

International Cotton Advisory Committee



CSITC Global - Round Trial 2019 - 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



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Global - Round Trial 2019 - 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)			3.570	4.224	4.230	4.506			
Reference Values for Evaluation			3.570	4.224	4.230	4.506			
Number Of Instruments			118	118	118	118	118		
		SD	0.061	0.070	0.061	0.056	0.062		
	based on 30 tests	CV %	1.7	1.6	1.4	1.2	1.5		
Inter-Instrument Variation		SD	0.064	0.076	0.066	0.061	0.067		
inter-instrument variation	based on 6 tests	CV %	1.8	1.8	1.6	1.4	1.6		
		SD	0.073	0.088	0.074	0.069	0.076		
	based on single tests	CV %	2.0	2.1	1.8	1.5	1.9		
	between different days	SD	0.023	0.033	0.025	0.024	0.026		
	with each 6 tests	CV %	0.6	0.8	0.6	0.5	0.6		
Typical within-instrument Variation	between single tests	SD	0.034	0.045	0.035	0.031	0.036		
(Median)	on one day	CV %	1.0	1.1	0.8	0.7	0.9		
	between all tests	SD	0.042	0.057	0.044	0.038	0.045		
	on different days	CV %	1.2	1.3	1.0	8.0	1.1		

	St	trength					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			26.104	32.107	22.714	24.281	
Reference Values for Evaluation			26.104	32.107	22.714	24.281	
Number Of Instruments			118	118	118	118	118
		SD	0.577	0.662	0.675	0.582	0.624
	based on 30 tests	CV %	2.2	2.1	3.0	2.4	2.4
		SD	0.698	0.792	0.736	0.661	0.721
Inter-Instrument Variation	based on 6 tests	CV %	2.7	2.5	3.2	2.7	2.8
		SD	0.907	1.072	0.898	0.784	0.915
	based on single tests	CV %	3.5	3.3	4.0	3.2	3.5
	between different days	SD	0.343	0.374	0.329	0.312	0.340
	with each 6 tests	CV %	1.3	1.2	1.4	1.3	1.3
Typical within-instrument Variation (Median)	between single tests	SD	0.595	0.728	0.554	0.436	0.578
	on one day	CV %	2.3	2.3	2.4	1.8	2.2
	between all tests	SD	0.702	0.827	0.620	0.538	0.672
	on different days	CV %	2.7	2.6	2.7	2.2	2.6

	L	ength					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			1.0883	1.1981	0.9531	1.0187	
Reference Values for Evaluation			1.0883	1.1981	0.9531	1.0187	
Number Of Instruments			118	118	118	118	118
		SD	0.0083	0.0090	0.0114	0.0098	0.0096
Inter-Instrument Variation	based on 30 tests	CV %	0.8	0.8	1.2	1.0	0.9
		SD	0.0103	0.0114	0.0131	0.0114	0.0116
inter-instrument variation	based on 6 tests	CV %	0.9	1.0	1.4	1.1	1.1
		SD	0.0149	0.0168	0.0164	0.0139	0.0155
	based on single tests	CV %	1.4	1.4	1.7	1.4	1.5
	between different days	SD	0.0063	0.0062	0.0065	0.0046	0.0059
	with each 6 tests	CV %	0.6	0.5	0.7	0.4	0.6
Typical within-instrument Variation (Median)	between single tests	SD	0.0109	0.0119	0.0111	0.0082	0.0105
	on one day	CV %	1.0	1.0	1.2	0.8	1.0
	between all tests	SD	0.0122	0.0135	0.0129	0.0095	0.0120
	on different days	CV %	1.1	1.1	1.4	0.9	1.1

	Ur	iformity					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			79.526	83.829	76.728	80.419	
Reference Values for Evaluation			79.526	83.829	76.728	80.419	
Number Of Instruments			118	118	118	118	118
		SD	0.445	0.420	0.519	0.454	0.460
	based on 30 tests	CV %	0.6	0.5	0.7	0.6	0.6
Inter-Instrument Variation		SD	0.533	0.490	0.635	0.552	0.552
inter-instrument variation	based on 6 tests	CV %	0.7	0.6	0.8	0.7	0.7
		SD	0.745	0.780	0.852	0.717	0.773
	based on single tests	CV %	0.9	0.9	1.1	0.9	1.0
	between different days	SD	0.265	0.291	0.321	0.269	0.287
	with each 6 tests	CV %	0.3	0.3	0.4	0.3	0.4
Typical within-instrument Variation	between single tests	SD	0.537	0.553	0.578	0.491	0.540
(Median)	on one day	CV %	0.7	0.7	0.8	0.6	0.7
	between all tests	SD	0.596	0.616	0.674	0.558	0.611
	on different days	CV %	0.7	0.7	0.9	0.7	0.8

	Color Rd									
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average			
Average of Instruments (Grubbs)			71.701	78.977	78.258	74.992				
Reference Values for Evaluation			71.701	78.977	78.258	74.992				
Number Of Instruments			115	115	115	115	115			
		SD	0.600	0.531	0.491	0.640	0.566			
	based on 30 tests	CV %	0.8	0.7	0.6	0.9	0.7			
Inter-Instrument Variation		SD	0.608	0.561	0.520	0.671	0.590			
inter-instrument variation	based on 6 tests	CV %	0.8	0.7	0.7	0.9	0.8			
		SD	0.628	0.593	0.542	0.674	0.609			
	based on single tests	CV %	0.9	0.8	0.7	0.9	0.8			
	between different days	SD	0.161	0.195	0.175	0.157	0.172			
	with each 6 tests	CV %	0.2	0.2	0.2	0.2	0.2			
Typical within-instrument Variation	between single tests	SD	0.159	0.166	0.134	0.132	0.148			
(Median)	on one day	CV %	0.2	0.2	0.2	0.2	0.2			
	between all tests	SD	0.256	0.282	0.217	0.225	0.245			
	on different days	CV %	0.4	0.4	0.3	0.3	0.3			

	C	olor +b					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			16.443	11.085	9.448	13.712	
Reference Values for Evaluation			16.443	11.085	9.448	13.712	
Number Of Instruments			115	115	115	115	115
Inter-Instrument Variation		SD	0.553	0.268	0.226	0.320	0.342
	based on 30 tests	CV %	3.4	2.4	2.4	2.3	2.6
		SD	0.547	0.304	0.224	0.322	0.349
inter-mstrument variation	based on 6 tests	CV %	3.3	2.7	2.4	2.4	2.7
		SD	0.561	0.311	0.254	0.343	0.367
	based on single tests	CV %	3.4	2.8	2.7	2.5	2.9
	between different days	SD	0.098	0.114	0.079	0.086	0.094
Typical within-instrument Variation (Median)	with each 6 tests	CV %	0.6	1.0	0.8	0.6	0.8
	between single tests	SD	0.111	0.102	0.070	0.087	0.093
	on one day	CV %	0.7	0.9	0.7	0.6	0.7
	between all tests	SD	0.157	0.167	0.118	0.143	0.146
	on different days	CV %	1.0	1.5	1.2	1.0	1.2

Optional Parameters

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

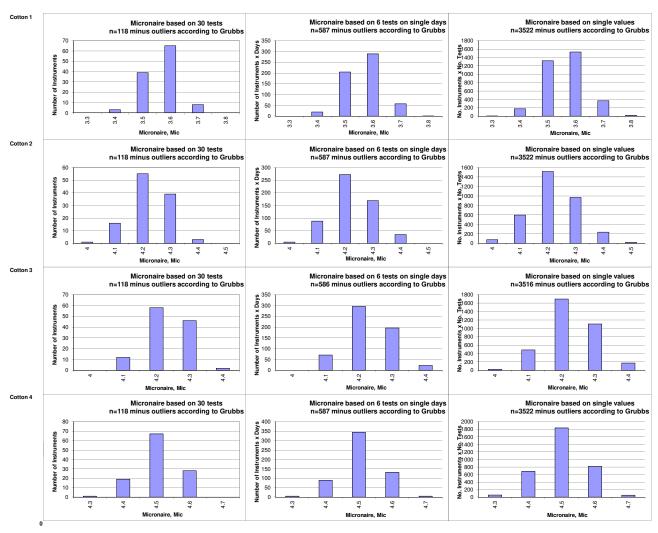
Trash Count									
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average		
Average of Instruments (Grubbs)			11.35	26.84	28.92	11.76			
Reference Values for Evaluation			11.35	26.84	28.92	11.76			
Number Of Instruments			95	95	95	95	95		
		SD	2.82	6.79	7.12	3.03	4.94		
Inter-Instrument Variation	based on 30 tests	CV %	24.8	25.3	24.6	25.7	25.1		
		SD	3.84	7.66	7.61	3.97	5.77		
inter-instrument variation	based on 6 tests	CV %	33.8	28.5	26.3	33.8	30.6		
		SD	4.51	9.22	8.31	4.51	6.64		
	based on single tests	CV %	39.7	34.4	28.7	38.4	35.3		
	between different days	SD	1.49	2.79	2.75	1.52	2.14		
	with each 6 tests	CV %	13.1	10.4	9.5	12.9	11.5		
Typical within-instrument Variation	between single tests	SD	1.92	3.12	2.97	2.02	2.51		
(Median)	on one day	CV %	16.9	11.6	10.3	17.1	14.0		
	between all tests	SD	2.58	4.44	4.29	2.69	3.50		
	on different days	CV %	22.7	16.5	14.8	22.9	19.2		

	Tra	sh Area					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			0.119	0.255	0.219	0.126	
Reference Values for Evaluation			0.119	0.255	0.219	0.126	
Number Of Instruments			95	95	95	95	95
		SD	0.027	0.068	0.050	0.033	0.044
	based on 30 tests	CV %	22.7	26.7	22.7	26.1	24.6
Inter-Instrument Variation		SD	0.041	0.083	0.056	0.046	0.056
inter-instrument variation	based on 6 tests	CV %	34.3	32.4	25.7	36.3	32.2
		SD	0.046	0.094	0.073	0.055	0.067
	based on single tests	CV %	39.0	36.8	33.2	43.8	38.2
	between different days	SD	0.019	0.035	0.021	0.022	0.024
	with each 6 tests	CV %	16.1	13.6	9.6	17.2	14.1
Typical within-instrument Variation (Median)	between single tests	SD	0.023	0.038	0.028	0.025	0.028
	on one day	CV %	19.1	14.7	12.7	19.5	16.5
	between all tests	SD	0.035	0.056	0.043	0.038	0.043
	on different days	CV %	29.3	21.8	19.7	30.3	25.3

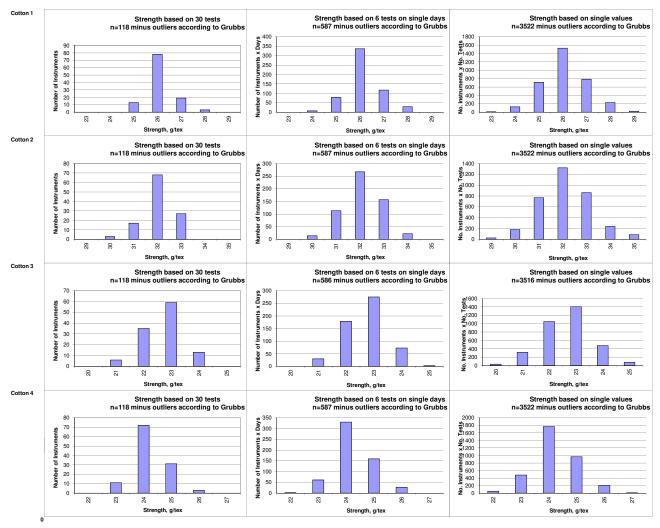
	M	aturity					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			84.09	85.65	85.76	86.58	
Reference Values for Evaluation			84.09	85.65	85.76	86.58	
Number Of Instruments			92	92	92	92	92
		SD	0.78	0.79	0.75	0.74	0.77
lakan la akunun ank Maniakian	based on 30 tests	CV %	0.9	0.9	0.9	0.8	0.9
		SD	0.80	0.83	0.76	0.75	0.79
Inter-Instrument Variation	based on 6 tests	CV %	0.9	1.0	0.9	0.9	0.9
		SD	0.83	0.90	0.78	0.85	0.84
	based on single tests	CV %	1.0	1.0	0.9	1.0	1.0
	between different days	SD	0.14	0.14	0.10	0.09	0.12
	with each 6 tests	CV %	0.2	0.2	0.1	0.1	0.1
Typical within-instrument Variation	between single tests	SD	0.16	0.17	0.16	0.13	0.16
(Median)	on one day	CV %	0.2	0.2	0.2	0.2	0.2
	between all tests	SD	0.35	0.31	0.25	0.25	0.29
	on different days	CV %	0.4	0.4	0.3	0.3	0.3

		SFI					
			Cotton 1	Cotton 2	Cotton 3	Cotton 4	Average
Average of Instruments (Grubbs)			11.95	7.28	17.80	11.71	
Reference Values for Evaluation			11.95	7.28	17.80	11.71	
Number Of Instruments			97	97	97	97	97
		SD	1.18	0.70	2.58	1.17	1.41
	based on 30 tests	CV %	9.9	9.6	14.5	10.0	11.0
Inter-Instrument Variation		SD	1.18	0.69	2.67	1.19	1.43
inter-instrument variation	based on 6 tests	CV %	9.9	9.4	15.0	10.2	11.1
		SD	1.51	0.81	2.83	1.33	1.62
	based on single tests	CV %	12.7	11.1	15.9	11.3	12.7
	between different days	SD	0.29	0.20	0.50	0.37	0.34
	with each 6 tests	CV %	2.4	2.8	2.8	3.2	2.8
Typical within-instrument Variation	between single tests	SD	0.60	0.39	0.90	0.60	0.62
(Median)	on one day	CV %	5.0	5.3	5.1	5.1	5.1
	between all tests	SD	0.66	0.42	1.01	0.67	0.69
	on different days	CV %	5.5	5.8	5.7	5.7	5.7

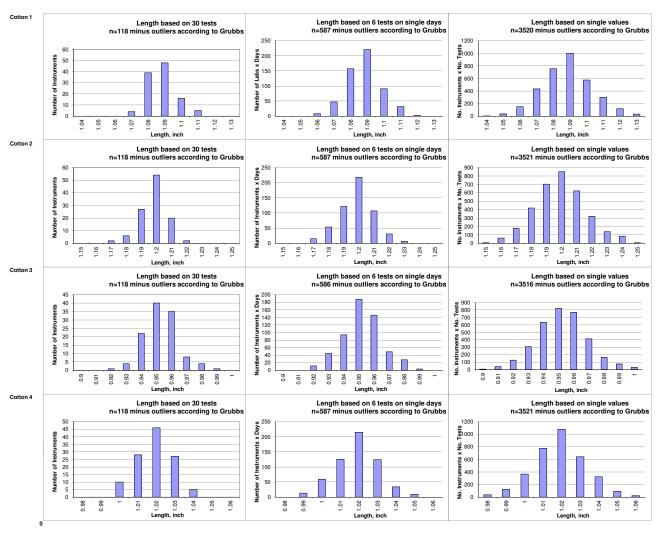
Test Result Distributions Micronaire



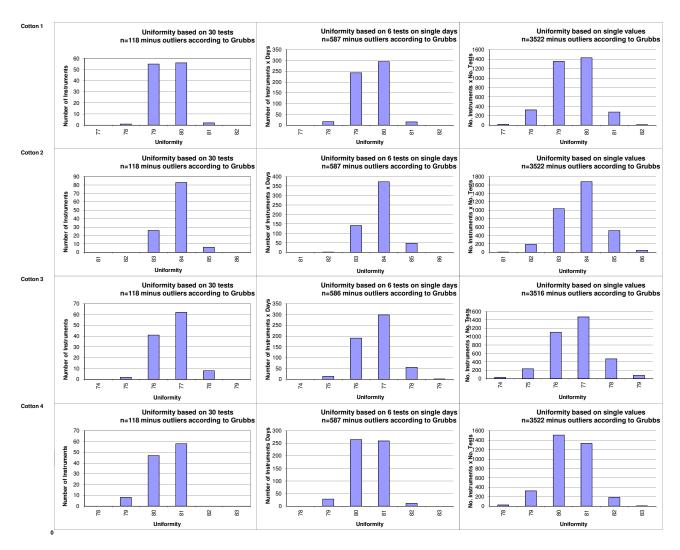
Test Result Distributions Strength



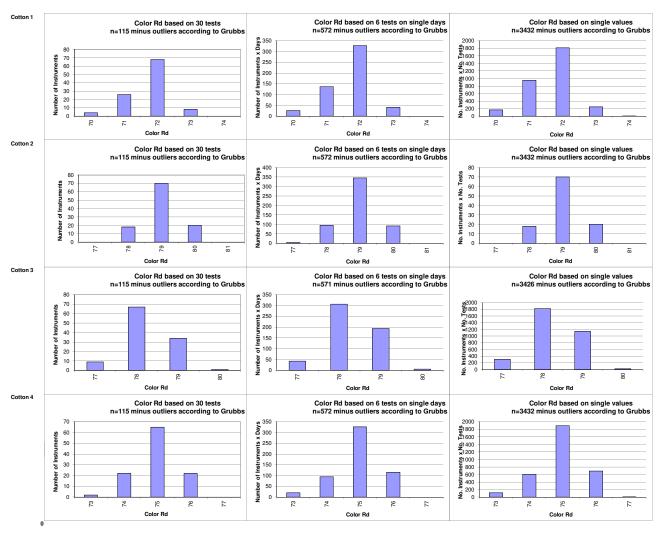
Test Result Distributions Length



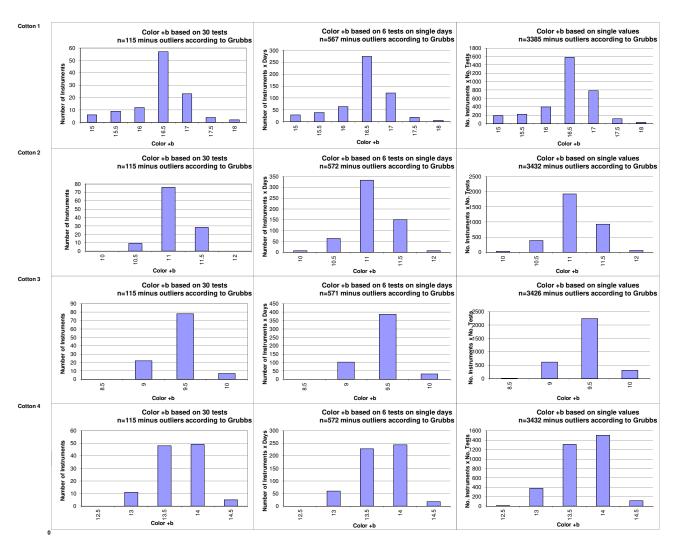
Test Result Distributions Uniformity



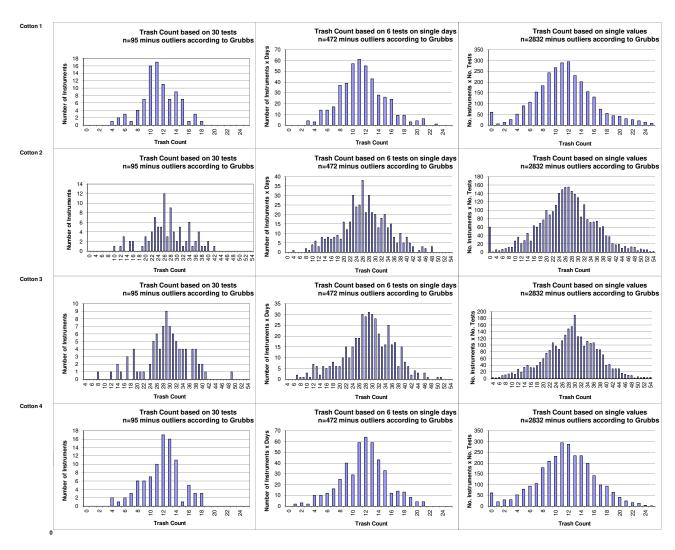
Test Result Distributions Color Rd



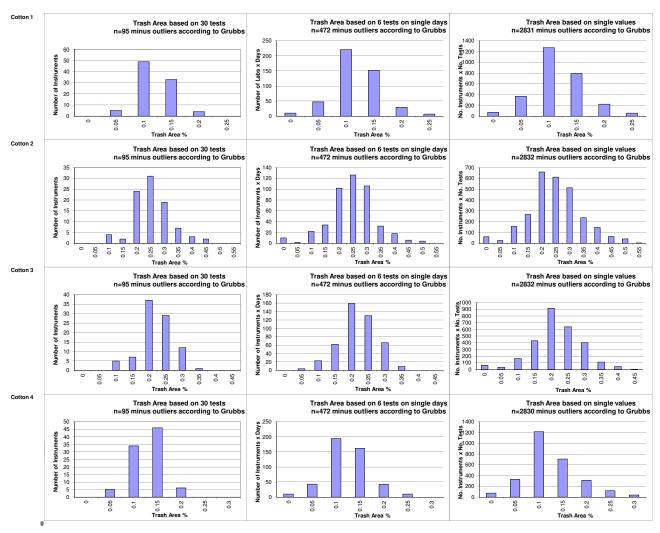
Test Result Distributions Color +b



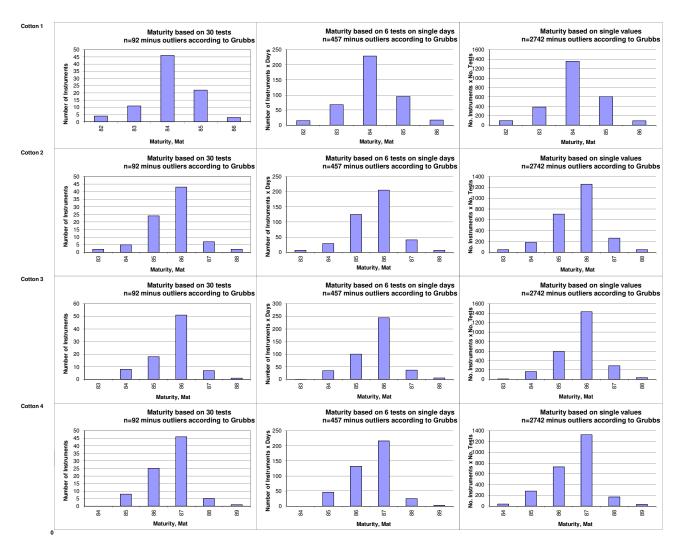
Test Result Distributions Trash Count



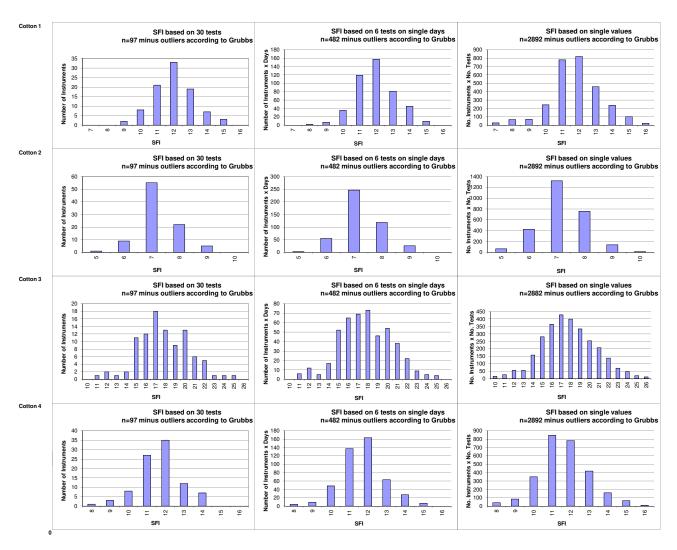
Test Result Distributions Trash Area



Test Result Distributions Maturity



Test Result Distributions





International Cotton Advisory Committee



CSITC Global - Round Trial 2019 - 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: Faserinstitut Bremen e.V., Bremen, Germany* USDA-AMS, Memphis, TN, USA System Provided by: Generation 10 Limited



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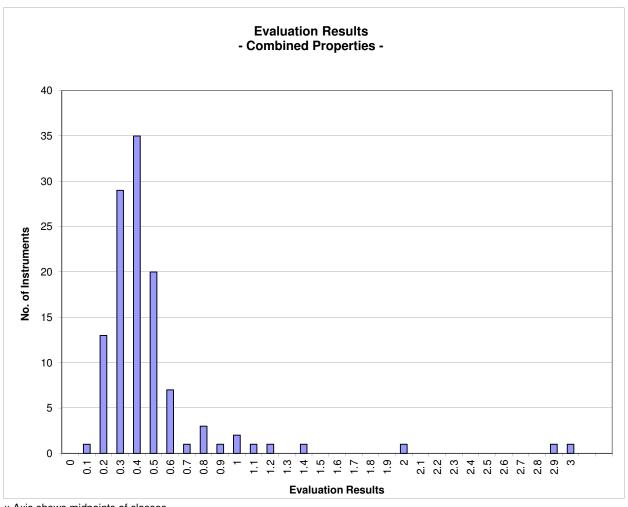
Instrument Evaluation

- Graph of Combined Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2019 - 2

		Evaluation Combined Prop.
Statistics	Average	0.48
	Median	0.38
	Best Instrument	0.13
	Worst Instrument	3.02



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)

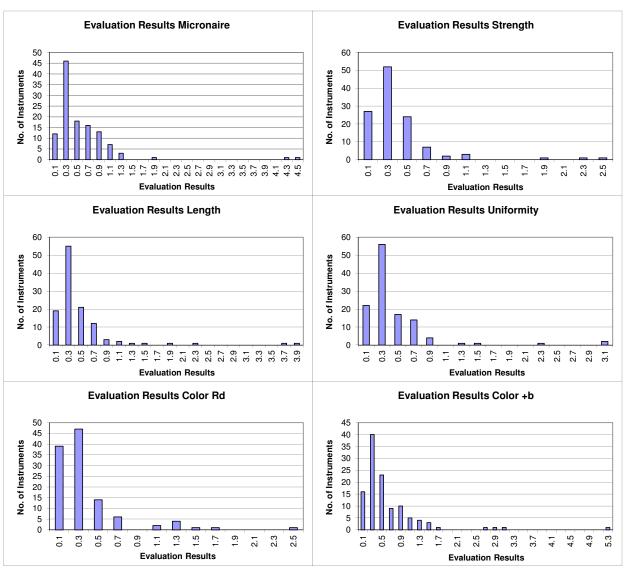
Instrument Evaluation

- Graph of Single Properties -

According to ICAC CSITC Task Force Recommendations

Global - Round Trial 2019 - 2

		Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Statistics	Average	0.58	0.39	0.48	0.44	0.37	0.62
	Median	0.42	0.32	0.35	0.31	0.28	0.40
	Best Instr.	0.12	0.05	0.08	0.06	0.07	0.09
	Worst Instr.	4.49	2.51	3.90	3.15	2.43	5.27



x-Axis shows midpoints of classes

The evaluation results are entered based on the unrounded values



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CSITC Global - Round Trial 2019 - 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

Executed By:
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USDA-AMS, Memphis, TN, USA

System Provided by: Generation 10 Limited



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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	98.1	97.2	95.8	97.7	93.9	86.1
Completely within limits	96.6	94.1	91.5	96.6	89.6	71.3
% of Instruments ≥75% within limits	97.5	96.6	95.8	96.6	92.2	82.6
% of Instruments ≥50% within limits	98.3	99.2	96.6	97.5	94.8	93.0

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	96.7	93.7	93.7	95.4	92.9	81.2
% of Instruments						
100% within limits	57.6	27.1	23.7	37.3	67.8	23.5
% of Instruments						
≥95% within limits	87.3	68.6	74.6	85.6	79.1	40.9
% of Instruments						
≥75% within limits	96.6	94.9	93.2	95.8	91.3	73.0
% of Instruments						
≥65% within limits	98.3	97.5	96.6	95.8	92.2	77.4
% of Instruments						
≥50% within limits	98.3	99.2	96.6	97.5	94.8	87.0