4.CONCLUSION

The original intention behind this survey on "Count Variation" was to arrive at a National norm for Sri Lankan spinning mills.Once this had been ascertained individual mills could be advised -in confidence- whether the mill was above or below the National norm.

A second output from the survey would be that Sri Lankan's National norm on "Count Variation" could be compared with similarly arrived at norms in other countries in South and South East Asia.By so doing it would have been possible to relate to other countries and if it was found that a wide discrepancy occured,investigations could be put into effect as to why this discrepancy occured.

Unfortunately,in the time available for the survey it has been only possible to cover two counts of yarn, namely 20 tex (30s) and 14.5 tex (40s), and from only three mills in the case of the former count and two mills in the case of the latter.Although these mills,between them,account for about 50 % of the total spindleage in Sri Lanka it is not significant because the aim of the survey,was not to compare on a spindleage basis but to make mill to mill comparisons,and also to arrive at a National norm.

However,the work done by the author gives an indication that the current National norm for Sri Lanka is 8.69.This figure may be reduced or increased at some future date as and when more data is collected from other mills when they are in a position to spin the above counts of cotton yarn.Individual mills will be advised as to how they stand in relation to the National norm.

The available results give the following figures as the lowest and the highest PMR.

	Lowest PMR	Highest PMR
20 tex	7.58	9.90
14.5 tex	7.17	10.58

For International comparisons,it is not yet possible to make comparisons,except the comparison against the figures obtained from a survey{13} of many mills, a good number of years ago,in the UK.The figures given at that time were;

	Lowest PMR	Highest PMR
Carded American Single Roving,) Ring-spun,37 tex and below.	6	9

It must be remembered however,that spinning machinery, drafting systems,etc,were probably less sophisticated at that time than todays spinning techniques.In the same survey ring-spun, combed or carded Uppers cotton, with double roving feed,gave figures of 5.5 and 8.0 respectively,and combed or carded Sakel cotton gave 4.5 and 7.0 respectively.

Uster Zellweger has done work on count variation on some 414 samples from many parts of the world.Because of this they have been able to publish Uster statistics 1982 in the field of testing and these are recorded in the Uster News Bulletin{14}.

Uster statistics are expressed in CV% figures,but for ease of comparison the CV% can be converted to PMR by the formula,
PMR = 2.06 * CV% (in the case of sets of four).

The average Uster figures are given below for combed and carded yarns;

	CV%	FMR
combed	2.2	4.53
carded	2.4	4.94

Comparing Sri Lankan spun carded yarns against Uster statistics on count variation,it would appear that they are very much greater (worse than) than the world average.See Uster statistics as follows for comparisons.

CV% FOR SHORT STAPLE,COTTON SPINNING

1) %	Combed cotton		Carded cotton	
5	1.1		1.1	
10	1.3		1.3	
25	1.7		1.7	
50	2.2		2.4	
75	3.0		3.4	
90	3.9		4.7	
95	4.7		6.0	

According to the Uster Bulletin(14) count variations of CV%>3% will show poor appearance of the finished fabric.

It is possible that this work can be continued in the near future by another researcher and thus arrive at a more significant National norm.

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1) *NOTE - percentage of the tested samples*

APPENDIX A

TABLE 1 - YARN COUNT MEASUREMENTS OF 20 TEX

YARN FROM MILL A

19.83	20.10	19.50	20.84	20.80	19.59	19.54	20.77	21.00	20.60
20.66	19.65	20.30	21.79	19.93	20.22	20.13	19.65	20.97	18.52
19.56	21.00	21.00	19.40	20.38	19.64	19.32	20.30	20.78	21.34
20.21	20.35	19.89	20.11	19.90	21.58	20.56	21.53	22.12	20.20
19.59	22.30	20.42	20.00	19.58	20.77	20.22	20.80	18.96	20.40
20.07	22.00	21.42	21.15	20.69	19.77	20.05	19.89	21.00	19.21
20.15	21.27	19.75	19.62	20.93	20.46	20.79	20.00	20.25	19.45
19.50	20.45	20.69	20.52	19.79	20.00	21.24	21.25	20.00	21.00
20.14	20.00	19.35	20.08	21.00	19.44	19.43	19.84	20.00	21.76
21.33	19.34	20.00	20.45	20.40	21.10	20.50	20.37	19.79	19.60
20.28	21.05	20.10	20.55	21.00	20.00	20.29	19.89	19.60	20.82
21.00	20.37	21.13	20.00	18.88	20.86	18.92	20.19	20.00	20.00
21.33	20.22	20.15	20.93	20.60	21.00	20.09	20.40	18.74	20.40
21.50	20.00	20.64	19.10	20.38	20.03	20.83	19.81	19.62	20.90
20.65	19.85	21.24	21.28	21.10	19.40	21.16	20.07	20.86	19.90
21.52	20.64	20.32	19.53	19.85	18.80	20.79	19.49	20.96	20.82
21.07	20.45	20.45	21.89	19.69	19.03	20.07	19.36	19.30	21.09
19.30	20.15	17.61	18.74	20.17	20.39	19.79	21.23	19.75	19.60
19.75	20.00	21.29	19.89	20.12	20.00	20.00	20.70	20.58	21.83
20.40	20.50	21.00	19.90	19.86	21.53	21.11	20.91	20.09	20.60

MEAN COUNT 20.3095 TEX

TABLE 2 - YARN COUNT MEASUREMENTS OF 20 TEX

YARN FROM MILL B

19.21	21.00	19.92	19.45	18.90	20.00	20.10	20.69	20.00	20.75
20.21	19.59	20.06	20.60	19.55	20.33	20.20	20.07	19.13	19.42
19.44	19.77	20.10	18.78	19.76	19.20	19.46	20.04	19.60	18.52
20.29	20.54	20.25	18.45	19.55	18.77	18.73	18.27	17.75	20.07
20.48	20.64	18.20	20.05	20.30	21.25	19.68	20.80	19.94	19.30
19.71	19.63	20.10	20.42	19.37	20.08	19.87	19.90	19.51	19.33
19.87	19.26	20.65	20.70	18.90	20.53	19.85	17.60	19.69	20.00
20.00	20.38	21.85	20.00	19.19	18.91	19.67	20.43	19.40	19.58
20.00	19.40	17.93	20.00	20.00	20.00	19.30	19.29	20.14	20.80
19.37	19.83	19.30	19.50	18.85	19.73	19.50	21.91	19.33	20.87
19.30	19.88	19.83	19.84	20.15	19.00	18.92	18.91	20.31	19.72
20.10	19.85	20.25	19.90	20.93	20.52	18.99	21.00	20.19	19.00
18.68	20.00	19.80	17.26	19.82	18.53	18.52	20.00	20.20	19.20
19.63	20.25	19.25	20.29	19.62	19.58	18.92	18.85	19.29	19.84
19.88	22.78	19.53	20.34	20.10	20.38	21.20	20.52	19.42	18.84
19.07	18.67	19.33	19.70	19.75	20.08	19.35	19.33	20.45	20.43
19.83	18.70	19.81	20.45	20.04	19.85	19.63	19.08	19.15	19.43
19.00	19.46	19.28	19.07	19.83	19.72	19.07	18.00	20.70	18.86
20.15	19.90	21.12	20.45	20.55	20.00	20.30	19.39	20.00	20.32
20.13	20.80	18.72	20.04	19.88	20.43	21.61	20.00	20.00	20.18

MEAN COUNT 19.764 TEX

TABLE 3 - YARN COUNT MEASUREMENTS OF 20 TEX

YARN FROM MILL C

20.15	19.25	19.15	19.35	20.35	19.10	22.55	20.15	20.30	19.10
19.70	19.42	20.47	19.72	20.75	20.60	19.00	19.50	20.00	20.81
21.85	20.90	20.00	20.62	19.51	21.25	21.57	19.85	19.62	19.09
20.80	20.00	19.73	19.38	20.87	20.48	22.58	19.25	20.29	20.65
21.00	21.75	20.00	21.00	19.62	20.00	21.16	22.58	20.64	21.16
21.50	20.68	21.30	20.30	20.75	20.40	20.90	21.30	20.88	24.00
23.62	20.74	22.57	20.94	19.06	19.34	20.00	18.00	20.30	20.25
20.70	20.34	21.25	19.85	20.53	20.53	19.72	21.15	19.88	20.18
19.84	19.05	20.43	20.00	20.68	21.00	19.91	20.60	21.14	20.46
19.90	21.13	19.13	20.25	21.31	21.47	19.30	19.54	20.25	19.68
19.85	21.00	19.30	20.00	21.04	19.75	20.40	15.50	19.36	20.08
20.55	19.45	19.85	21.25	18.35	20.00	18.90	18.30	20.45	20.15
19.55	18.60	20.90	20.65	19.20	19.60	19.00	19.25	20.25	19.15
20.80	18.90	19.90	18.00	18.85	22.80	17.95	19.90	18.35	20.95
21.55	18.95	18.65	19.10	21.15	22.00	19.60	19.65	20.85	19.70
19.12	19.80	18.90	20.65	20.00	20.90	20.00	21.18	19.30	20.85
19.08	19.36	20.60	19.55	19.60	20.00	18.00	19.83	19.27	18.82
20.25	20.34	20.90	22.63	19.50	20.00	19.55	21.00	18.72	19.60
19.80	19.90	18.95	20.60	20.00	19.52	20.35	17.40	19.35	18.75
18.15	19.80	19.47	19.72	22.08	20.70	19.40	19.00	18.95	19.72

MEAN COUNT 20.0942 TEX

TABLE 4 - YARN COUNT MEASUREMENTS OF 14.5 TEX

YARN FROM MILL A

17.00	16.93	16.85	16.60	16.09	17.00	16.90	16.52	15.69	16.65
17.05	16.33	17.37	16.23	16.00	17.11	17.44	17.21	17.98	16.00
17.13	16.14	16.68	16.50	16.40	16.72	17.70	16.72	16.60	17.33
16.32	17.33	16.75	16.70	16.00	16.48	17.52	16.55	17.14	16.66
16.54	16.62	17.18	17.50	18.62	17.00	17.16	17.25	17.88	16.43
17.77	17.00	16.89	16.22	17.33	17.62	16.92	17.19	16.58	17.38
18.41	17.30	17.80	17.07	17.36	17.00	17.20	16.55	16.33	17.75
16.77	17.73	18.00	16.74	16.13	16.40	16.71	17.91	17.56	17.81
17.29	17.06	17.00	18.00	17.53	16.90	17.70	17.18	17.23	17.10
16.84	16.77	18.22	18.97	16.80	16.36	17.08	17.64	17.40	16.65
18.00	17.49	17.14	17.80	17.72	16.74	17.74	16.00	17.50	17.19
17.06	18.00	17.20	14.70	16.58	16.82	17.98	16.82	17.35	16.90
17.33	17.09	16.20	17.63	16.90	16.23	17.48	17.12	16.34	16.50
17.35	17.18	17.66	17.07	16.77	17.18	17.30	16.43	16.90	17.67
16.95	17.80	17.39	17.07	18.15	17.46	16.30	17.55	16.93	16.82
16.22	17.39	17.60	17.15	16.70	17.67	16.12	16.78	16.21	17.30
17.36	17.78	16.00	16.80	16.80	17.70	18.20	17.40	16.05	17.22
16.80	17.04	15.83	17.00	17.80	16.45	16.38	16.64	17.50	17.08
16.48	16.65	16.45	17.20	16.53	17.00	16.86	17.64	17.00	16.46
16.48	16.10	17.65	17.55	15.70	17.88	17.40	16.58	16.12	17.35

MEAN COUNT 17.0259 TEX

TABLE 5 - YARN COUNT MEASUREMENTS OF 14.5 TEX

YARN FROM MILL C

14.40	13.47	16.03	14.60	15.05	15.75	14.65	14.80	14.75	14.00
13.40	16.40	15.70	15.25	16.00	15.40	15.70	14.75	15.55	16.05
15.75	15.30	15.80	17.45	14.48	14.90	15.80	14.50	15.00	15.70
15.15	14.85	15.00	15.90	14.30	14.77	14.77	14.27	16.40	15.20
15.35	12.45	14.65	14.60	14.35	14.60	16.10	15.45	15.25	14.40
15.65	14.45	15.00	14.35	14.60	14.85	15.35	15.15	15.15	14.85
13.95	14.90	15.60	15.00	15.35	14.35	14.70	14.70	15.15	14.45
14.45	15.00	15.00	15.00	13.10	16.10	16.10	15.00	14.10	14.35
14.75	14.45	15.35	14.35	14.10	14.40	14.50	14.55	15.55	14.95
13.65	14.40	14.90	15.40	14.65	14.55	14.00	15.10	14.95	15.75
15.55	14.35	14.10	15.45	14.45	15.00	15.40	14.90	14.90	14.50
14.30	15.75	15.85	16.00	14.75	14.75	14.75	16.00	15.20	14.80
14.00	15.25	14.60	14.10	14.65	15.65	15.65	16.40	13.90	15.40
15.55	16.00	15.00	16.55	16.00	16.65	15.15	15.60	17.45	15.35
15.55	15.10	15.00	13.35	15.00	14.60	14.25	15.75	13.90	16.10
15.60	15.00	15.60	15.00	14.22	15.21	15.11	15.22	14.91	16.56
18.23	15.68	14.69	14.54	15.85	12.57	13.73	15.79	14.79	14.29
17.09	15.42	15.40	14.79	15.21	14.67	15.35	14.54	15.00	15.08
15.59	13.90	15.11	17.11	15.72	16.10	13.64	16.32	15.93	15.52
15.78	15.91	15.56	14.43	15.73	15.60	14.10	15.21	15.01	15.45

MEAN COUNT 15.0768 TEX

APPENDIX B

TABLE 6 - RANGES OF COUNT IN SETS OF 4 SKEINS

OBTAINED FROM TABLE 1

1.10	1.35	1.50	2.39	0.90	1.99	1.24	1.88	1.34	2.82
0.65	1.85	1.67	1.53	1.35	1.00	1.19	1.36	2.04	1.79
1.19	1.71	1.78	0.55	2.12	1.66	1.58	0.53	0.40	2.16
0.87	0.79	1.09	2.18	1.25	2.20	1.07	0.91	2.22	1.00
1.77	0.50	3.68	3.15	0.48	2.50	1.32	1.87	1.28	2.23

MEAN RANGE 1.5396 TEX

TABLE 7 - RANGES OF COUNT IN SETS OF 4 SKEINS

OBTAINED FROM TABLE 2

1.08	1.41	0.33	2.15	0.86	1.56	1.47	2.42	2.25	2.23
0.77	1.38	3.65	0.70	1.40	2.34	0.20	3.20	0.54	0.70
0.80	0.48	2.32	0.50	2.08	1.52	0.58	3.00	0.98	1.87
1.20	4.11	0.55	3.08	0.48	1.85	2.68	1.67	1.16	1.59
1.15	2.10	2.40	1.38	0.72	0.71	2.54	2.00	1.55	1.46

MEAN RANGE 1.583 TEX

TABLE 8 - RANGES OF COUNT IN SETS OF 4 SKEINS

OBTAINED FROM TABLE 3

2.15	1.65	1.32	1.27	1.36	2.15	3.58	0.90	0.68	1.72
2.92	1.41	2.57	1.15	1.69	1.19	1.44	4.58	1.00	3.82
0.71	2.08	1.30	1.25	2.96	1.72	1.50	5.10	1.78	0.78
2.43	1.20	2.25	2.65	2.30	3.30	2.05	1.93	2.50	1.80
2.10	0.98	1.95	3.08	2.58	1.18	2.35	3.60	0.63	0.97

MEAN RANGE 1.9912 TEX

TABLE 9 - RANGES OF COUNT IN SETS OF 4 SKEINS

OBTAINED FROM TABLE 4

0.81	1.19	0.69	0.47	0.40	0.63	0.80	0.69	2.29	1.33
1.87	1.11	1.11	1.28	2.49	1.22	0.49	1.36	1.55	1.38
1.16	1.23	1.22	4.27	1.14	0.54	0.90	1.64	0.27	0.54
1.13	0.71	1.46	0.56	1.45	1.44	1.36	1.12	0.72	1.17
0.88	1.68	1.82	0.75	2.10	1.43	1.82	1.06	1.45	0.89

MEAN RANGE 1.2214 TEX

TABLE 10 - RANGES OF COUNT IN SETS OF 4 SKEINS

OBTAINED FROM TABLE 5

2.35	2.93	1.03	2.85	1.70	0.98	1.15	0.53	1.65	2.05
1.70	2.55	0.95	0.65	2.25	1.75	1.40	0.75	1.15	0.50
1.90	1.40	1.75	1.65	0.65	0.60	1.40	1.45	0.65	1.25
1.60	1.00	1.00	3.20	1.78	2.05	1.40	1.18	3.55	1.21
2.64	2.01	0.87	2.68	0.64	3.53	1.71	1.78	1.14	1.23

MEAN RANGE 1.5954 TEX

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