



International Cotton Advisory Committee



CSITC Global - Round Trial 2023 - 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 2023 - 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)			4.217	4.501	4.194	4.210	
Reference Values for Evaluation			4.217	4.501	4.194	4.210	
Number Of Instruments			90	90	90	90	90
Inter-Instrument Variation	based on 30 tests	SD	0.058	0.044	0.066	0.056	0.056
		CV %	1.4	1.0	1.6	1.3	1.3
	based on 6 tests	SD	0.061	0.051	0.072	0.058	0.060
		CV %	1.4	1.1	1.7	1.4	1.4
	based on single tests	SD	0.070	0.061	0.078	0.068	0.069
		CV %	1.6	1.3	1.9	1.6	1.6
Typical within-instrument Variation (Median)	between different days	SD	0.023	0.023	0.023	0.023	0.023
	with each 6 tests	CV %	0.5	0.5	0.5	0.5	0.5
	between single tests on one day	SD	0.034	0.030	0.031	0.033	0.032
		CV %	0.8	0.7	0.7	0.8	0.7
	between all tests on different days	SD	0.042	0.039	0.038	0.040	0.040
		CV %	1.0	0.9	0.9	1.0	0.9

Strength							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			27.643	34.214	27.328	25.596	
Reference Values for Evaluation			27.643	34.214	27.328	25.596	
Number Of Instruments			90	90	90	90	90
Inter-Instrument Variation	based on 30 tests	SD	0.558	0.771	0.511	0.777	0.654
		CV %	2.0	2.3	1.9	3.0	2.3
	based on 6 tests	SD	0.658	0.860	0.627	0.821	0.742
		CV %	2.4	2.5	2.3	3.2	2.6
	based on single tests	SD	0.852	1.025	0.826	1.028	0.933
		CV %	3.1	3.0	3.0	4.0	3.3
Typical within-instrument Variation (Median)	between different days	SD	0.335	0.391	0.312	0.348	0.346
	with each 6 tests	CV %	1.2	1.1	1.1	1.4	1.2
	between single tests on one day	SD	0.527	0.627	0.524	0.600	0.569
		CV %	1.9	1.8	1.9	2.3	2.0
	between all tests on different days	SD	0.608	0.740	0.616	0.703	0.667
		CV %	2.2	2.2	2.3	2.7	2.3

Length							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			1.1026	1.2024	1.0629	1.0047	
Reference Values for Evaluation			1.1026	1.2024	1.0629	1.0047	
Number Of Instruments			90	90	90	90	90
Inter-Instrument Variation	based on 30 tests	SD	0.0099	0.0102	0.0106	0.0099	0.0101
		CV %	0.9	0.9	1.0	1.0	0.9
	based on 6 tests	SD	0.0122	0.0116	0.0117	0.0113	0.0117
		CV %	1.1	1.0	1.1	1.1	1.1
	based on single tests	SD	0.0159	0.0156	0.0150	0.0156	0.0155
		CV %	1.4	1.3	1.4	1.6	1.4
Typical within-instrument Variation (Median)	between different days	SD	0.0059	0.0057	0.0056	0.0060	0.0058
	with each 6 tests	CV %	0.5	0.5	0.5	0.6	0.5
	between single tests on one day	SD	0.0110	0.0106	0.0099	0.0115	0.0108
		CV %	1.0	0.9	0.9	1.1	1.0
	between all tests on different days	SD	0.0129	0.0118	0.0117	0.0127	0.0123
		CV %	1.2	1.0	1.1	1.3	1.1

Uniformity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			80.696	83.436	80.254	78.539	
Reference Values for Evaluation			80.696	83.436	80.254	78.539	
Number Of Instruments			90	90	90	90	90
Inter-Instrument Variation	based on 30 tests	SD	0.500	0.427	0.453	0.433	0.453
		CV %	0.6	0.5	0.6	0.6	0.6
	based on 6 tests	SD	0.488	0.484	0.490	0.526	0.497
		CV %	0.6	0.6	0.6	0.7	0.6
	based on single tests	SD	0.765	0.649	0.713	0.758	0.721
		CV %	0.9	0.8	0.9	1.0	0.9
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.279	0.226	0.283	0.345	0.283
		CV %	0.3	0.3	0.4	0.4	0.4
	between single tests on one day	SD	0.528	0.464	0.524	0.555	0.518
		CV %	0.7	0.6	0.7	0.7	0.6
	between all tests on different days	SD	0.593	0.520	0.585	0.664	0.590
		CV %	0.7	0.6	0.7	0.8	0.7

Color Rd							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			73.541	76.006	76.252	74.706	
Reference Values for Evaluation			73.541	76.006	76.252	74.706	
Number Of Instruments			90	90	90	90	90
Inter-Instrument Variation	based on 30 tests	SD	0.457	0.440	0.329	0.390	0.404
		CV %	0.6	0.6	0.4	0.5	0.5
	based on 6 tests	SD	0.503	0.478	0.475	0.444	0.475
		CV %	0.7	0.6	0.6	0.6	0.6
	based on single tests	SD	0.539	0.492	0.506	0.444	0.495
		CV %	0.7	0.6	0.7	0.6	0.7
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.178	0.156	0.159	0.136	0.157
		CV %	0.2	0.2	0.2	0.2	0.2
	between single tests on one day	SD	0.155	0.122	0.137	0.117	0.133
		CV %	0.2	0.2	0.2	0.2	0.2
	between all tests on different days	SD	0.256	0.220	0.222	0.205	0.226
		CV %	0.3	0.3	0.3	0.3	0.3

Color +b							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			15.967	13.432	13.132	10.743	
Reference Values for Evaluation			15.967	13.432	13.132	10.743	
Number Of Instruments			90	90	90	90	90
Inter-Instrument Variation	based on 30 tests	SD	0.315	0.317	0.302	0.213	0.287
		CV %	2.0	2.4	2.3	2.0	2.2
	based on 6 tests	SD	0.330	0.306	0.325	0.234	0.299
		CV %	2.1	2.3	2.5	2.2	2.2
	based on single tests	SD	0.360	0.351	0.373	0.255	0.335
		CV %	2.3	2.6	2.8	2.4	2.5
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.105	0.095	0.107	0.067	0.093
		CV %	0.7	0.7	0.8	0.6	0.7
	between single tests on one day	SD	0.086	0.075	0.071	0.057	0.072
		CV %	0.5	0.6	0.5	0.5	0.5
	between all tests on different days	SD	0.159	0.132	0.159	0.110	0.140
		CV %	1.0	1.0	1.2	1.0	1.1

Optional Parameters

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

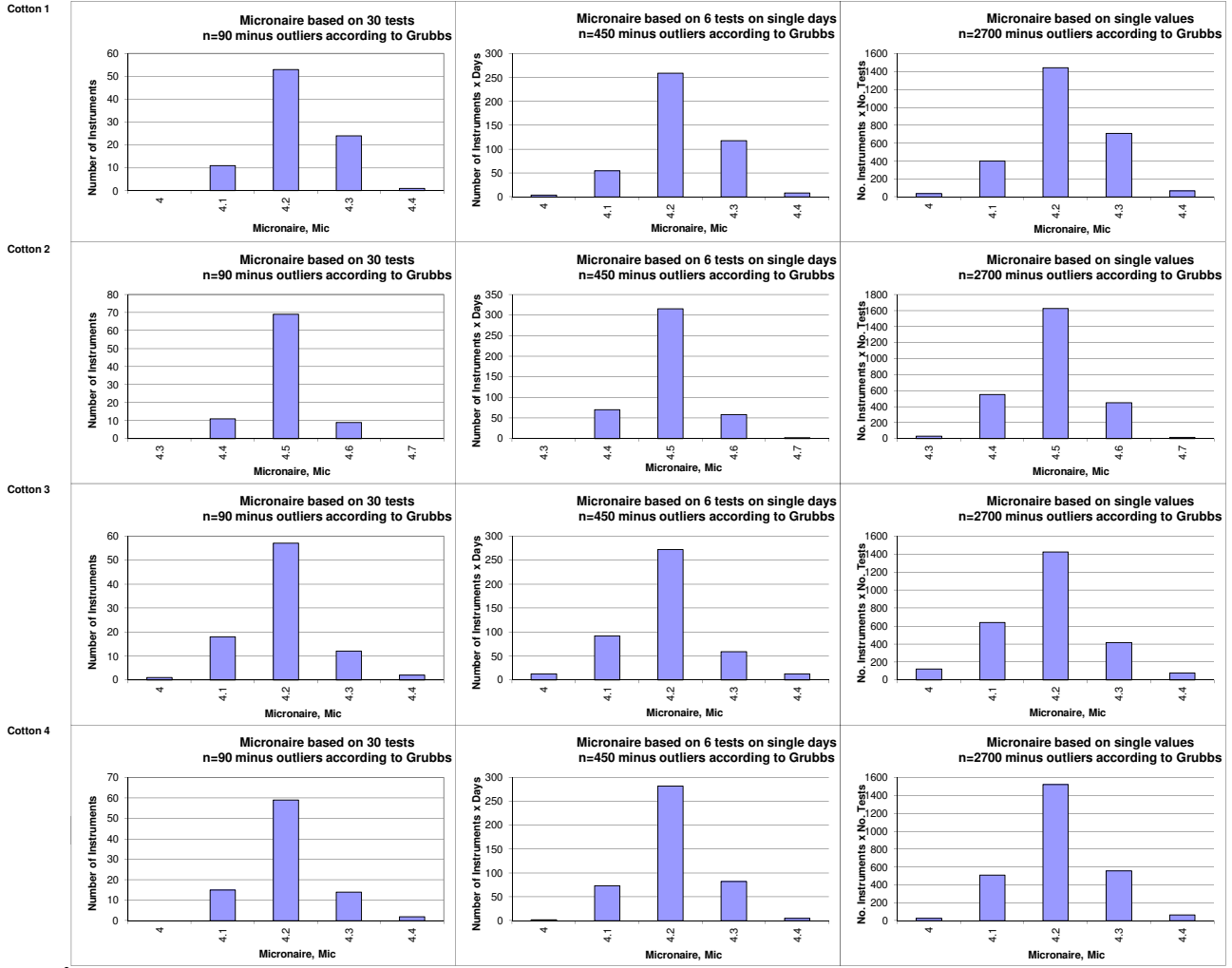
Trash Count							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			12.24	16.83	19.91	16.07	
Reference Values for Evaluation			12.24	16.83	19.91	16.07	
Number Of Instruments			70	70	70	70	70
Inter-Instrument Variation	based on 30 tests	SD	3.20	3.91	3.74	2.03	3.22
		CV %	26.2	23.2	18.8	12.7	20.2
	based on 6 tests	SD	3.59	4.20	4.36	3.02	3.79
		CV %	29.3	24.9	21.9	18.8	23.7
	based on single tests	SD	4.09	4.89	5.36	4.17	4.63
		CV %	33.4	29.1	26.9	25.9	28.8
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	1.45	1.68	1.95	1.54	1.65
		CV %	11.8	10.0	9.8	9.6	10.3
	between single tests on one day	SD	1.85	1.79	2.15	1.52	1.83
		CV %	15.1	10.6	10.8	9.5	11.5
	between all tests on different days	SD	2.64	3.11	3.37	2.69	2.95
		CV %	21.5	18.5	16.9	16.8	18.4

Trash Area							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.119	0.147	0.256	0.165	
Reference Values for Evaluation			0.119	0.147	0.256	0.165	
Number Of Instruments			70	70	70	70	70
Inter-Instrument Variation	based on 30 tests	SD	0.025	0.032	0.062	0.026	0.036
		CV %	20.7	21.7	24.1	15.8	20.6
	based on 6 tests	SD	0.031	0.037	0.073	0.032	0.043
		CV %	25.7	25.1	28.4	19.1	24.6
	based on single tests	SD	0.036	0.042	0.086	0.046	0.053
		CV %	30.1	28.7	33.5	28.0	30.1
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.018	0.016	0.037	0.019	0.023
		CV %	15.2	10.6	14.6	11.8	13.1
	between single tests on one day	SD	0.019	0.017	0.040	0.014	0.022
		CV %	15.8	11.3	15.6	8.8	12.9
	between all tests on different days	SD	0.028	0.030	0.063	0.034	0.039
		CV %	23.6	20.1	24.6	20.6	22.2

Maturity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			85.87	86.05	85.04	86.33	
Reference Values for Evaluation			85.87	86.05	85.04	86.33	
Number Of Instruments			66	66	66	66	66
Inter-Instrument Variation	based on 30 tests	SD	0.90	1.04	0.72	0.86	0.88
		CV %	1.0	1.2	0.8	1.0	1.0
	based on 6 tests	SD	0.68	1.03	0.73	0.89	0.83
		CV %	0.8	1.2	0.9	1.0	1.0
	based on single tests	SD	0.78	1.08	1.06	0.93	0.96
		CV %	0.9	1.3	1.2	1.1	1.1
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.09	0.14	0.11	0.16	0.13
		CV %	0.1	0.2	0.1	0.2	0.1
	between single tests on one day	SD	0.14	0.17	0.16	0.17	0.16
		CV %	0.2	0.2	0.2	0.2	0.2
	between all tests on different days	SD	0.25	0.28	0.28	0.35	0.29
		CV %	0.3	0.3	0.3	0.4	0.3

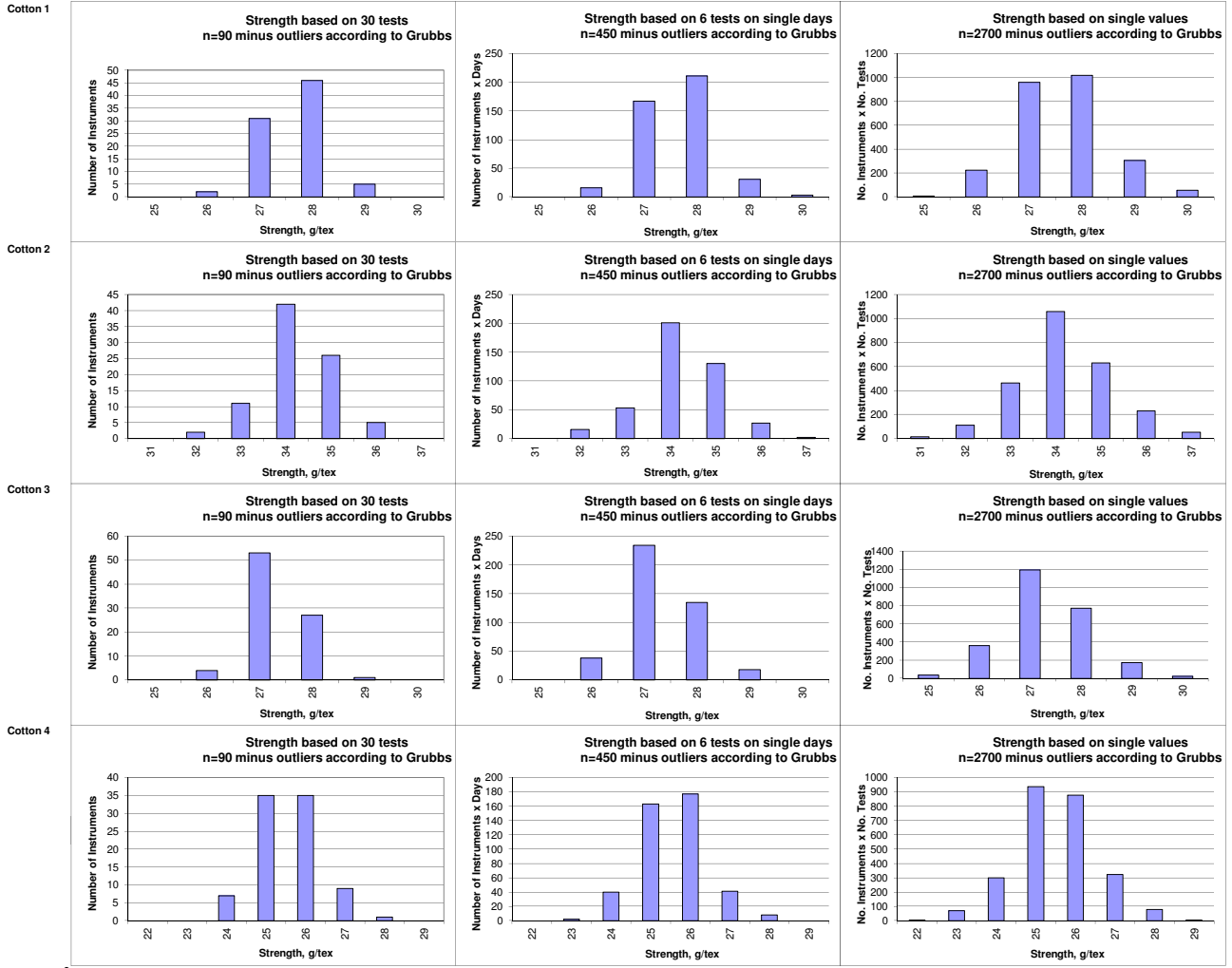
SFI							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			10.33	6.95	10.98	13.55	
Reference Values for Evaluation			10.33	6.95	10.98	13.55	
Number Of Instruments			75	75	75	74	75
Inter-Instrument Variation	based on 30 tests	SD	1.15	0.83	1.26	1.56	1.20
		CV %	11.2	11.9	11.4	11.5	11.5
	based on 6 tests	SD	1.12	0.85	1.30	1.67	1.24
		CV %	10.8	12.3	11.8	12.3	11.8
	based on single tests	SD	1.28	0.91	1.46	1.86	1.38
		CV %	12.4	13.2	13.3	13.7	13.1
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.34	0.15	0.35	0.46	0.33
		CV %	3.3	2.2	3.2	3.4	3.0
	between single tests on one day	SD	0.53	0.29	0.59	0.75	0.54
		CV %	5.1	4.2	5.4	5.5	5.0
	between all tests on different days	SD	0.68	0.35	0.72	0.96	0.68
		CV %	6.6	5.0	6.5	7.1	6.3

Test Result Distributions
Micronaire



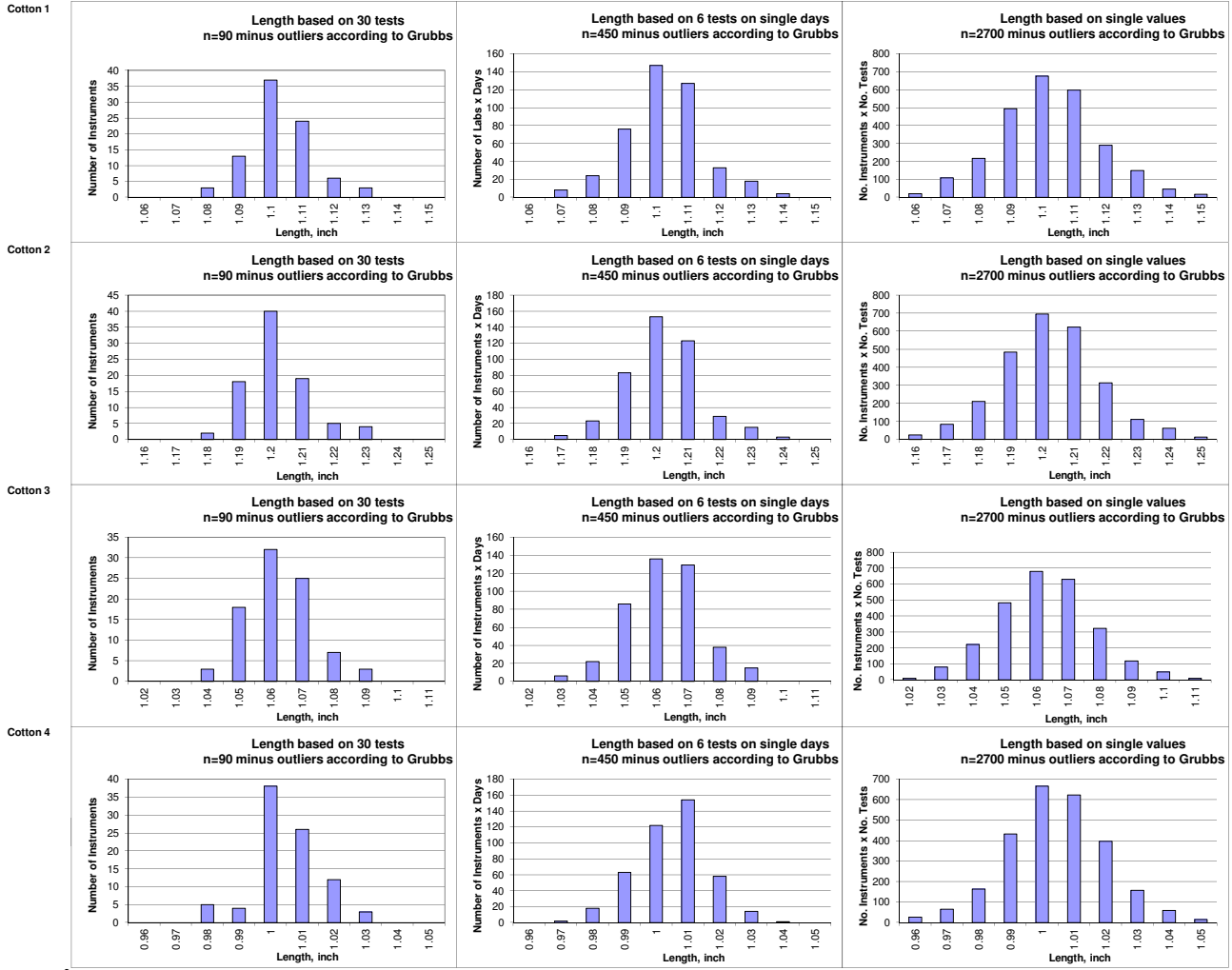
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Strength



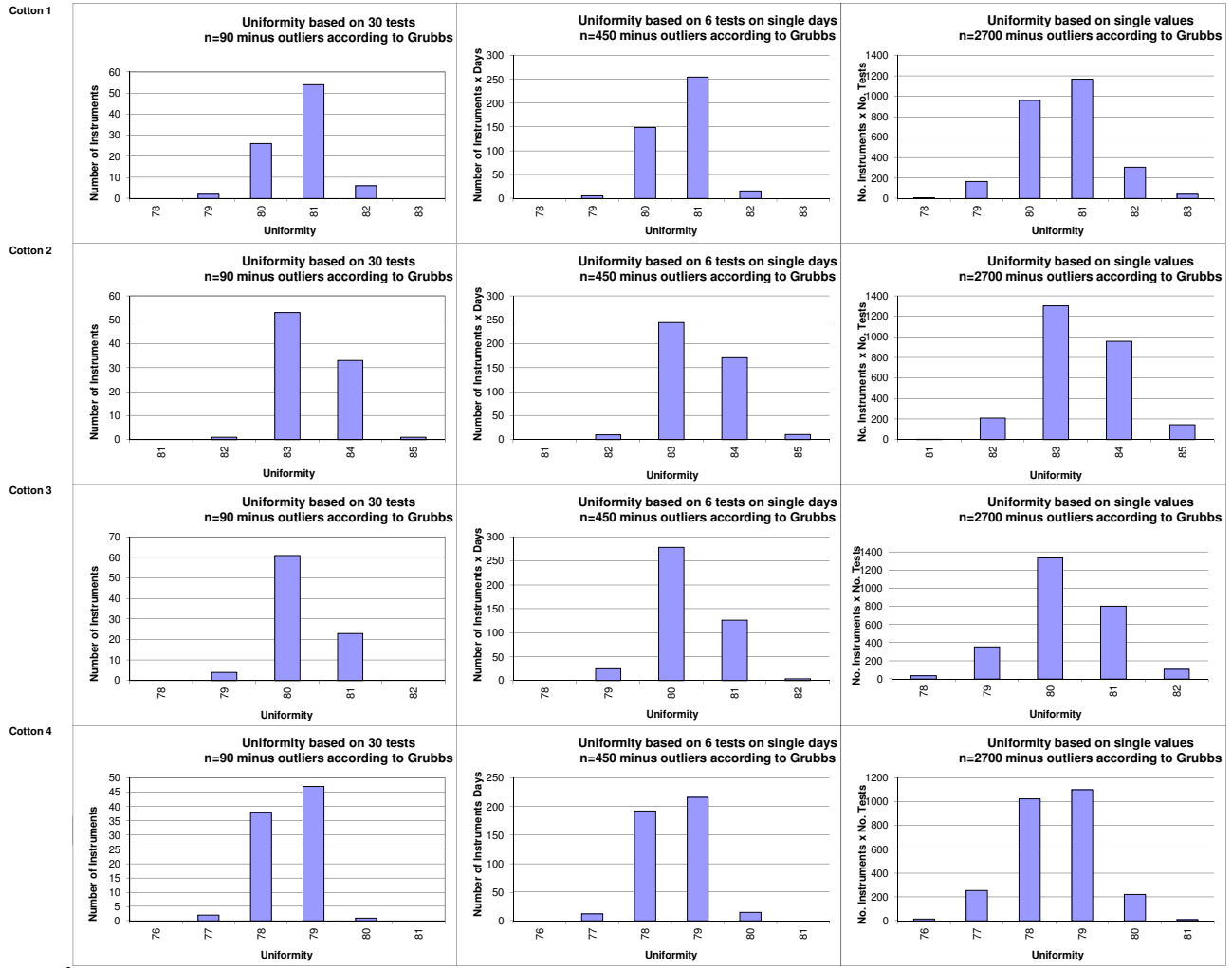
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Length



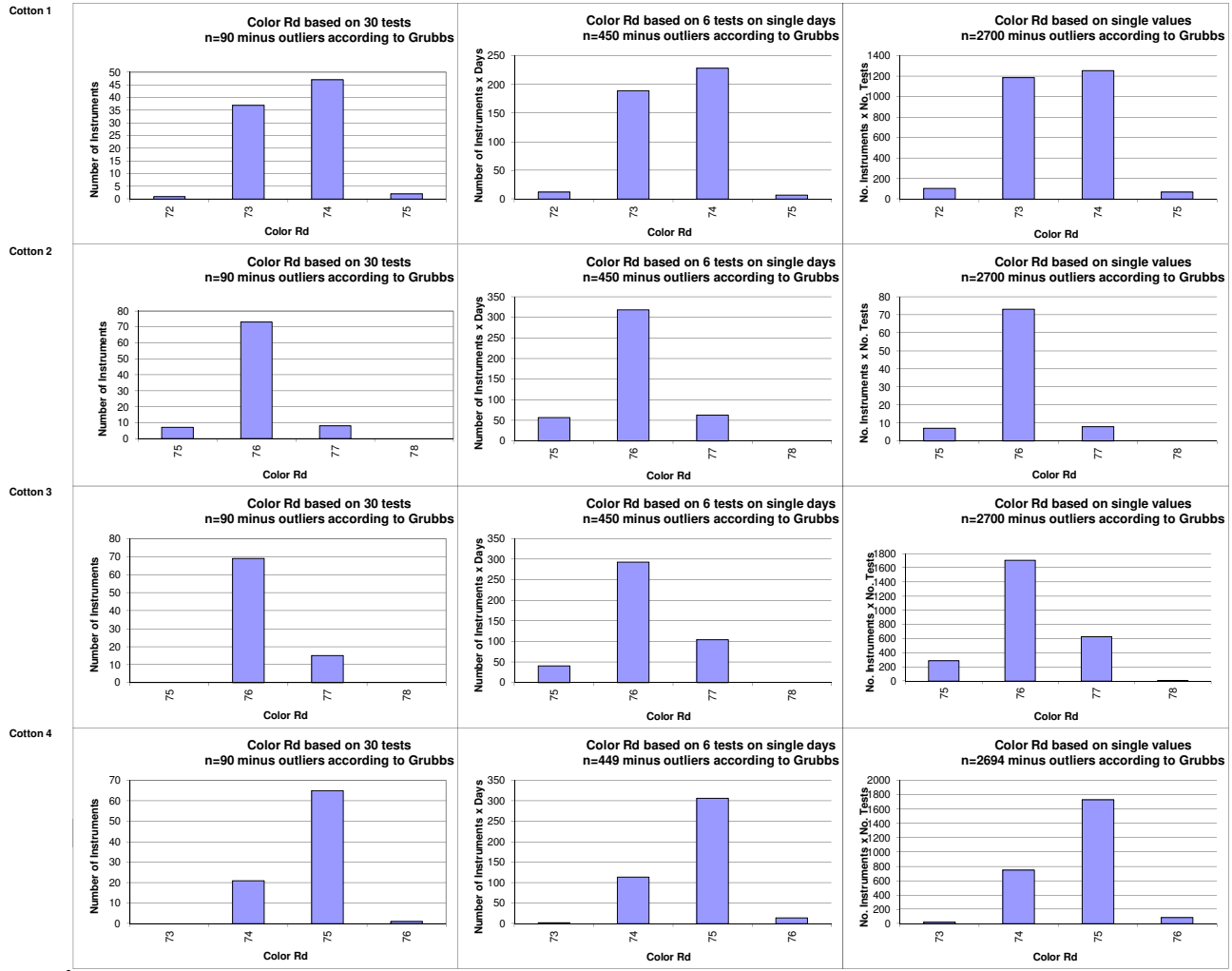
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Uniformity



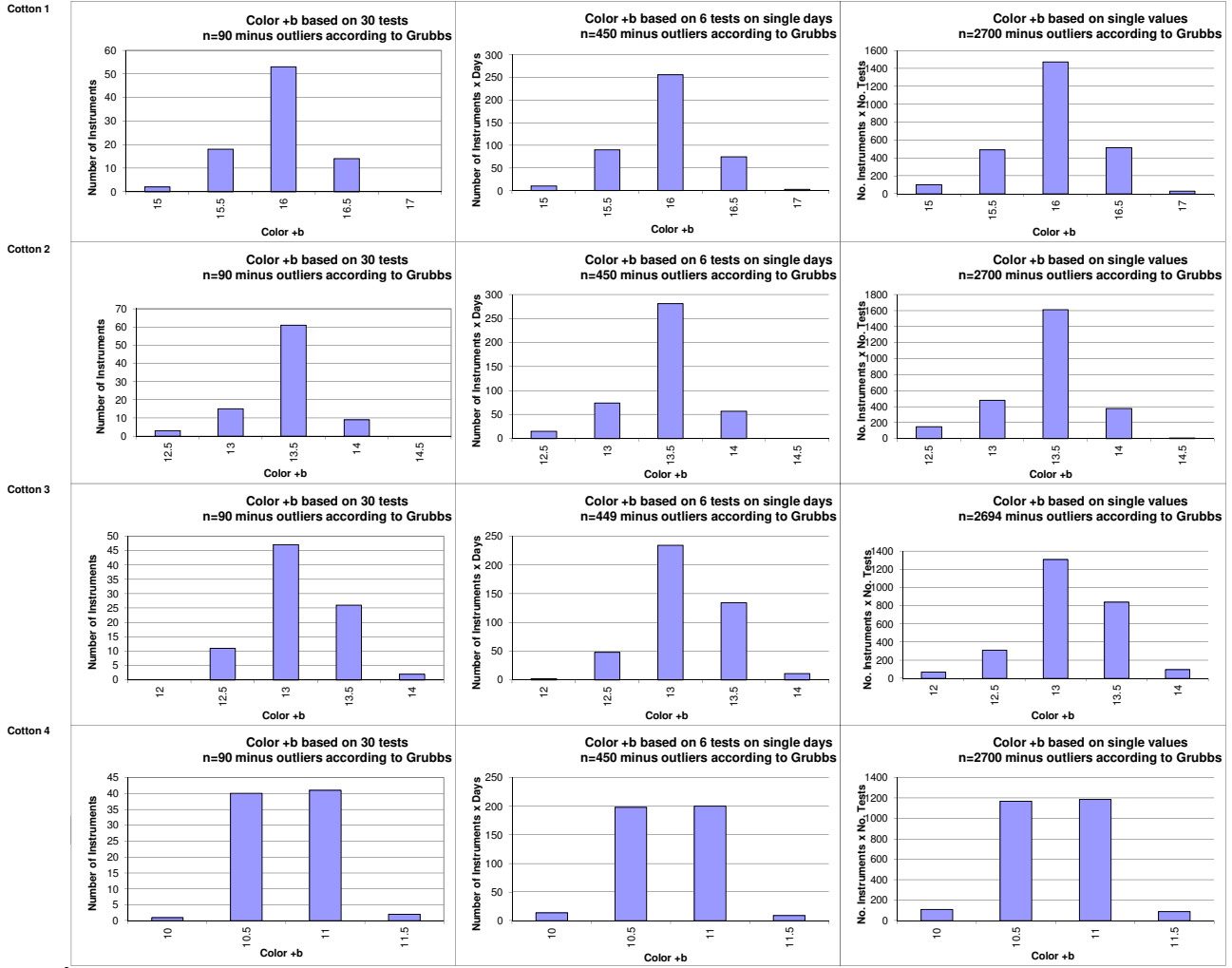
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd



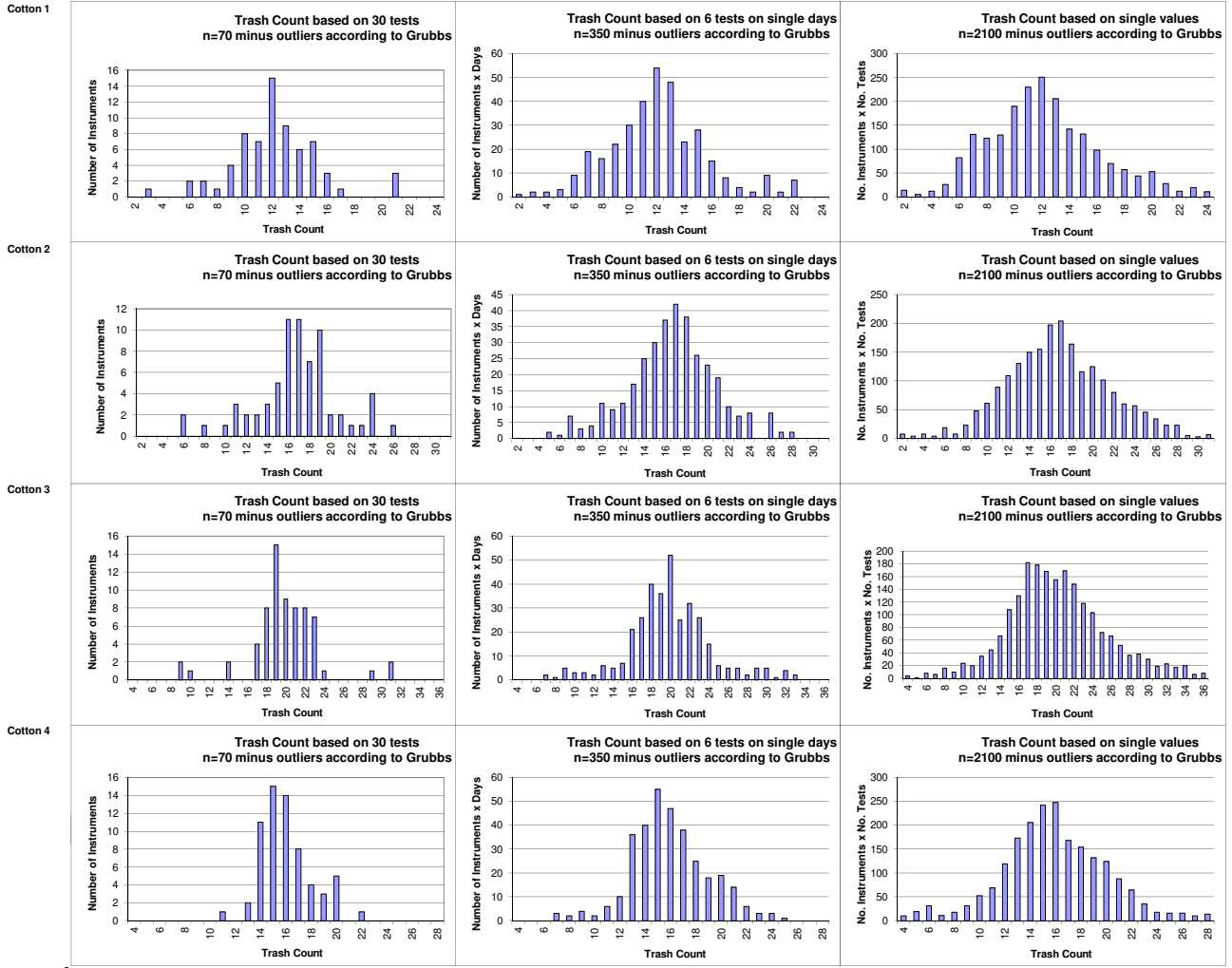
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b



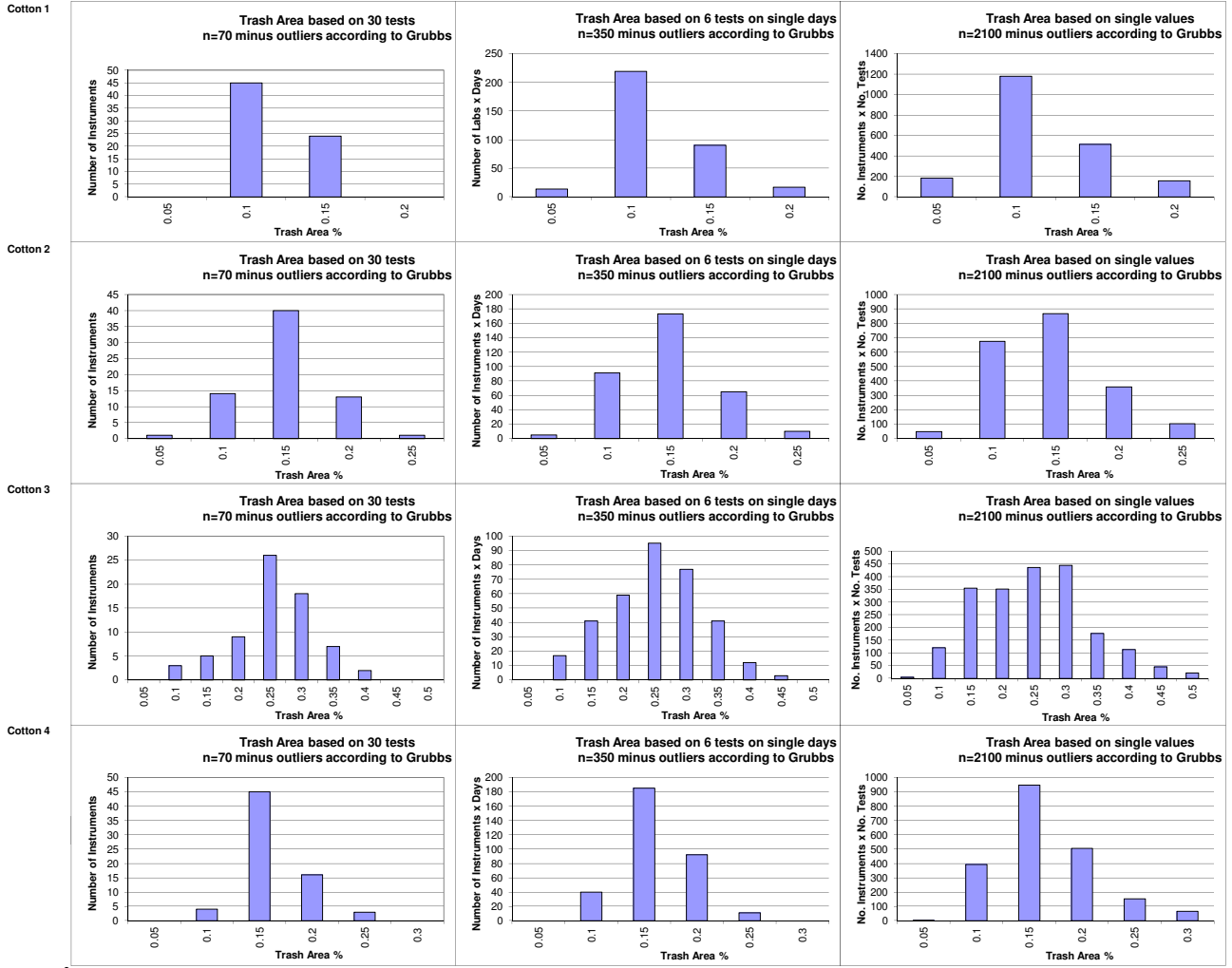
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count



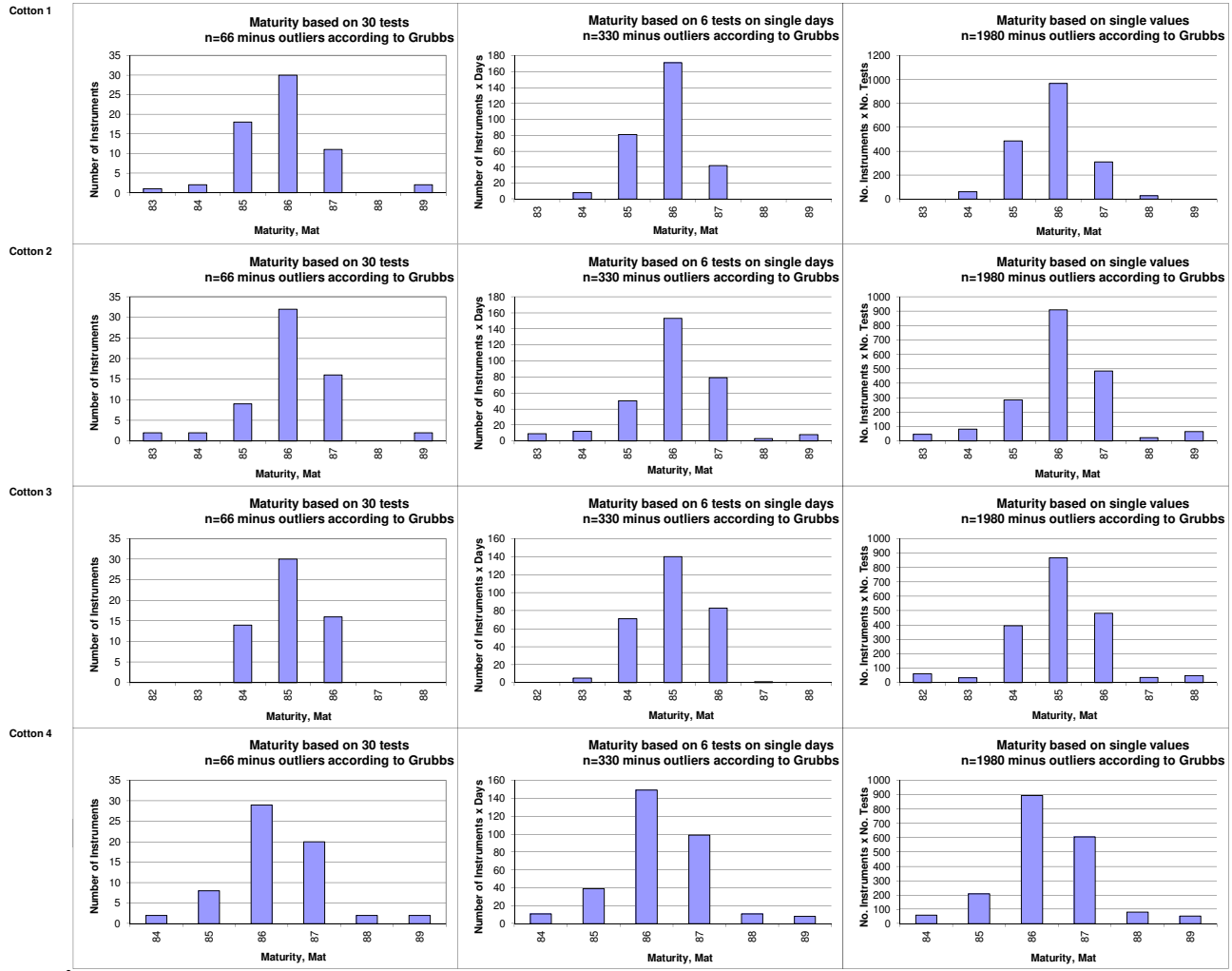
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Area



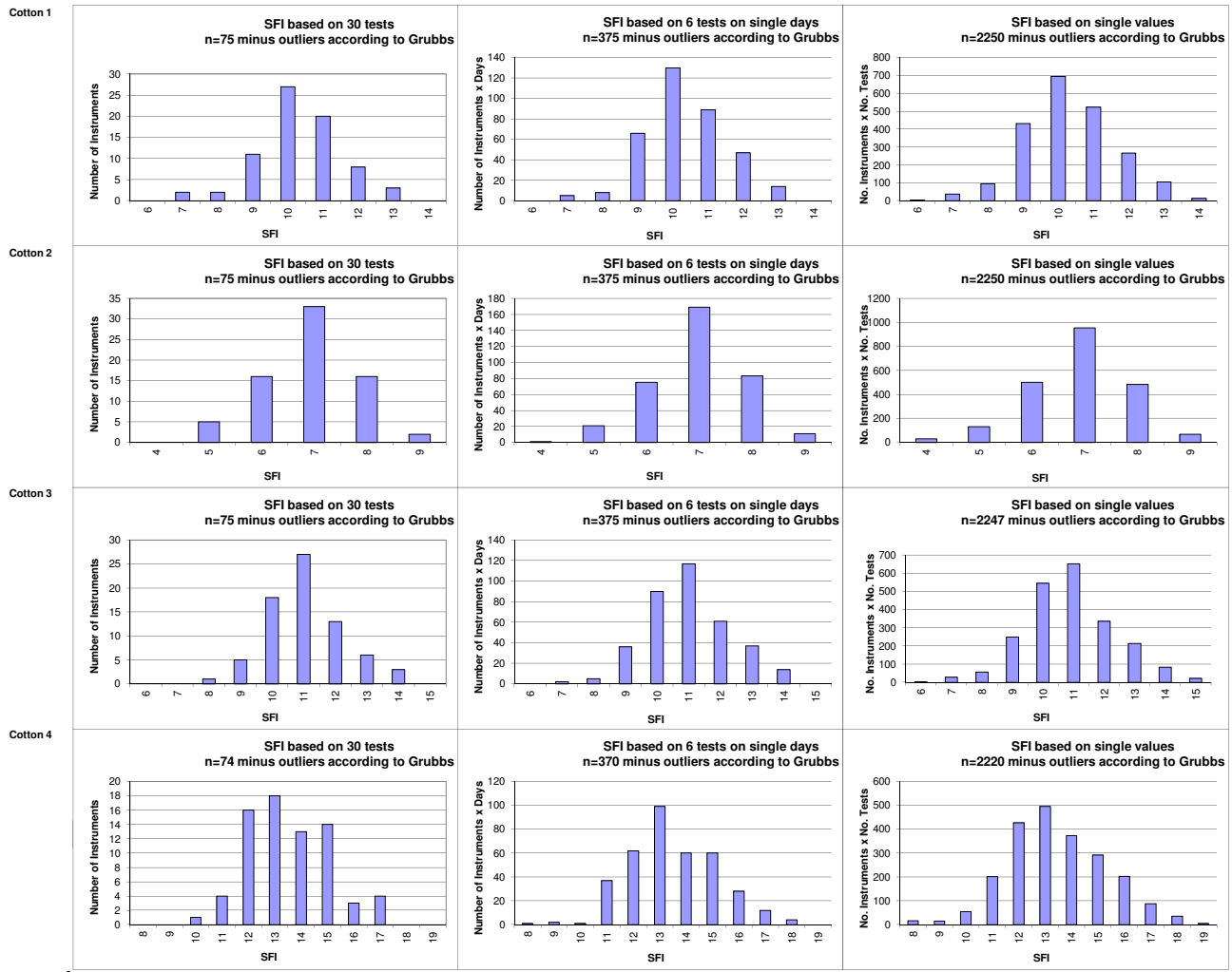
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

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 2023 - 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



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

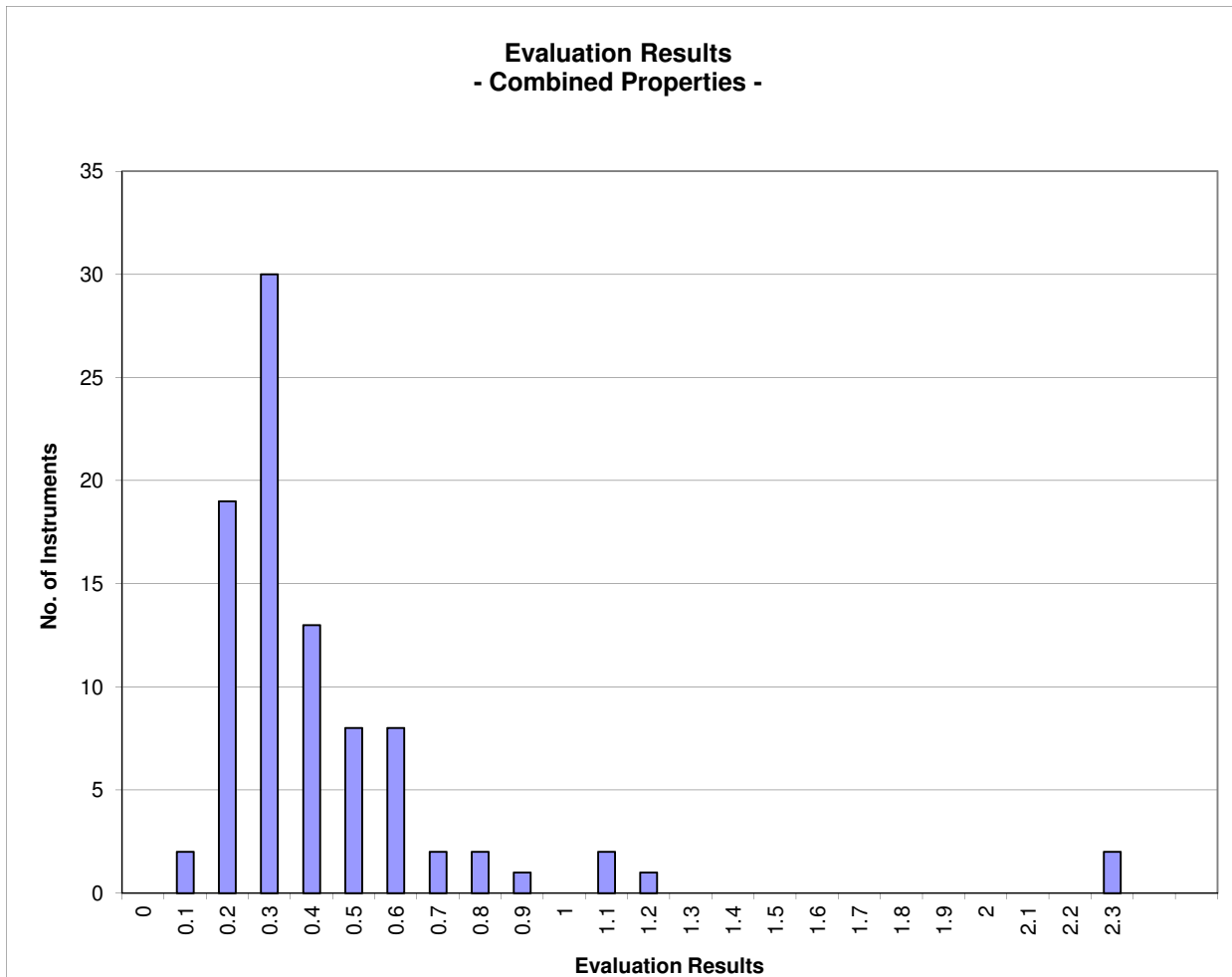
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2023 - 1

		Evaluation Combined Prop.
Statistics	Average	0.43
	Median	0.34
	Best Instrument	0.14
	Worst Instrument	2.35



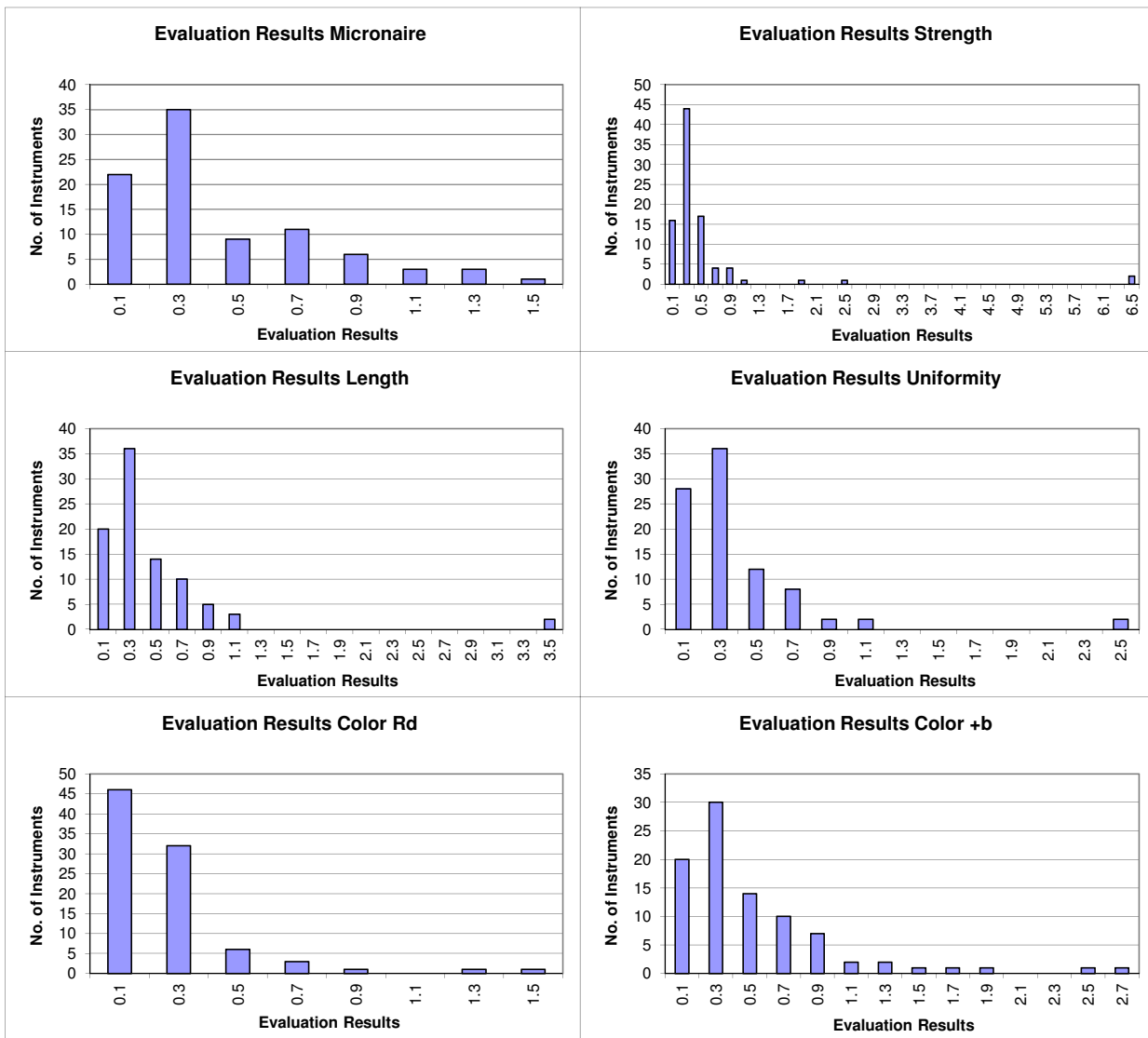
x-Axis shows midpoints of classes

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 2023 - 1

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.44	0.53	0.47	0.39	0.25	0.52
	Median	0.32	0.31	0.34	0.28	0.20	0.34
	Best Instr.	0.09	0.08	0.03	0.07	0.05	0.08
	Worst Instr.	1.45	6.56	3.56	2.57	1.46	2.62



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



International Cotton Advisory Committee



CSITC Global - Round Trial 2023 - 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:
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

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	99.7	94.2	97.2	97.8	98.1	86.4
Completely within limits	98.9	90.0	95.6	97.8	96.7	70.0
% of Instruments $\geq 75\%$ within limits	100.0	94.4	97.8	97.8	97.8	87.8
% of Instruments $\geq 50\%$ within limits	100.0	95.6	97.8	97.8	97.8	91.1

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	98.8	91.3	93.4	96.8	96.6	82.3
% of Instruments 100% within limits	64.4	30.0	35.6	55.6	75.6	32.2
% of Instruments $\geq 95\%$ within limits	94.4	67.8	71.1	87.8	91.1	46.7
% of Instruments $\geq 75\%$ within limits	98.9	91.1	94.4	97.8	96.7	73.3
% of Instruments $\geq 65\%$ within limits	100.0	94.4	97.8	97.8	96.7	83.3
% of Instruments $\geq 50\%$ within limits	100.0	95.6	97.8	97.8	97.8	88.9