International Cotton Advisory Committee

CSITC
Global - Round Trial 2020 - 1
General Evaluation

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Section One: Result Distribution

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- -Summary Table
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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 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 with each 6 tests	SD	0.026	0.022	0.024	0.022	**0.023**
		CV %	0.6	0.5	0.6	0.6	**0.6**
	between single tests on one day	SD	0.036	0.032	0.033	0.031	**0.033**
		CV %	0.8	0.7	0.8	0.8	**0.8**
	between all tests on different days	SD	0.043	0.041	0.042	0.039	**0.041**
		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 with each 6 tests	SD	0.328	0.370	0.312	0.373	**0.346**
		CV %	1.2	1.3	1.3	1.1	**1.2**
	between single tests on one day	SD	0.615	0.609	0.463	0.587	**0.569**
		CV %	2.2	2.1	1.9	1.8	**2.0**
	between all tests on different days	SD	0.691	0.700	0.550	0.685	**0.656**
		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 with each 6 tests	SD	0.0053	0.0051	0.0053	0.0055	**0.0053**
		CV %	0.5	0.5	0.5	0.5	**0.5**
	between single tests on one day	SD	0.0107	0.0105	0.0087	0.0091	**0.0098**
		CV %	1.0	1.0	0.9	0.8	**0.9**
	between all tests on different days	SD	0.0119	0.0112	0.0097	0.0105	**0.0108**
		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 with each 6 tests	SD	2.17	1.50	1.79	1.88	**1.83**
		CV %	8.9	8.7	10.2	6.3	**8.5**
	between single tests on one day	SD	3.01	2.49	2.43	3.33	**2.82**
		CV %	12.4	14.5	13.9	11.1	**13.0**
	between all tests on different days	SD	4.04	3.22	3.09	3.84	**3.55**
		CV %	16.6	18.7	17.6	12.8	**16.4**

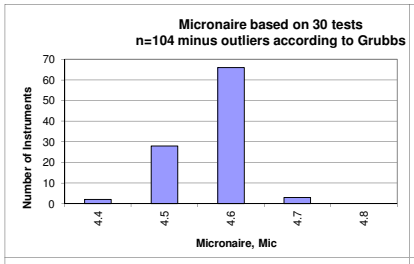
Trash Area							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			0.277	0.173	0.236	0.264	
Reference Values for Evaluation			0.277	0.173	0.236	0.264	
Number Of Instruments			80	80	80	80	**80**
Inter-Instrument Variation	based on 30 tests	SD	0.072	0.037	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 with each 6 tests	SD	0.037	0.022	0.035	0.026	**0.030**
		CV %	13.2	12.4	14.7	9.8	**12.5**
	between single tests on one day	SD	0.056	0.031	0.051	0.037	**0.044**
		CV %	20.1	18.0	21.6	14.1	**18.5**
	between all tests on different days	SD	0.076	0.042	0.067	0.051	**0.059**
		CV %	27.6	24.3	28.3	19.3	**24.9**

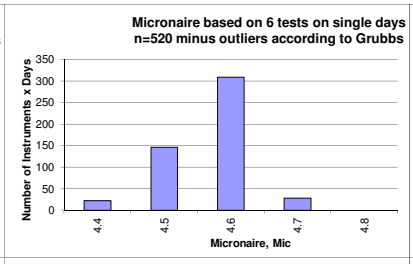
Maturity							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			87.23	85.80	85.34	85.64	
Reference Values for Evaluation			87.23	85.80	85.34	85.64	
Number Of Instruments			72	72	72	72	**72**
Inter-Instrument Variation	based on 30 tests	SD	0.76	0.75	0.77	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 with each 6 tests	SD	0.13	0.15	0.08	0.14	**0.12**
		CV %	0.2	0.2	0.1	0.2	**0.1**
	between single tests on one day	SD	0.16	0.20	0.10	0.17	**0.16**
		CV %	0.2	0.2	0.1	0.2	**0.2**
	between all tests on different days	SD	0.25	0.35	0.17	0.26	**0.26**
		CV %	0.3	0.4	0.2	0.3	**0.3**

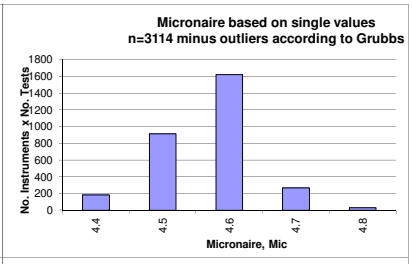
SFI							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			11.07	11.34	12.37	7.58	
Reference Values for Evaluation			11.07	11.34	12.37	7.58	
Number Of Instruments			83	83	83	83	**83**
Inter-Instrument Variation	based on 30 tests	SD	1.00	1.08	1.33	0.79	**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

Cotton 1







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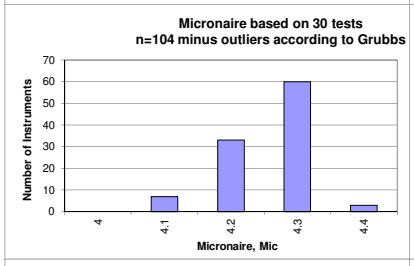
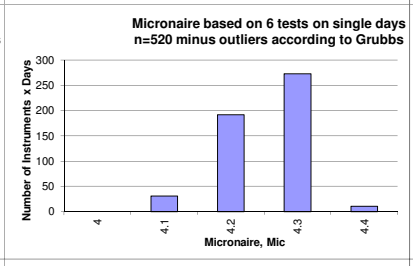
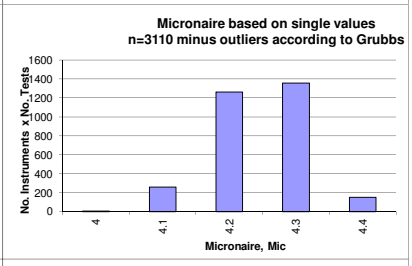
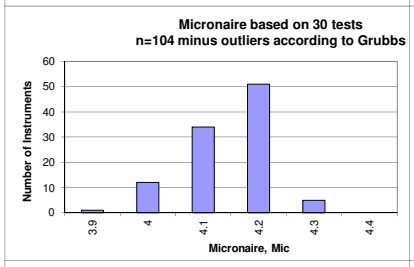
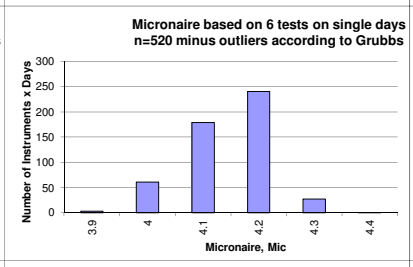


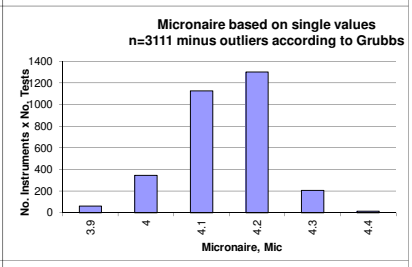




Cotton 3







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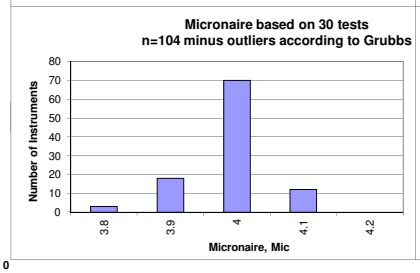

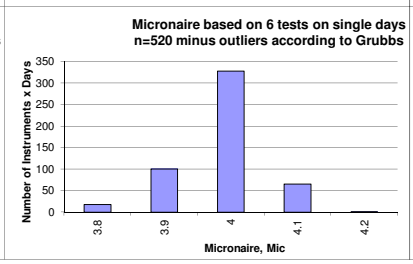

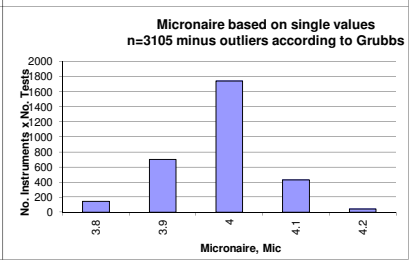

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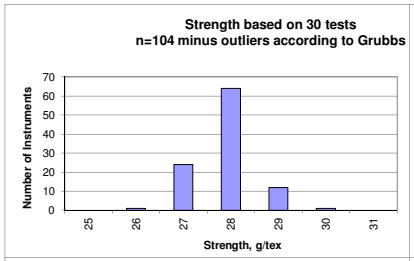
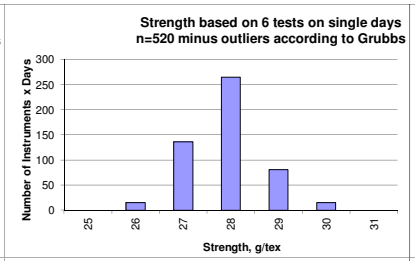
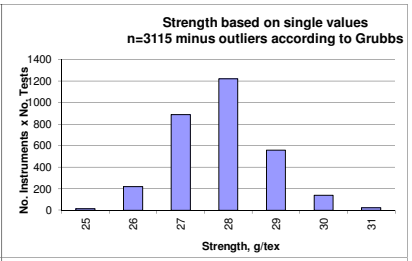
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Strength

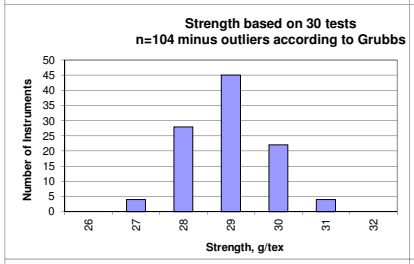
Cotton 1

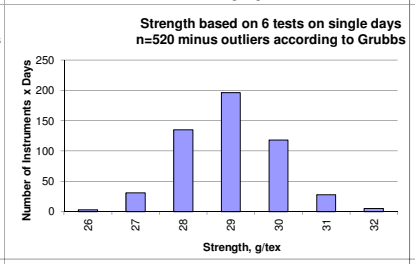


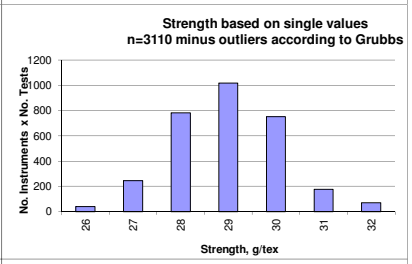




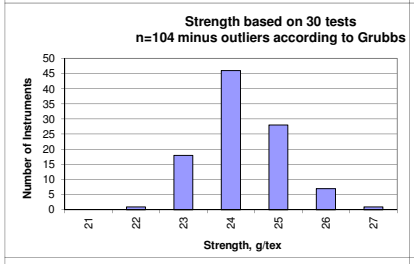
Cotton 2

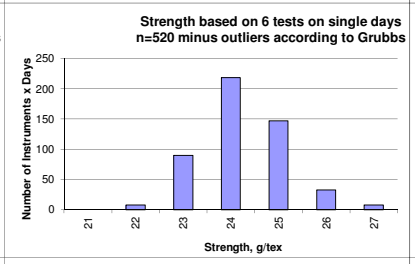


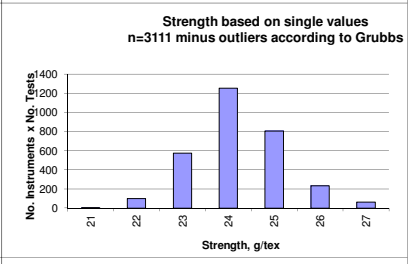




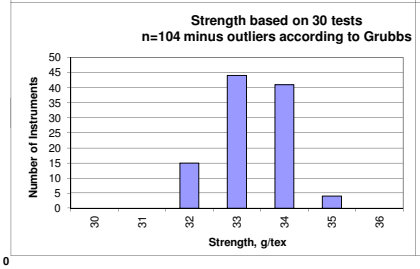
Cotton 3

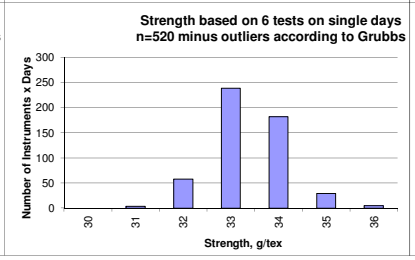


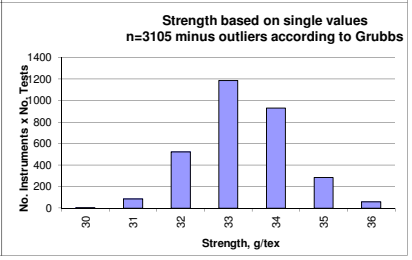




Cotton 4







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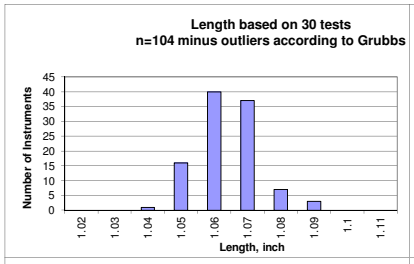
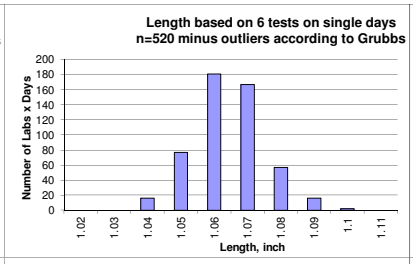
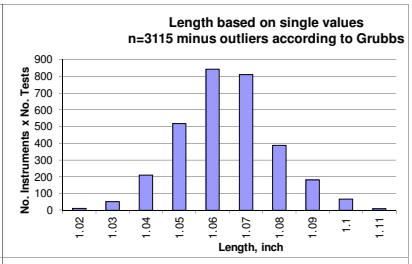
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Length

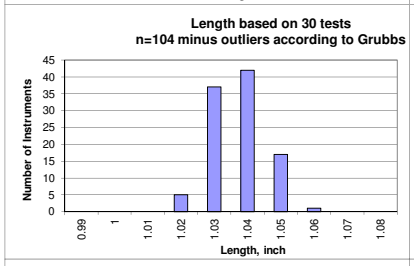
Cotton 1

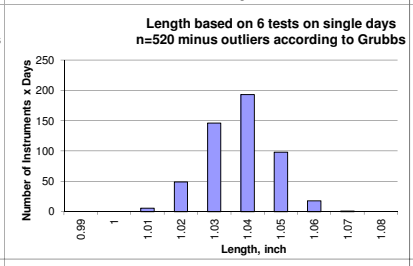


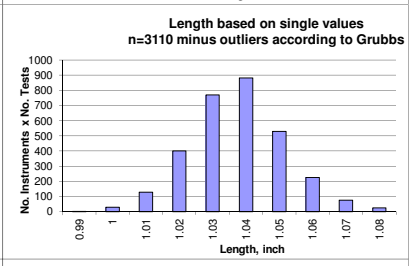




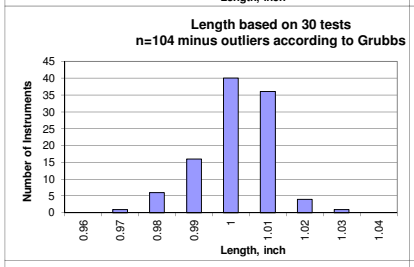
Cotton 2

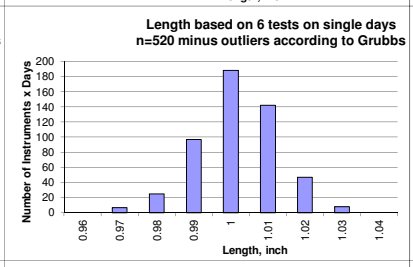


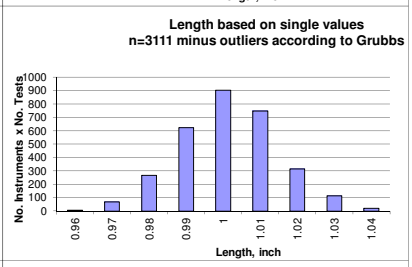




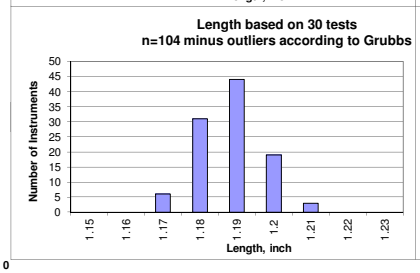
Cotton 3

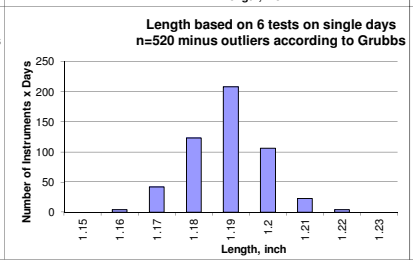


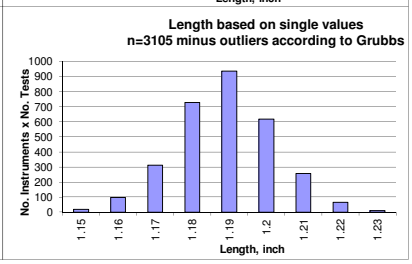




Cotton 4







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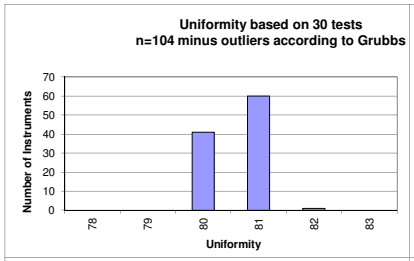
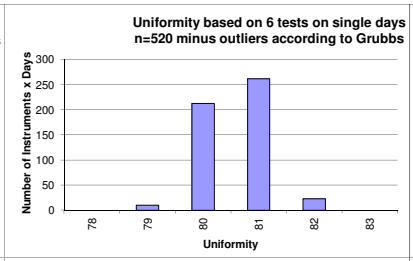
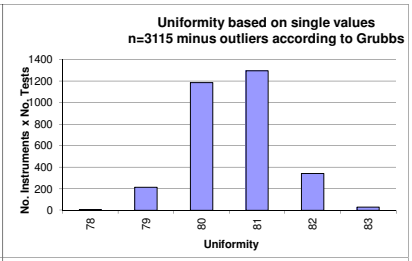
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Uniformity

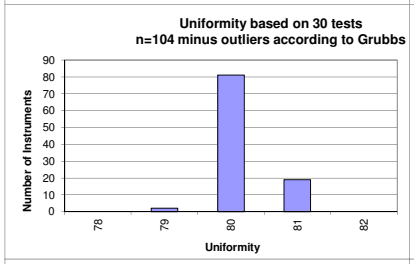
Cotton 1

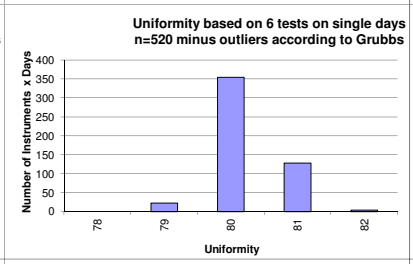


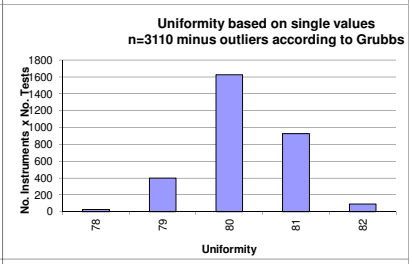




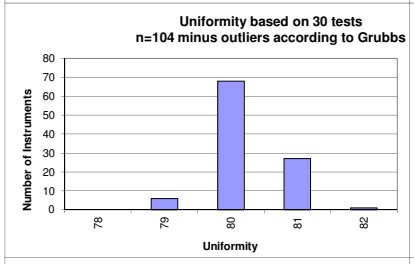
Cotton 2

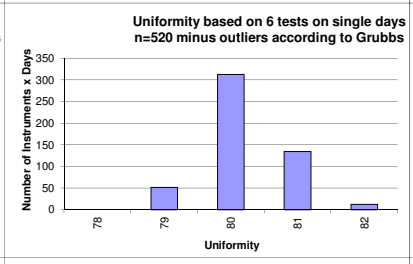


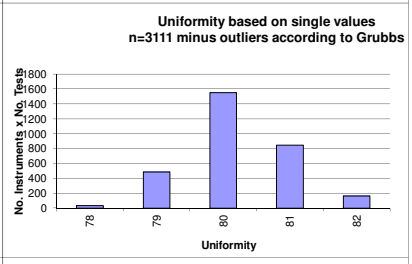




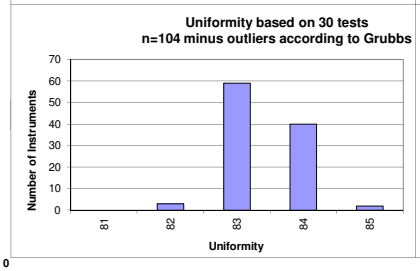
Cotton 3

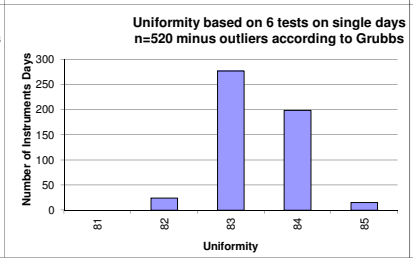


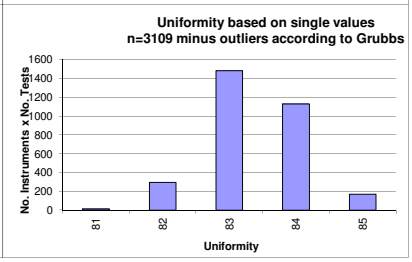




Cotton 4





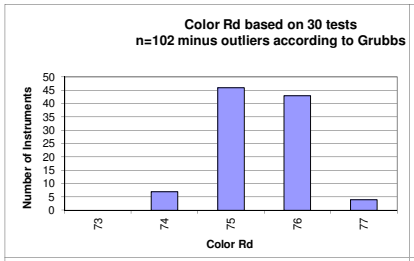


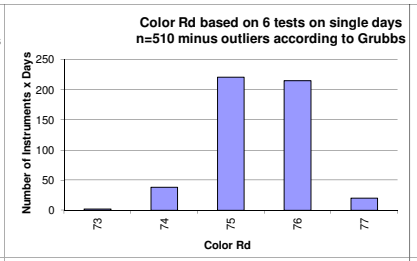
0

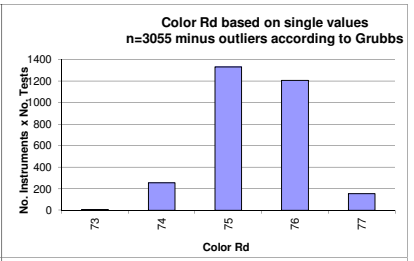
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd

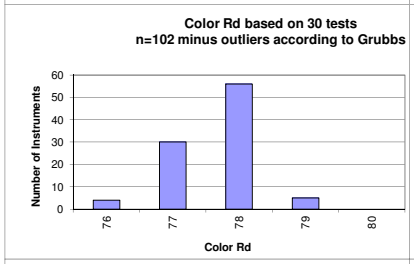
Cotton 1

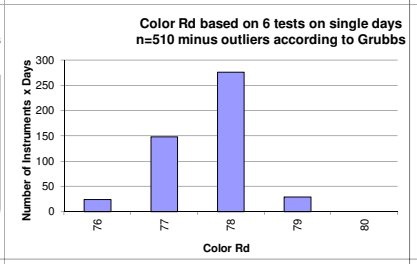


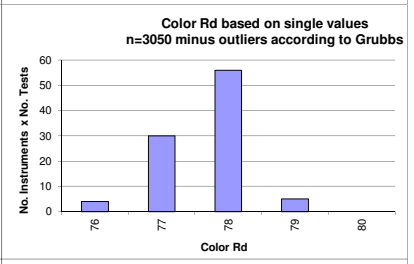




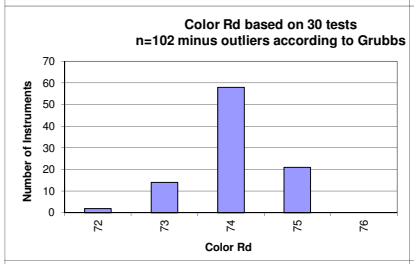
Cotton 2

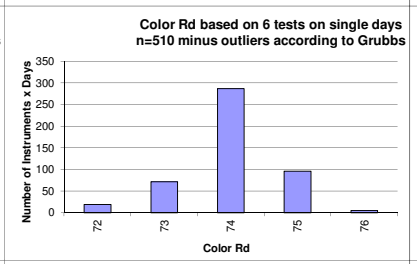


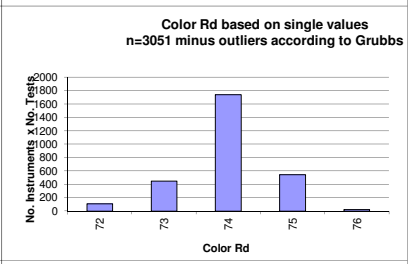




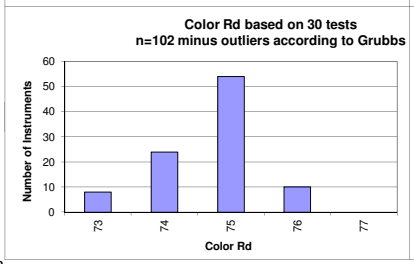
Cotton 3

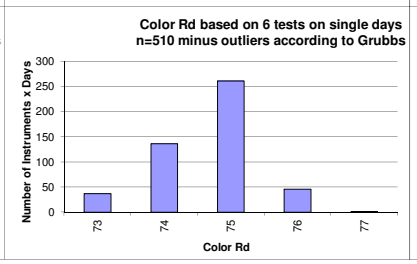


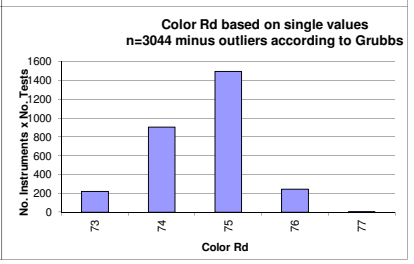




Cotton 4





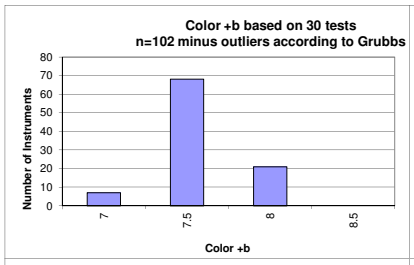


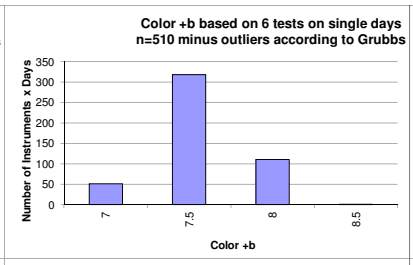
0

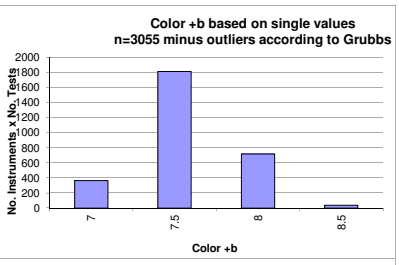
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b

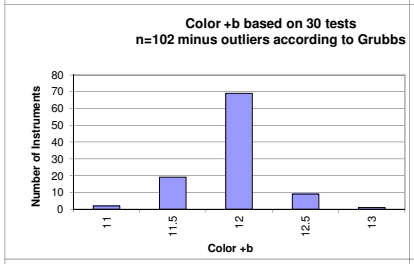
Cotton 1

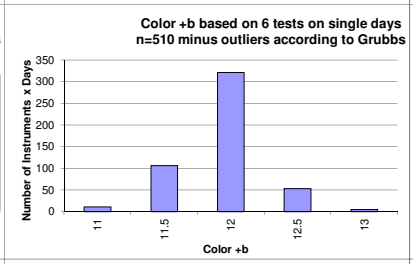


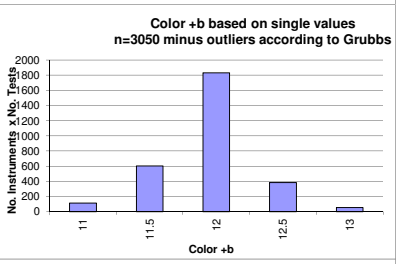




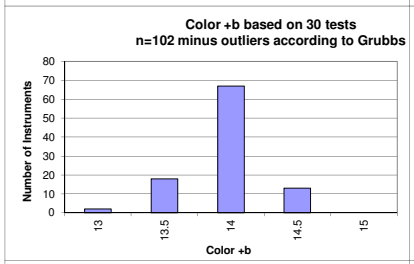
Cotton 2

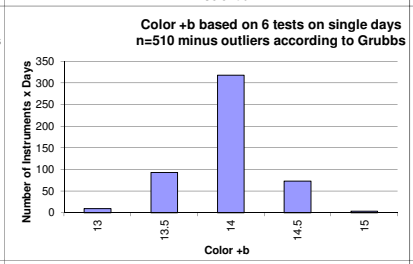


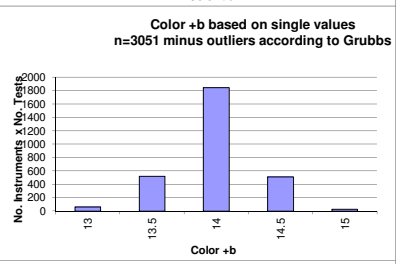




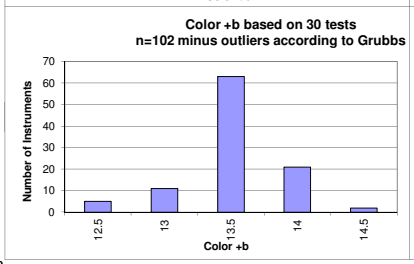
Cotton 3

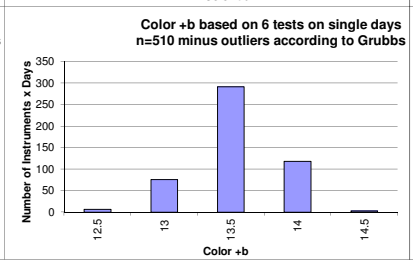


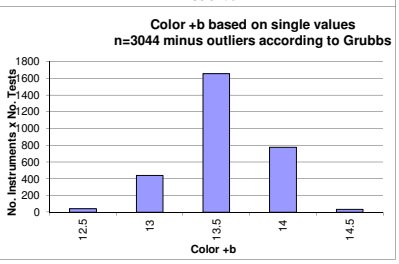




Cotton 4







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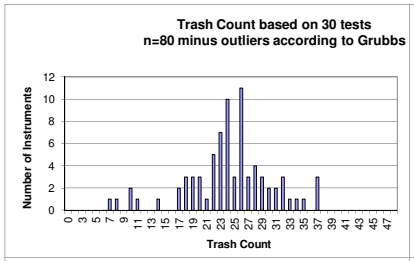
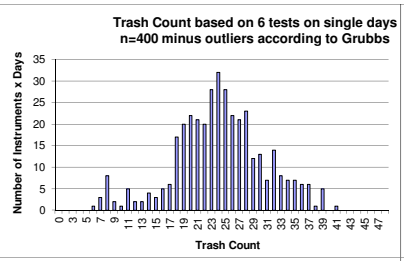
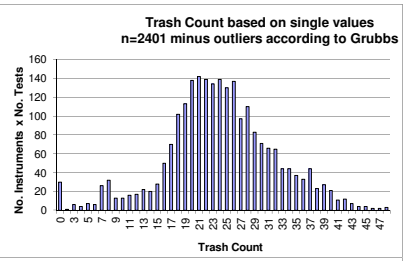
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count

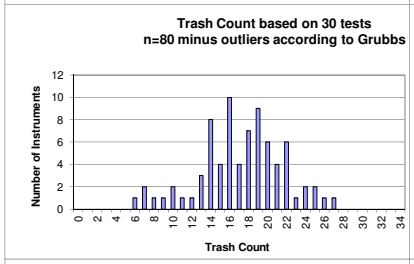
Cotton 1

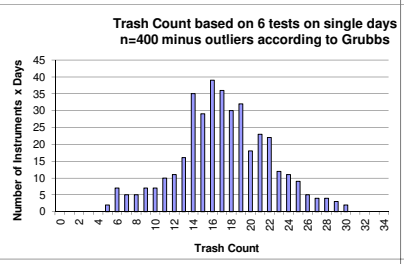


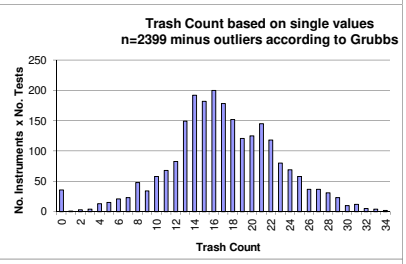




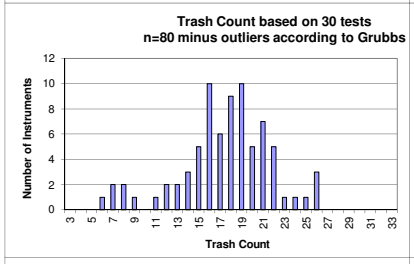
Cotton 2

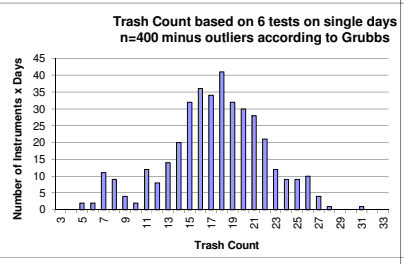


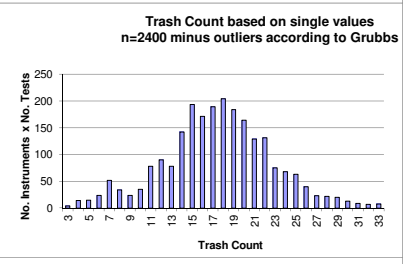




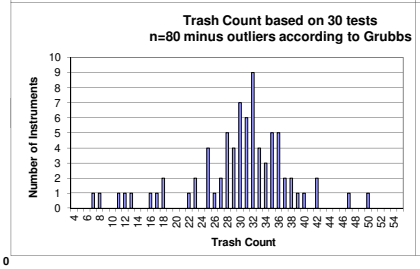
Cotton 3

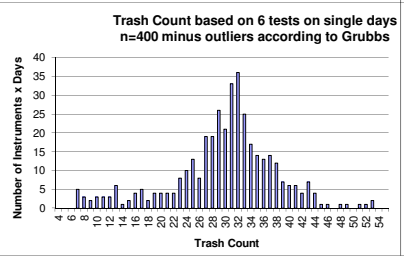


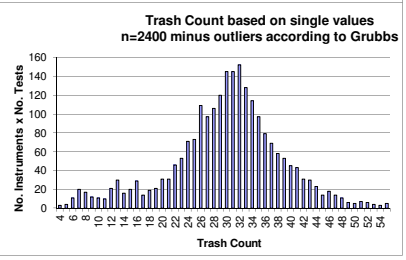




Cotton 4







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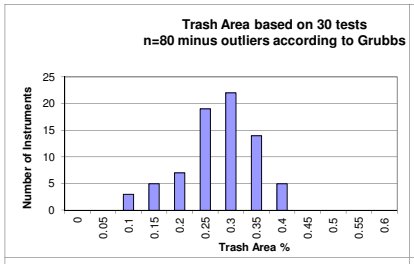
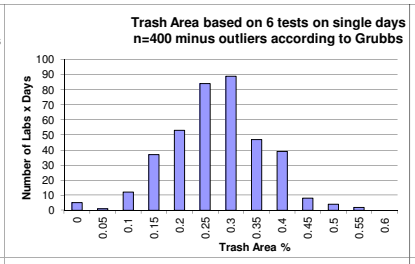
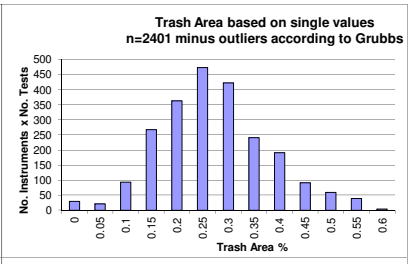
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Area

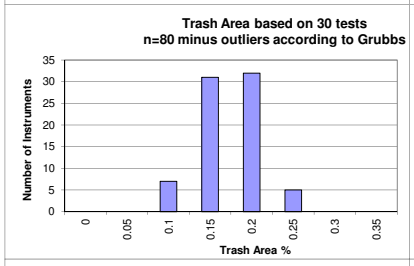
Cotton 1

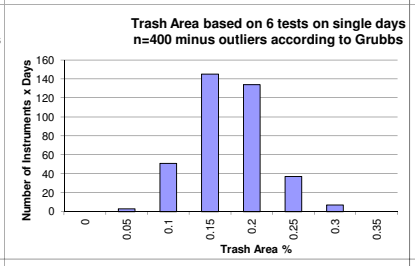


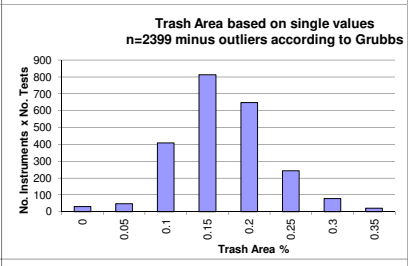




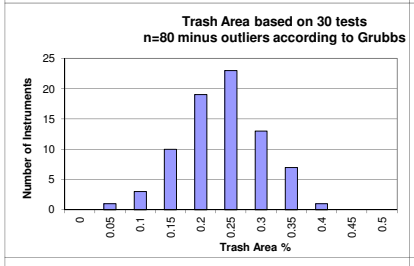
Cotton 2

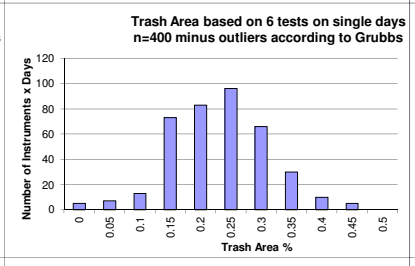


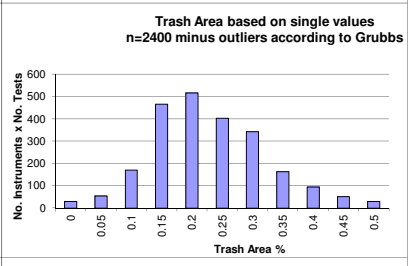




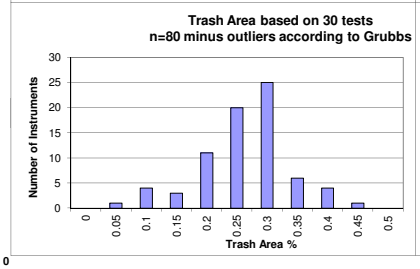
Cotton 3

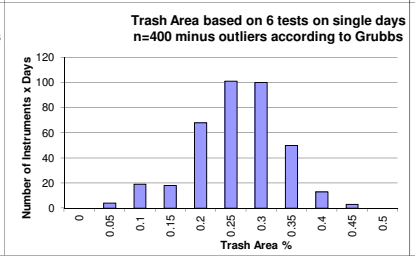


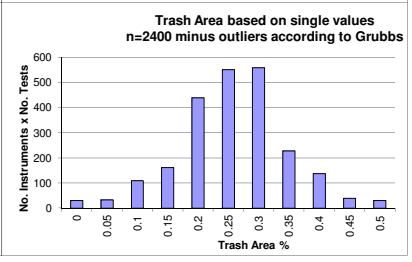




Cotton 4







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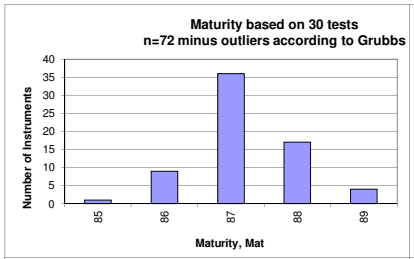
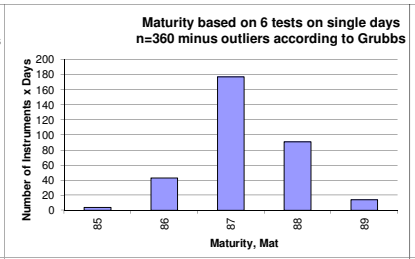
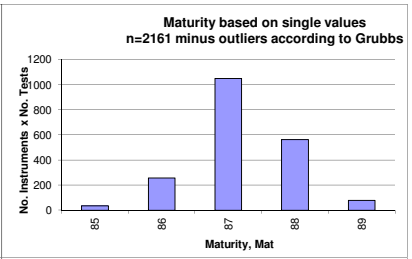
Test Result Distributions
Maturity

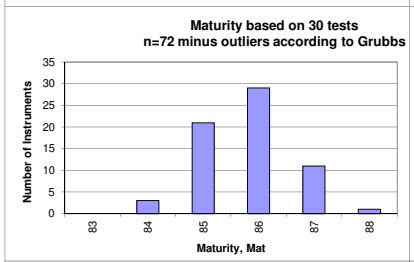
Cotton 1

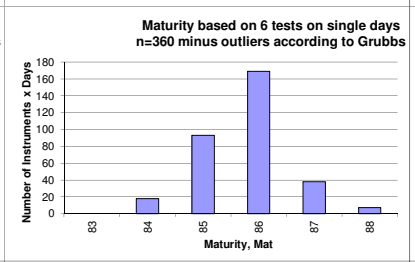


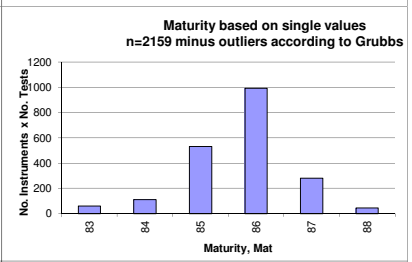




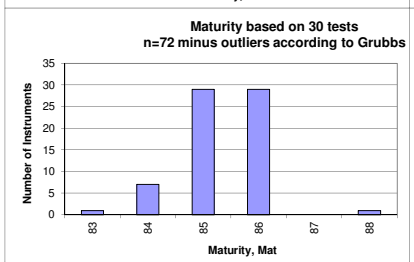
Cotton 2

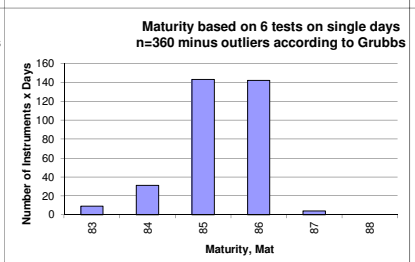


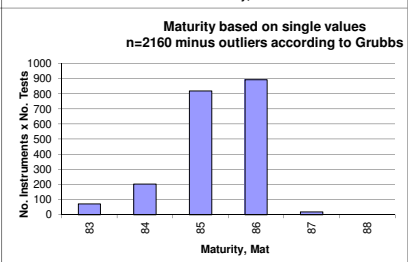




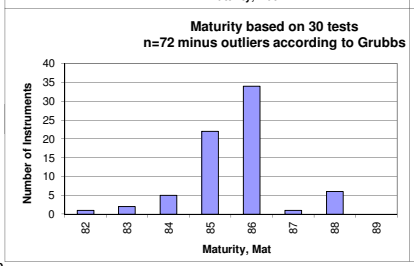
Cotton 3

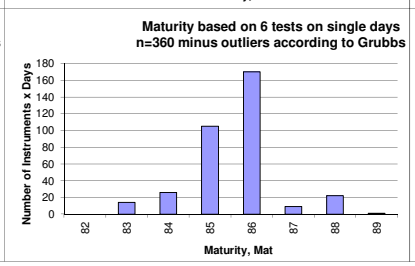


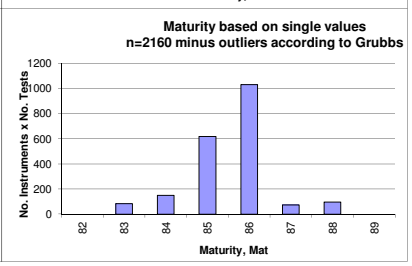




Cotton 4







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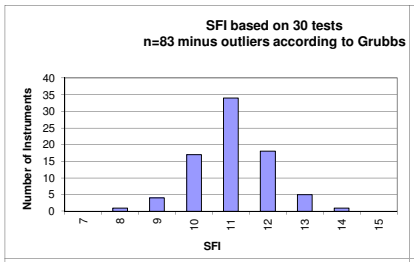
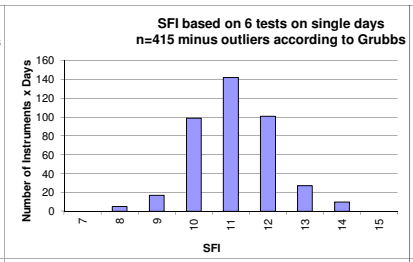
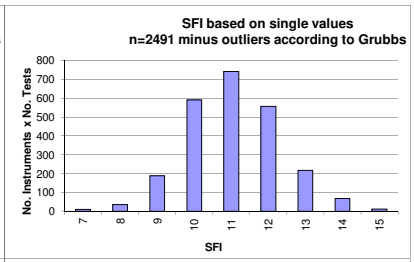
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
SFI

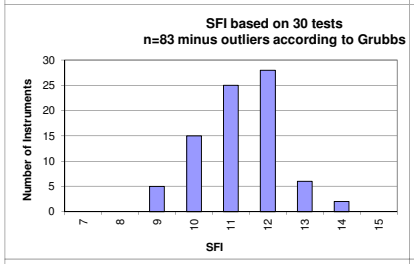
Cotton 1

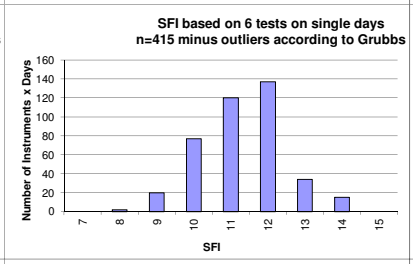


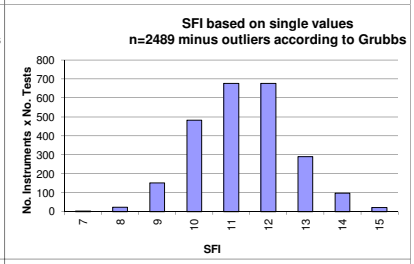




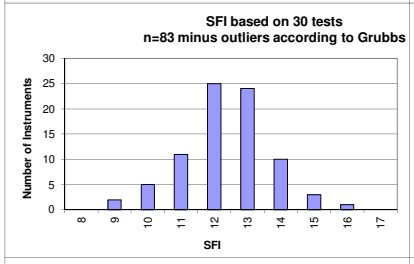
Cotton 2

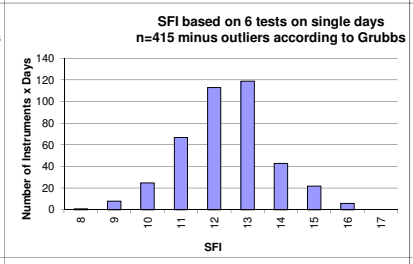


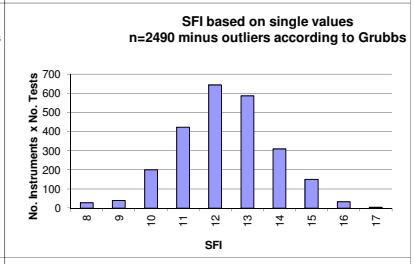




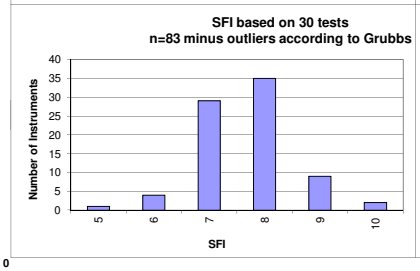
Cotton 3

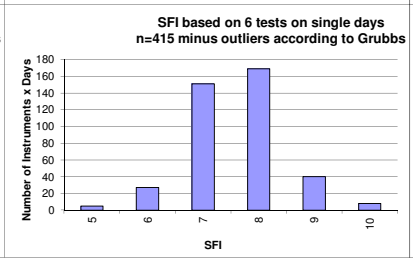


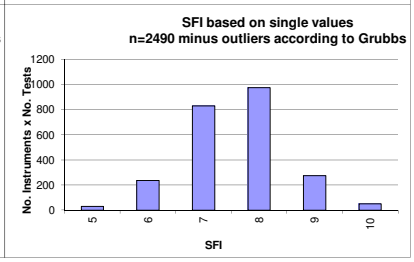




Cotton 4







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

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*

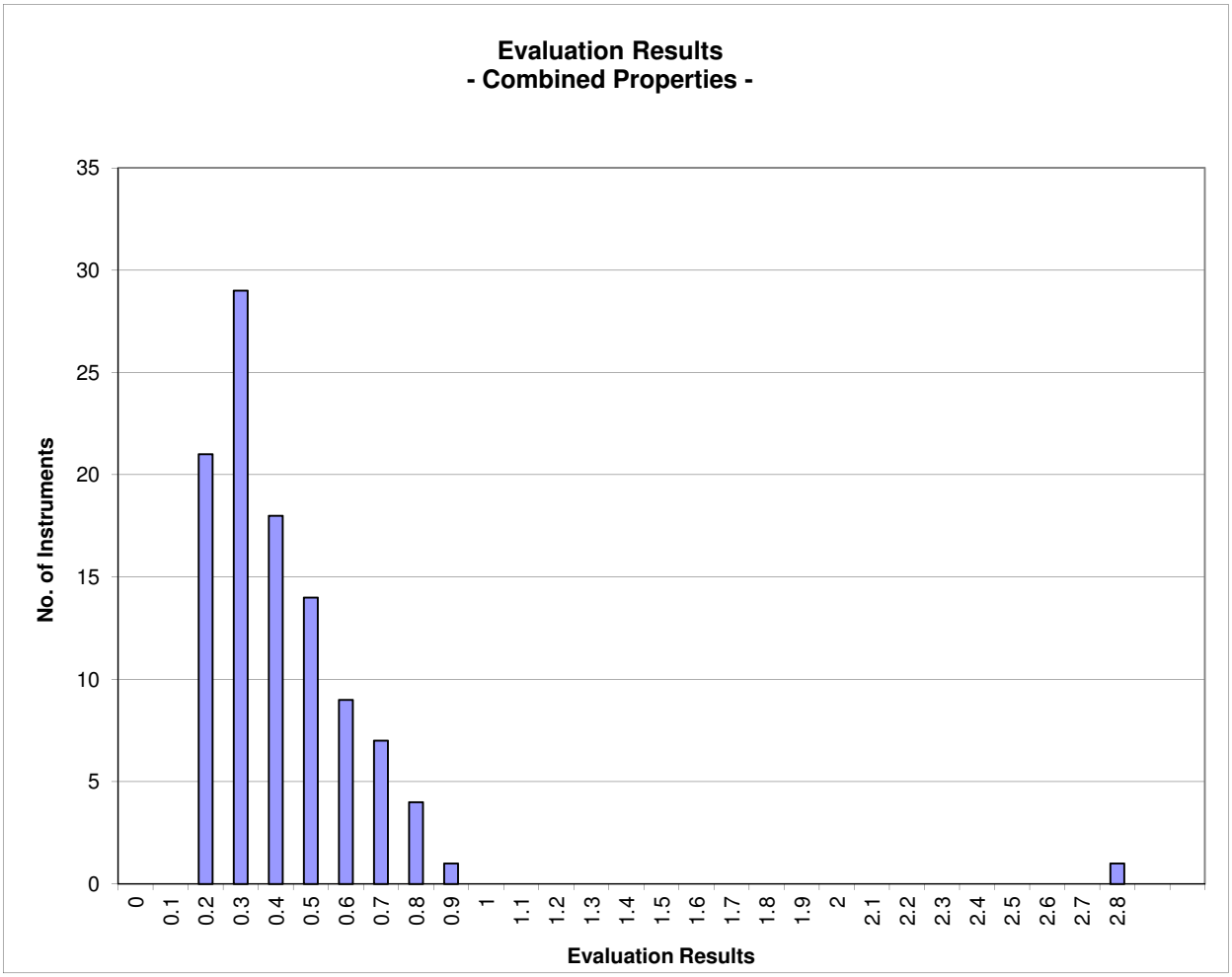
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2020 - 1

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



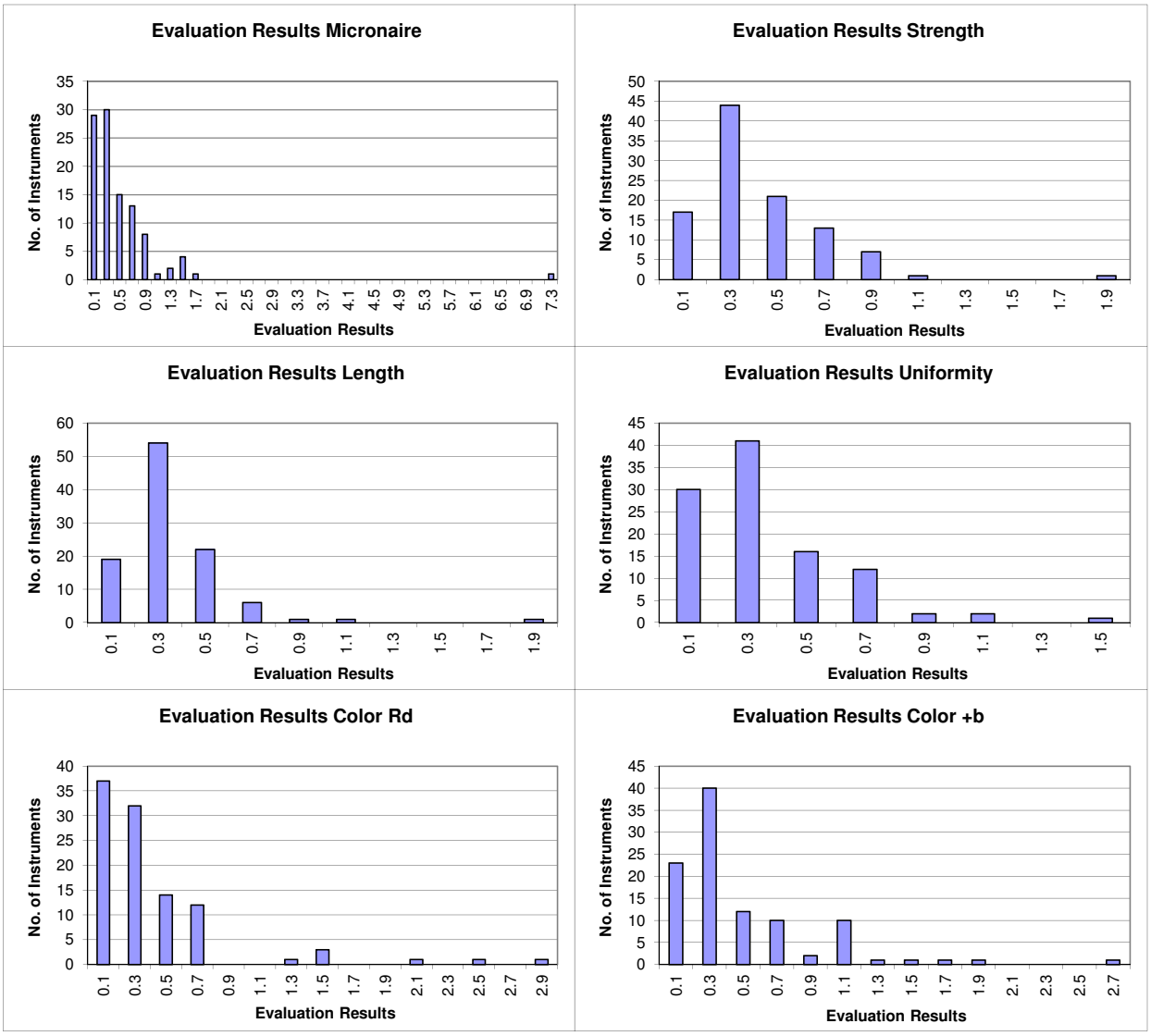
x-Axis shows midpoints of classes

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

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 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

	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 ≥75% within limits	99.0	99.0	100.0	100.0	93.1	84.3
% of Instruments ≥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 ≥95% within limits	88.5	65.4	87.5	88.5	79.4	63.7
% of Instruments ≥75% within limits	98.1	93.3	97.1	99.0	89.2	79.4
% of Instruments ≥65% within limits	99.0	97.1	99.0	99.0	92.2	83.3
% of Instruments ≥50% within limits	99.0	99.0	100.0	100.0	93.1	87.3