

Weekly Publication of



**Cotton
Association
of India**

COTTON STATISTICS & NEWS

Edited & Published by Amar Singh

2018-19 • No. 28 • 9th October, 2018 Published every Tuesday

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Ways to Regain Glory of Indian Cotton

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Besides a Doctor of Philosophy in 'A Study of Management and Development of Cotton Ginning Industry in India with Special Reference to Double Roller Ginning Market (2000-2009), Dr. Sharma has also done a Certificate Course, from the Texas International Cotton School, USA and a Certificate Course from Kothari Institute of Financial Management. He has numerous publications to his credit and has co-organised several Ginners' Awareness Meet with Central



GUEST COLUMN

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Institute for Research on Cotton Technology (CIRCOT), under Technology Mission on Cotton (TMC) as well as participated in several meetings of International Cotton Advisory Committee. He has served as a Member of the following:- Regional Advising Committee (Organized Sector), Central Excise Collectorate, Nagpur; Public Grievance Redressal Committee, Central Excise Collectorate, Nagpur; Small Scale Industrial Committee, (Vidarbha Region), Federation of Indian Chamber of Commerce and Industry, New Delhi and Executive Committee - Vidarbha Industries Association, Nagpur.

Indian cotton has a glorious past, being clean and higher colour grade due to handpicking. When visitors from countries where the seed cotton is machine picked visit Indian seed cotton yards, they are surprised at the grade and cleanliness of Indian seed cotton, as compared to seed cotton in their own country where it is machine picked. There was a time in the past, when the malpractices which have come up in the cotton value chain in recent times, were absent and Indian cotton was in high demand with countries like China and others. Even before that, many countries like Britain preferred

Indian cotton because it was clean and higher grade. Indian cotton was getting higher price as compared to cotton from countries where the machine picking was done. However, in the recent past, the glory of Indian cotton has been lost and it is being termed as most contaminated cotton. The grade of Indian cotton has gone down significantly mainly due to the following reasons:

1. Higher trash and contamination,
2. Non-availability of reports on cotton parameters of each bale
3. Poor packing,

This paper discusses the reasons Indian cotton has lost its glory and suggests ways to regain the same.

Higher Trash and Contamination

Indian Standard Specifications for Cotton Bales IS: 12171-1987 though not mandatory but plays a most prominent role in determining the control over trash and contamination in Indian cottons being a reference document for permissible trash limits. The following discussion may make it clear:

A. Clauses about Trash Contents:

Indian standard for bale press IS: 12171 was first formulated in 1987. At that time Indian cotton ginning industry was fully manual and the ginning and pressing facility were normally situated at a distance. The ginned cotton was filled in hessian bags and was transported either by rolling on land or otherwise, to the baling presses. No cleaning equipments whatsoever were used. The entire process beginning from unloading of cotton to loading of bales on the trucks was manual. Suitable pre-cleaners and lint-cleaners were not manufactured in India, hence probably as a compromise formulae, the Indian standard 12171-1987 Clause 3.1.1 was formulated as below:

3.1.1 *Trash Content* - The maximum trash content (excluding invisible loss) for various categories of cotton shall be as under when tested by the method prescribed in IS: 4871-1968:

- a) Extra long staple - 3 percent
- b) Long and superior medium staple - 4 percent
- c) Medium and short staple - 5 percent (including Bengal desi and Assam Comillas)
- d) V-797, Kalagin, CJ-73 and J-31RG- 6 percent

The Indian standard for Cotton Bales Specifications (first revision) 12171-1999 formulated Clause 4.1.1 as below:

4.1.1 *Trash Content*

The maximum trash content (excluding invisible loss) for various categories of cotton shall be as under when tested by the method prescribed in IS 4871:

- a) Extra long staple (32.5 mm and above) - 3 percent
- b) Long and superior medium staple (27.5 to 32.0 mm and 25 to 27 mm) - 5 percent
- c) Medium and short staple (including Bengal Deshi) (20.5 to 24.5 mm and 20 mm and less) - 6 percent

- d) CJ-73, V-797, Kalagin, Waghad and similar closed boll cotton - 10 percent

Till this revision, the cotton ginning industry in India was manually run without any pre-cleaning and post-cleaning.

Moreover, India was importing a significant quantity of cotton from the countries, where the cotton was machine picked and having very high trash, therefore, probably it was necessary to accommodate those imported cottons under the ambit of Indian Standard for Cotton Bales specifications, hence the trash percentage allowed for various cottons was considered on the higher side, despite Indian cotton being very clean as handpicked.

The majority of ginning and pressing factories in India have been modernised after the introduction of Technology Mission on Cotton in 2000, wherein pre-cleaning and post-cleaning machineries were made compulsory and installed by all the modernised ginning and pressing factories due to which the trash contents and contamination (when the pre and post cleaners are used, long contamination gets trapped on the spikes and removed during cleaning, hence along with trash contamination also goes down) came down significantly during TMC period up to 2012-13, even as much as below 1%. But then some of the ginners figured out the loopholes, that they could earn the money by not using cleaning equipments and adding trash by way of water addition etc. and making others uncompetitive against them. Finally, most of them followed the malpractices, resulting in deterioration of quality of Indian cotton, resulting in the low acceptability in the export market, which is now causing significant loss to entire cotton value chain.

This was mainly caused as the Indian standard for cotton bales 12171-1999 though not mandatory, became the only reference point based on which the spinning mills could decide about the quality parameters as most of the cotton is purchased through brokers who cannot effectively decide about different prices for lower or higher trash within the range specified in IS 12171-1999 and there were very few direct contracts between ginners and spinning mills for better quality cotton.

Though majority of Indian cotton which is handpicked, normally falls under category

as described under Clause 4.1.1 (b) of Indian Standard for Cotton Bales specifications (first revision) IS: 12171; 1999 have less than 2% incoming trash when handpicked from the field if the malpractices of manual addition of water and intentional allowing of trash contents to be mixed with the seed cotton is not practiced. These cottons can well be standardised with 1% trash or even less after ginning on use of pre and post-cleaning equipment, if the Indian Standard for Cotton Bales so specifies and mills then will be demanding the cotton as per the specifications and may be willing to pay premium for such cottons, as they will be able to have the reference for any dispute resolution. At present no such basis for dispute resolution is available under IS 12171; 1999, hence they cannot demand less than 5% trash contents in general trade.

B. 4.1.2 Moisture Regain:

The moisture regain percentage has been revised upward from 7.5% in the Standard 12171; 1987 to 8.5% in the Standard IS 12171; 1999, which is not in the interest of Indian cotton as it works adversely by tempting ginners to increase moisture in the cotton. The spinning mills are compelled to accept 8.5% moisture when purchased from open market while normal moisture contents in Indian cotton when coming from fields is around 5 to 6% only. The moisture percentage should therefore be revised back to 7.5% in the interest of Indian cotton.

C. 4.2.2 Mass (weight):

Though the first two dimensions of the bale in the IS 12171; 1999 standard are according to international standard considering the height, where the weight is 500 pounds i.e. about 225 kgs. but the weight has been restricted to 170 kgs., which requires higher packing cost in terms of packing material and electrical power, etc. This also appears to be illogical, hence it should be revised to accommodate weight up to 230 kgs. to bring the Indian cotton bales to international level. The weight up to 170 kgs. was probably restricted, as bales were handled manually in India. But now forklifts, tractor attachments, hydra, etc. are available in each ginning factory and international standard weight can easily be handled beneficially. Moreover, the transportation scenario has totally changed. Earlier only 6 wheels trucks were available for transportation, now much larger trucks which can accommodate any other size bales in sufficient number of the permitted weight, are available. In the past, overloading of trucks was taking place but now

due to controls, it has been more or less stopped. Hence the considerations, which were earlier done for bale sizes and weight are no longer existing.

D. The Basis of Cotton Classification:

In the Indian standard for cotton bales specifications IS 12171;1999, Clause 4.1.1 the basis of cotton classification in respect of trash contents has been considered that of length only except for closed boll cottons, while the majority of other countries' basis of trash contents considered is grade of cotton apart from length and other parameters; such as Uzbekistan, USA, etc.

This basis adopted in IS 12171; 1999 needs to be changed. This paper will discuss the required changes later.

E. Sampling Method of Cotton:

As per IS 12171; 1999, Clause 6, sampling is to be done as below:

Clause 6.1 "In any consignment, the bales of a particular variety of cotton ginned under identical conditions shall constitute a lot"

Clause 6.2 "Sample for determination of trash content shall be drawn as per 3 of IS 4952 and the gross sample shall be reduced as per 4 of IS4952. However the weight of tufts drawn from each sub-square be decided in such a way that the reduced sample meets the requirements of IS 4871"

According to all these provisions the sampling method of Indian cotton bales is on a random basis and a very complicated way to take and prepare the sample, which has become outdated in context to the present day requirements of sampling.

F. Weight & Size of Sample of Cotton from Bales:

As per Indian standard method for determination of lint and trash content of cotton by means of mechanical-pneumatic machines IS 4871-1968, the sample size is prescribed as below:

Clause 4: Sampling

4.1 The sample in case of raw or processed cotton shall not be less than 0.5 kg. (500 gms.) However, in the case of processed waste, the sample of approximately 100 gms may be drawn. The sample should be drawn in such a way that it is representative of the lot.

While in the Appendix A of the same standard for testing on sample, it is mentioned as per Clause

A4 “The weight of specimen shall normally be 100 gms”. This specification further mentions at clause 7.2 “The test specimen shall be of the size in conformity with what is specified in the operating instruction of the instrument being used”.

Thus, it may seem that there is no clarity as to what should be the correct size and weight of a sample for proper testing and results in the standardised manner.

Non-Availability of Reports on Cotton Parameters of Each Bale

Since the sampling method in India is on a random basis, bale to bale variation and their respective reports are never available to buyers, therefore they are always suspicious that they may get different cotton parameters than the what they had ordered. This lack of trust finally results in depressed price to keep safety margins. If the report of each and every bale is available, the buyer will always have confidence in the quality and parameters of each bale and may offer higher prices.

Poor Packing

As per IS12171; 1999 Clause 4.2.3.1 (as amended vide amendment 1 October 2006) “The material used for packing of bales confirmed to the requirements given below”

- a) Cotton fabric – confirming to variety No. 2 (170 gms/mtr²) of IS 175
- b) Baling hoops – Conforming to IS 1029 having minimum width of 12.5 mm and thickness of 0.9 mm.
- c) Cotton twine – Conforming linear density of 600 to 800 tex and minimum breaking load of 6 kgf.

The Clause 4.2.3 baling / pressing reads as below:

“The bale shall be fully covered with cotton fabric and no portion of cotton shall be exposed. The bales shall be securely strapped with minimum of 9 wraps of baling hoops. The cotton fabric shall be stitched using a 6 ply cotton twine. The stitches shall be evenly spaced and properly made. The distance between two stitches shall not exceed 30 mm”.

Though the specifications for packing are good enough, the field does not follow the practices properly and most of the bales

covering are not proper, which finally results in extra trash and no action is taken by the appropriate authorities for such violations.

Moreover, the reputation of Indian cotton takes a beating when ginners indulge in mixing of cotton varieties, like supplying MCU5 in place of contract for DCH32, etc. But this is not a normal practice, hence have to be controlled on an individual basis.

Ways to Regain Glory of Indian Cotton

If the following actions are taken at appropriate levels, Indian cotton can certainly regain its glory.

Revision of Relevant Indian Standards for Cotton Bales and Samples

IS 12171; 1999: The ground realities in the cotton processing sector have significantly changed in India as we have the advantage of clean handpicked cotton. This is a boon and will continue to be so for at least a decade and even for a longer period, if management of manpower to handpick the cotton is regulated and people are attracted to do the handpicking of cotton to retain the advantage of availability of clean cotton. Even in case where the cotton is to be machine picked due to non-availability or unwillingness of manpower to handpick the cotton, the gradation system if adopted in the Indian standards, will certainly give a reference point to all buyers and sellers of cotton fibre. This will create a demanding situation for all ginners equally and they will be happy to produce low trash cotton i.e. below or around 1%. This is easily possible with clean cotton being received from the Indian fields and malpractices like addition of water and not using cleaning equipment are absent. In other words, not being tempted to finding the means to add trash to increase it to the presently permitted level of trash i.e. 5%. The contamination will automatically come down with the use of cleaning equipment as some of the contaminants are removed during the cleaning process. At the same time, a market mechanism will develop where higher prices will be available to ginners for clean cotton, which is not available to them under the current situation of trash ranging around 5%, but the buyers offering same prices for 1% to 5% has no reference document other than IS12171; 1999 that is available for dispute resolution. Therefore, majority of ginners are tempted to retain or increase the trash level to 5% even if the seed cotton coming from field is having 1% or lower trash.

The recommended changes in the various clauses of IS12171; 1999 are as below:

- i. Clause 4 be replaced as below:

4.1 Ginned cotton in Pressed Bale

4.1.1 Trash content

The gradation of the cotton based on trash content (excluding invisible losses) for various grades of cotton shall be as under when tested by the method prescribed in IS 4871

All Indian Cottons including Desi Cotton

- a) Grade 1 - 0 to 1%
- b) Grade 2 - above 1% to 2%
- c) Grade 3 - above 2% to 3%
- d) Grade 4 - above 3% to 4%
- e) Grade 5 - above 4% to 5%
- f) Grade 6 - above 5% to 6%
- g) Grade 7 - above 6% to 7%
- h) Grade 8 - above 7% to 8%
- i) Grade 9 - above 8% to 9%
- k) Grade 10 - up to 10%

If the trash contents are above 10% the cotton will not be tradable and should be subjected to cleaning process to bring down the trash.

4.1.2 Moisture Regain

The moisture regain of ginned cotton in the pressed bale shall not exceed 7.5 percent

4.2 Pressed Bales

4.2.1 Dimensions

The recommended nominal dimensions of the banded bales (full pressed) are given below:

Length	Width	Height
mm	mm	mm
1060	530	780
	or	
1400	530	700
	or	
1240	480	480

4.2.2 Mass (Weight)

The mass of bale will be between 170 kgs. to 230 kgs. subject to a tolerance of +/- 10 kgs. throughout the season

6. Sampling

The desired weight of the sample from each bale should be decided considering testing requirement, which does not appear to be over 250 gms. per sample in consultation with testing laboratories and all Indian presses should be fixed with sampling cups to take

sample from each bale and get its test reports, which will give complete data for each bale for sale and purchase of cotton when uploaded online.

Apart from the above, it is also required that the relative changes should be made in the sampling method and relevant standards i.e. IS4952 and testing method under IS4871 and the sample of each bale should be taken. This may be done over a period as the sufficient testing facilities are coming up in the Indian cotton sector thus the pattern of USDA (United States Department of Agriculture) for testing of each bale sample should be adopted so that the trust on each bale is developed for Indian cotton which will finally result in improved prices and encouragement to the ginners to produce low trash cottons of higher grade.

Due to the constraint of space, the other relevant changes required in the IS12171, IS 4952, and IS 4871 are not elaborated here but draft changes can always be submitted whenever required for further considerations.

Issue of Control Orders

It is necessary to have the limited regulatory mechanism if controls are to be exercised on the quality of Indian cotton, therefore Government of India may issue suitable regulatory control orders in respect of sampling of each bale and its testing at proper laboratories. The reports produced by such laboratories should be available online for all concerned based on which the decision about purchase and sale of cotton can be taken reliably. This will certainly help ginners in getting better prices due to enhanced trust and ease of business will be there, therefore it will be a win-win situation for all.

Conclusion

If proper standards and practices are followed and ginners and spinning mills are educated for the benefit of following the standards and good practices with the proper government intervention, Indian cotton being handpicked, clean and roller ginned, which is a boon, can certainly regain its past glory and can get better prices in the national and international markets.

*Courtesy: Cotton India 2018 (Domestic)
(The views expressed in this column are of the author and not that of Cotton Association of India)*

Production of Fibres

(In Mn. Kg)

As on	Raw Cotton (Oct.-Sept.)	Synthetic			Cellulosic	Sub Total
		PSF	ASF	PPSF	VSF	
2016-17 (P)	--	898.97	96.37	3.64	364.99	1363.97
2017-18 (P)	--	852.29	93.19	3.51	369.82	1318.81
2018-19 (P) (Apr-July)	--	263.65	33.01	1.26	179.63	477.55
2016-17						
April	--	73.56	8.86	0.37	30.32	113.11
May	--	77.07	9.39	0.44	31.72	118.62
June	--	77.46	9.28	0.45	21.87	109.06
July	--	79.32	8.07	0.30	30.41	118.10
August	--	79.92	8.20	0.35	31.96	120.43
September	--	76.96	9.02	0.22	31.14	117.34
October	--	79.51	6.75	0.16	32.46	118.88
November	--	71.06	7.10	0.24	31.18	109.58
December	--	71.65	7.28	0.29	32.09	111.31
January	--	72.68	7.78	0.20	32.11	112.77
February	--	63.78	7.42	0.20	28.24	99.64
March	--	76.00	7.22	0.42	31.49	115.13
2017-18 (P)						
April	--	72.23	7.62	0.26	30.51	110.62
May	--	75.90	7.79	0.32	29.59	113.60
June	--	71.90	7.65	0.24	31.55	111.34
July	--	75.73	8.47	0.13	35.52	119.85
August	--	73.58	9.49	0.32	33.14	116.53
September	--	68.91	8.42	0.32	29.35	107.00
October	--	70.40	8.84	0.32	32.86	112.42
November	--	72.25	7.68	0.32	31.30	111.55
December	--	70.10	7.00	0.32	30.84	108.26
January	--	72.36	6.17	0.32	30.89	109.74
February	--	61.04	7.00	0.32	26.06	94.42
March	--	67.89	7.06	0.32	28.21	103.48
2018-19 (P)						
April	--	64.90	7.36	0.31	44.18	116.75
May	--	68.42	7.76	0.31	46.28	122.77
June	--	65.05	8.93	0.32	43.70	118.00
July	--	65.28	8.96	0.32	45.47	120.03

(P)= Provisional

Source : Office of the Textile Commissioner

UPCOUNTRY SPOT RATES (Rs./Qtl)												
Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]							Spot Rate (Upcountry) 2017-18 Crop October 2018					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	1st	2nd	3rd	4th	5th	6th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	-	-	-	-	-	-
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	-	H	-	-	-	-
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	9139 (32500)		9055 (32200)	9055 (32200)	9111 (32400)	9167 (32600)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	10264 (36500)	O	10264 (36500)	10264 (36500)	10320 (36700)	10376 (36900)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10967 (39000)		10967 (39000)	10967 (39000)	11023 (39200)	11079 (39400)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	-		-	-	-	-
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	10629 (37800)	L	10545 (37500)	10545 (37500)	10601 (37700)	10657 (37900)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	-		-	-	-	-
9	P/H/R	ICS-105	Fine	27mm	3.5-4.9	26	11951 (42500)	I	11951 (42500)	11979 (42600)	12035 (42800)	12092 (43000)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	11248 (40000)		11248 (40000)	11248 (40000)	11304 (40200)	11360 (40400)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	11670 (41500)		11529 (41000)	11529 (41000)	11585 (41200)	11642 (41400)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	12007 (42700)	D	12007 (42700)	12035 (42800)	12092 (43000)	12148 (43200)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	12092 (43000)		12092 (43000)	12092 (43000)	12148 (43200)	12204 (43400)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	12232 (43500)	A	12232 (43500)	12232 (43500)	12288 (43700)	12345 (43900)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	12513 (44500)		12457 (44300)	12513 (44500)	12570 (44700)	12626 (44900)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	12795 (45500)	Y	12710 (45200)	12513 (44500)	12570 (44700)	12626 (44900)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	12654 (45000)		12598 (44800)	12654 (45000)	12710 (45200)	12766 (45400)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	12851 (45700)		12795 (45500)	12795 (45500)	12851 (45700)	12907 (45900)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	-		-	-	-	-
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	16310 (58000)		16028 (57000)	16028 (57000)	16085 (57200)	16141 (57400)

(Note: Figures in bracket indicate prices in Rs./Candy)

UPCOUNTRY SPOT RATES (Rs./Qtl)												
Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]							Spot Rate (Upcountry) 2018-19 Crop October 2018					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	1st	2nd	3rd	4th	5th	6th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11389 (40500)	H	11389 (40500)	11389 (40500)	11445 (40700)	11501 (40900)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	11529 (41000)		11529 (41000)	11529 (41000)	11585 (41200)	11642 (41400)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	-		-	-	-	-
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	-	O	-	-	-	-
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	-		-	-	-	-
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	-	L	-	-	-	-
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	-		-	-	-	-
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	-		-	-	-	-
9	P/H/R	ICS-105	Fine	27mm	3.5-4.9	26	11810 (42000)	I	11810 (42000)	11838 (42100)	11895 (42300)	11951 (42500)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	-		-	-	-	-
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	-	D	-	-	-	-
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	11951 (42500)		11951 (42500)	11979 (42600)	12035 (42800)	12092 (43000)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	-		-	-	-	-
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	-	A	-	-	-	-
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	12513 (44500)		12401 (44100)	12401 (44100)	12457 (44300)	12513 (44500)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	12710 (45200)	Y	12598 (44800)	12598 (44800)	12598 (44800)	12654 (45000)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	12570 (44700)		12457 (44300)	12457 (44300)	12457 (44300)	12513 (44500)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	12710 (45200)		12654 (45000)	12513 (44500)	12513 (44500)	12570 (44700)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	13638 (48500)		13498 (48000)	13498 (48000)	13554 (48200)	13779 (49000)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	16310 (58000)		16028 (57000)	16028 (57000)	16085 (57200)	16141 (57400)

(Note: Figures in bracket indicate prices in Rs./Candy)