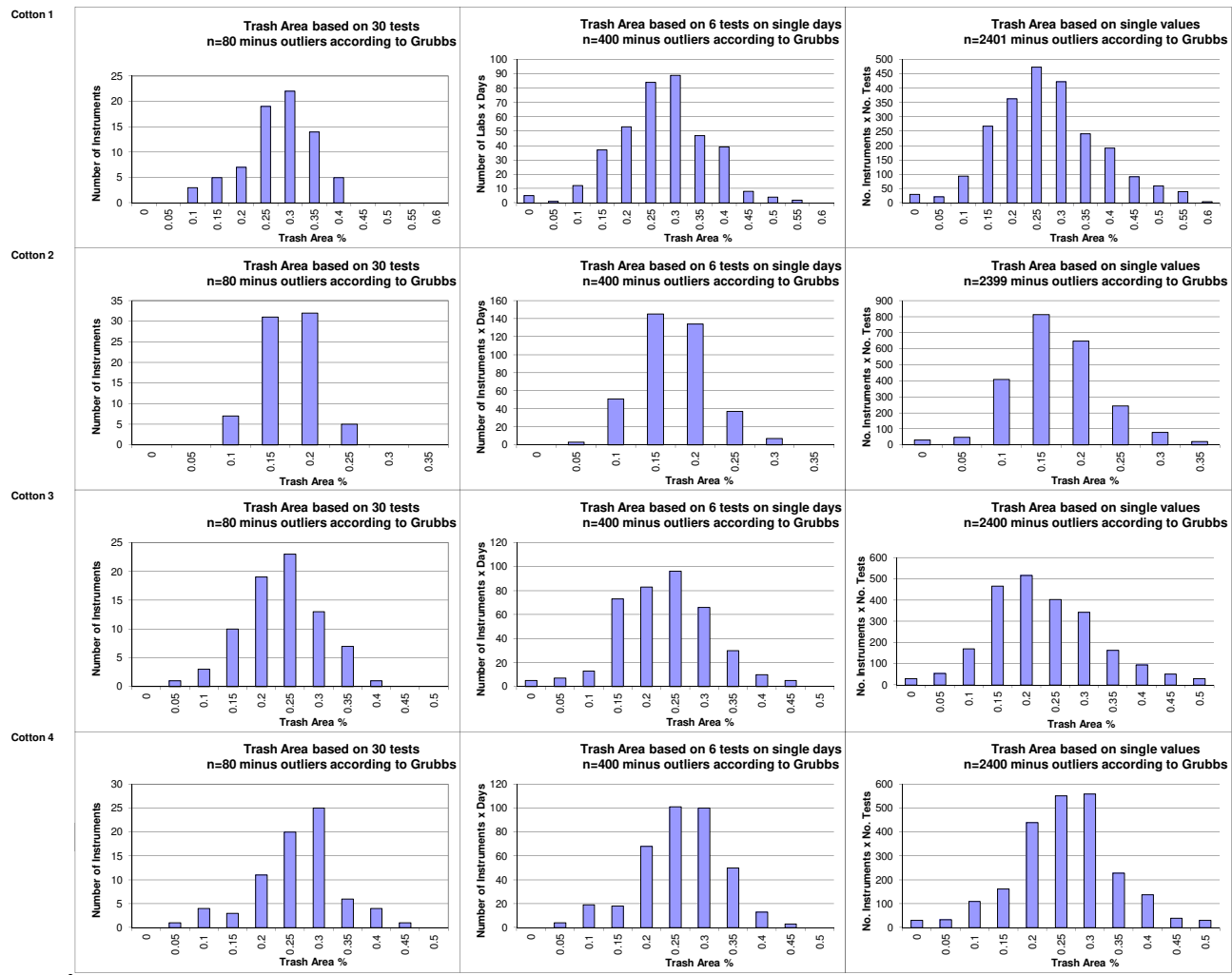


(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count

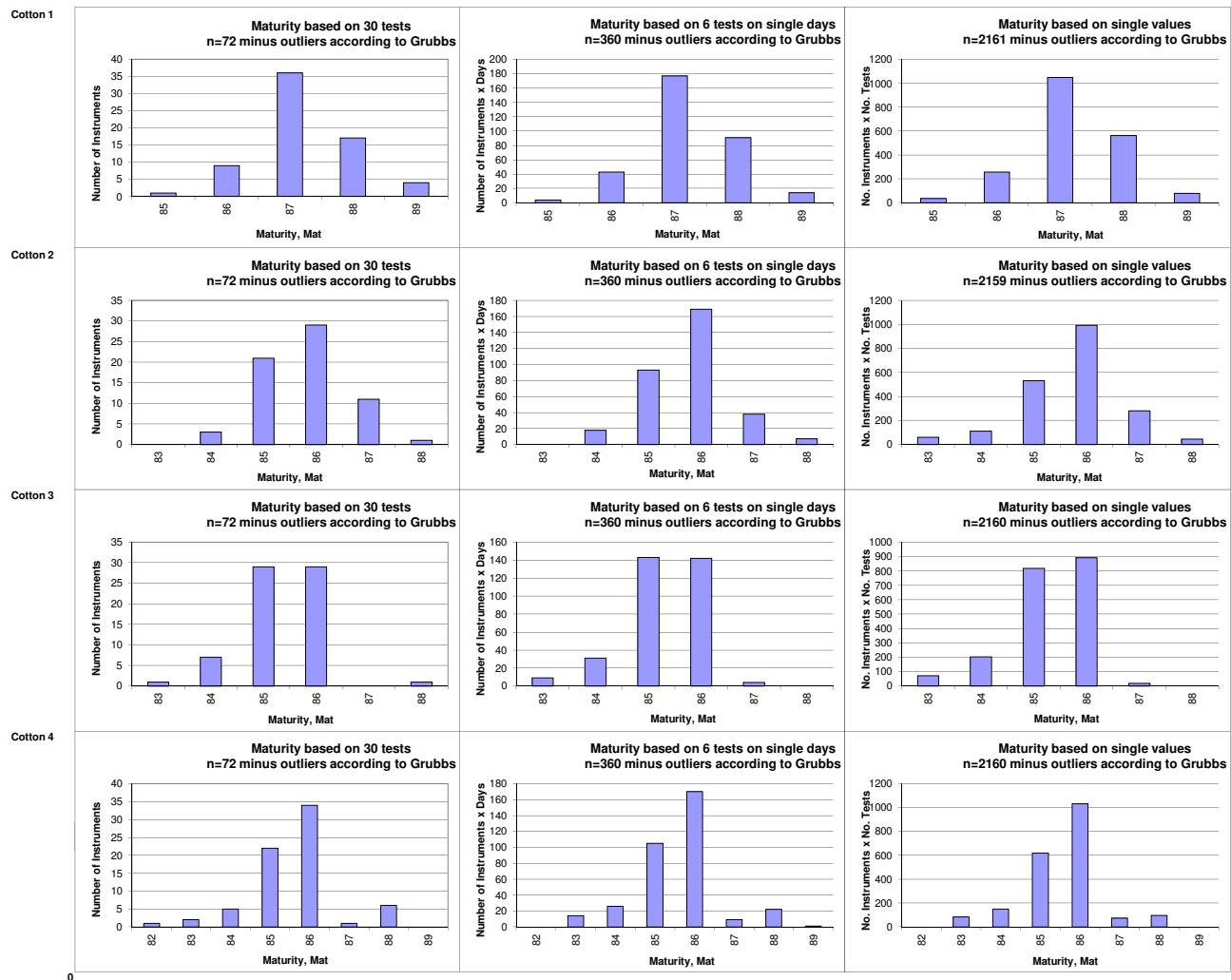
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Area



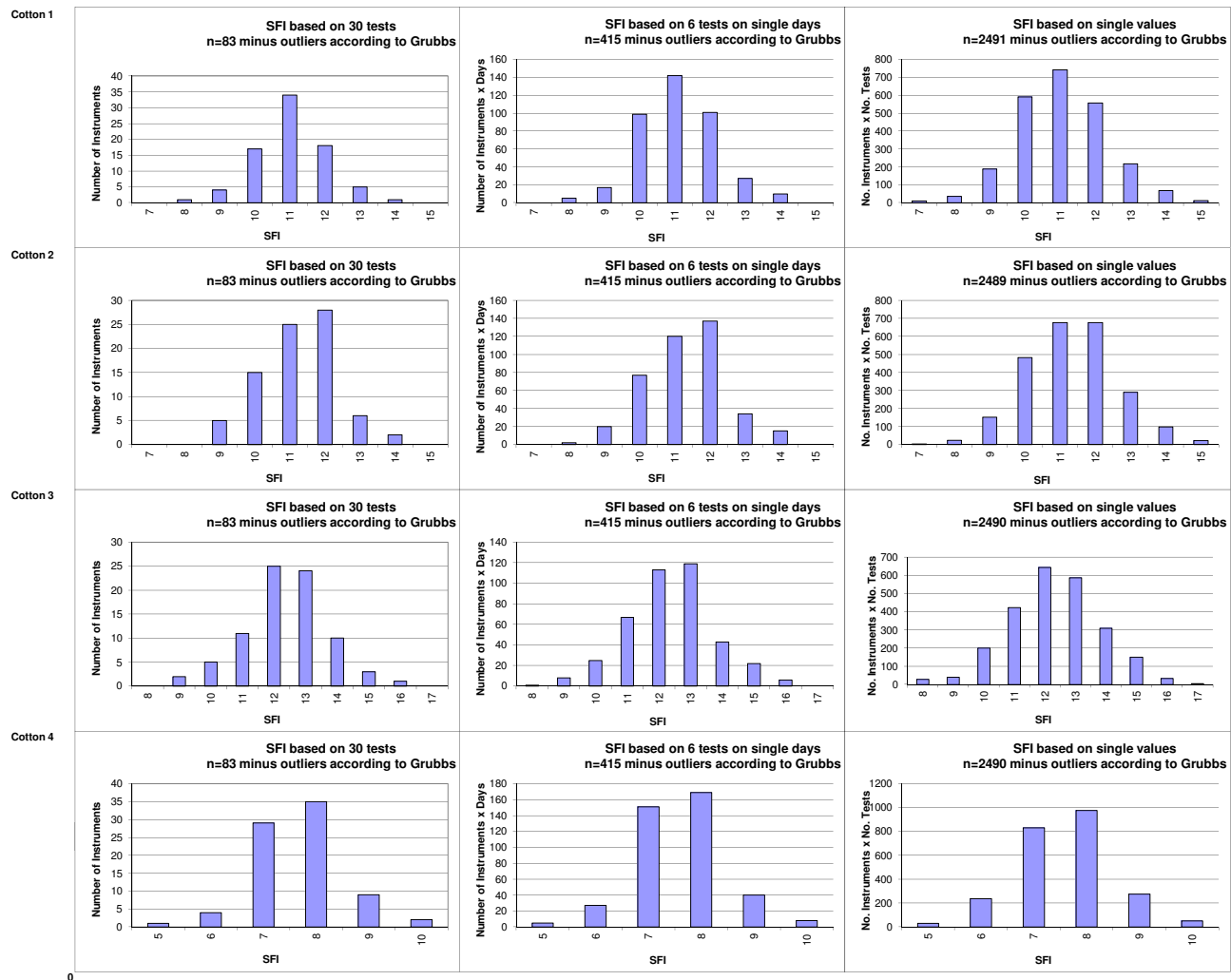
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

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 2020 - 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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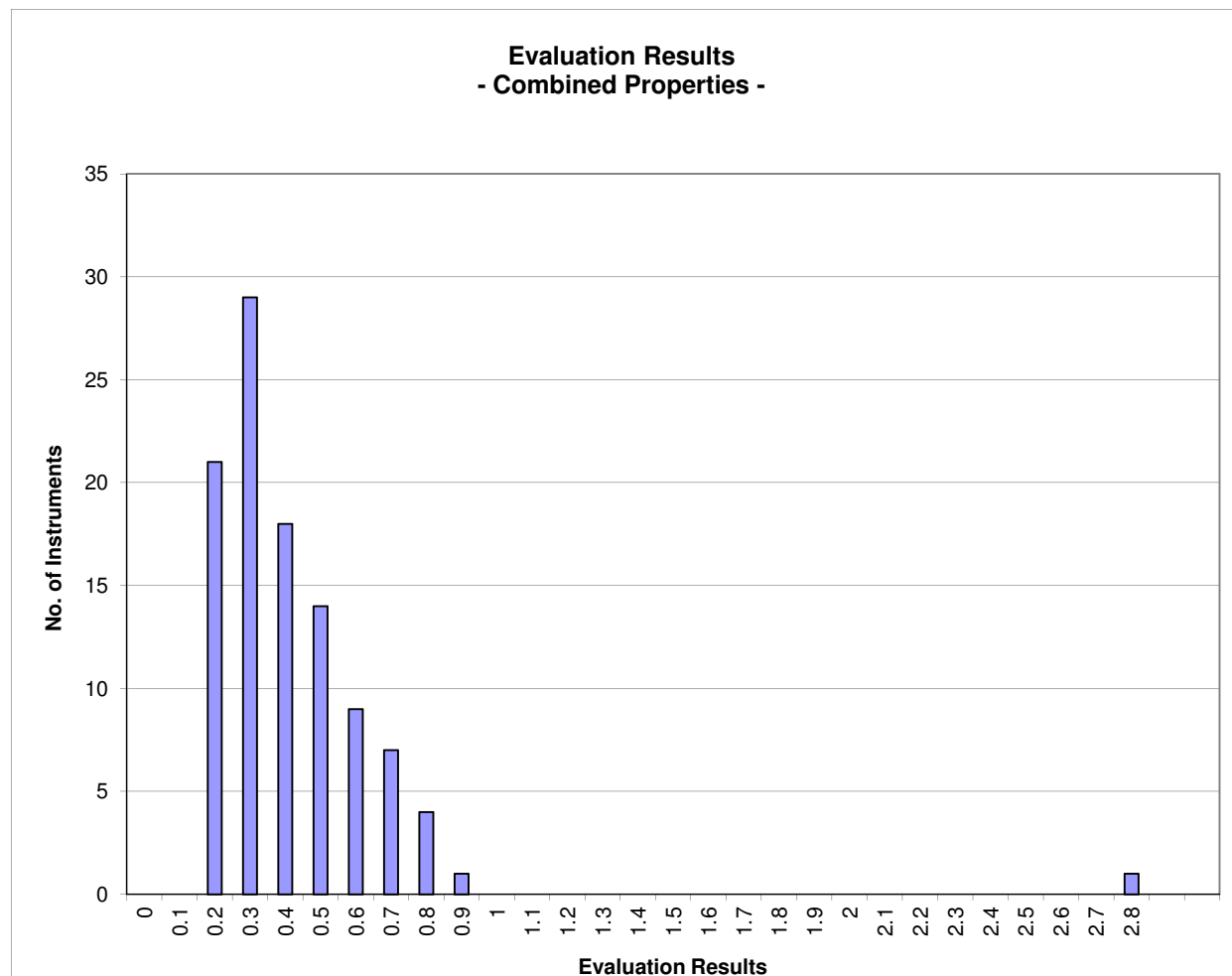
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2020 - 1

		Evaluation Combined Prop.
Statistics	Average	0.43
	Median	0.37
	Best Instrument	0.17
	Worst Instrument	2.85



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)

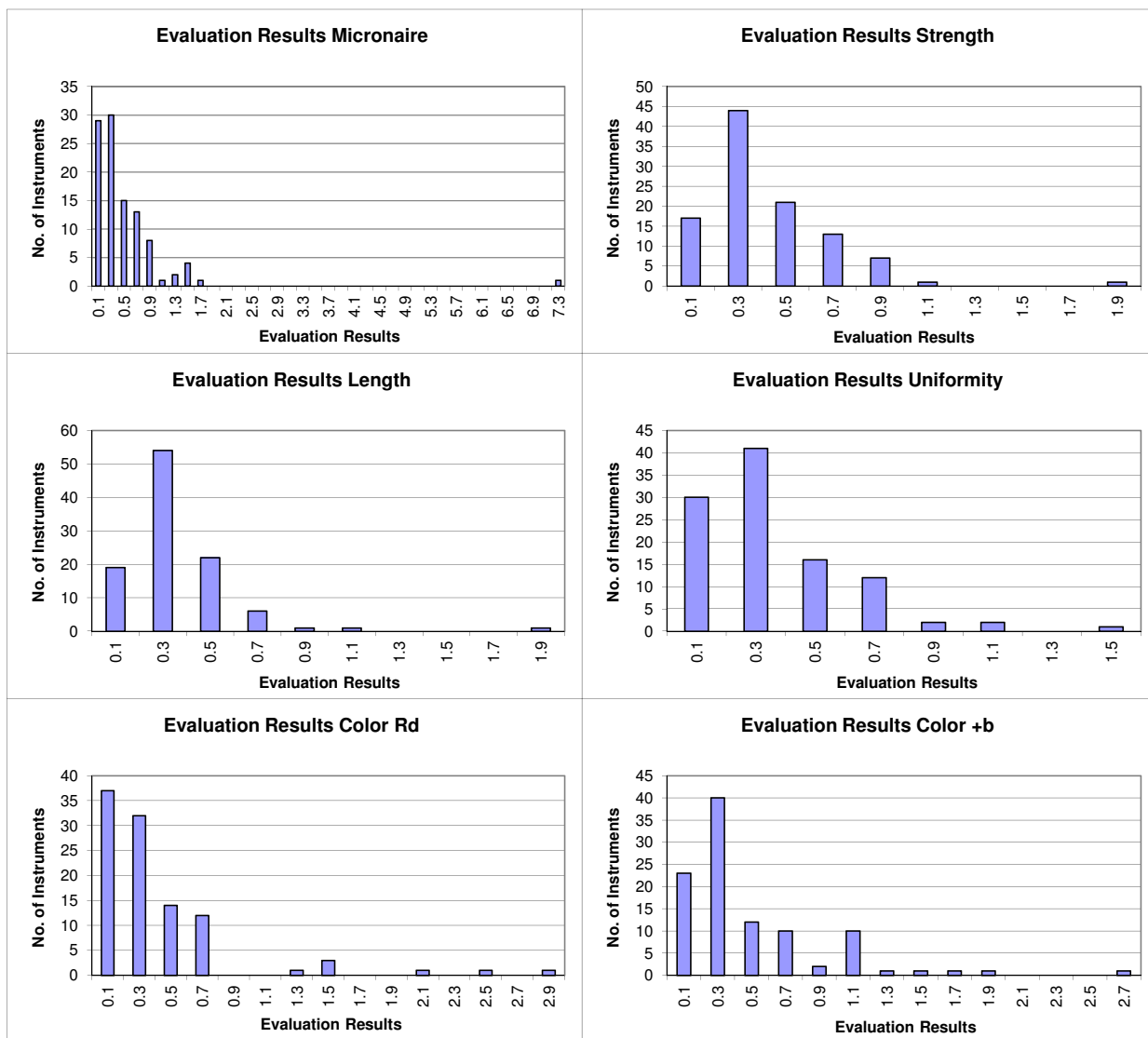
Instrument Evaluation

- Graph of Single Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2020 - 1

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.53	0.42	0.36	0.36	0.41	0.48
	Median	0.36	0.34	0.31	0.28	0.26	0.31
	Best Instr.	0.04	0.05	0.04	0.04	0.06	0.07
	Worst Instr.	7.23	1.97	1.82	1.51	2.87	2.71



x-Axis shows midpoints of classes

The evaluation results are entered based on the unrounded values



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Section One: Result Distribution
Section Two: Instrument Evaluation
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	98.6	97.4	99.3	100.0	92.9	86.8
Completely within limits	97.1	92.3	97.1	100.0	90.2	77.5
% of Instruments $\geq 75\%$ within limits	99.0	99.0	100.0	100.0	93.1	84.3
% of Instruments $\geq 50\%$ within limits	99.0	99.0	100.0	100.0	93.1	89.2

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	97.0	93.1	96.9	98.2	91.1	85.5
% of Instruments 100% within limits	72.1	26.9	35.6	58.7	59.8	40.2
% of Instruments $\geq 95\%$ within limits	88.5	65.4	87.5	88.5	79.4	63.7
% of Instruments $\geq 75\%$ within limits	98.1	93.3	97.1	99.0	89.2	79.4
% of Instruments $\geq 65\%$ within limits	99.0	97.1	99.0	99.0	92.2	83.3
% of Instruments $\geq 50\%$ within limits	99.0	99.0	100.0	100.0	93.1	87.3