



International Cotton Advisory Committee



CSITC

Global - Round Trial 2020 - 2

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 2020 - 2

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

Micronaire							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			4.501	4.102	4.249	3.607	
Reference Values for Evaluation			4.501	4.102	4.249	3.607	
Number Of Instruments			87	87	87	87	87
Inter-Instrument Variation	based on 30 tests	SD	0.047	0.050	0.060	0.059	0.054
		CV %	1.0	1.2	1.4	1.6	1.3
	based on 6 tests	SD	0.051	0.054	0.069	0.059	0.058
		CV %	1.1	1.3	1.6	1.6	1.4
	based on single tests	SD	0.057	0.061	0.078	0.068	0.066
		CV %	1.3	1.5	1.8	1.9	1.6
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.021	0.022	0.031	0.024	0.024
		CV %	0.5	0.5	0.7	0.7	0.6
	between single tests on one day	SD	0.029	0.032	0.040	0.033	0.033
		CV %	0.6	0.8	0.9	0.9	0.8
	between all tests on different days	SD	0.035	0.038	0.053	0.038	0.041
		CV %	0.8	0.9	1.2	1.1	1.0

Strength							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			24.056	22.777	31.747	25.574	
Reference Values for Evaluation			24.056	22.777	31.747	25.574	
Number Of Instruments			87	87	87	87	87
Inter-Instrument Variation	based on 30 tests	SD	0.424	0.670	0.698	0.613	0.601
		CV %	1.8	2.9	2.2	2.4	2.3
	based on 6 tests	SD	0.573	0.691	0.812	0.729	0.701
		CV %	2.4	3.0	2.6	2.9	2.7
	based on single tests	SD	0.719	0.803	1.027	0.880	0.857
		CV %	3.0	3.5	3.2	3.4	3.3
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.273	0.273	0.351	0.316	0.303
		CV %	1.1	1.2	1.1	1.2	1.2
	between single tests on one day	SD	0.420	0.500	0.677	0.555	0.538
		CV %	1.7	2.2	2.1	2.2	2.1
	between all tests on different days	SD	0.495	0.562	0.772	0.662	0.623
		CV %	2.1	2.5	2.4	2.6	2.4

Length							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			1.0149	1.0007	1.1978	1.0843	
Reference Values for Evaluation			1.0149	1.0007	1.1978	1.0843	
Number Of Instruments			87	87	87	87	87
Inter-Instrument Variation	based on 30 tests	SD	0.0084	0.0078	0.0071	0.0073	0.0077
		CV %	0.8	0.8	0.6	0.7	0.7
	based on 6 tests	SD	0.0095	0.0092	0.0092	0.0089	0.0092
		CV %	0.9	0.9	0.8	0.8	0.9
	based on single tests	SD	0.0120	0.0131	0.0139	0.0131	0.0130
		CV %	1.2	1.3	1.2	1.2	1.2
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.0040	0.0049	0.0058	0.0053	0.0050
		CV %	0.4	0.5	0.5	0.5	0.5
	between single tests on one day	SD	0.0078	0.0094	0.0115	0.0103	0.0097
		CV %	0.8	0.9	1.0	0.9	0.9
	between all tests on different days	SD	0.0086	0.0105	0.0123	0.0113	0.0107
		CV %	0.8	1.0	1.0	1.0	1.0

Uniformity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			80.296	77.628	83.827	79.461	
Reference Values for Evaluation			80.296	77.628	83.827	79.461	
Number Of Instruments			87	87	87	87	87
Inter-Instrument Variation	based on 30 tests	SD	0.326	0.376	0.325	0.303	0.333
		CV %	0.4	0.5	0.4	0.4	0.4
	based on 6 tests	SD	0.402	0.490	0.435	0.437	0.441
		CV %	0.5	0.6	0.5	0.5	0.6
	based on single tests	SD	0.587	0.689	0.658	0.645	0.645
		CV %	0.7	0.9	0.8	0.8	0.8
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.249	0.288	0.275	0.261	0.268
		CV %	0.3	0.4	0.3	0.3	0.3
	between single tests on one day	SD	0.460	0.551	0.520	0.503	0.509
		CV %	0.6	0.7	0.6	0.6	0.6
	between all tests on different days	SD	0.513	0.632	0.586	0.560	0.573
		CV %	0.6	0.8	0.7	0.7	0.7

Color Rd							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			75.445	76.843	78.671	71.303	
Reference Values for Evaluation			75.445	76.843	78.671	71.303	
Number Of Instruments			87	87	87	87	87
Inter-Instrument Variation	based on 30 tests	SD	0.391	0.463	0.461	0.519	0.458
		CV %	0.5	0.6	0.6	0.7	0.6
	based on 6 tests	SD	0.391	0.480	0.530	0.544	0.486
		CV %	0.5	0.6	0.7	0.8	0.6
	based on single tests	SD	0.422	0.477	0.536	0.567	0.500
		CV %	0.6	0.6	0.7	0.8	0.7
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.137	0.168	0.183	0.167	0.164
		CV %	0.2	0.2	0.2	0.2	0.2
	between single tests on one day	SD	0.104	0.107	0.113	0.120	0.111
		CV %	0.1	0.1	0.1	0.2	0.1
	between all tests on different days	SD	0.205	0.208	0.250	0.244	0.227
		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)			13.990	9.888	11.569	16.733	
Reference Values for Evaluation			13.990	9.888	11.569	16.733	
Number Of Instruments			87	87	87	87	87
Inter-Instrument Variation	based on 30 tests	SD	0.357	0.242	0.318	0.403	0.330
		CV %	2.5	2.4	2.8	2.4	2.5
	based on 6 tests	SD	0.364	0.261	0.318	0.403	0.337
		CV %	2.6	2.6	2.8	2.4	2.6
	based on single tests	SD	0.380	0.277	0.336	0.414	0.352
		CV %	2.7	2.8	2.9	2.5	2.7
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.089	0.088	0.100	0.116	0.098
		CV %	0.6	0.9	0.9	0.7	0.8
	between single tests on one day	SD	0.071	0.056	0.064	0.079	0.068
		CV %	0.5	0.6	0.6	0.5	0.5
	between all tests on different days	SD	0.145	0.117	0.144	0.157	0.141
		CV %	1.0	1.2	1.2	0.9	1.1

Optional Parameters

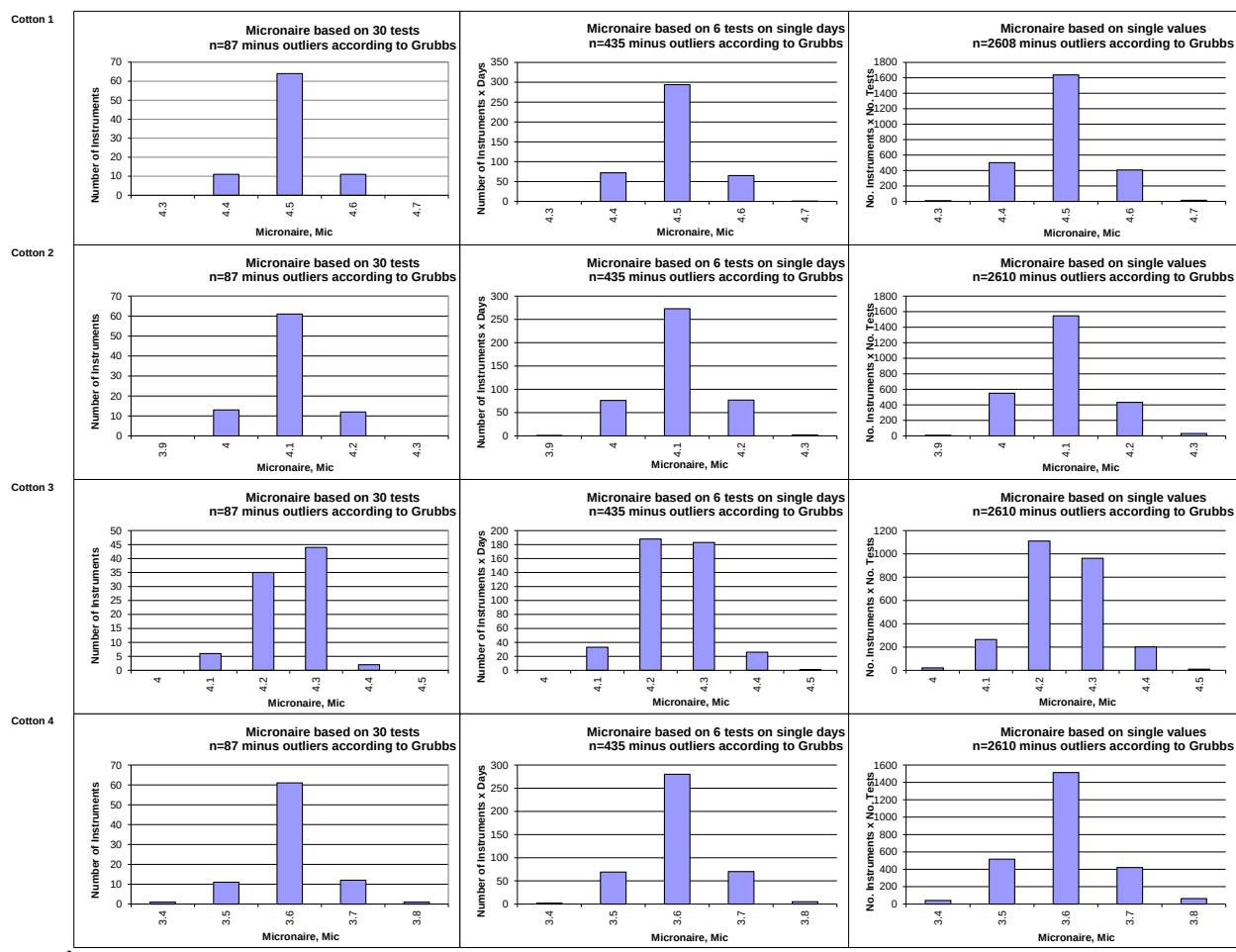
Inter-Instrument Averages, Inter-Instrument Variations, Typical within-instrument Variations

Trash Count							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			10.01	16.52	27.83	10.75	
Reference Values for Evaluation			10.01	16.52	27.83	10.75	
Number Of Instruments			80	80	80	80	80
Inter-Instrument Variation	based on 30 tests	SD	2.81	4.93	6.83	2.91	4.37
		CV %	28.0	29.9	24.6	27.1	27.4
	based on 6 tests	SD	3.22	5.68	7.34	3.51	4.94
		CV %	32.2	34.4	26.4	32.7	31.4
	based on single tests	SD	3.58	6.07	7.70	3.88	5.31
		CV %	35.8	36.8	27.7	36.1	34.1
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	1.24	1.88	2.50	1.45	1.77
		CV %	12.4	11.4	9.0	13.5	11.6
	between single tests on one day	SD	1.27	1.95	2.30	1.48	1.75
		CV %	12.7	11.8	8.3	13.8	11.6
	between all tests on different days	SD	2.02	3.10	3.56	2.45	2.78
		CV %	20.1	18.7	12.8	22.8	18.6

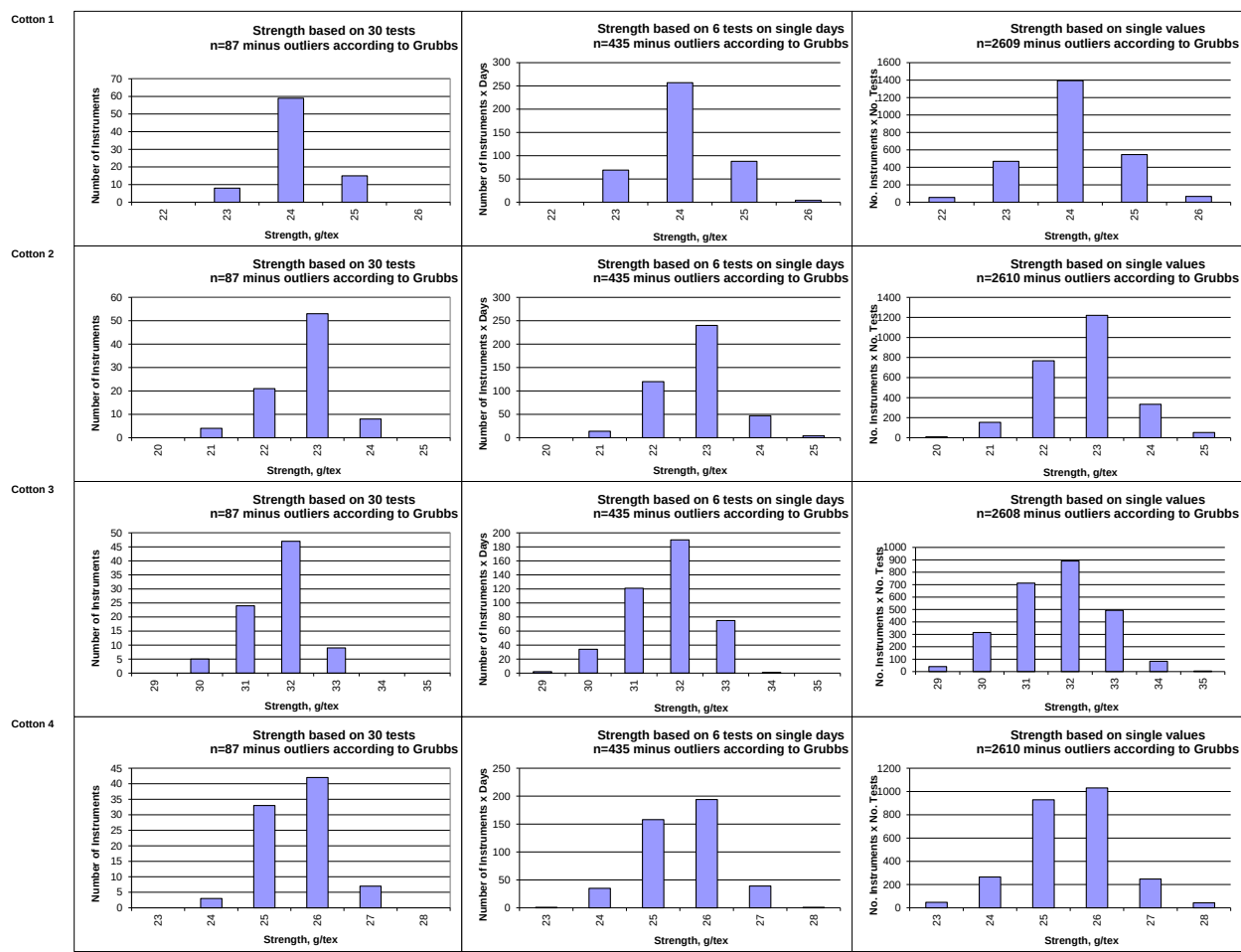
Trash Area							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.103	0.181	0.260	0.118	
Reference Values for Evaluation			0.103	0.181	0.260	0.118	
Number Of Instruments			80	80	80	80	80
Inter-Instrument Variation	based on 30 tests	SD	0.024	0.053	0.061	0.023	0.040
		CV %	23.3	29.1	23.5	19.2	23.8
	based on 6 tests	SD	0.030	0.064	0.070	0.032	0.049
		CV %	28.9	35.0	26.9	27.5	29.6
	based on single tests	SD	0.035	0.069	0.083	0.040	0.057
		CV %	34.1	38.0	32.1	33.8	34.5
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.016	0.032	0.029	0.022	0.025
		CV %	15.7	17.5	11.2	18.3	15.7
	between single tests on one day	SD	0.011	0.027	0.023	0.020	0.020
		CV %	10.5	14.7	8.8	17.3	12.8
	between all tests on different days	SD	0.025	0.045	0.044	0.031	0.036
		CV %	24.4	24.5	17.1	26.1	23.0

Maturity							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			86.52	85.38	85.60	84.23	
Reference Values for Evaluation			86.52	85.38	85.60	84.23	
Number Of Instruments			75	75	75	75	75
Inter-Instrument Variation	based on 30 tests	SD	0.59	0.67	0.57	0.66	0.62
		CV %	0.7	0.8	0.7	0.8	0.7
	based on 6 tests	SD	0.60	0.63	0.63	0.69	0.64
		CV %	0.7	0.7	0.7	0.8	0.7
	based on single tests	SD	0.63	0.65	0.65	0.76	0.67
		CV %	0.7	0.8	0.8	0.9	0.8
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.07	0.08	0.12	0.14	0.10
		CV %	0.1	0.1	0.1	0.2	0.1
	between single tests on one day	SD	0.09	0.12	0.15	0.18	0.14
		CV %	0.1	0.1	0.2	0.2	0.2
	between all tests on different days	SD	0.17	0.18	0.25	0.31	0.23
		CV %	0.2	0.2	0.3	0.4	0.3

SFI							
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			11.81	15.90	7.04	12.14	
Reference Values for Evaluation			11.81	15.90	7.04	12.14	
Number Of Instruments			80	80	80	80	80
Inter-Instrument Variation	based on 30 tests	SD	1.20	1.90	0.67	1.20	1.24
		CV %	10.2	11.9	9.5	9.9	10.4
	based on 6 tests	SD	1.28	1.93	0.69	1.24	1.29
		CV %	10.9	12.1	9.8	10.2	10.8
	based on single tests	SD	1.39	2.16	0.80	1.42	1.44
		CV %	11.7	13.6	11.4	11.7	12.1
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.29	0.40	0.17	0.35	0.30
		CV %	2.5	2.5	2.4	2.9	2.6
	between single tests on one day	SD	0.60	0.79	0.36	0.60	0.59
		CV %	5.1	5.0	5.2	4.9	5.0
	between all tests on different days	SD	0.68	0.92	0.40	0.70	0.67
		CV %	5.7	5.8	5.7	5.8	5.7

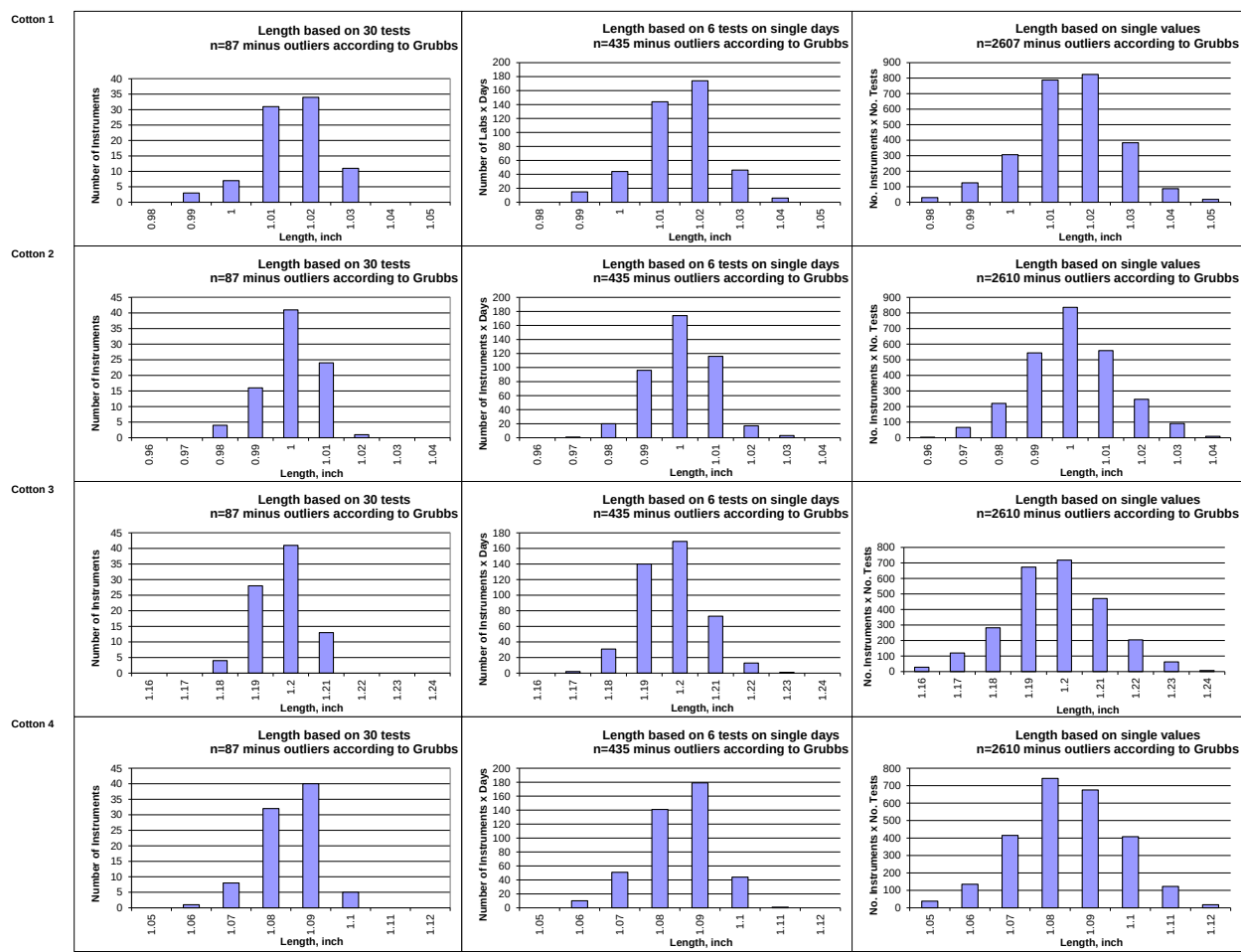
Test Result Distributions
Micronaire

(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

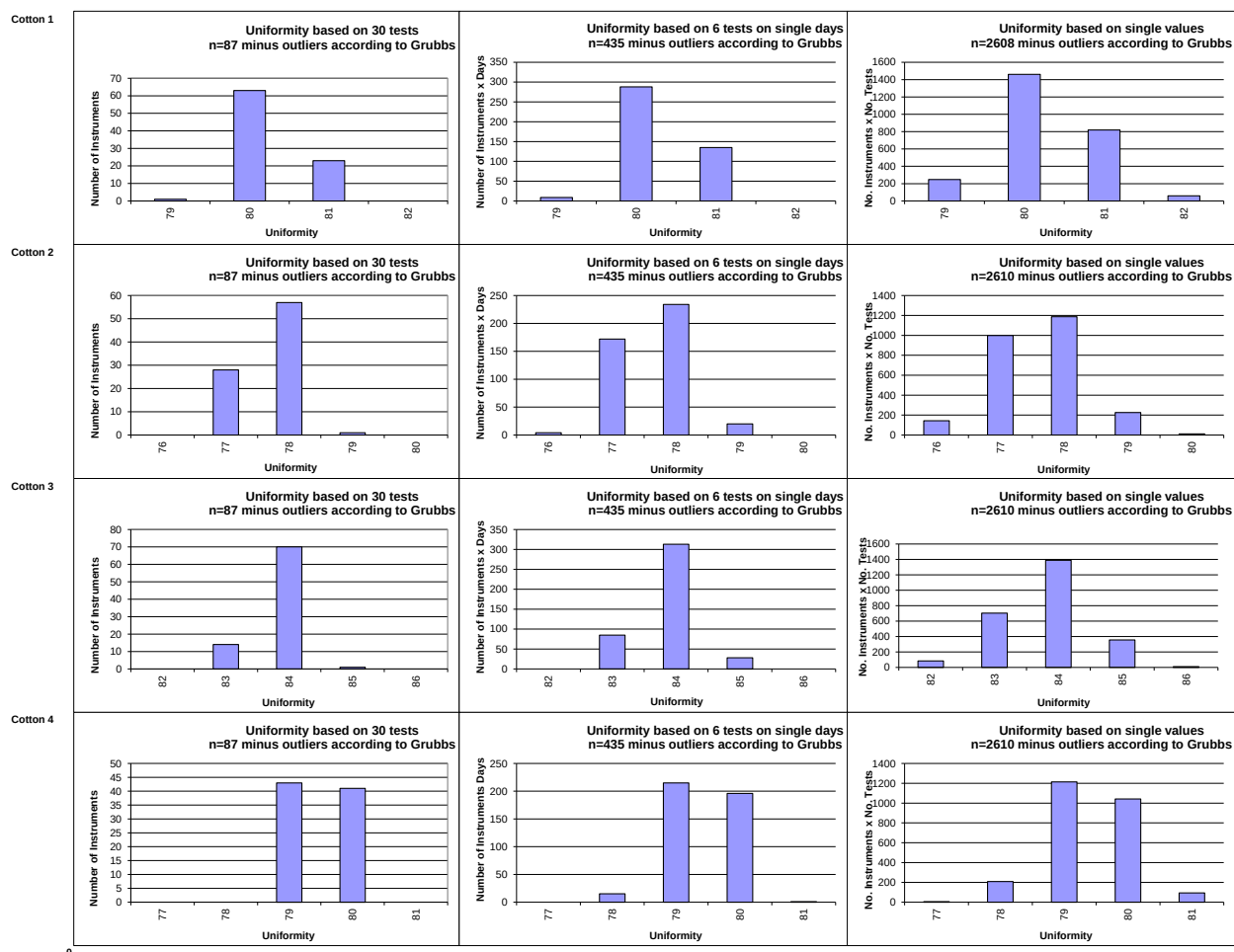
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Length

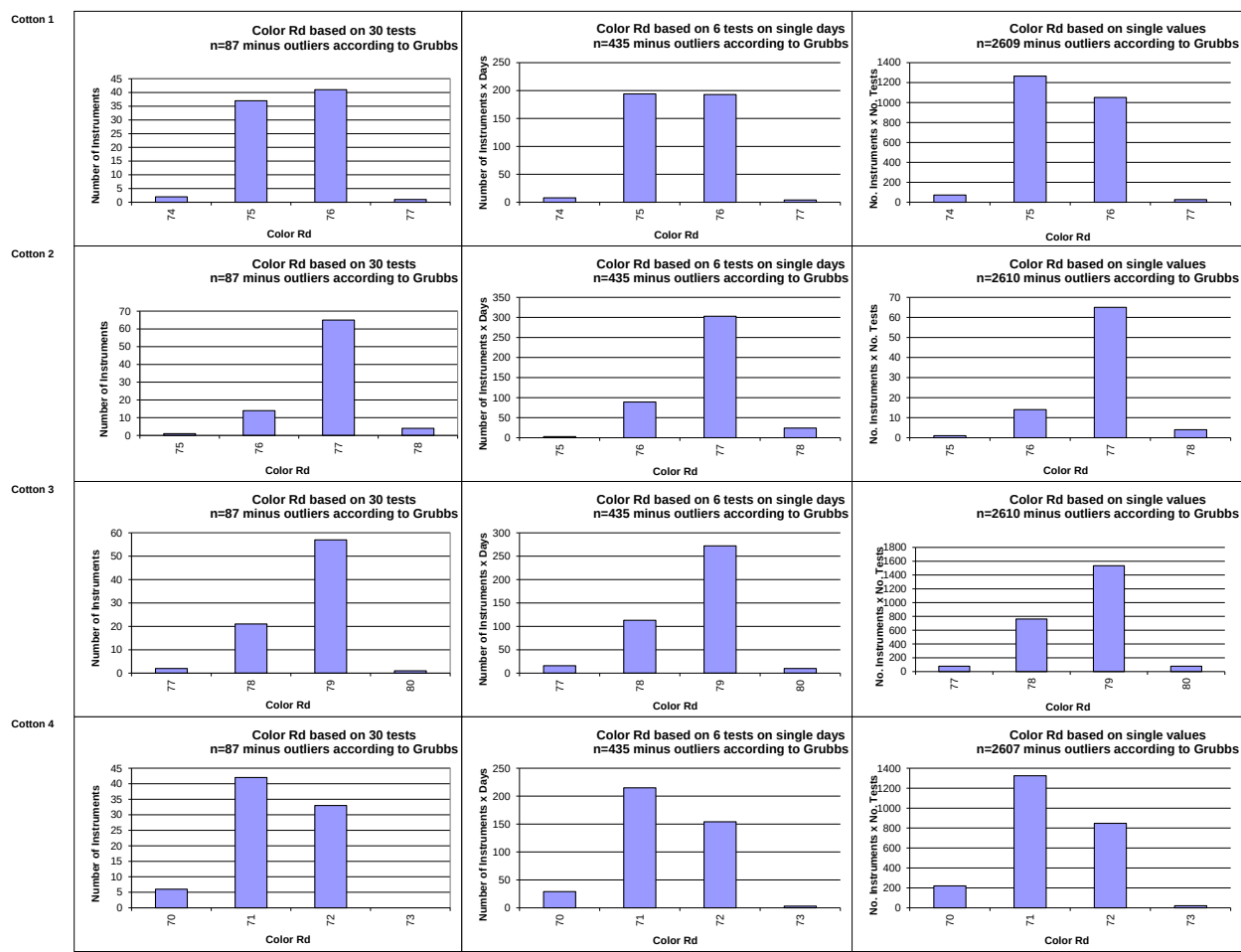


(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

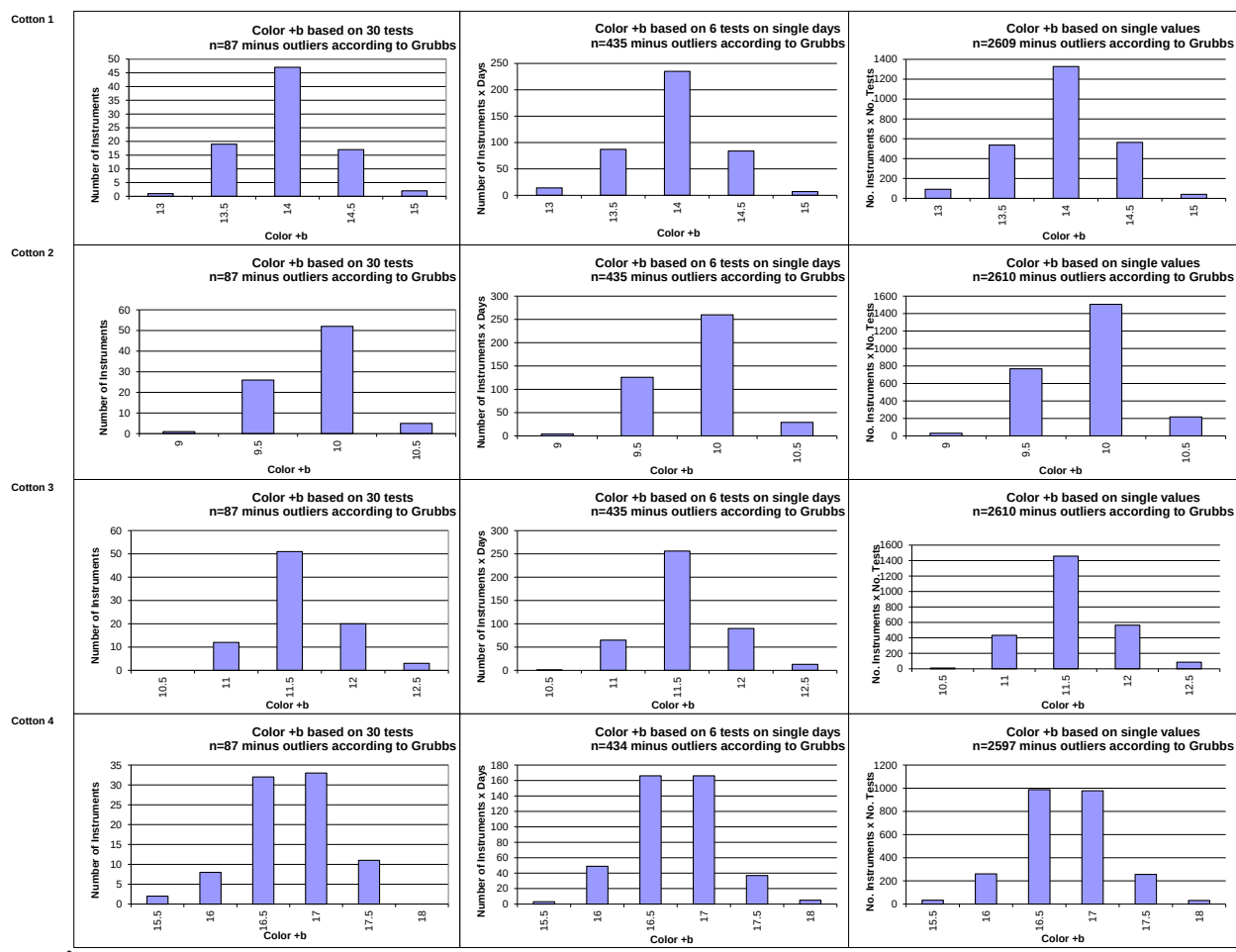
Test Result Distributions
Uniformity



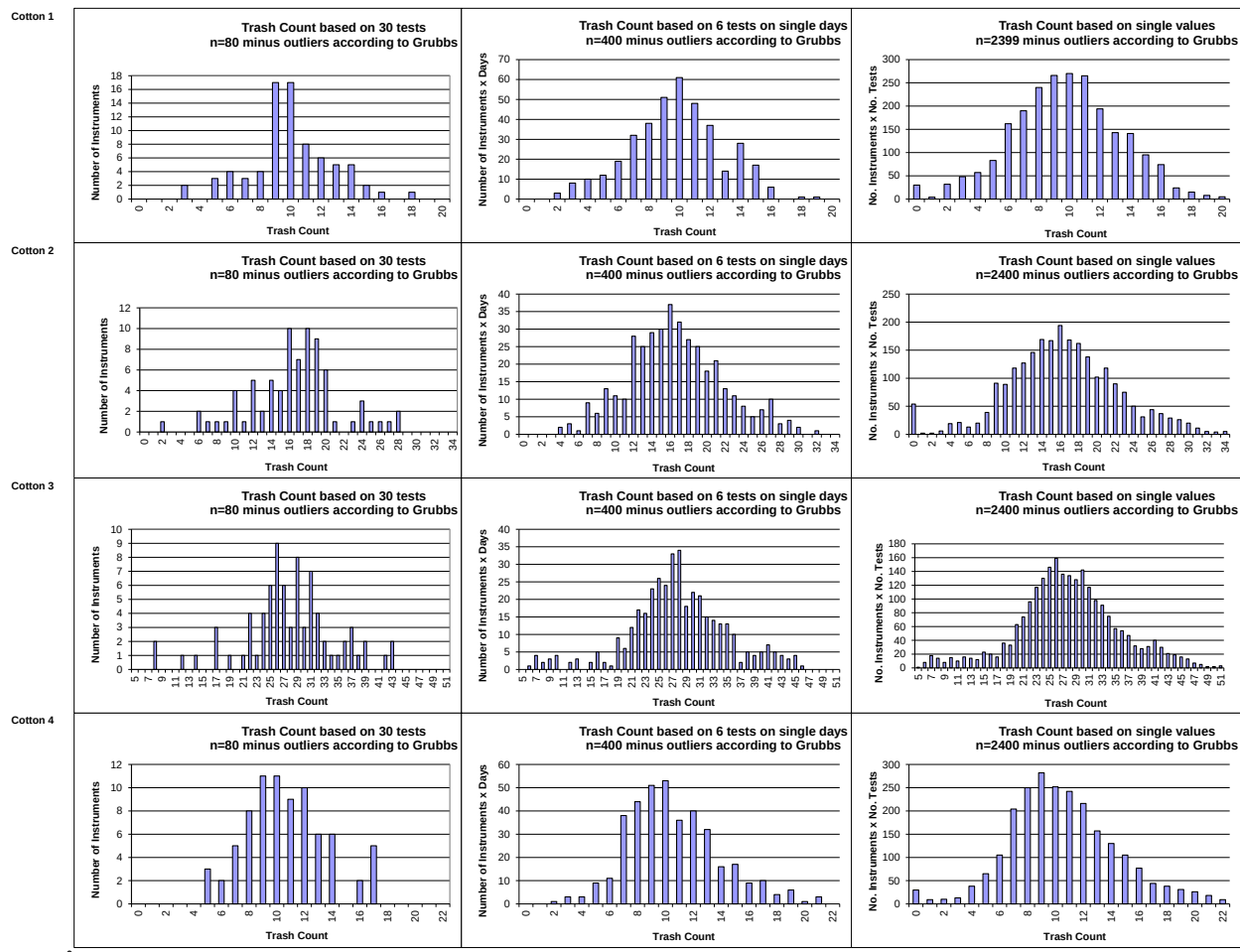
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd

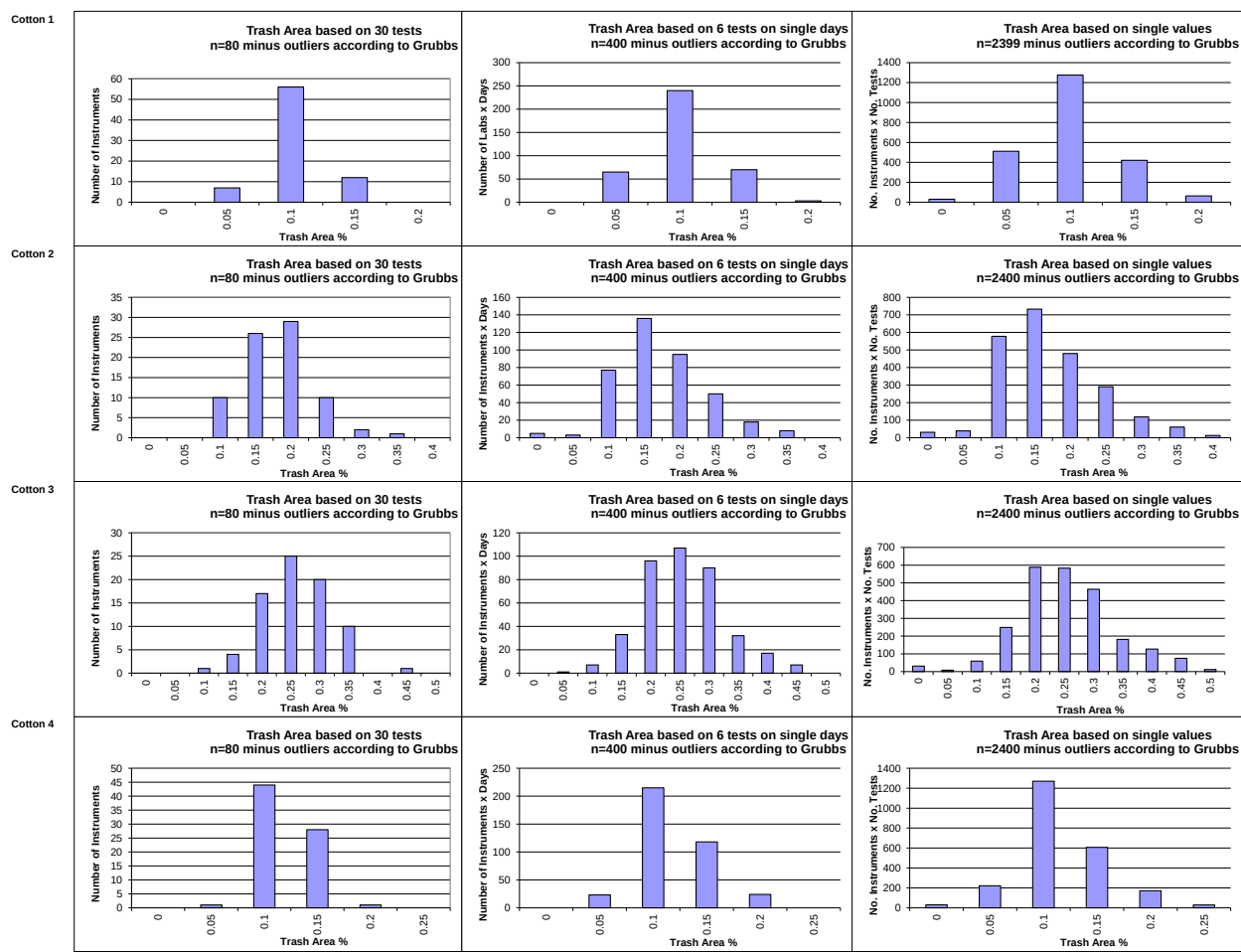
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b

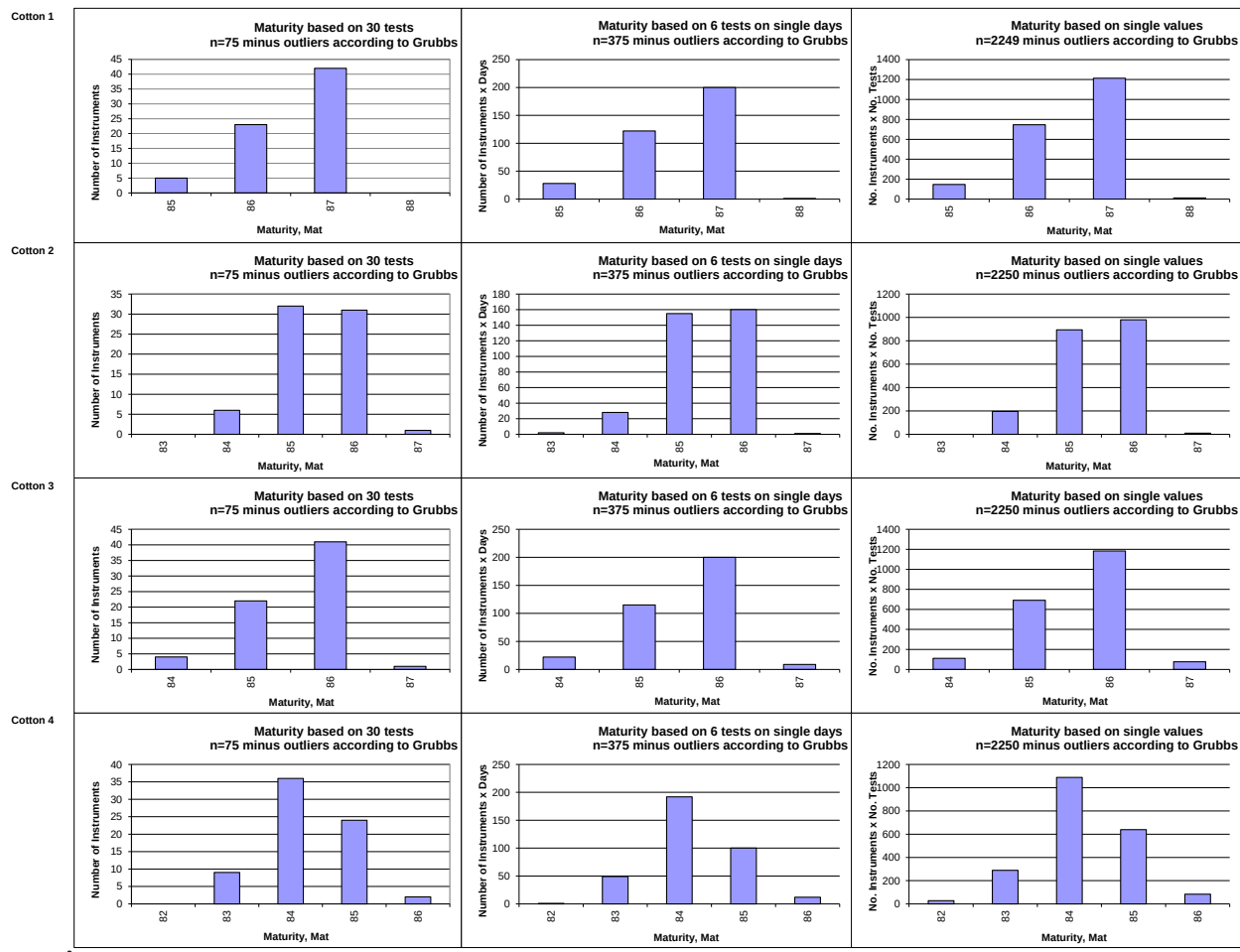
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count

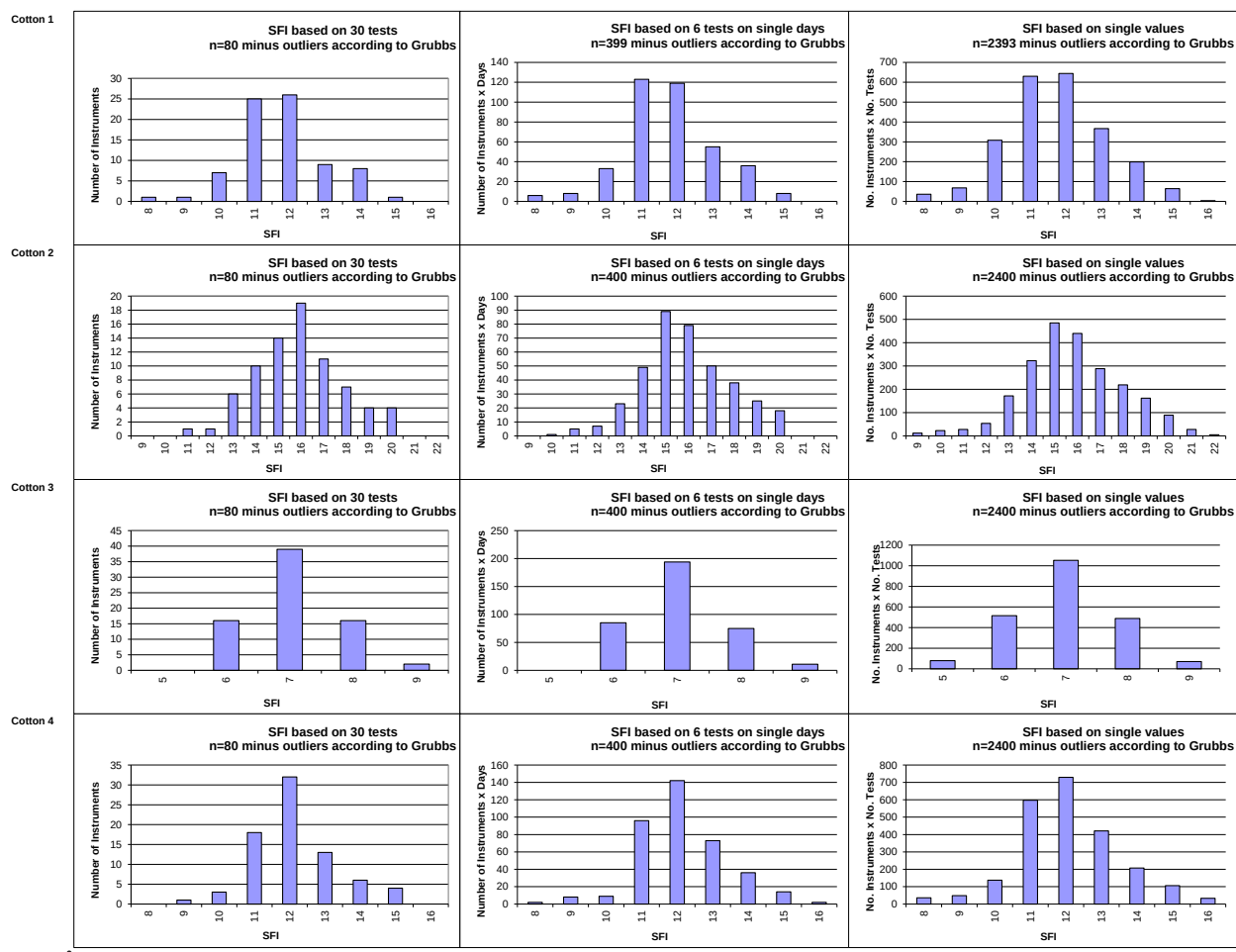
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

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 2020 - 2 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:

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USDA-AMS, Memphis, TN, USA

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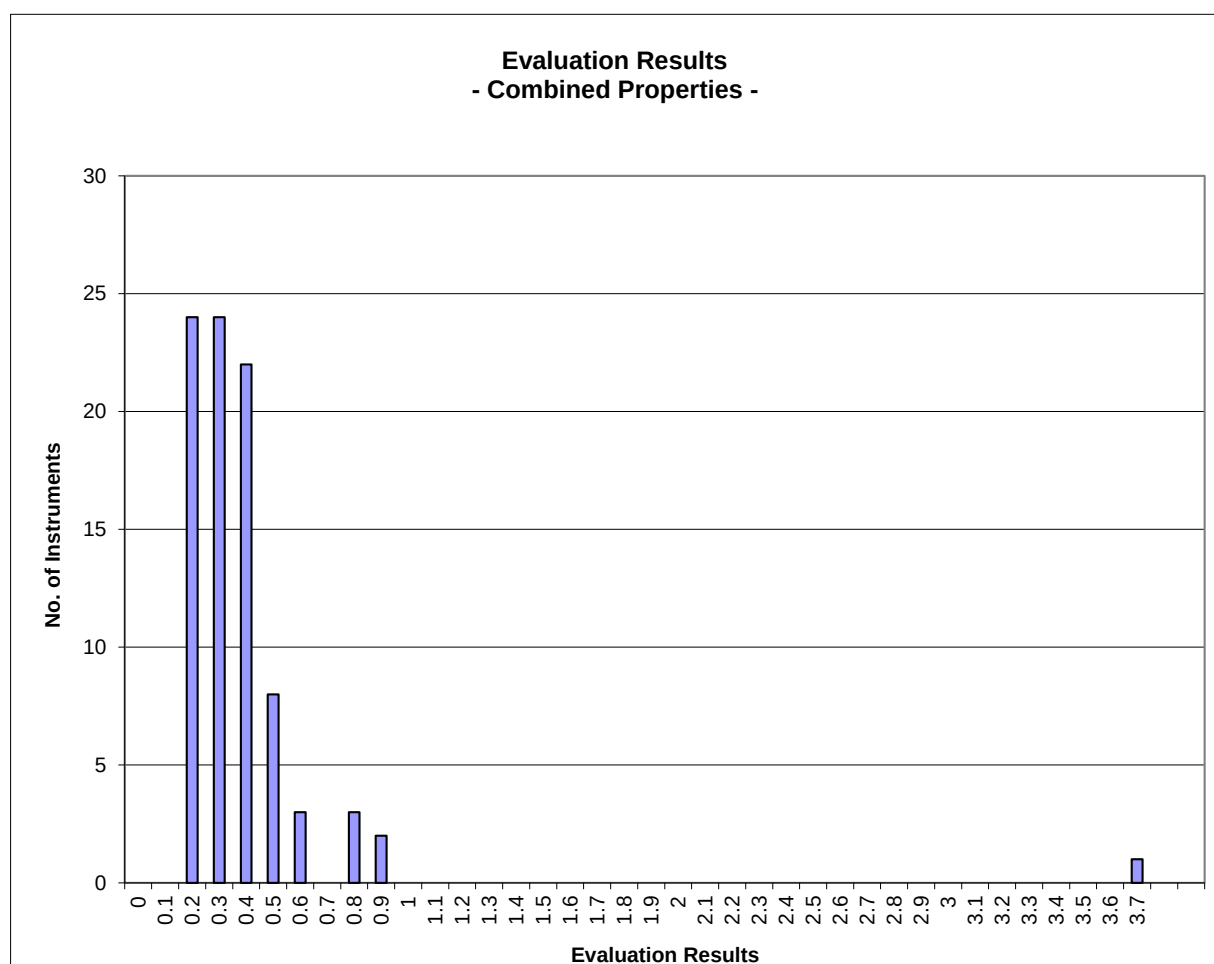
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2020 - 2

		Evaluation Combined Prop.
Statistics	Average	0.40
	Median	0.33
	Best Instrument	0.17
	Worst Instrument	3.68



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)

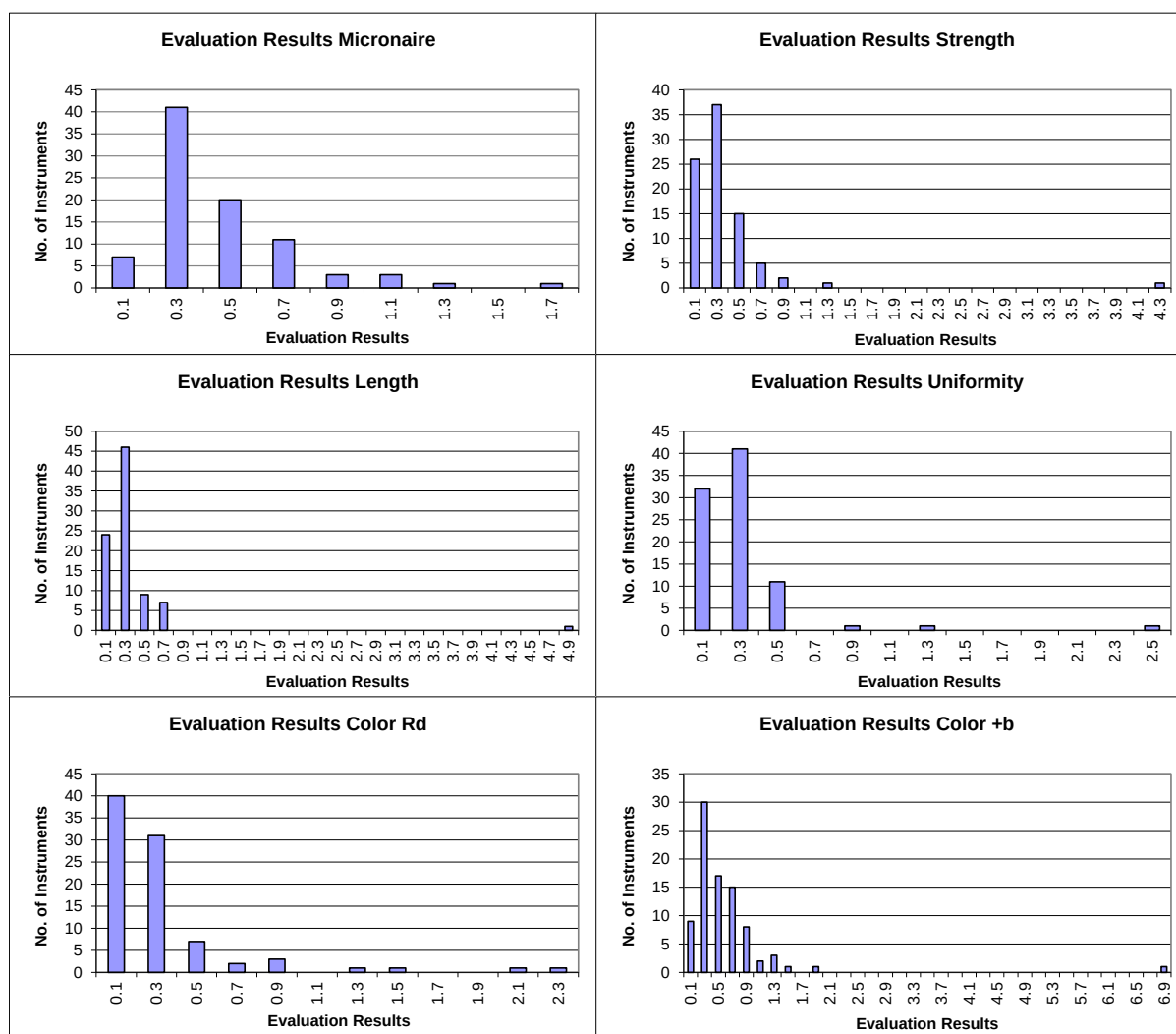
Instrument Evaluation

- Graph of Single Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2020 - 2

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.44	0.38	0.35	0.30	0.33	0.59
	Median	0.38	0.30	0.28	0.23	0.22	0.43
	Best Instr.	0.04	0.06	0.05	0.05	0.03	0.05
	Worst Instr.	1.75	4.32	4.91	2.55	2.31	6.99



x-Axis shows midpoints of classes

The evaluation results are entered based on the unrounded values



International Cotton Advisory Committee



CSITC Global - Round Trial 2020 - 2 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

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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	99.7	98.0	98.9	99.1	94.5	83.6
Completely within limits	98.9	95.4	98.9	98.9	90.8	62.1
% of Instruments $\geq 75\%$ within limits	100.0	98.9	98.9	98.9	94.3	85.1
% of Instruments $\geq 50\%$ within limits	100.0	98.9	98.9	98.9	96.6	92.0

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	94.6	97.5	98.3	93.9	81.7
% of Instruments 100% within limits	62.1	29.9	42.5	60.9	71.3	29.9
% of Instruments $\geq 95\%$ within limits	94.3	73.6	93.1	96.6	86.2	49.4
% of Instruments $\geq 75\%$ within limits	98.9	97.7	98.9	98.9	89.7	72.4
% of Instruments $\geq 65\%$ within limits	100.0	97.7	98.9	98.9	93.1	82.8
% of Instruments $\geq 50\%$ within limits	100.0	98.9	98.9	98.9	96.6	86.2