International Cotton Advisory Committee

CSITC
Global - Round Trial 2018 - 4
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 2018 - 4

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

Micronaire							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			4.848	4.026	4.205	3.334	
Reference Values for Evaluation			4.848	4.026	4.205	3.334	
Number Of Instruments			131	131	131	131	**131**
Inter-Instrument Variation	based on 30 tests	SD	0.057	0.078	0.081	0.064	**0.070**
		CV %	1.2	1.9	1.9	1.9	**1.7**
	based on 6 tests	SD	0.062	0.077	0.083	0.069	**0.073**
		CV %	1.3	1.9	2.0	2.1	**1.8**
	based on single tests	SD	0.076	0.086	0.090	0.078	**0.082**
		CV %	1.6	2.1	2.1	2.3	**2.0**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.026	0.026	0.028	0.024	**0.026**
		CV %	0.5	0.6	0.7	0.7	**0.6**
	between single tests on one day	SD	0.035	0.034	0.037	0.030	**0.034**
		CV %	0.7	0.8	0.9	0.9	**0.8**
	between all tests on different days	SD	0.044	0.042	0.047	0.040	**0.043**
		CV %	0.9	1.1	1.1	1.2	**1.1**

Strength							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			29.295	33.999	28.364	29.540	
Reference Values for Evaluation			29.295	33.999	28.364	29.540	
Number Of Instruments			130	130	130	130	**130**
Inter-Instrument Variation	based on 30 tests	SD	0.690	0.840	0.744	0.812	**0.772**
		CV %	2.4	2.5	2.6	2.7	**2.5**
	based on 6 tests	SD	0.780	0.897	0.832	0.978	**0.871**
		CV %	2.7	2.6	2.9	3.3	**2.9**
	based on single tests	SD	0.931	1.073	1.006	1.138	**1.037**
		CV %	3.2	3.2	3.5	3.9	**3.4**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.349	0.392	0.423	0.405	**0.392**
		CV %	1.2	1.2	1.5	1.4	**1.3**
	between single tests on one day	SD	0.501	0.561	0.561	0.591	**0.554**
		CV %	1.7	1.7	2.0	2.0	**1.8**
	between all tests on different days	SD	0.610	0.663	0.647	0.721	**0.660**
		CV %	2.1	2.0	2.3	2.4	**2.2**

Length							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			1.1428	1.1868	1.0232	1.1104	
Reference Values for Evaluation			1.1428	1.1868	1.0232	1.1104	
Number Of Instruments			131	131	131	131	**131**
Inter-Instrument Variation	based on 30 tests	SD	0.0093	0.0089	0.0099	0.0100	**0.0095**
		CV %	0.8	0.7	1.0	0.9	**0.9**
	based on 6 tests	SD	0.0106	0.0110	0.0118	0.0112	**0.0112**
		CV %	0.9	0.9	1.1	1.0	**1.0**
	based on single tests	SD	0.0144	0.0142	0.0160	0.0152	**0.0149**
		CV %	1.3	1.2	1.6	1.4	**1.3**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.0057	0.0057	0.0059	0.0057	**0.0057**
		CV %	0.5	0.5	0.6	0.5	**0.5**
	between single tests on one day	SD	0.0099	0.0092	0.0099	0.0100	**0.0097**
		CV %	0.9	0.8	1.0	0.9	**0.9**
	between all tests on different days	SD	0.0107	0.0106	0.0111	0.0110	**0.0109**
		CV %	0.9	0.9	1.1	1.0	**1.0**

Uniformity							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			82.585	83.959	79.537	81.091	
Reference Values for Evaluation			82.585	83.959	79.537	81.091	
Number Of Instruments			130	130	130	130	**130**
Inter-Instrument Variation	based on 30 tests	SD	0.394	0.377	0.450	0.476	**0.424**
		CV %	0.5	0.4	0.6	0.6	**0.5**
	based on 6 tests	SD	0.496	0.479	0.542	0.533	**0.512**
		CV %	0.6	0.6	0.7	0.7	**0.6**
	based on single tests	SD	0.700	0.642	0.727	0.748	**0.704**
		CV %	0.8	0.8	0.9	0.9	**0.9**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.288	0.250	0.295	0.283	**0.279**
		CV %	0.3	0.3	0.4	0.3	**0.3**
	between single tests on one day	SD	0.502	0.429	0.485	0.498	**0.479**
		CV %	0.6	0.5	0.6	0.6	**0.6**
	between all tests on different days	SD	0.571	0.507	0.551	0.576	**0.551**
		CV %	0.7	0.6	0.7	0.7	**0.7**

Color Rd							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			76.217	74.566	76.519	69.736	
Reference Values for Evaluation			76.217	74.566	76.519	69.736	
Number Of Instruments			129	129	129	129	**129**
Inter-Instrument Variation	based on 30 tests	SD	0.490	0.466	0.538	0.654	**0.537**
		CV %	0.6	0.6	0.7	0.9	**0.7**
	based on 6 tests	SD	0.519	0.484	0.567	0.662	**0.558**
		CV %	0.7	0.6	0.7	0.9	**0.8**
	based on single tests	SD	0.562	0.549	0.595	0.677	**0.596**
		CV %	0.7	0.7	0.8	1.0	**0.8**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.150	0.160	0.166	0.179	**0.163**
		CV %	0.2	0.2	0.2	0.3	**0.2**
	between single tests on one day	SD	0.161	0.164	0.148	0.174	**0.162**
		CV %	0.2	0.2	0.2	0.2	**0.2**
	between all tests on different days	SD	0.240	0.255	0.233	0.275	**0.251**
		CV %	0.3	0.3	0.3	0.4	**0.3**

Color +b							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			9.468	13.877	12.209	14.891	
Reference Values for Evaluation			9.468	13.877	12.209	14.891	
Number Of Instruments			129	129	129	129	**129**
Inter-Instrument Variation	based on 30 tests	SD	0.210	0.397	0.263	0.357	**0.307**
		CV %	2.2	2.9	2.2	2.4	**2.4**
	based on 6 tests	SD	0.237	0.340	0.292	0.362	**0.308**
		CV %	2.5	2.4	2.4	2.4	**2.4**
	based on single tests	SD	0.274	0.403	0.312	0.389	**0.345**
		CV %	2.9	2.9	2.6	2.6	**2.7**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.088	0.112	0.093	0.114	**0.102**
		CV %	0.9	0.8	0.8	0.8	**0.8**
	between single tests on one day	SD	0.090	0.098	0.080	0.092	**0.090**
		CV %	1.0	0.7	0.7	0.6	**0.7**
	between all tests on different days	SD	0.128	0.155	0.140	0.155	**0.145**
		CV %	1.4	1.1	1.1	1.0	**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)			12.08	25.17	14.86	20.95	
Reference Values for Evaluation			12.08	25.17	14.86	20.95	
Number Of Instruments			81	81	81	81	**81**
Inter-Instrument Variation	based on 30 tests	SD	4.23	9.48	4.18	6.22	**6.03**
		CV %	35.0	37.7	28.1	29.7	**32.6**
	based on 6 tests	SD	4.44	9.57	4.46	6.92	**6.35**
		CV %	36.8	38.0	30.0	33.0	**34.5**
	based on single tests	SD	5.02	10.11	5.45	7.34	**6.98**
		CV %	41.5	40.2	36.7	35.0	**38.4**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	1.33	2.08	1.70	1.60	**1.68**
		CV %	11.0	8.3	11.4	7.7	**9.6**
	between single tests on one day	SD	2.14	3.06	2.43	2.84	**2.62**
		CV %	17.7	12.2	16.3	13.6	**14.9**
	between all tests on different days	SD	2.60	3.78	3.16	3.29	**3.21**
		CV %	21.5	15.0	21.3	15.7	**18.4**

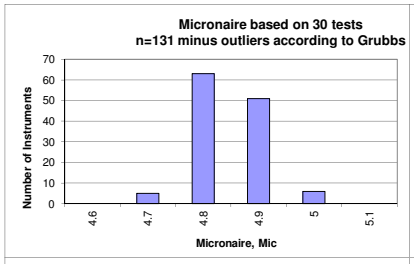
Trash Area							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			0.125	0.186	0.142	0.179	
Reference Values for Evaluation			0.125	0.186	0.142	0.179	
Number Of Instruments			81	81	81	81	**81**
Inter-Instrument Variation	based on 30 tests	SD	0.030	0.052	0.033	0.048	**0.041**
		CV %	24.2	27.8	23.0	26.8	**25.5**
	based on 6 tests	SD	0.036	0.055	0.037	0.051	**0.045**
		CV %	28.6	29.5	26.4	28.2	**28.2**
	based on single tests	SD	0.046	0.064	0.050	0.060	**0.055**
		CV %	37.1	34.3	35.3	33.7	**35.1**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.018	0.018	0.023	0.018	**0.019**
		CV %	14.0	9.8	15.9	9.8	**12.4**
	between single tests on one day	SD	0.026	0.027	0.028	0.027	**0.027**
		CV %	20.4	14.2	19.7	15.2	**17.4**
	between all tests on different days	SD	0.035	0.033	0.037	0.035	**0.035**
		CV %	27.7	17.6	26.0	19.8	**22.8**

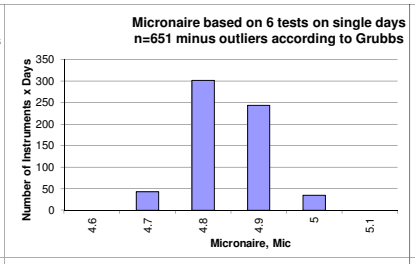
Maturity							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			86.94	85.63	85.73	84.03	
Reference Values for Evaluation			86.94	85.63	85.73	84.03	
Number Of Instruments			72	72	72	72	**72**
Inter-Instrument Variation	based on 30 tests	SD	1.20	1.20	0.81	0.92	**1.03**
		CV %	1.4	1.4	0.9	1.1	**1.2**
	based on 6 tests	SD	1.14	1.16	0.81	0.97	**1.02**
		CV %	1.3	1.4	0.9	1.1	**1.2**
	based on single tests	SD	1.17	1.11	0.83	1.05	**1.04**
		CV %	1.3	1.3	1.0	1.3	**1.2**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.15	0.14	0.15	0.15	**0.15**
		CV %	0.2	0.2	0.2	0.2	**0.2**
	between single tests on one day	SD	0.22	0.16	0.19	0.23	**0.20**
		CV %	0.2	0.2	0.2	0.3	**0.2**
	between all tests on different days	SD	0.37	0.28	0.35	0.36	**0.34**
		CV %	0.4	0.3	0.4	0.4	**0.4**

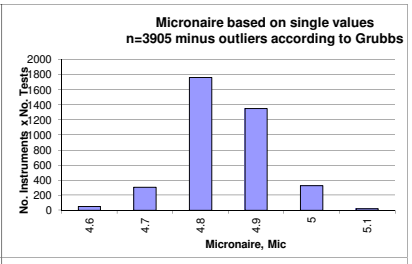
SFI							
			Cotton 1	**Cotton 2**	**Cotton 3**	**Cotton 4**	**Average**
Average of Instruments (Grubbs)			8.90	7.31	12.51	10.30	
Reference Values for Evaluation			8.90	7.31	12.51	10.30	
Number Of Instruments			84	83	84	84	**84**
Inter-Instrument Variation	based on 30 tests	SD	0.73	0.61	1.39	1.00	**0.94**
		CV %	8.2	8.4	11.1	9.7	**9.4**
	based on 6 tests	SD	0.76	0.67	1.40	1.05	**0.97**
		CV %	8.5	9.2	11.2	10.2	**9.8**
	based on single tests	SD	0.88	0.71	1.56	1.21	**1.09**
		CV %	9.9	9.7	12.5	11.7	**10.9**
Typical within-instrument Variation (Median)	between different days with each 6 tests	SD	0.26	0.16	0.39	0.27	**0.27**
		CV %	2.9	2.2	3.2	2.6	**2.7**
	between single tests on one day	SD	0.41	0.30	0.60	0.48	**0.45**
		CV %	4.6	4.1	4.8	4.7	**4.6**
	between all tests on different days	SD	0.50	0.32	0.73	0.56	**0.53**
		CV %	5.6	4.4	5.8	5.4	**5.3**

Test Result Distributions
Micronaire

Cotton 1







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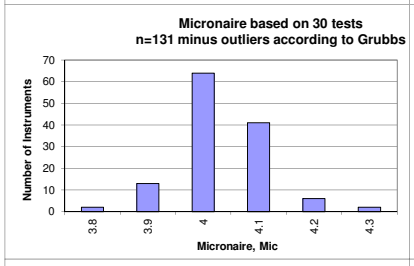
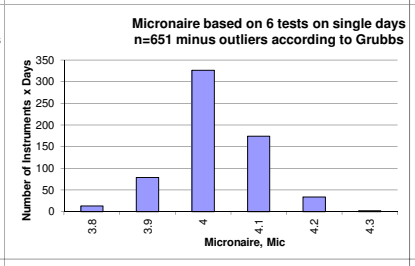
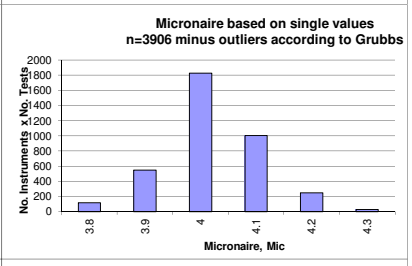
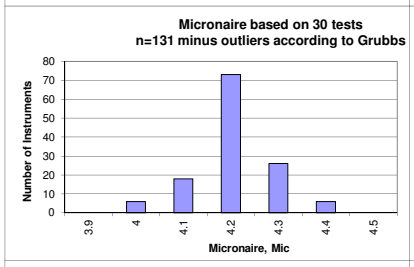
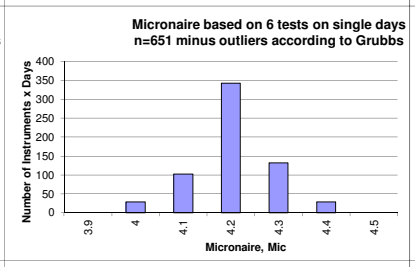


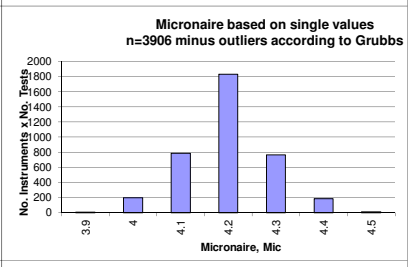




Cotton 3







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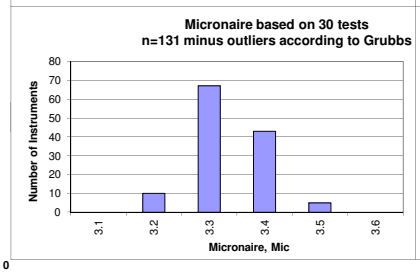

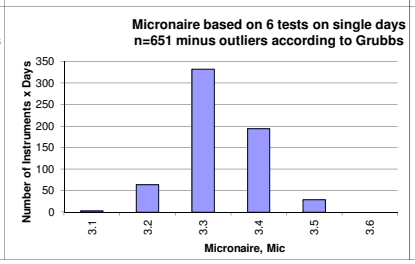

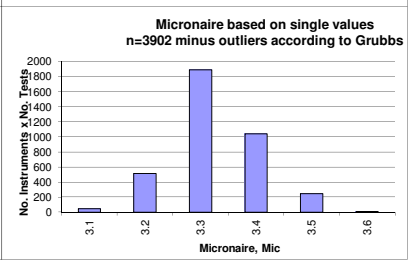

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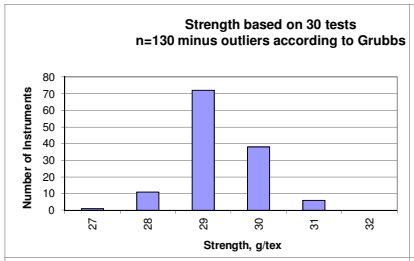
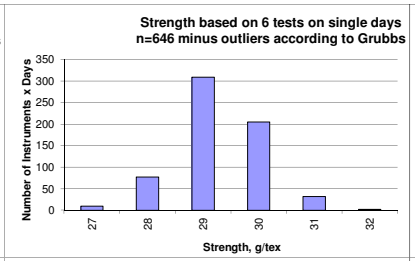
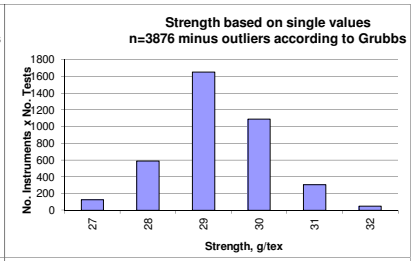
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Strength

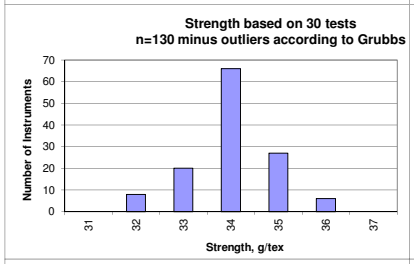
Cotton 1

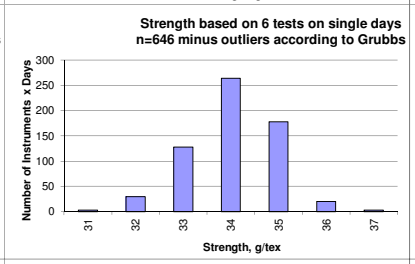


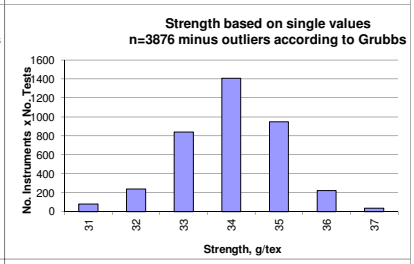




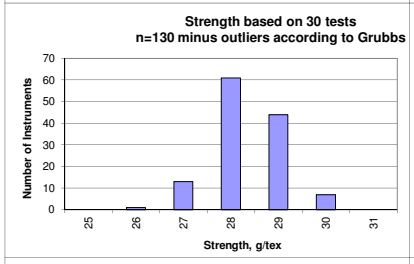
Cotton 2

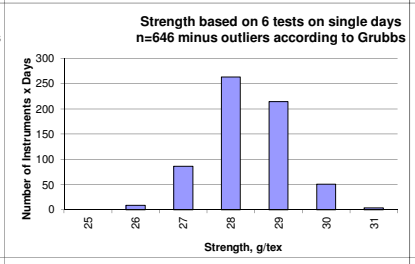


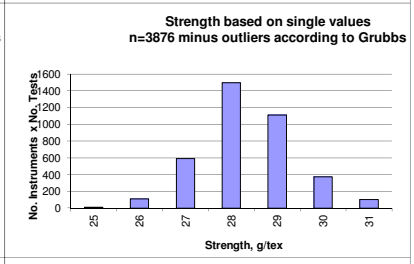




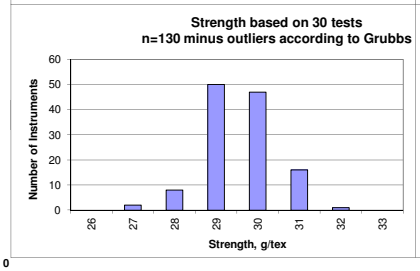
Cotton 3

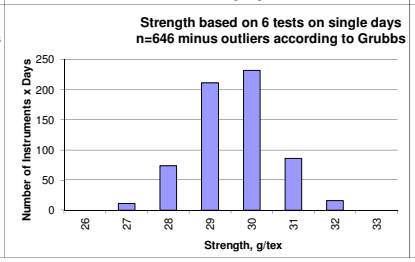


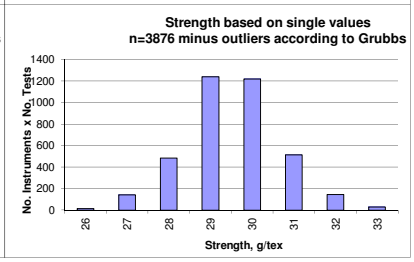




Cotton 4







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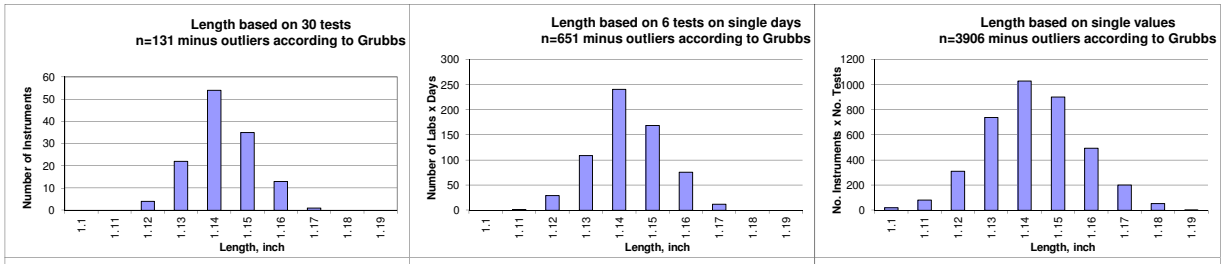
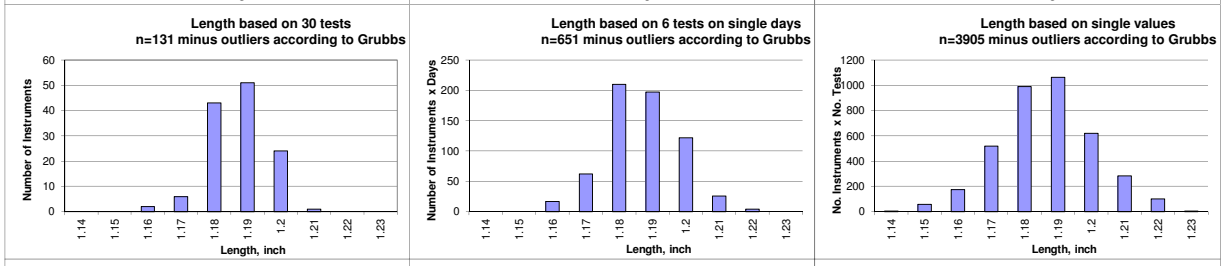
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Length

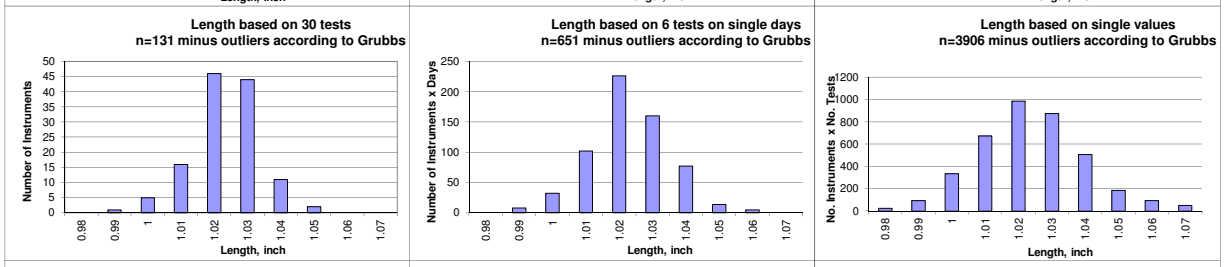
Cotton 1



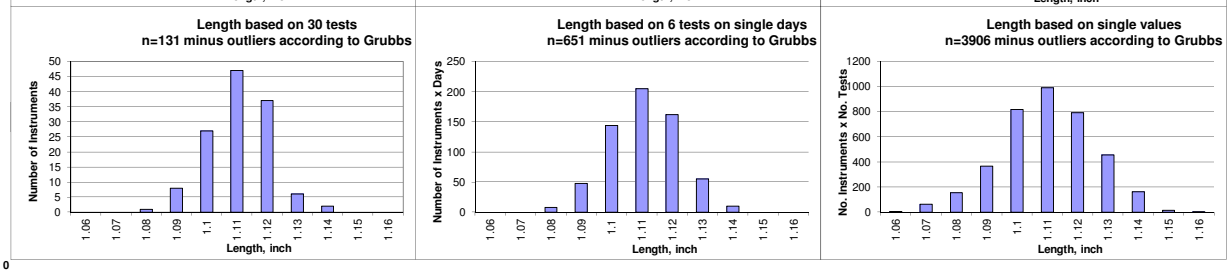
Cotton 2



Cotton 3



Cotton 4



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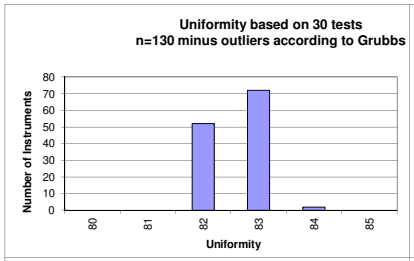
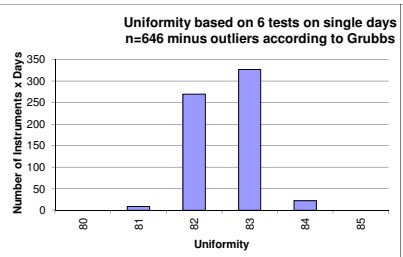
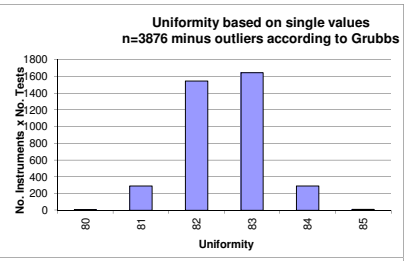
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Uniformity

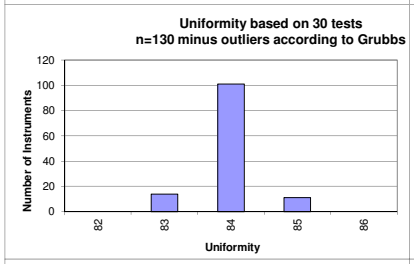
Cotton 1

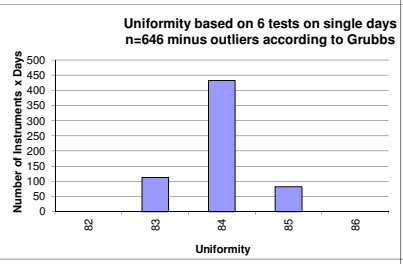


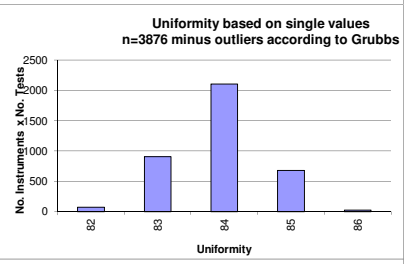




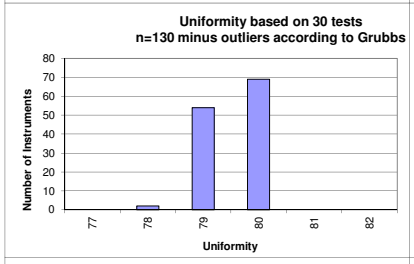
Cotton 2

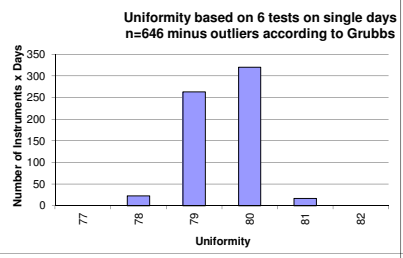


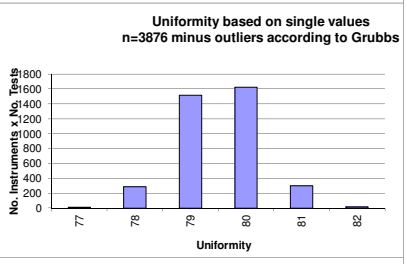




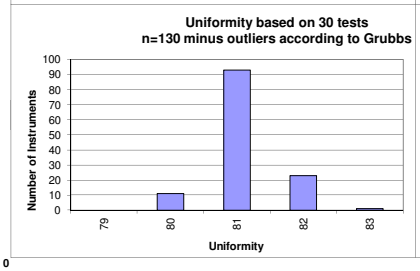
Cotton 3

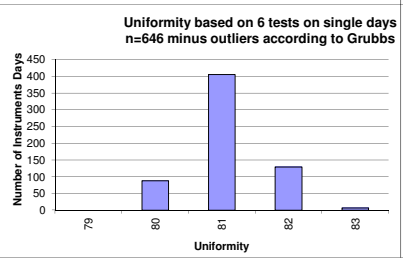


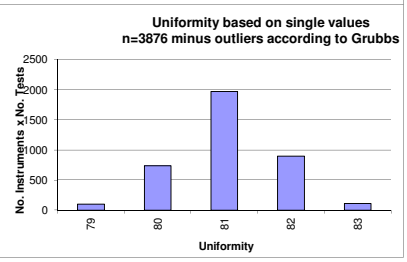




Cotton 4





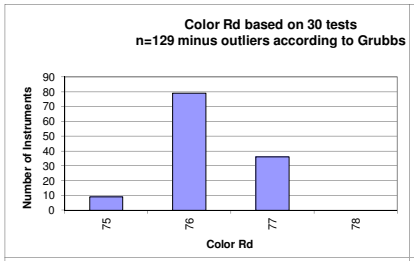


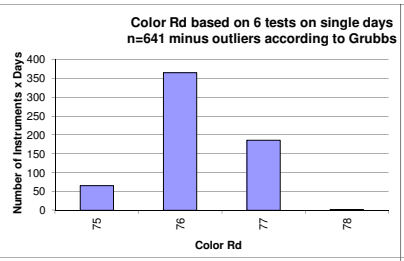
0

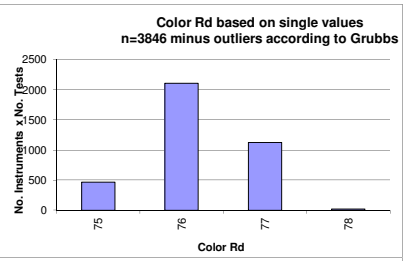
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color Rd

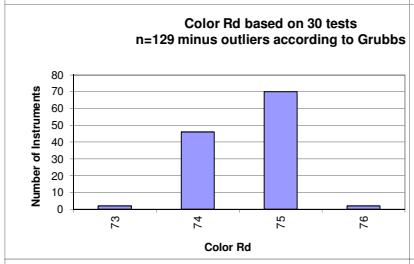
Cotton 1

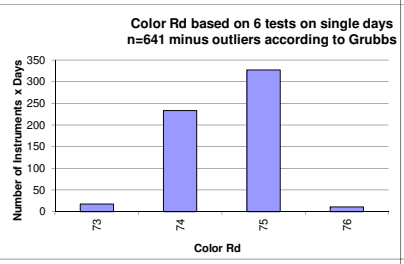


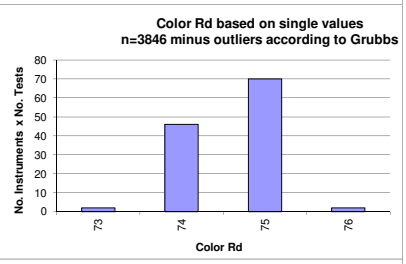




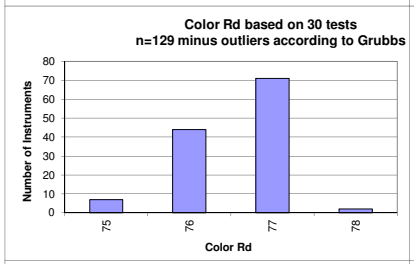
Cotton 2

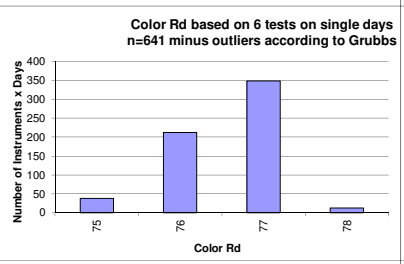


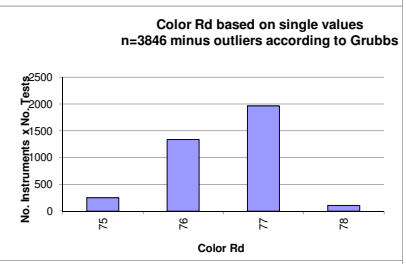




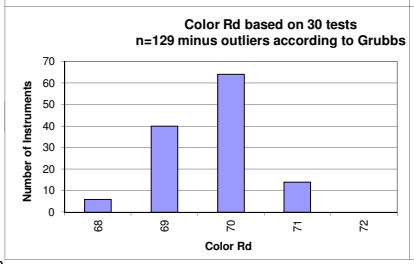
Cotton 3

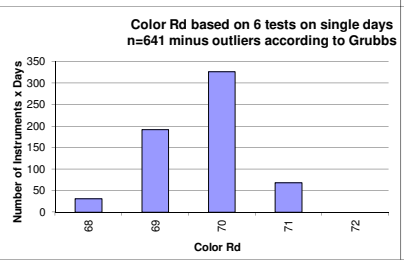


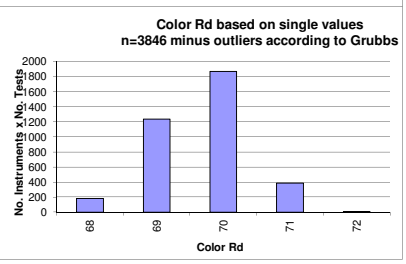




Cotton 4







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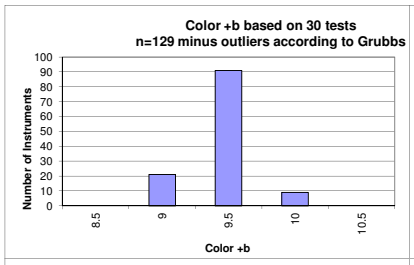
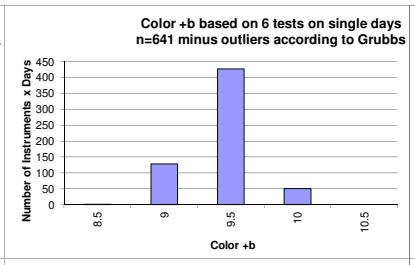
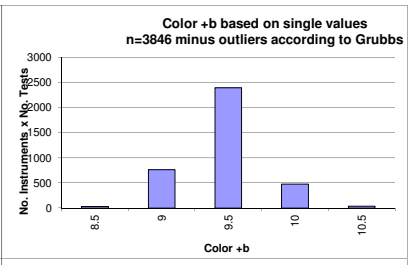
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Color +b

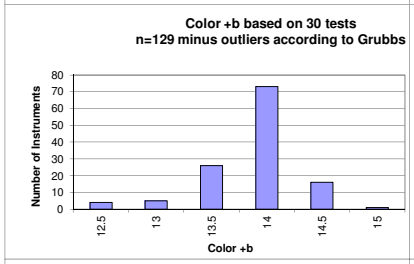
Cotton 1

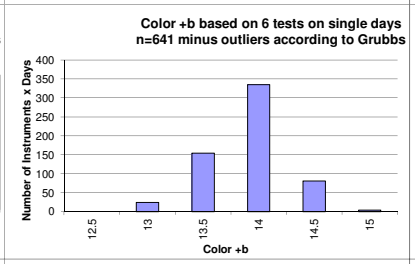


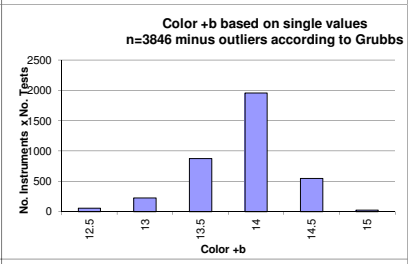




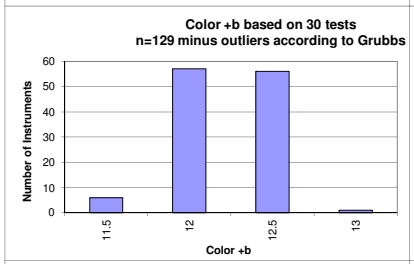
Cotton 2

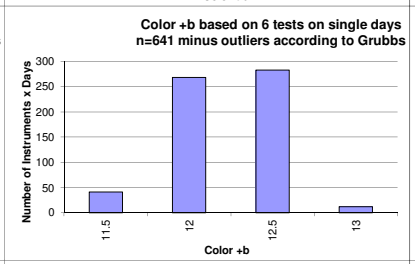


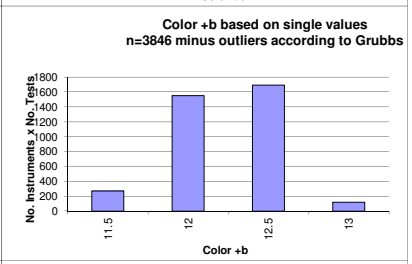




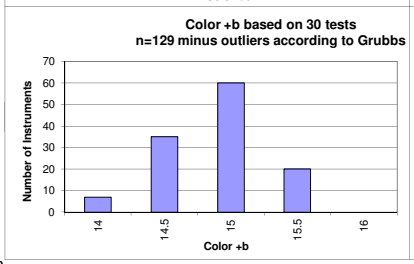
Cotton 3

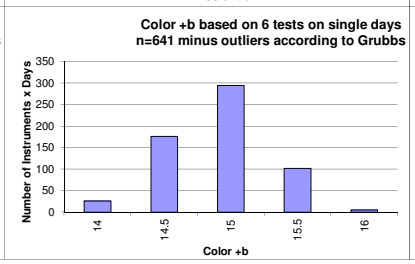


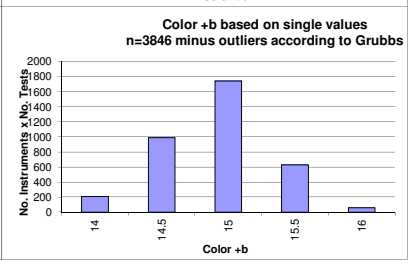




Cotton 4







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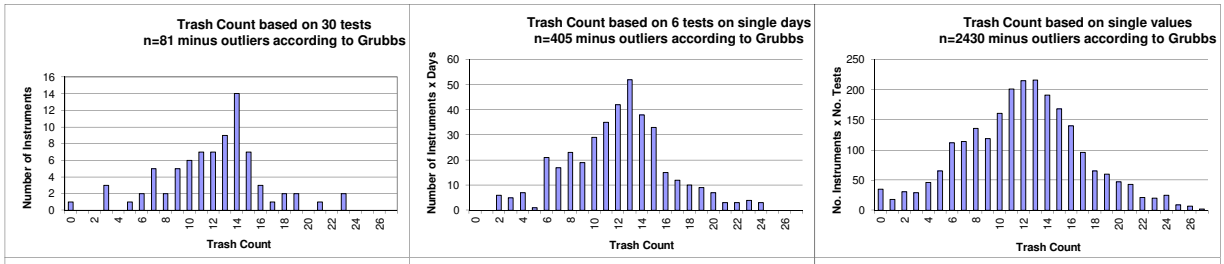
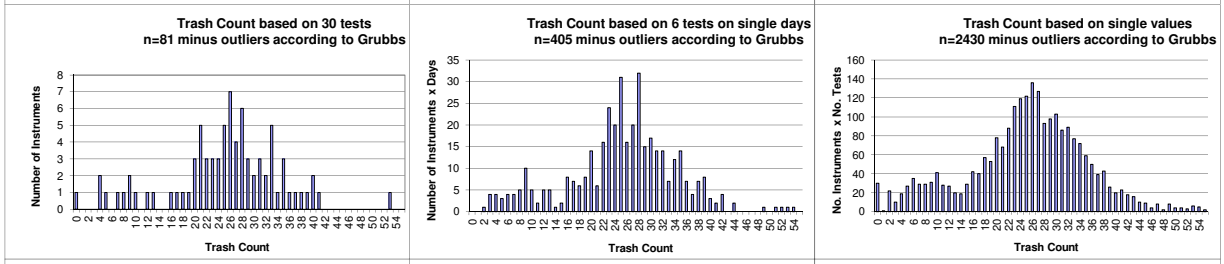
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Count

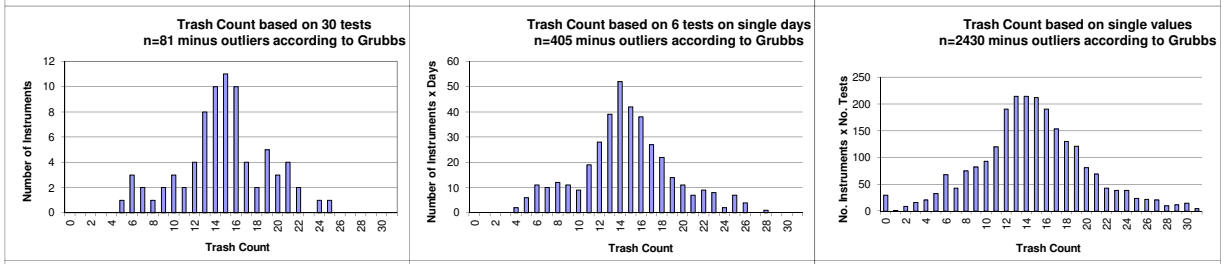
Cotton 1



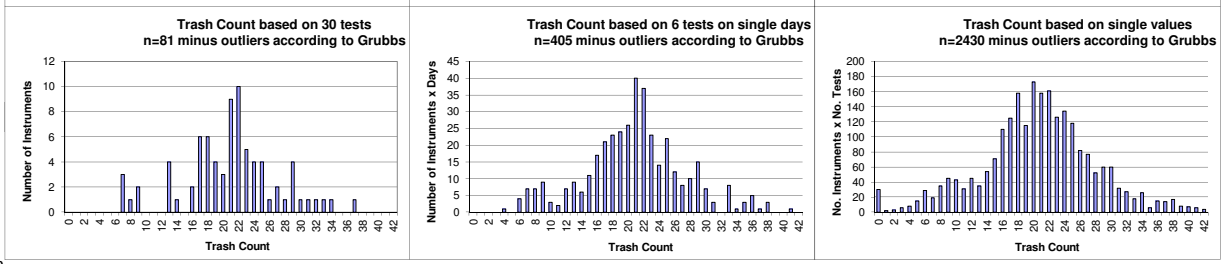
Cotton 2



Cotton 3



Cotton 4



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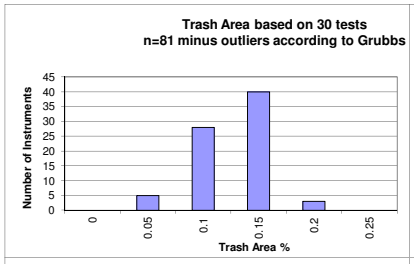
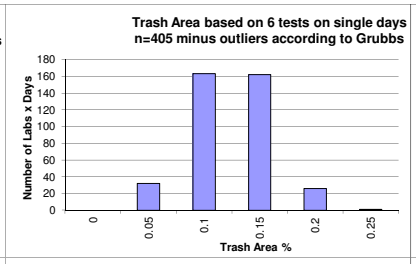
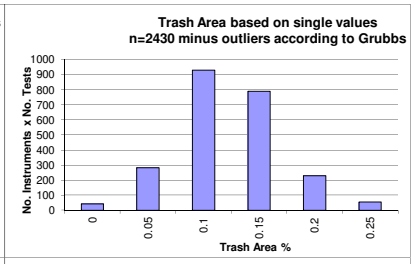
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Trash Area

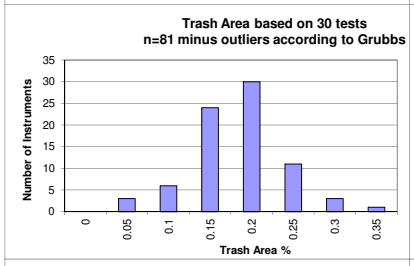
Cotton 1

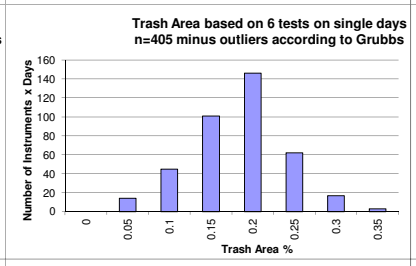


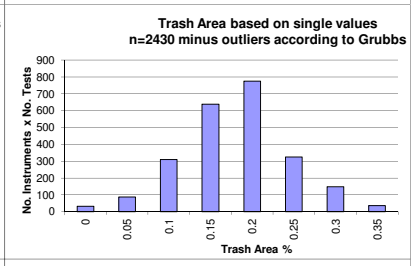




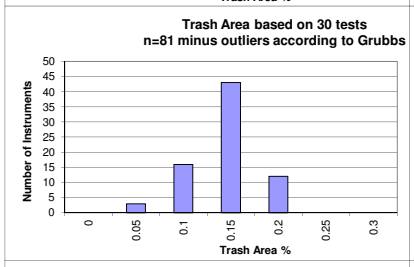
Cotton 2

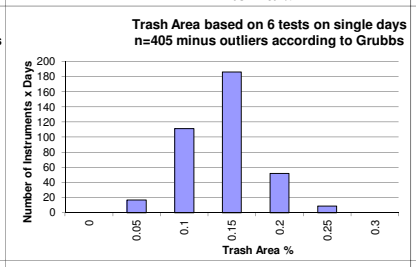


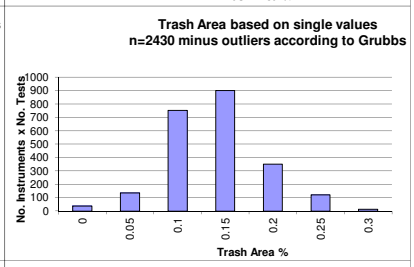




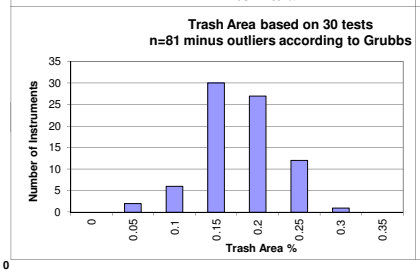
Cotton 3

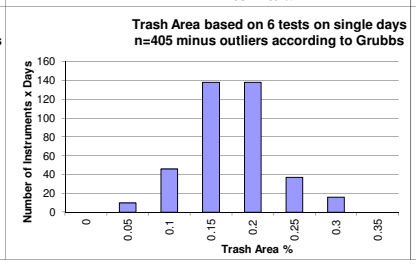


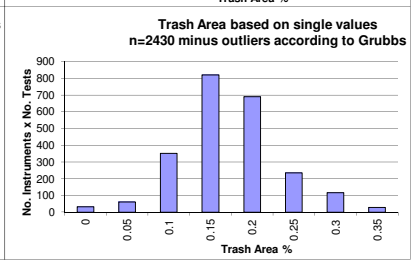




Cotton 4







0

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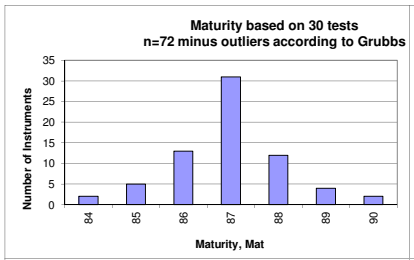
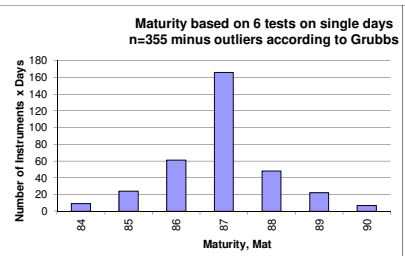
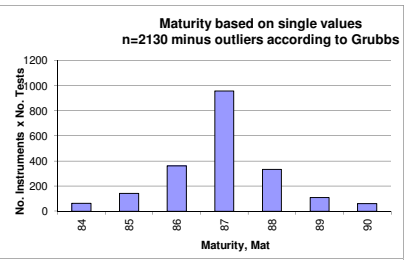
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
Maturity

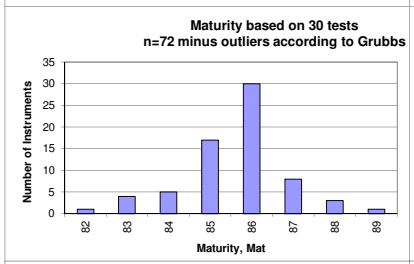
Cotton 1

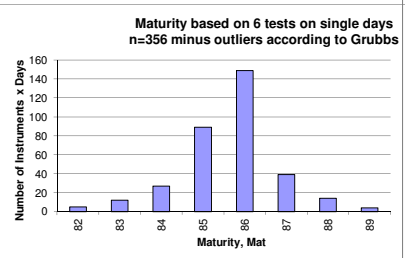


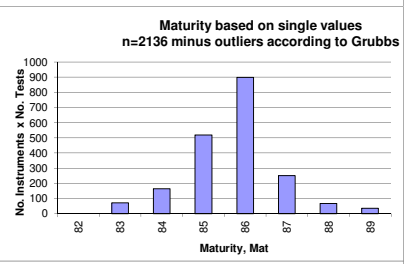




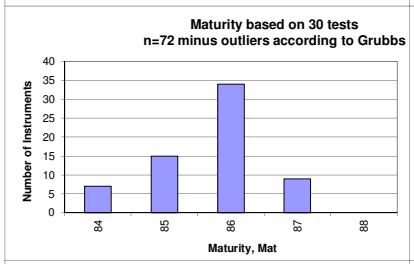
Cotton 2

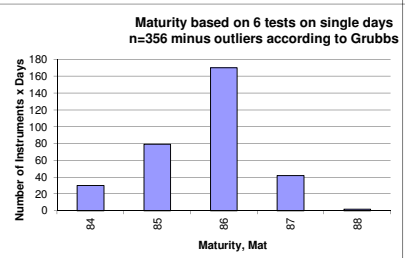


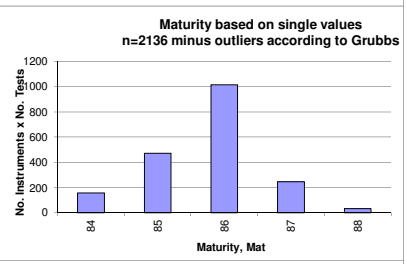




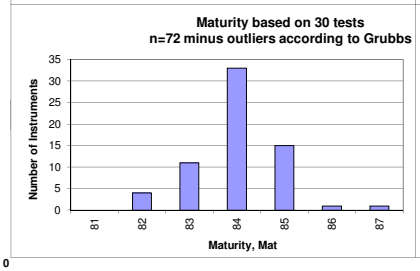
Cotton 3

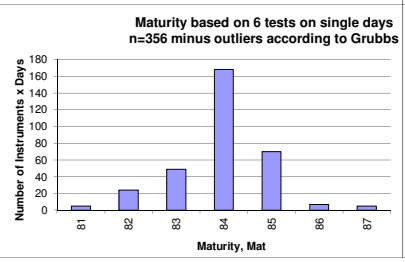


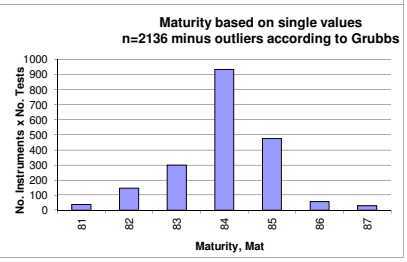




Cotton 4







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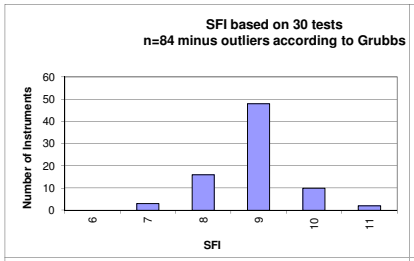
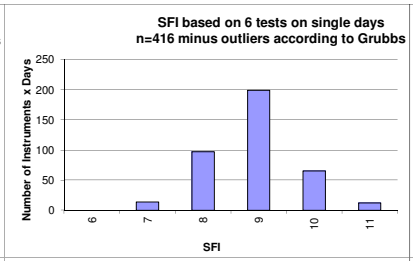
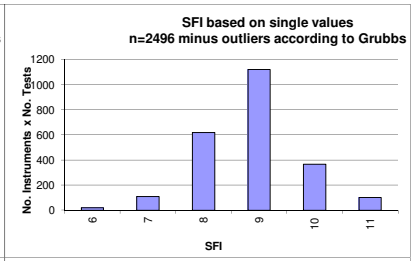
(Only results from instruments/days/single tests that are not regarded as outliers according to Grubbs' method.)
(classes are defined as > lower limit and <= upper limit)

Test Result Distributions
SFI

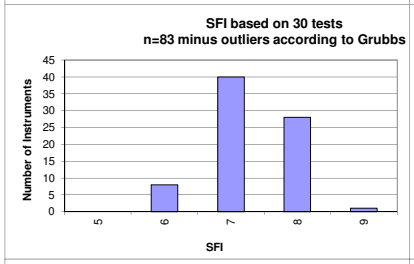
Cotton 1

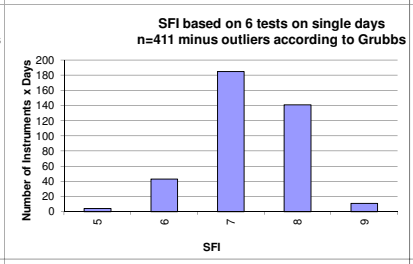


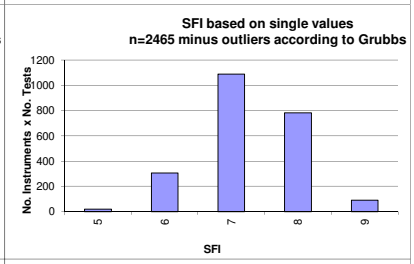




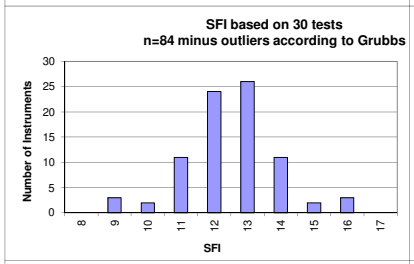
Cotton 2

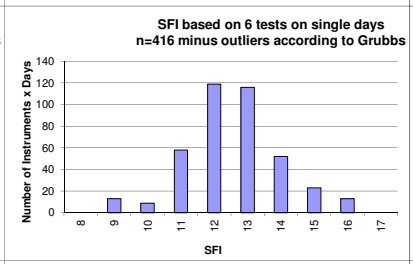


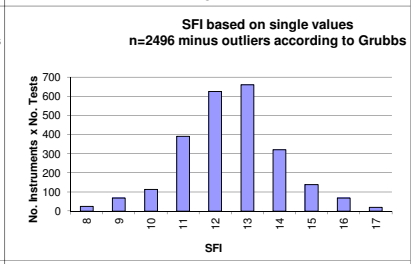




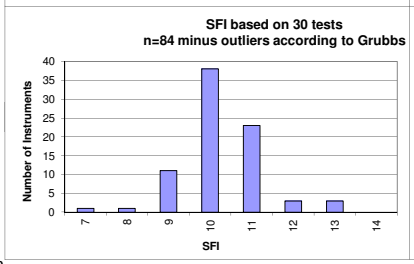
Cotton 3

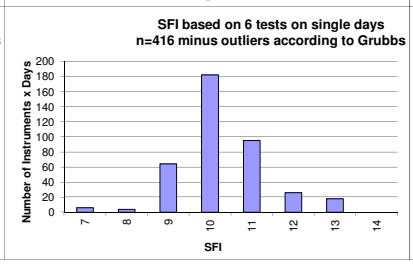


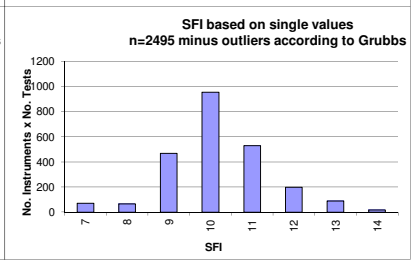




Cotton 4







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

International Cotton Advisory Committee

CSITC
Global - Round Trial 2018 - 4
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*

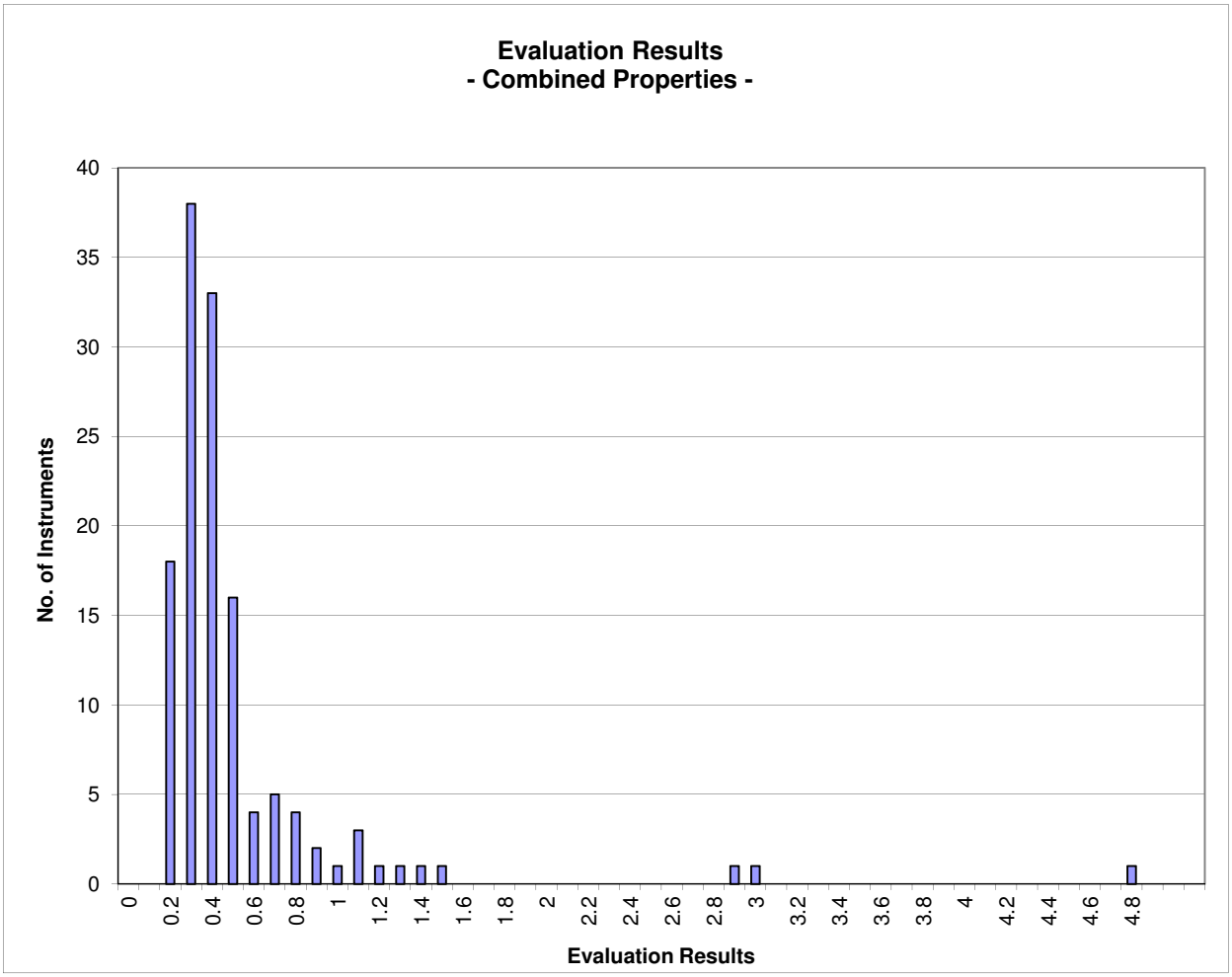
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2018 - 4

		Evaluation Combined Prop.
Statistics	Average	0.52
	Median	0.39
	Best Instrument	0.18
	Worst Instrument	4.85



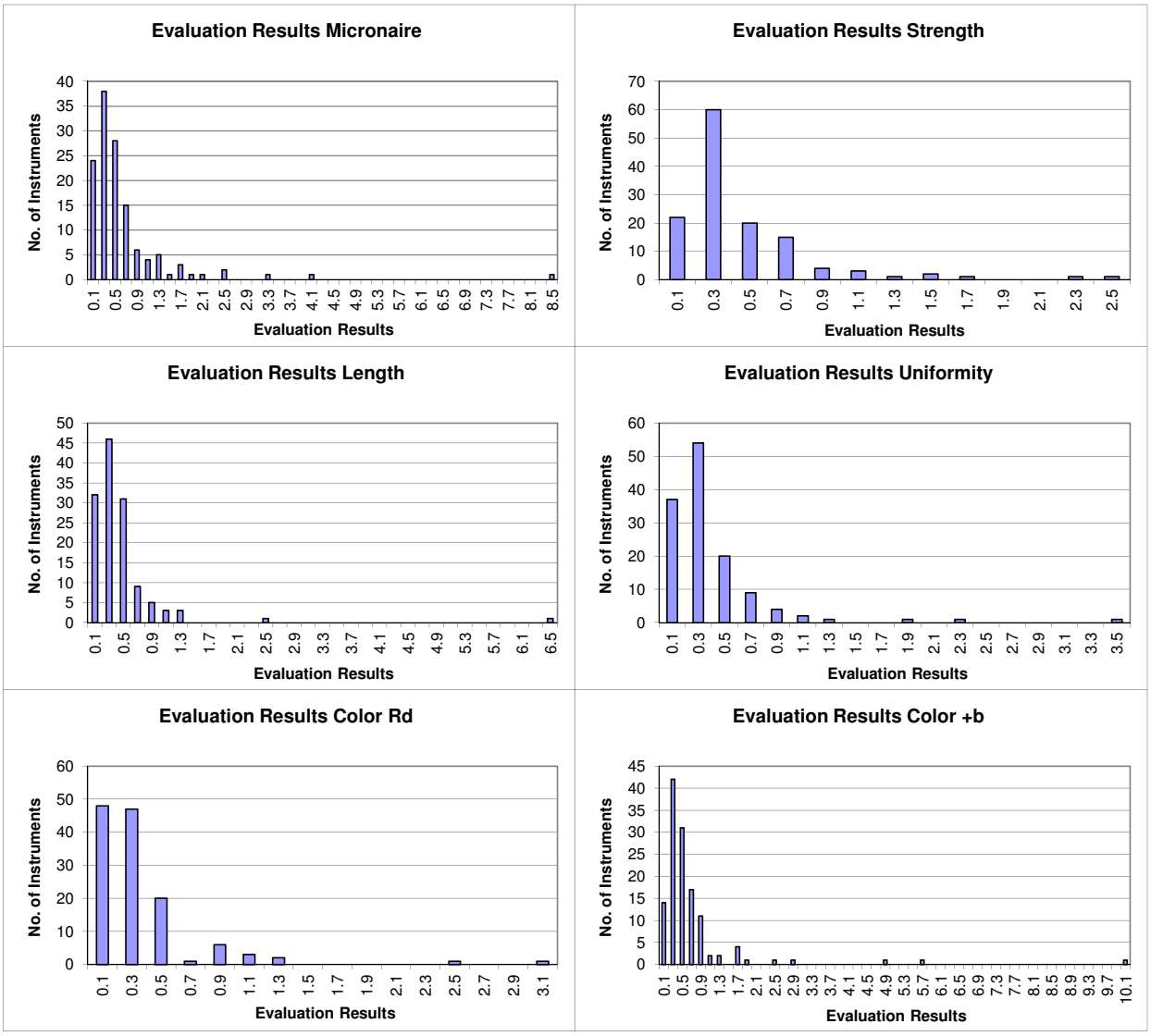
x-Axis shows midpoints of classes

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 2018 - 4

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.67	0.45	0.46	0.40	0.36	0.71
	Median	0.41	0.34	0.33	0.29	0.26	0.43
	Best Instr.	0.07	0.03	0.06	0.07	0.05	0.06
	Worst Instr.	8.59	2.43	6.57	3.57	3.01	10.06



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

International Cotton Advisory Committee

CSITC
Global - Round Trial 2018 - 4
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:
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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	95.0	95.4	97.3	98.3	94.8	86.6
Completely within limits	90.1	90.0	93.9	96.9	89.9	73.6
% of Instruments ≥75% within limits	95.4	96.2	97.7	97.7	92.2	86.0
% of Instruments ≥50% within limits	96.2	96.9	98.5	98.5	97.7	91.5

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	93.9	91.6	95.3	96.9	93.5	81.6
% of Instruments 100% within limits	60.3	24.6	34.4	56.9	63.6	20.9
% of Instruments ≥95% within limits	83.2	64.6	78.6	90.0	82.9	49.6
% of Instruments ≥75% within limits	92.4	92.3	96.9	96.9	89.9	72.1
% of Instruments ≥65% within limits	93.9	92.3	98.5	97.7	93.0	79.1
% of Instruments ≥50% within limits	96.2	96.2	98.5	97.7	96.1	90.7