



**International Cotton Advisory Committee**



# CSITC Global - Round Trial 2025 - 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.



\* Faserinstitut Bremen are a Cooperation Partner with ICA Bremen

Global - Round Trial 2025 - 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)			4.362	4.197	4.364	4.223	
Reference Values for Evaluation			4.362	4.197	4.364	4.223	
Number Of Instruments			106	106	106	106	<b>106</b>
Inter-Instrument Variation	based on 30 tests	SD	0.058	0.063	0.060	0.065	<b>0.061</b>
		CV %	1.3	1.5	1.4	1.5	<b>1.4</b>
	based on 6 tests	SD	0.063	0.068	0.063	0.070	<b>0.066</b>
		CV %	1.4	1.6	1.4	1.7	<b>1.5</b>
	based on single tests	SD	0.074	0.077	0.070	0.076	<b>0.074</b>
		CV %	1.7	1.8	1.6	1.8	<b>1.7</b>
Typical within-instrument Variation (Median)	between different days	SD	0.022	0.022	0.023	0.023	<b>0.023</b>
	with each 6 tests	CV %	0.5	0.5	0.5	0.6	<b>0.5</b>
	between single tests on one day	SD	0.037	0.035	0.032	0.033	<b>0.034</b>
		CV %	0.8	0.8	0.7	0.8	<b>0.8</b>
	between all tests on different days	SD	0.044	0.042	0.038	0.040	<b>0.041</b>
		CV %	1.0	1.0	0.9	0.9	<b>1.0</b>

Strength							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			28.712	32.141	26.433	27.568	
Reference Values for Evaluation			28.712	32.141	26.433	27.568	
Number Of Instruments			106	106	106	106	<b>106</b>
Inter-Instrument Variation	based on 30 tests	SD	0.658	0.755	0.760	0.609	<b>0.695</b>
		CV %	2.3	2.3	2.9	2.2	<b>2.4</b>
	based on 6 tests	SD	0.739	0.874	0.824	0.703	<b>0.785</b>
		CV %	2.6	2.7	3.1	2.6	<b>2.7</b>
	based on single tests	SD	0.932	1.060	0.993	0.879	<b>0.966</b>
		CV %	3.2	3.3	3.8	3.2	<b>3.4</b>
Typical within-instrument Variation (Median)	between different days	SD	0.377	0.334	0.344	0.350	<b>0.351</b>
	with each 6 tests	CV %	1.3	1.0	1.3	1.3	<b>1.2</b>
	between single tests on one day	SD	0.574	0.620	0.525	0.535	<b>0.563</b>
		CV %	2.0	1.9	2.0	1.9	<b>2.0</b>
	between all tests on different days	SD	0.686	0.739	0.620	0.637	<b>0.671</b>
		CV %	2.4	2.3	2.3	2.3	<b>2.3</b>

Length							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			1.1218	1.1857	0.9487	1.0694	
Reference Values for Evaluation			1.1218	1.1857	0.9487	1.0694	
Number Of Instruments			106	106	106	106	<b>106</b>
Inter-Instrument Variation	based on 30 tests	SD	0.0086	0.0083	0.0131	0.0103	<b>0.0101</b>
		CV %	0.8	0.7	1.4	1.0	<b>1.0</b>
	based on 6 tests	SD	0.0100	0.0101	0.0142	0.0113	<b>0.0114</b>
		CV %	0.9	0.8	1.5	1.1	<b>1.1</b>
	based on single tests	SD	0.0139	0.0141	0.0162	0.0144	<b>0.0146</b>
		CV %	1.2	1.2	1.7	1.3	<b>1.4</b>
Typical within-instrument Variation (Median)	between different days	SD	0.0051	0.0053	0.0052	0.0058	<b>0.0053</b>
	with each 6 tests	CV %	0.5	0.4	0.5	0.5	<b>0.5</b>
	between single tests on one day	SD	0.0098	0.0106	0.0085	0.0098	<b>0.0097</b>
		CV %	0.9	0.9	0.9	0.9	<b>0.9</b>
	between all tests on different days	SD	0.0109	0.0114	0.0100	0.0105	<b>0.0107</b>
		CV %	1.0	1.0	1.1	1.0	<b>1.0</b>

Uniformity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			81.440	83.976	79.731	80.636	
Reference Values for Evaluation			81.440	83.976	79.731	80.636	
Number Of Instruments			106	106	106	106	<b>106</b>
Inter-Instrument Variation	based on 30 tests	SD	0.385	0.335	0.732	0.439	<b>0.473</b>
		CV %	0.5	0.4	0.9	0.5	<b>0.6</b>
	based on 6 tests	SD	0.478	0.413	0.762	0.505	<b>0.540</b>
		CV %	0.6	0.5	1.0	0.6	<b>0.7</b>
	based on single tests	SD	0.687	0.621	0.875	0.698	<b>0.720</b>
		CV %	0.8	0.7	1.1	0.9	<b>0.9</b>
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.279	0.253	0.227	0.269	<b>0.257</b>
		CV %	0.3	0.3	0.3	0.3	<b>0.3</b>
	between single tests on one day	SD	0.533	0.505	0.443	0.503	<b>0.496</b>
		CV %	0.7	0.6	0.6	0.6	<b>0.6</b>
	between all tests on different days	SD	0.593	0.541	0.494	0.557	<b>0.546</b>
		CV %	0.7	0.6	0.6	0.7	<b>0.7</b>

Color Rd							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			74.273	78.054	74.501	75.687	
Reference Values for Evaluation			74.273	78.054	74.501	75.687	
Number Of Instruments			103	103	103	103	<b>103</b>
Inter-Instrument Variation	based on 30 tests	SD	0.688	0.597	0.570	0.556	<b>0.603</b>
		CV %	0.9	0.8	0.8	0.7	<b>0.8</b>
	based on 6 tests	SD	0.710	0.631	0.578	0.603	<b>0.631</b>
		CV %	1.0	0.8	0.8	0.8	<b>0.8</b>
	based on single tests	SD	0.734	0.677	0.604	0.627	<b>0.661</b>
		CV %	1.0	0.9	0.8	0.8	<b>0.9</b>
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.178	0.164	0.151	0.135	<b>0.157</b>
		CV %	0.2	0.2	0.2	0.2	<b>0.2</b>
	between single tests on one day	SD	0.157	0.167	0.145	0.156	<b>0.156</b>
		CV %	0.2	0.2	0.2	0.2	<b>0.2</b>
	between all tests on different days	SD	0.258	0.253	0.230	0.234	<b>0.244</b>
		CV %	0.3	0.3	0.3	0.3	<b>0.3</b>

Color +b							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			15.702	13.033	9.443	13.312	
Reference Values for Evaluation			15.702	13.033	9.443	13.312	
Number Of Instruments			103	103	103	103	<b>103</b>
Inter-Instrument Variation	based on 30 tests	SD	0.397	0.271	0.244	0.356	<b>0.317</b>
		CV %	2.5	2.1	2.6	2.7	<b>2.5</b>
	based on 6 tests	SD	0.396	0.335	0.251	0.359	<b>0.335</b>
		CV %	2.5	2.6	2.7	2.7	<b>2.6</b>
	based on single tests	SD	0.421	0.349	0.268	0.382	<b>0.355</b>
		CV %	2.7	2.7	2.8	2.9	<b>2.8</b>
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.116	0.117	0.077	0.113	<b>0.106</b>
		CV %	0.7	0.9	0.8	0.8	<b>0.8</b>
	between single tests on one day	SD	0.096	0.114	0.079	0.089	<b>0.094</b>
		CV %	0.6	0.9	0.8	0.7	<b>0.7</b>
	between all tests on different days	SD	0.172	0.186	0.125	0.164	<b>0.162</b>
		CV %	1.1	1.4	1.3	1.2	<b>1.3</b>

Optional Parameters

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

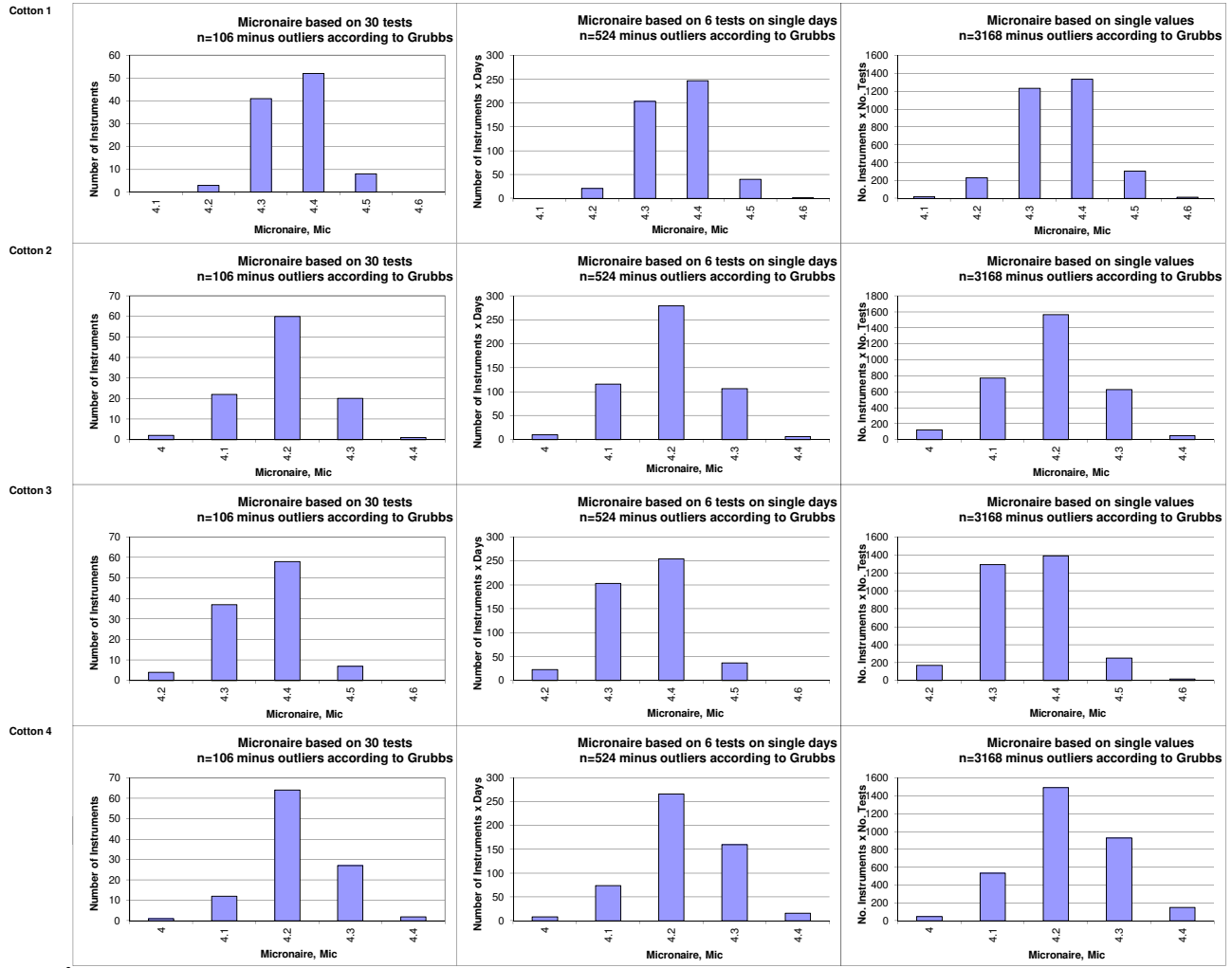
Trash Count							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			13.49	9.69	16.22	21.38	
Reference Values for Evaluation			13.49	9.69	16.22	21.38	
Number Of Instruments			84	84	84	84	<b>84</b>
Inter-Instrument Variation	based on 30 tests	SD	3.28	2.02	2.71	3.88	<b>2.97</b>
		CV %	24.3	20.8	16.7	18.1	<b>20.0</b>
	based on 6 tests	SD	3.90	2.84	3.88	4.90	<b>3.88</b>
		CV %	28.9	29.3	23.9	22.9	<b>26.3</b>
	based on single tests	SD	4.63	3.35	4.50	5.82	<b>4.58</b>
		CV %	34.3	34.6	27.8	27.2	<b>31.0</b>
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	1.75	1.43	1.53	2.09	<b>1.70</b>
		CV %	12.9	14.8	9.4	9.8	<b>11.7</b>
	between single tests on one day	SD	2.11	1.92	2.14	2.75	<b>2.23</b>
		CV %	15.6	19.8	13.2	12.9	<b>15.4</b>
	between all tests on different days	SD	2.81	2.43	2.90	3.62	<b>2.94</b>
		CV %	20.8	25.1	17.9	16.9	<b>20.2</b>

Trash Area							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.136	0.103	0.162	0.261	
Reference Values for Evaluation			0.136	0.103	0.162	0.261	
Number Of Instruments			84	84	84	84	<b>84</b>
Inter-Instrument Variation	based on 30 tests	SD	0.031	0.023	0.034	0.055	<b>0.036</b>
		CV %	22.7	22.7	21.1	20.9	<b>21.9</b>
	based on 6 tests	SD	0.038	0.028	0.040	0.066	<b>0.043</b>
		CV %	27.6	26.8	24.6	25.2	<b>26.1</b>
	based on single tests	SD	0.046	0.032	0.046	0.078	<b>0.050</b>
		CV %	33.4	31.0	28.6	29.9	<b>30.7</b>
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.022	0.016	0.019	0.032	<b>0.022</b>
		CV %	15.9	15.9	11.8	12.2	<b>13.9</b>
	between single tests on one day	SD	0.026	0.022	0.024	0.044	<b>0.029</b>
		CV %	19.2	21.0	14.6	16.8	<b>17.9</b>
	between all tests on different days	SD	0.038	0.029	0.035	0.063	<b>0.041</b>
		CV %	27.9	27.7	21.7	24.0	<b>25.3</b>

Maturity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			86.63	85.22	85.66	85.35	
Reference Values for Evaluation			86.63	85.22	85.66	85.35	
Number Of Instruments			80	80	80	80	<b>80</b>
Inter-Instrument Variation	based on 30 tests	SD	0.69	0.66	0.66	0.69	<b>0.68</b>
		CV %	0.8	0.8	0.8	0.8	<b>0.8</b>
	based on 6 tests	SD	0.71	0.68	0.68	0.72	<b>0.70</b>
		CV %	0.8	0.8	0.8	0.8	<b>0.8</b>
	based on single tests	SD	0.73	0.77	0.76	0.79	<b>0.76</b>
		CV %	0.8	0.9	0.9	0.9	<b>0.9</b>
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.07	0.14	0.11	0.15	<b>0.12</b>
		CV %	0.1	0.2	0.1	0.2	<b>0.1</b>
	between single tests on one day	SD	0.10	0.18	0.17	0.18	<b>0.16</b>
		CV %	0.1	0.2	0.2	0.2	<b>0.2</b>
	between all tests on different days	SD	0.18	0.31	0.25	0.31	<b>0.26</b>
		CV %	0.2	0.4	0.3	0.4	<b>0.3</b>

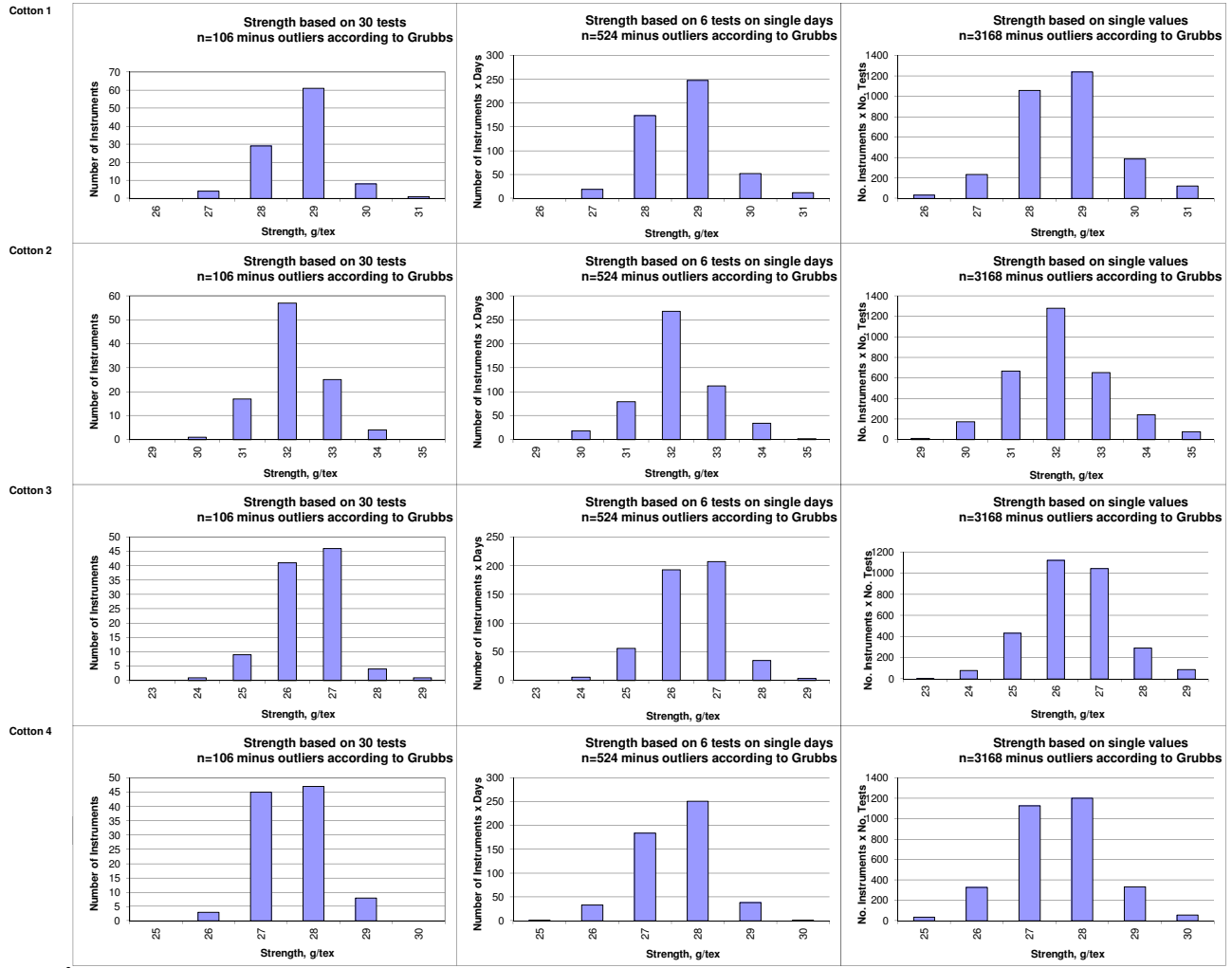
SFI							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
<b>Average of Instruments (Grubbs)</b>			9.89	7.24	11.94	10.86	
<b>Reference Values for Evaluation</b>			9.89	7.24	11.94	10.86	
<b>Number Of Instruments</b>			92	92	91	92	<b>92</b>
<b>Inter-Instrument Variation</b>	based on 30 tests	SD	0.67	0.70	1.24	0.82	<b>0.86</b>
		CV %	6.8	9.7	10.4	7.5	<b>8.6</b>
	based on 6 tests	SD	0.77	0.70	1.31	0.90	<b>0.92</b>
		CV %	7.8	9.6	11.0	8.3	<b>9.2</b>
	based on single tests	SD	0.92	0.78	1.50	1.07	<b>1.07</b>
		CV %	9.3	10.8	12.6	9.8	<b>10.6</b>
<b>Typical within-instrument Variation (Median)</b>	between different days with each 6 tests	SD	0.27	0.19	0.36	0.36	<b>0.30</b>
		CV %	2.8	2.6	3.0	3.3	<b>2.9</b>
	between single tests on one day	SD	0.50	0.33	0.74	0.58	<b>0.54</b>
		CV %	5.1	4.5	6.2	5.4	<b>5.3</b>
	between all tests on different days	SD	0.59	0.35	0.80	0.68	<b>0.61</b>
		CV %	6.0	4.9	6.7	6.3	<b>6.0</b>

Test Result Distributions  
Micronaire



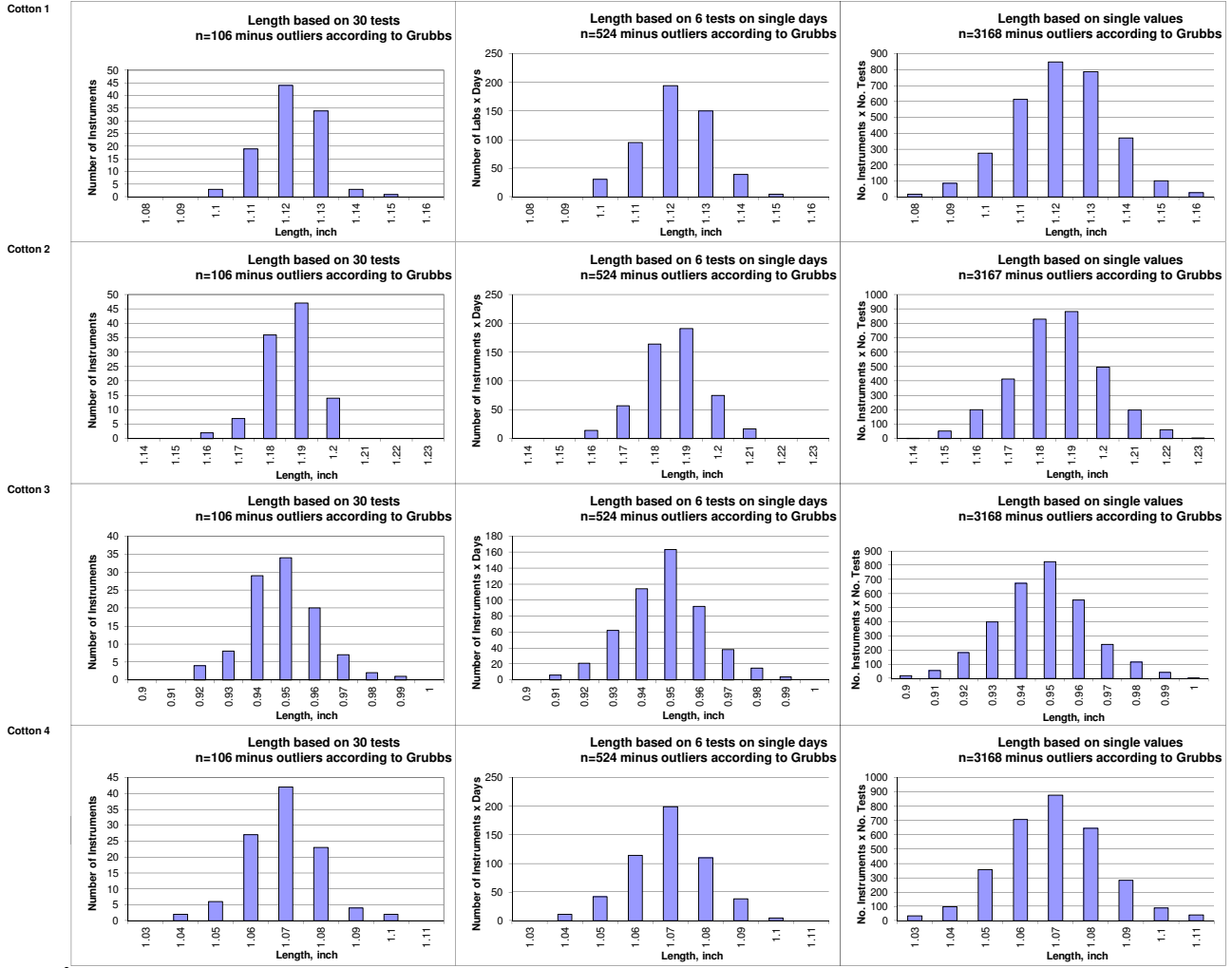
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)  
(classes are defined as > lower limit and <= upper limit)

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)

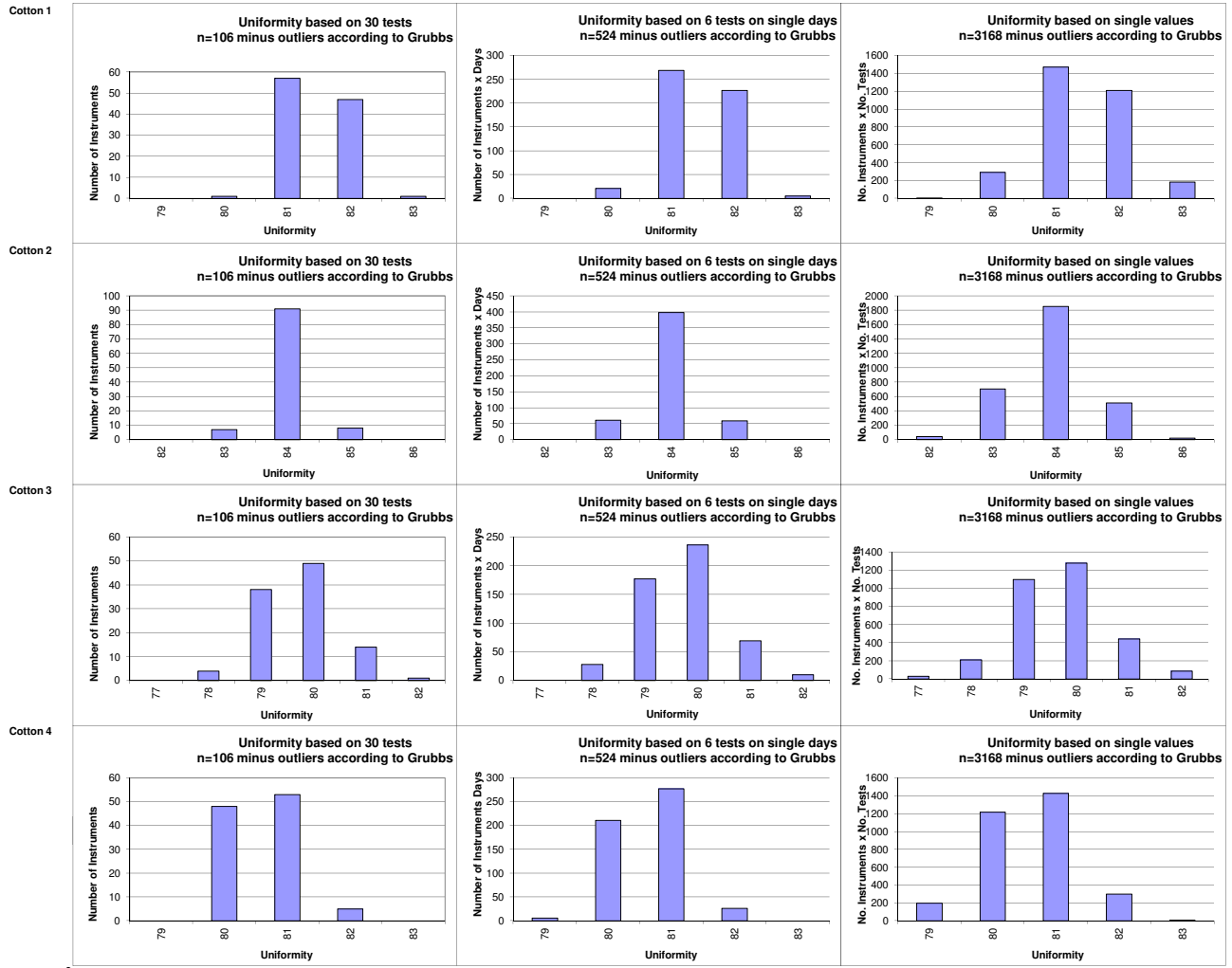
Test Result Distributions  
Length



(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)

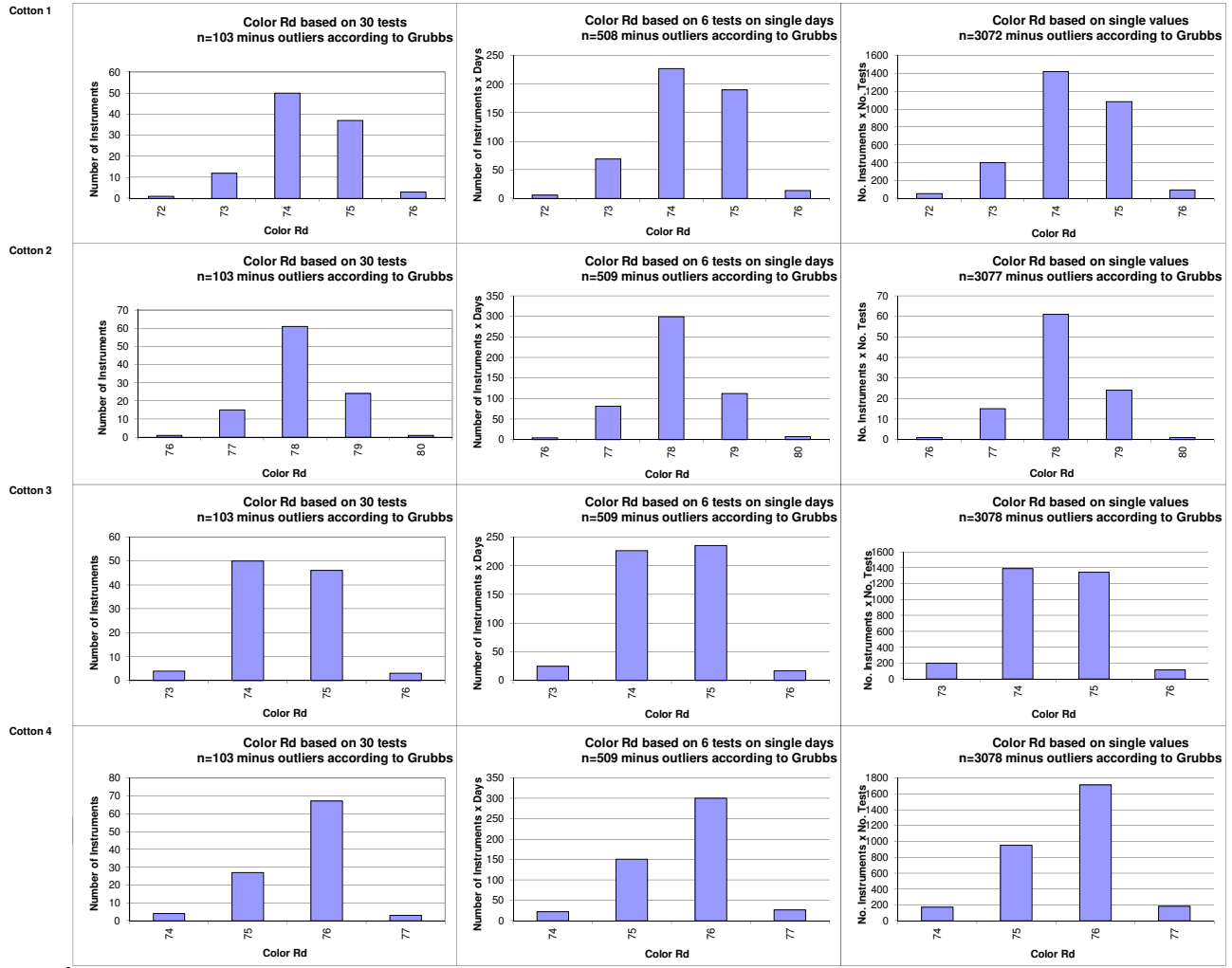


Test Result Distributions  
Uniformity



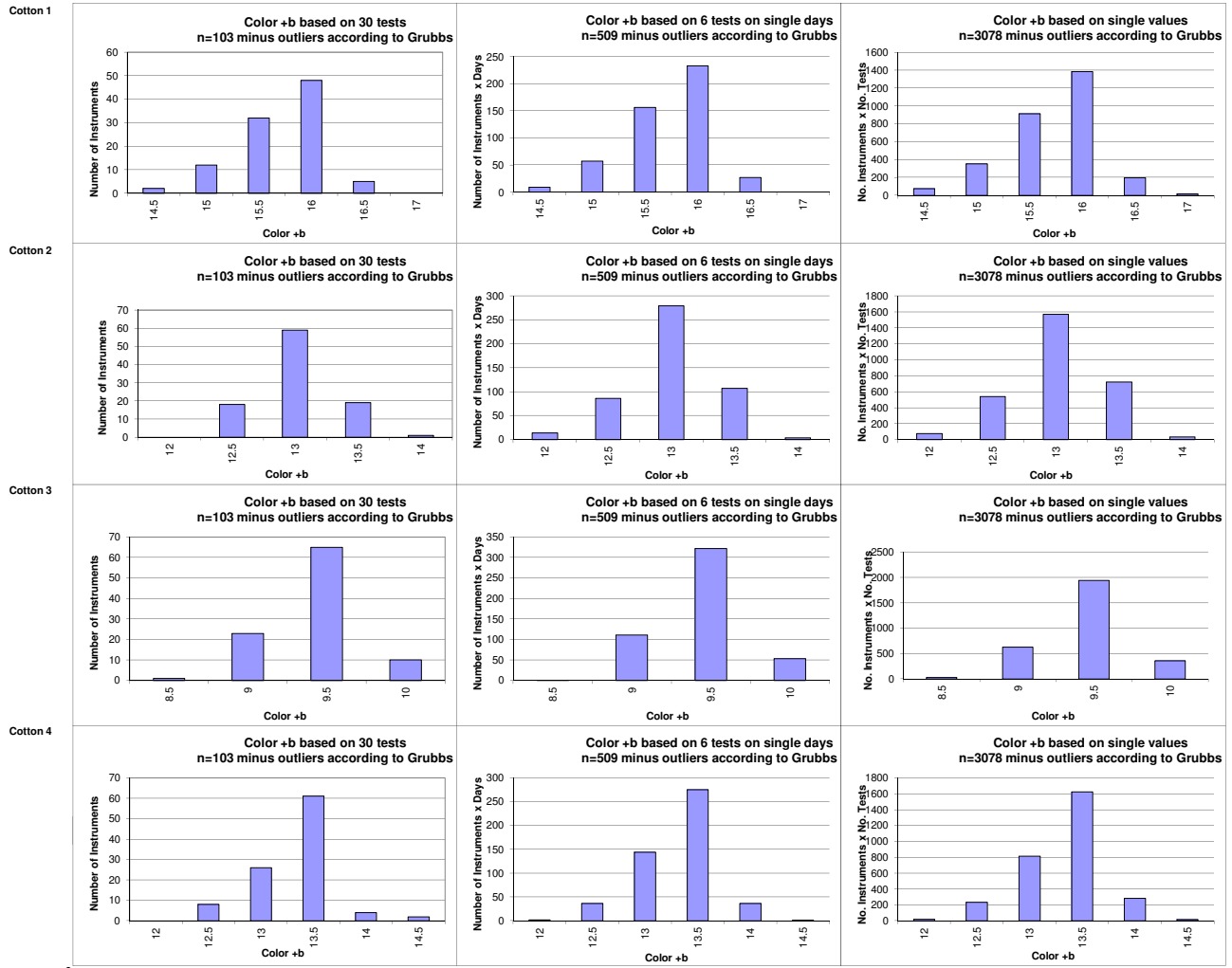
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)  
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions  
Color Rd



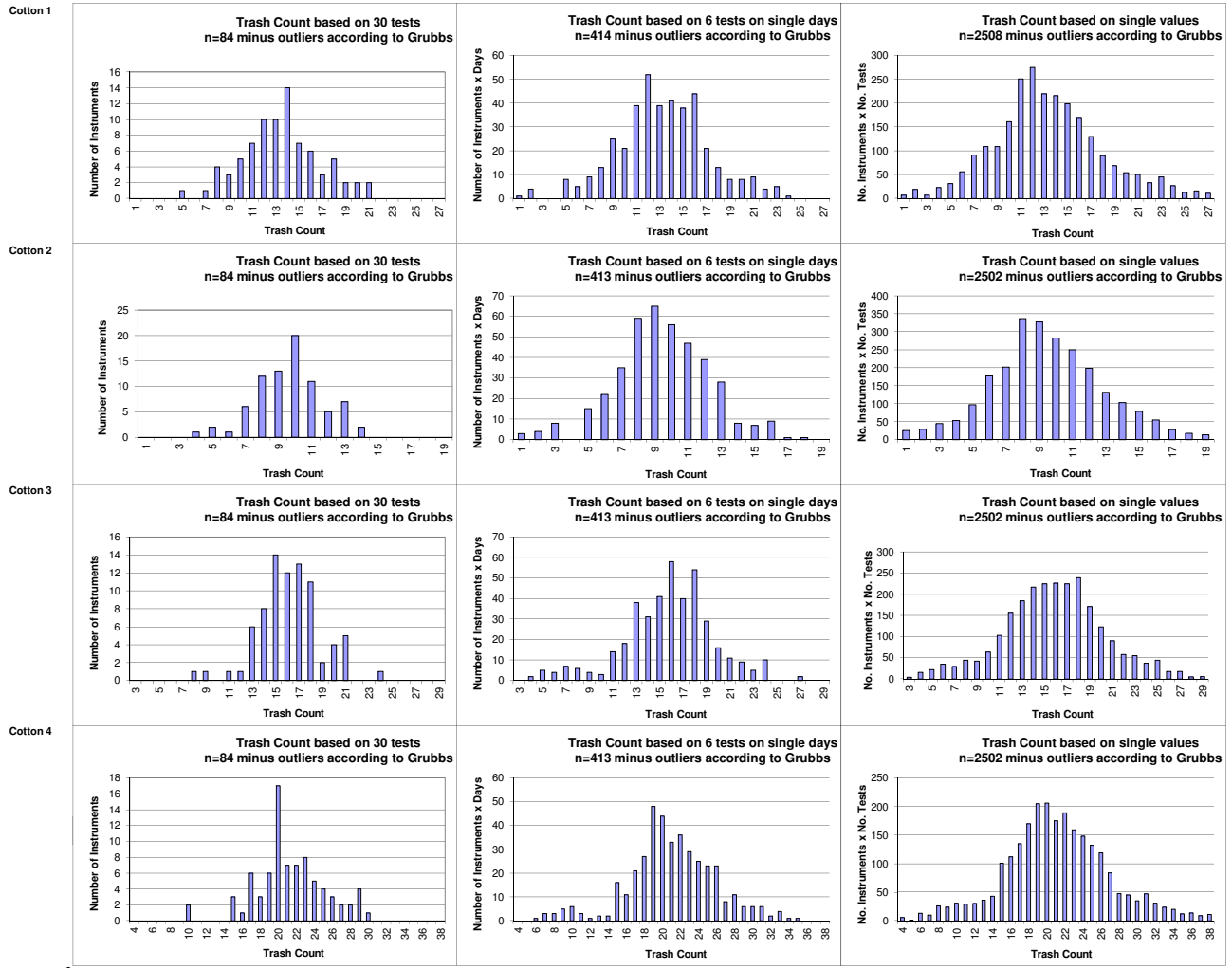
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)  
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions  
Color +b



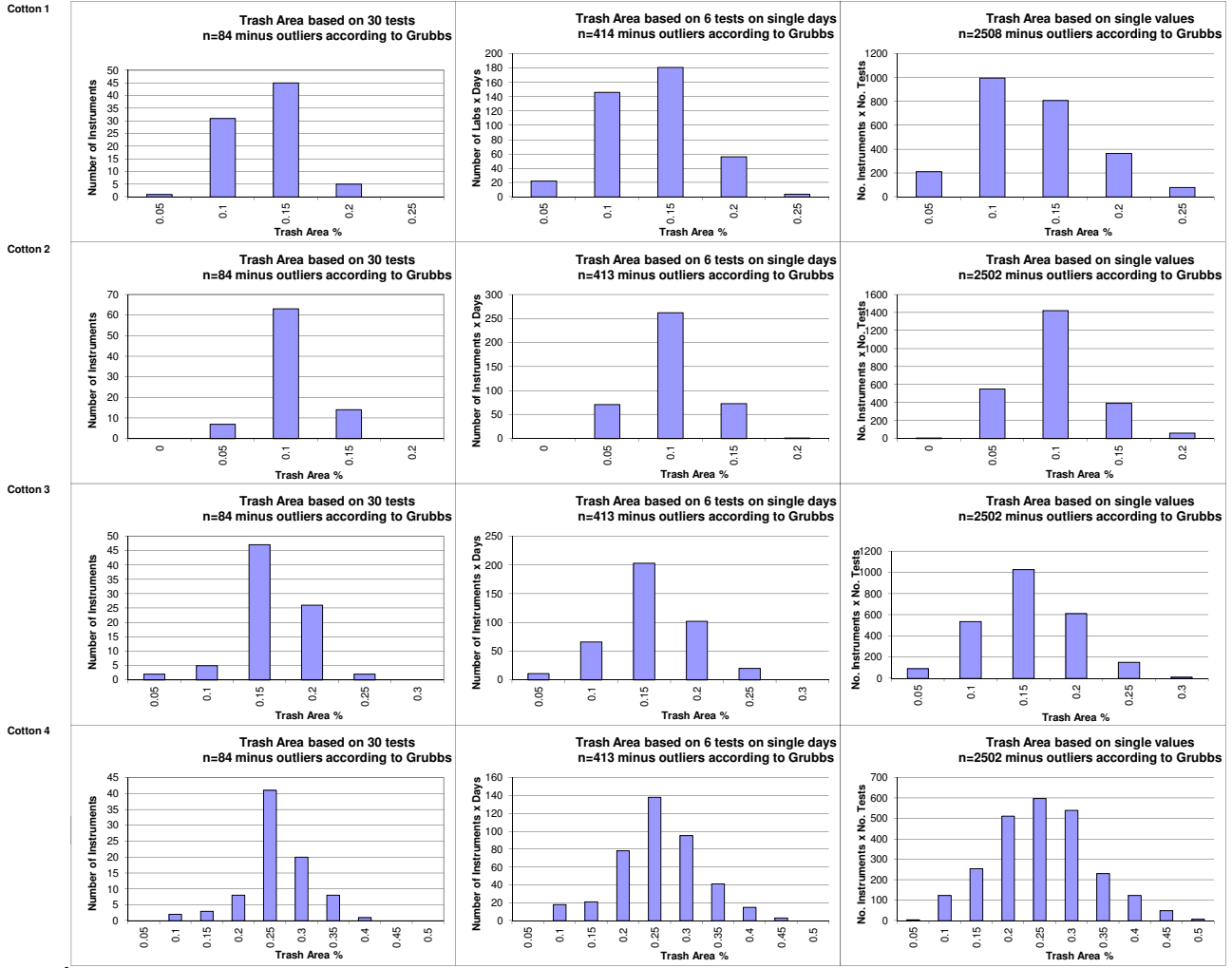
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)  
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions  
Trash Count



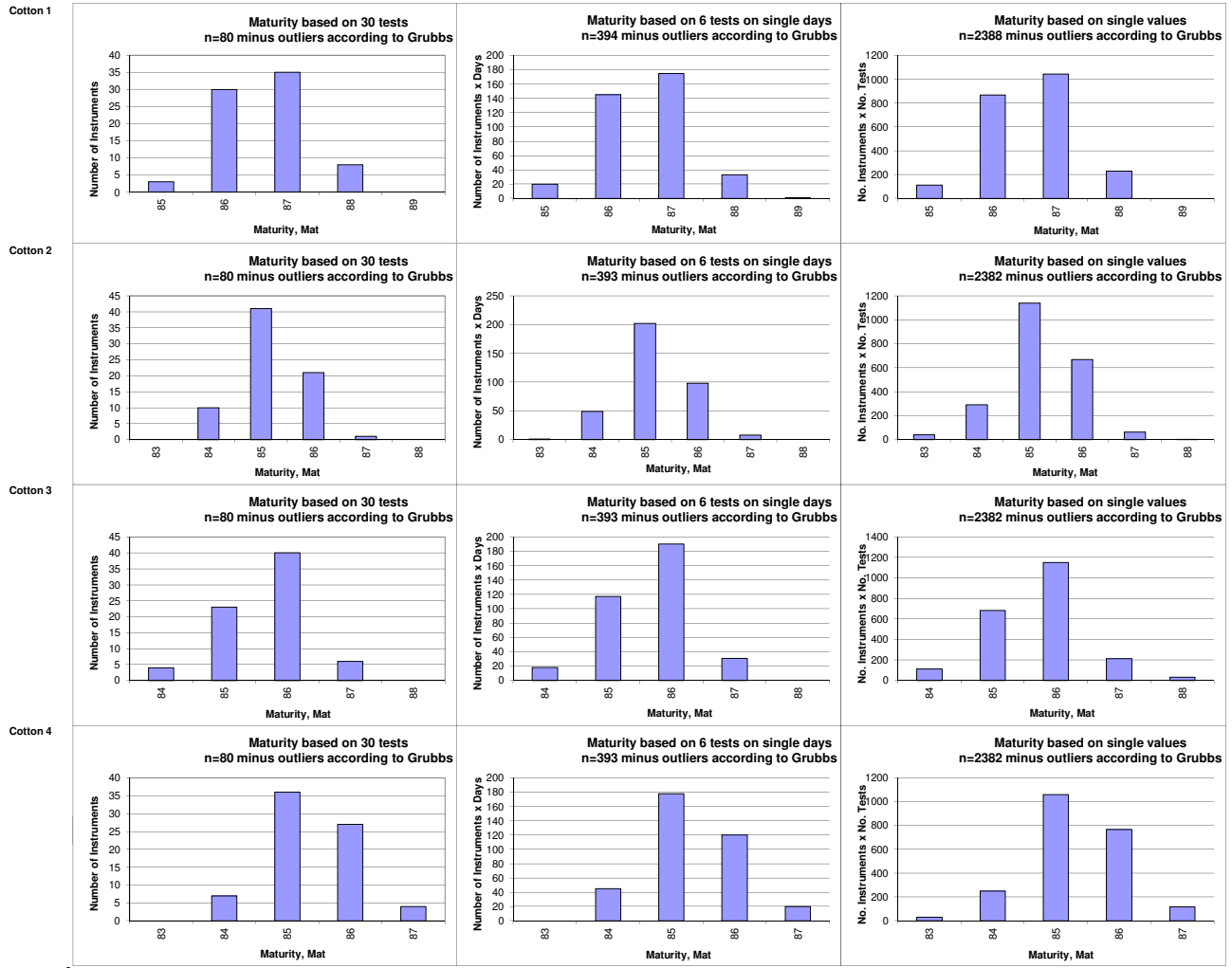
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)  
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions  
Trash Area



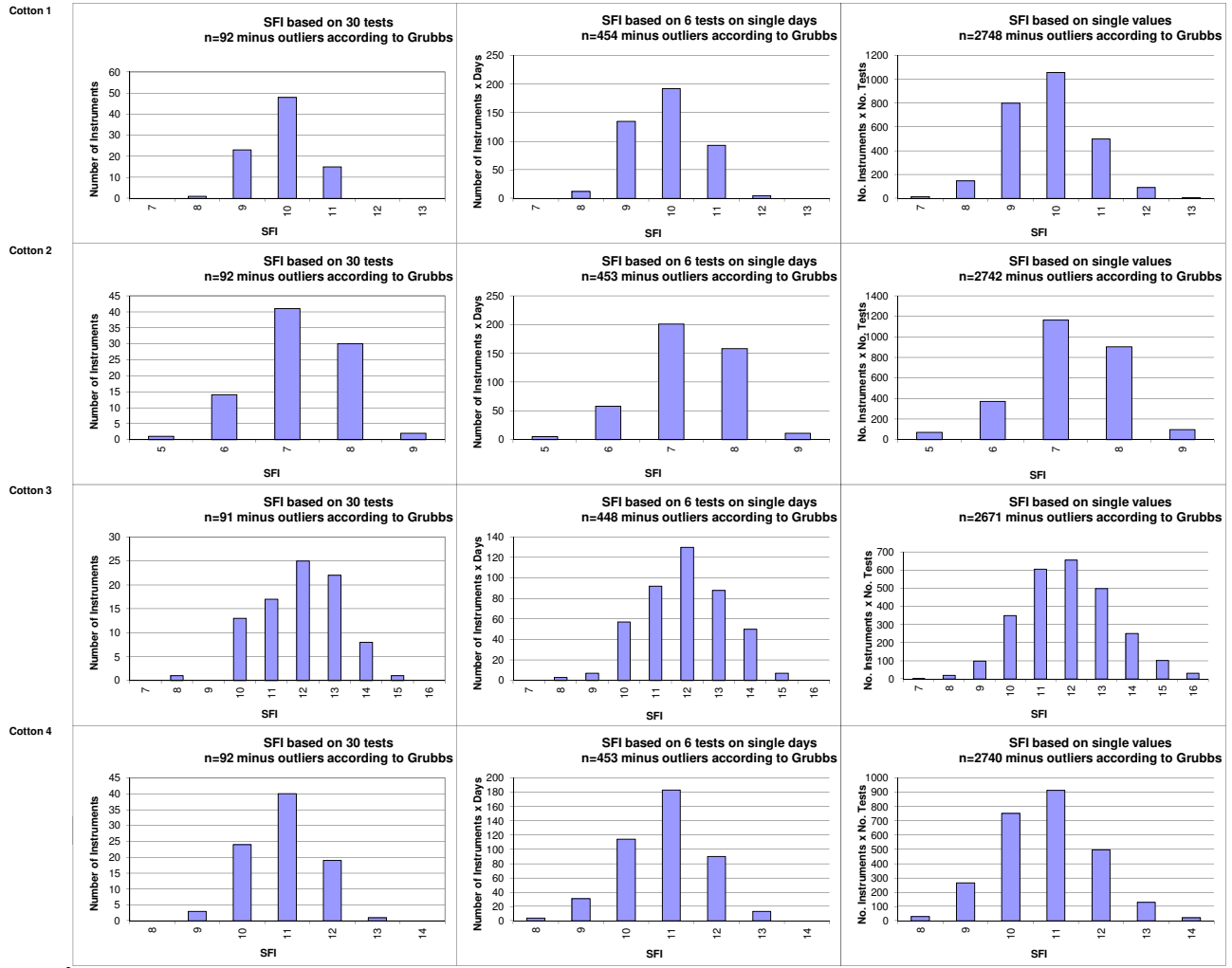
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)  
(classes are defined as > lower limit and <= upper limit)

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 2025 - 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

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

System Provided by:  
Generation 10 Limited



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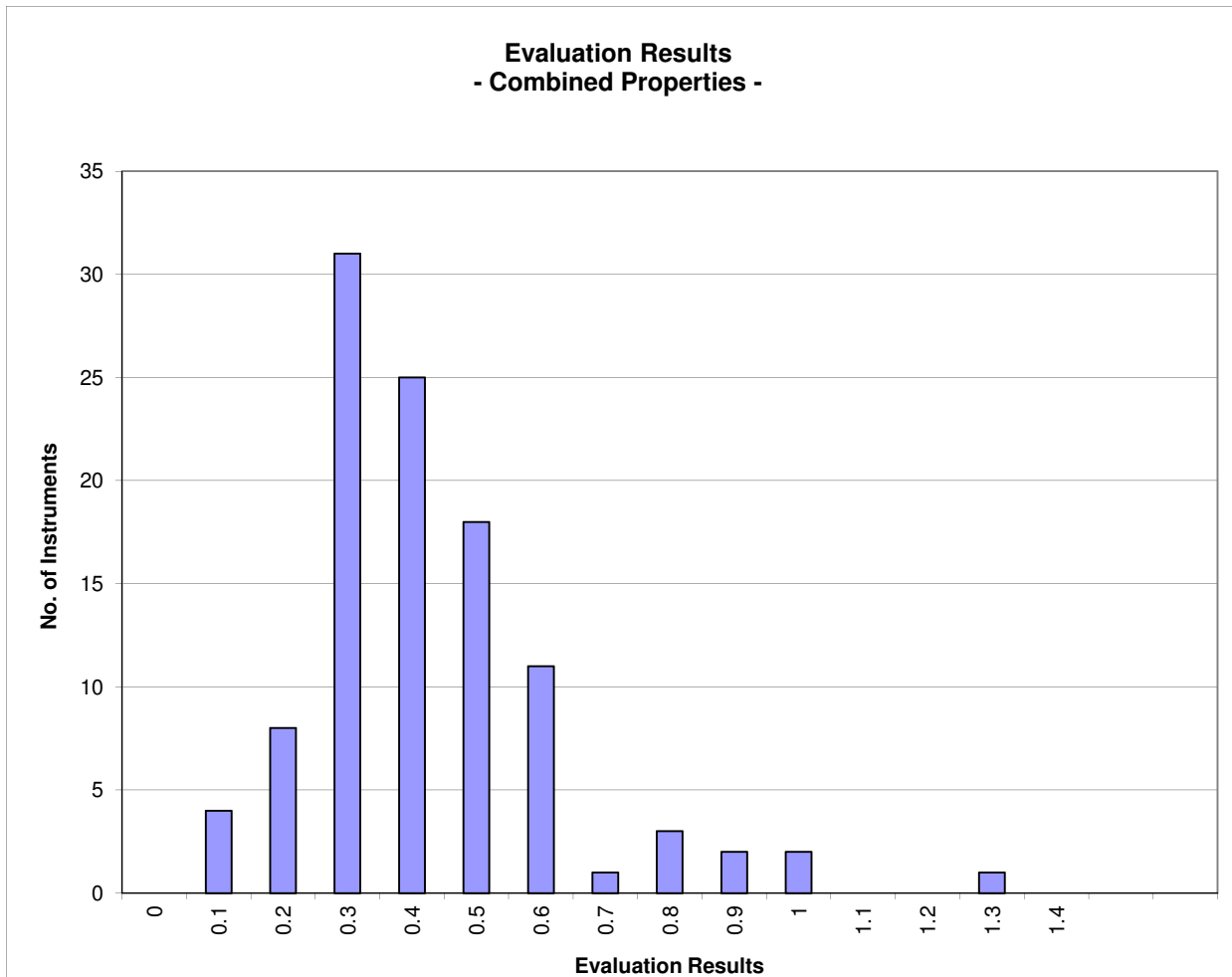
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

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Statistics	Evaluation Combined Prop.
Average Overall Evaluation Result (OER)	0.43
OER Rating for the best instrument	0.12
max. OER Limit for belonging to the best 10% of the instruments	0.24
max. OER Limit for belonging to the best 25% of the instruments	0.31
<b>max. OER Limit for belonging to the best 50% of the instruments</b>	<b>0.37</b>
max. OER Limit for belonging to the best 75% of the instruments	0.51
OER Rating for the worst instrument	1.29

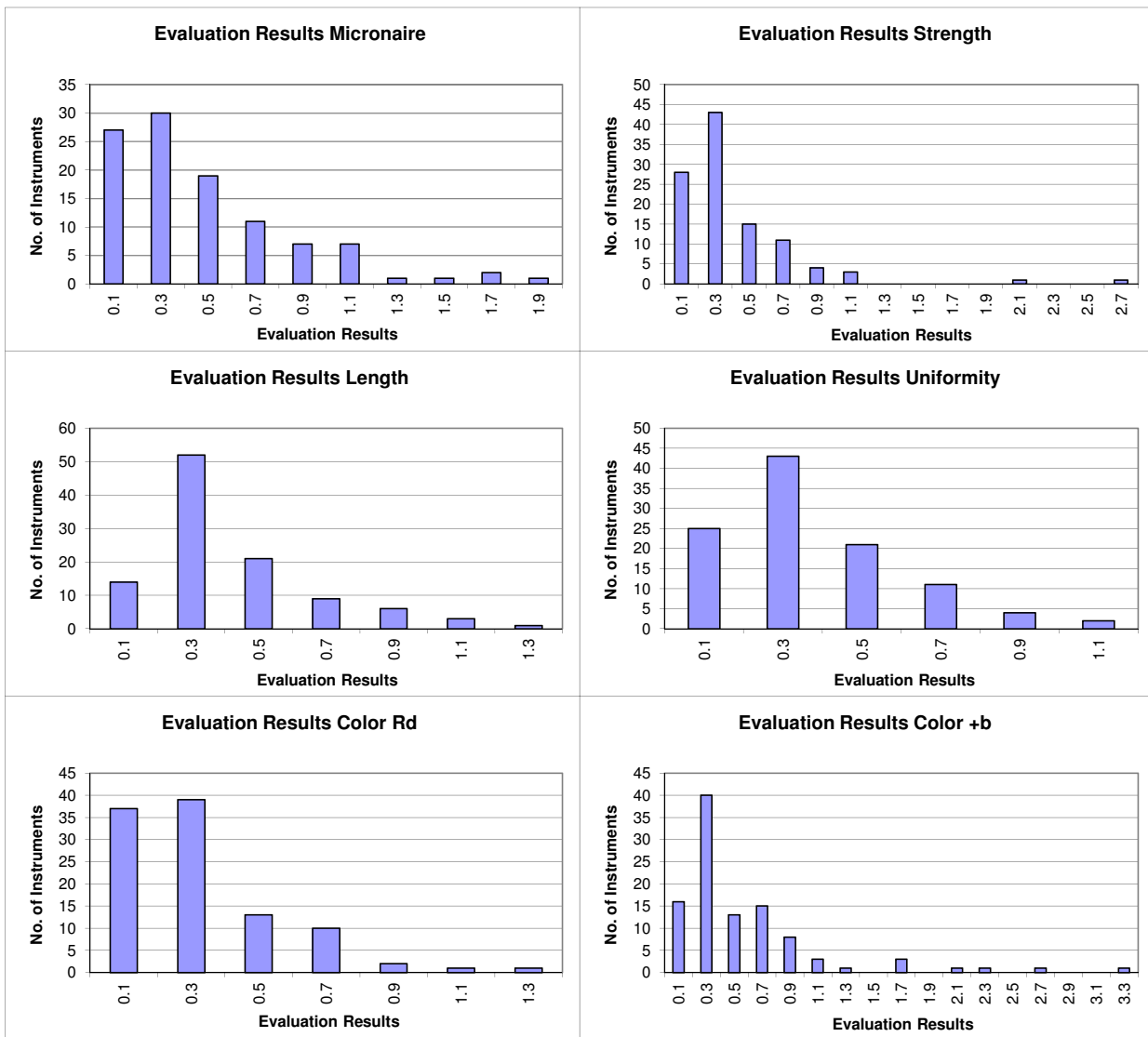


x-Axis shows midpoints of classes

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 2025 - 1

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.48	0.40	0.40	0.37	0.32	0.57
	Median	0.36	0.30	0.33	0.30	0.26	0.37
	Best Instr.	0.05	0.07	0.08	0.08	0.05	0.11
	Worst Instr.	1.82	2.73	1.21	1.03	1.37	3.37



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



International Cotton Advisory Committee



# CSITC Global - Round Trial 2025 - 1 General Evaluation

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

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

System Provided by:  
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## Within Limits Evaluation

Based on average of 30 test results for each sample

	<b>Micronaire</b>	<b>Strength</b>	<b>Length</b>	<b>Uniformity</b>	<b>Color Rd</b>	<b>Color +b</b>
Limits	0.20	2.0	0.030	2.0	1.5	0.5
	units	g/tex	inch	%	units	units
Average % Results within Limits	99.3	96.2	98.8	99.8	97.6	84.5
Completely within limits	98.1	91.5	95.3	99.1	94.2	70.9
% of Instruments $\geq 75\%$ within limits	99.1	97.2	100.0	100.0	98.1	83.5
% of Instruments $\geq 50\%$ within limits	100.0	98.1	100.0	100.0	99.0	90.3

## Within Limits Evaluation

Based on Single Test Results

	<b>Micronaire</b>	<b>Strength</b>	<b>Length</b>	<b>Uniformity</b>	<b>Color Rd</b>	<b>Color +b</b>
Limits	0.20	2.0	0.030	2.0	1.5	0.5
	units	g/tex	inch	%	units	units
Average % Results within Limits	97.9	92.2	91.1	98.4	95.9	81.9
% of Instruments 100% within limits	63.2	37.7	11.3	55.7	63.1	25.2
% of Instruments $\geq 95\%$ within limits	91.5	69.8	50.9	86.8	78.6	48.5
% of Instruments $\geq 75\%$ within limits	97.2	93.4	91.5	100.0	97.1	74.8
% of Instruments $\geq 65\%$ within limits	99.1	95.3	94.3	100.0	98.1	81.6
% of Instruments $\geq 50\%$ within limits	100.0	98.1	100.0	100.0	98.1	89.3