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# Fibre Attributes, Their Measurement and Impact - Part 2

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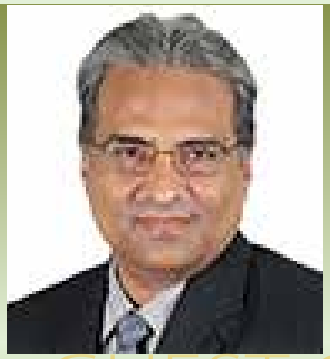

GUEST COLUMN

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## 4. Developments in Measurement of Fibre Attributes

**d. Application of data generated by the AFIS**

**Length:** The Mean length, by weight L(w), obtained by AFIS and Baer Sorter are in good agreement. The Length distribution by weight obtained from AFIS could be used for measurement of effective length (EL) and short fibre content (SFC) by geometrical construction and these parameters are in agreement with those obtained from comb sorter. Thus the Baer sorter pattern, which is very tedious, time consuming require skill and often operator dependent could be replaced by AFIS. The 5% length from AFIS is used to adjust roller setting in draw frame in spinning process and it gives improved yarn quality as compared to settings made on basis of 2.5% span length. With this set up U% has been observed to be reduced and CSP values increased.

**Maturity and Fineness:** Immature Fibre Content (IFC) and Maturity Ratio (MR) obtained from AFIS can be used to predict mature fibre percentage (PM) obtained from caustic soda method.

**Fineness:** This parameter measured by AFIS agrees well with fineness obtained by gravimetric method but differs from millitex value obtained by micronaire instrument. This may be because AFIS depends only on wall thickness whereas micronaire in addition depends upon surface area or perimeter.

Trash and Micro-dust estimation by AFIS: Trash and micro-dust estimate gives information about cleaning efficiencies of cards and combers in removing trash and micro-dust. Systematic collection and analysis of slivers from different cards and combers by using AFIS can provide valuable information which may be utilised for regular maintenance of these machines and improvement in quality of yarn can be achieved.

The total visible foreign matters given by AFIS agreed very well with the gravimetrically obtained trash content. Further the data from AFIS also gives the size distribution of trash particles, which is more meaningful for the spinners.

Neps removal Efficiency: Presence of neps causes objectionable faults in yarn. In spinning, a term called Nep Removal Efficiency is calculated to check the condition of machines. Depending upon settings of process parameters, conditions of machine and type of cotton used for processing, the value of nep removal efficiency ranges from 40 to 80% for card and 40 to 60% for comber. The value of nep removal efficiency of 40% is poor and calls for checking of machinery and initiation of corrective measures. With AFIS Nep module in place, mills can carry out routine checks of in process material to ensure proper machine settings and maintenance, which would lead to production of uniform quality yarn with minimum objectionable faults.

## 5. Different Fibre Attributes and Its Effect on Spinning Potential

Spinning is basically a manufacturing technology. It deals with the study of the production of yarn. In spinning, a large quantity of individual unordered fibres of relatively short strengths are to be converted into linear and ordered product of very long length by using suitable machines and devices. The importance of specific fibre quality attributes and how changes in these attributes affect textile production are outlined below.

The following properties of fibres are taken into account while spinning -

- Length and short fibre content
- Uniformity
- Strength (Tenacity)
- Linear Density (Micronaire)
- Moisture percentage
- Neps (fibre and seed coat fragments)
- Trash (including its type)
- Stickiness
- Colour and grade
- Contamination

The importance of aforementioned fibre properties can vary, according to the spinning system used and the end product to be made. While ring spinning is employed to spin the

yarn, the most important property of fibres is Length followed by strength and micronaire value. Whereas when rotor spinning is used the strength is most important attribute followed by micronaire, length and trash in the order given. The rank of length is high when air-jet spinning system is employed followed by trash, micronaire and strength in the order mentioned[6].

The general spinnability and dyeability of the fibres are governed by the above- mentioned fibre properties. Several fibre quality indices or spinning potential indices, incorporating different fibre attributes by assigning different weightage, are available to estimate spinning potential of particular variety or mixing. Apart from these fibre attributes, which are routinely measured, there are several other properties which are known to have a great impact on spinning or dyeing potential of the fibres. These properties are fibre elongation, fibre cross-sectional shape, surface and inter-fibre friction, wax content, crystalline structure, etc.

The length plays a very important role in ring spinning of the fibres. Each variety has different fibre length distribution. It depends upon genetic trait, agronomy and climatic conditions during the development of fibres and post harvesting processing. The settings of the spinning systems are dependent upon the fibre length. The longer fibres allow for higher spinning speeds, finer yarn and increased yarn strength. Due to longer length the twist traverses and entwines over a larger length of the yarn thus a stronger and even yarn[7].

The short fibre content is the proportion by weight of fibres shorter than 12.7 mm. The higher the proportion of SFC higher waste and fly generation. Higher SFC also produces uneven and weaker yarn. The uniformity in length is most desirable parameter in the variety/mixing. The lower uniformity results in higher waste, lower processing performance and yarn quality.

33 There is a direct relation between fibre strength and yarn strength; particularly it is more relevant in case of rotor spinning. The stronger cottons can be spun comparatively faster and with lower breakages than weaker cottons. In turn a stronger fabric can be prepared with the stronger yarns. The breaking load of the fibre or yarn is the maximum resistance to extending forces developed during a tensile test. This resistance is measured in terms of grams force. When this force is normalised to the linear density of the fibre or yarn then the term is called tenacity which is measured as grams force/tex. This facilitates the direct comparison of strength of different fibres and yarns having different linear densities.

The higher SFC also affects the strength of yarn greatly. A cotton with higher number of short fibres means that higher number of fibres may not reach across the clamps at a particular gauge length[8]. Drafting wave are caused due to the presence of floating fibres which are shorter than the nip distance between the two sets of rollers. During the movement of the fibres through the system, some fibres will be under the nip of faster moving front rollers, some under slower moving back roller and while the remaining will be merely floating in between the two. These short fibres which are not under positive control of either nip of rollers are called 'Floating fibres'. They tend to form bunches forming a thick place. When such a thick place arrives at the front roller, a greater force is necessary to draft it and so the following portion between the rollers is drafted to a greater extent thereby forming a thin place. When this thin place later reaches the front rollers, the drafting force decreases and so the thin place will be followed by another thick place and so on.

The strength is also affected by the amount of moisture present in the cotton. In case of cotton, higher strength is realised when higher moisture content is present in it. The fibre strength is also largely affected by the maturity or immaturity of the fibres. Mature fibre will have more amount of crystalline cellulose than an immature fibre.

The Cotton fibres are extensible when under stress. The increase in length or deformation of the fibres or yarn before it breaks is called elongation or extension. It can be expressed with the unit of length or as percentage over the original length. The elastic elongation is of decisive importance since textile products without elasticity would hardly be usable. They must be able to deform during processing and withstand high loading (e.g. at knee or elbow), but they must also return to shape to keep the end product dimensionally stable.

The fineness of cotton fibres determines the minimum yarn linear density or yarn count that can be spun from a particular fibre. The linear

density of the fibres determines the minimum number of fibres required to physically hold a twisted yarn assembly together.

The linear density of fibres is governed by the fibre perimeter and maturity. Higher the fibre perimeter and maturity higher will be the linear density of fibres. In general, for ring spinning system the minimum number of cotton fibres required in cross section of the yarn is around 80, for rotor spinning 100 fibres and for air-jet spinning system is 75 fibres[9]. The unevenness index U % of yarn greatly depends upon the linear density of the fibres. A thin place can generate coarser fibres having high linear density because fibres may not be present in enough numbers in yarn cross section to support yarn structure. A thin place may result in a break during spinning or end breaks during weaving. This will not only have negative impact on productivity but also will produce lower quality uneven yarn.

The current trade depends on micronaire value for fineness estimation of the cotton. Many a times, the micronaire values (surface area to weight ratio) amounts to inaccurate determination of the linear density of the fibres due to presence of considerable amount of immature fibres. It is unable to appropriately distinguish fine mature fibres form immature coarser fibres which have smaller fibre perimeters and lower linear density. The measurement of micronaire value is done by measuring of the rate at which air flows under pressure through a plug of lint of known weight when compressed into a chamber of fixed volume. The surface area of the fibres resists the air flow which is governed by the linear density and thickness or fibre perimeter of the fibre walls. The micronaire value depends upon the linear density, wall thickness or fibre perimeter.

As all these parameters decreases, the micronaire value also decreases because of presence of more fibres in a plug of cotton of a fixed weight. A uniform micronaire value within a variety is very important factor while dealing with the yarn fineness and quality. The spinning industry always prefers a variety having least variation in its micronaire value. It is a well- known fact that micronaire value is a combination of fibre linear density as well as fibre maturity. Therefore, though cotton may produce a low micronaire value, it cannot be said with certainty that it is fine, because it may have large amount of immature fibres. Similarly, a high micronaire, within a group of cotton, does not mean that cotton is coarse because it may have highly mature fibres. Therefore, micronaire result is not a very accurate measure of either of the important parameters. For example, a fibre type can achieve a micronaire value having a smaller fibre perimeter (more fine) with more fibre maturity but the other fibre can produce same micronaire value with larger fibre perimeter but poorer fibre maturity.

Neps are fibre entanglements that have a knot in the centre which can be detected. The mechanical processing such as harvesting, ginning, opening, cleaning, carding and combing in the mill gives rise to generation of neps in the cotton. The amount of neps in lint is directly related to micronaire value and amount of mature fibres. Higher immature fibres give rise to higher occurrence of neps in the yarn. The presence of seed coat fragments, bark and stickiness in cotton also responsible for higher nep content in the yarn produced. It has been shown that over 90% fibres in a nep are immature.

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*(To be continued...)*

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

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# CAI Pegs Its 2019-20 Cotton Crop Estimate Up To 354.50 Lakh Bales

Cotton Association of India (CAI) has released its July estimate of the cotton crop for the 2019-20 season beginning from 1st October 2019. The CAI has increased its cotton crop estimate for 2019-20 by 19 lakh bales to 354.50 lakh bales of 170 Kgs. each compared to its previous estimate of 335.50 lakh bales made during the last month. A statement containing the State-wise estimate of the cotton crop for the Season and the balance sheet as on 30th September 2020 with the corresponding data for 2018-19 are given below.

The total cotton supply estimated by the CAI during the months of October 2019 to July 2020 is 392.40 lakh bales of 170 Kgs. each which consists of the arrival of 345.40 lakh bales upto 31st July 2020, imports of 15 lakh bales upto 31st July 2020 and the opening stock estimated by the CAI at 32 lakh bales at the beginning of the Season on 1st October 2019.

Further, the CAI has estimated cotton consumption during the months of October 2019 to July 2020 at 206 lakh bales of 170 Kgs. each while the export shipments of cotton estimated by the CAI upto 31st July 2020 are 43 lakh bales of 170 Kgs. each. Stock at the end of July 2020 is estimated at 143.40 lakh bales including 15 lakh bales with textile mills and the remaining 128.40 lakh bales with CCI/Maharashtra Federation and others (MNCs, MCX, Traders, Ginners, etc.).

The Crop Committee of the CAI has estimated total cotton supply till end of the Season i.e. upto 30th September 2020 at 402.50 lakh bales of 170 Kgs. each (as against 382.50 lakh bales estimated in the previous month). Total cotton supply estimated now comprises the opening stock of 32 lakh bales at the beginning of the Season on 1st October 2019, crop for the Season estimated now at 354.50 lakh bales and imports estimated by the CAI at 16 lakh. The imports estimated for the 2019-20 crop year are just half of the previous year's import estimate of 32 lakh bales.

Domestic consumption now estimated by the CAI for the entire crop year i.e. upto 30th September 2020 is 250 lakh bales of 170 Kgs. each. There is a reduction of 30 lakh bales in the consumption estimate made now compared to that estimated earlier due to the lower consumption of cotton on account of disruptions caused by COVID-19 Pandemic and the labour shortage resulting therefrom.

The CAI has estimated export for the Season at 50 lakh bales which is higher by 8 lakh bales than that estimated for the previous season due to the favourable conditions now existing for export of cotton from India. The carry-over stock at the end of the Season i.e. on 30th September 2020 is estimated now at 102.50 lakh bales.

Highlights of the deliberations of the CAI Crop Committee on production, consumption, exports, imports, etc. are summarised below.

## Highlights of Deliberations held at the Meeting of the Crop Committee of Cotton Association of India on 14th August 2020

21 members of the Crop Committee of Cotton Association of India met on Friday, the 14th August 2020 to arrive at the July estimate of the cotton crop for the 2019-20 Season beginning on 1st October 2019 and to draw estimated cotton balance sheet based on the data available from various trade sources, upcountry associations and other stakeholders.

The following are the highlights of deliberations of the Crop Committee of the CAI:-

### 1) Consumption

The CAI has pegged down the consumption of cotton during the current crop year by 30 lakh bales i.e. 250 lakh bales as against its previous estimate of 280 lakh bales). This reduction in consumption is estimated due to the disruptions caused on account of lockdown and shortage of labour.

Upto 30th July, consumption is estimated at 206 lakh bales of 170 Kgs. each.

### 2. Production

The CAI has increased its cotton crop estimate for the Season by 19 lakh bales to 354.50 lakh bales of 170 Kgs. each from its previous estimate of 335.50 lakh bales made during the last month.

Compared to its June estimate, the Committee has now increased its production estimate for the North zone by 3 lakh bales (1 lakh bales each in states of Haryana, Upper Rajasthan and Lower Rajasthan), Central zone by 13 lakh bales (7.50 lakh bales in Gujarat, 4.50 lakh bales in Maharashtra and 1 lakh bales in Madhya Pradesh), Southern zone by 3.25 lakh bales (1 lakh bales in Andhra Pradesh and

2.25 lakh bales in Karnataka). However, Orissa crop estimated now is less by 25000 bales compared to the previous estimate.

This increase in the production estimate is on account of increased pressing of cotton bales which happened due to the aggressive cotton buying by CCI under MSP post lockdown that prompted farmers to bring their kapas to the market instead of carrying forward the same to the next year.

## 3. Imports

The CAI has increased its estimate of cotton imports by 1 lakh bales to 16 lakh bales compared to its previous imports estimate of 15 lakh bales. This import estimate of 16 lakh bales is just half of the previous year's import estimate of 32 lakh bales. This decrease in the imports estimate for the Season compared to the last year is mainly on account of easy availability of cheaper cotton in domestic market and relatively costlier imported cotton due to depreciation in the value of Indian Rupee.

Upto 31st July, cotton imports are estimated at 15 lakh bales and the remaining 1 lakh bales are estimated to arrive Indian Ports during the months of August and September 2020.

## 4. Exports

There is an increase of 3 lakh bales in the estimate of cotton export for the Season made now compared to the CAI's previous estimate of 47 lakh bales made during the last month on account of more favourable conditions for exports of cotton from India. This export estimate of 50 lakh bales is higher by 8 lakh bales compared to that estimated for the 2018-19 crop year.

Upto 31st July, 43 lakh bales are estimated to have been shipped and shipment of further 7 lakh bales is estimated to take place during the months of August and September 2020.

## 5. Arrivals

Indian cotton arrivals during the months of October 2019 to July 2020 are estimated at 345.40 lakh bales, which are equivalent to approximately 367 lakh running bales of 160 Kgs. each.

## 6. Stock As On 31St July 2020

Cotton stock held by spinning mills in their godowns as on 31st July 2020 is estimated at 15 lakh bales of 170 Kgs. each (equivalent to about 16 lakh running bales of 160 Kgs. each), which is on an average approximately 25 days' consumption by mills at their current pace of cotton consumption this Season whereas stock with CCI/Maharashtra Federation, MCX, MNCs, Ginners, etc. as on 31st July 2020 is estimated at 128.40 lakh bales (equivalent to about 136 lakh running bales of 160 Kgs. each) totalling to 143.40 lakh bales of 170 Kgs. each.

## 7. Closing Stock As On 30th September 2020

Closing stock at the end of the Season i.e. as on 30th September 2020 is estimated by the Committee at 102.50 lakh of 170 Kgs. each, which is equivalent to about 109 lakh running bales of 160 Kgs. each.

All 31 members of the Crop Committee of the CAI from all over the Country will closely monitor the arrivals, consumption, imports, exports, etc. and meet some time in the month of September to arrive at the final crop numbers and the cotton balance sheet as at the close of the 2019-20 crop year.

**CAI's Estimates of Cotton Crop as on 31st July 2020 for the Seasons 2019-20 and 2018-19**

*(in lakh bales of 170 kg.)*

| State | Production * | | Arrivals as on 31st July 2020 (2019-20) |
|---|---|---|---|
| | 2019-20 | 2018-19 | |
| Punjab | 9.50 | 8.50 | 9.25 |
| Haryana | 25.50 | 23.00 | 24.00 |
| Upper Rajasthan | 13.00 | 13.35 | 12.50 |
| Lower Rajasthan | 15.00 | 14.65 | 14.50 |
| **Total North Zone** | **63.00** | **59.50** | **60.25** |
| Gujarat | 92.50 | 88.00 | 89.00 |
| Maharashtra | 84.50 | 70.00 | 83.40 |
| Madhya Pradesh | 17.50 | 22.63 | 17.00 |
| **Total Central Zone** | **194.50** | **180.63** | **189.40** |
| Telangana | 51.00 | 35.20 | 51.00 |
| Andhra Pradesh | 15.25 | 11.85 | 15.00 |
| Karnataka | 21.00 | 15.50 | 20.50 |
| Tamil Nadu | 5.00 | 5.00 | 4.50 |
| **Total South Zone** | **92.25** | **67.55** | **91.00** |
| Orissa | 3.75 | 3.32 | 3.75 |
| Others | 1.00 | 1.00 | 1.00 |
| **Total** | **354.50** | **312.00** | **345.40** |

** Including loose*

The Balance Sheet drawn by the Association for 2019-20 and 2018-19 is reproduced below:-

*(in lakh bales of 170 kg.)*

| Details | 2019-20 | 2018-19 |
|---|---|---|
| Opening Stock | * 32.00 | 33.00 |
| Production | 354.50 | 312.00 |
| Imports | 16.00 | 32.00 |
| **Total Supply** | **402.50** | **377.00** |
| Mill Consumption | 218.00 | 274.50 |
| Consumption by SSI Units | 18.00 | 25.00 |
| Non-Mill Use | 14.00 | 12.00 |
| **Total Domestic Demand** | **250.00** | **311.50** |
| **Available Surplus** | **152.50** | **65.50** |
| Exports | 50.00 | 42.00 |
| **Closing Stock** | **102.00** | **23.50** |

** One time adjustment made in the Opening stock by the CAI Statistics Committee in the meeting held in the month of January 2020.*

**Balance Sheet of 10 months i.e. from 1.10.2019 to 31.07.2020 for the season 2019-20**

| Details | In lakh b/s of 170 kg. | In '000 Tons |
|---|---|---|
| Opening Stock as on 01.10.2019 | 32.00 | 544.00 |
| Arrivals upto 31.07.2020 | 345.40 | 5871.80 |
| Imports upto 31.07.2020 | 15.00 | 255.00 |
| **Total Available** | **392.40** | **6670.80** |
| Consumption | 206.00 | 3502.00 |
| Export Shipment upto 31.07.2020 | 43.00 | 731.00 |
| Stock with Mills | 15.00 | 255.00 |
| Stock with CCI, MNCs & Ginners | 128.40 | 2182.80 |
| **Total** | **392.40** | **6670.80** |

## Update on Cotton Acreage (As on 13.08.2020)

*( Area in Lakh Ha)*

| Sr. No. | State | Normal Area (DES)* | Normal Area as on Date (2015-2019) | Area Covered (SDA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2020-21 | 2019-20 | 2018-19 | 2017-18 | 2016-17 | 2015-16 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 1 | Andhra Pradesh | 6.56 | 6.450 | 4.996 | 4.910 | 4.520 | 4.980 | 3.750 | 4.490 |
| 2 | Telangana | 17.01 | 17.262 | 23.470 | 17.240 | 17.065 | 17.890 | 12.500 | 16.330 |
| 3 | Gujarat | 26.04 | 26.322 | 22.701 | 25.992 | 26.744 | 26.510 | 23.131 | 26.790 |
| 4 | Haryana | 6.07 | 6.412 | 7.370 | 6.760 | 6.650 | 6.560 | 4.980 | 5.810 |
| 5 | Karnataka | 6.47 | 6.584 | 5.379 | 4.610 | 3.760 | 4.330 | 4.280 | 4.400 |
| 6 | Madhya Pradesh | 5.65 | 5.852 | 6.420 | 6.100 | 6.880 | 5.760 | 5.990 | 5.460 |
| 7 | Maharashtra | 41.48 | 41.532 | 41.452 | 43.499 | 39.946 | 41.377 | 39.000 | 37.557 |
| 8 | Odisha | 1.31 | 1.380 | 1.674 | 1.690 | 1.578 | 1.450 | 1.260 | 1.250 |
| 9 | Punjab | 3.56 | 3.206 | 5.010 | 4.020 | 2.840 | 3.850 | 2.560 | 4.400 |
| 10 | Rajasthan | 4.77 | 5.238 | 6.713 | 6.445 | 4.961 | 5.031 | 3.862 | 3.490 |
| 11 | Tamil Nadu | 1.61 | 1.574 | 0.078 | 0.048 | 0.050 | 0.119 | 0.056 | 0.040 |
| 12 | Others | 0.43 | 0.462 | 0.216 | 0.271 | 0.172 | 0.286 | 0.170 | 0.210 |
| **All India** | | **120.967** | **122.274** | **125.479** | **121.585** | **115.166** | **118.143** | **101.539** | **110.227** |

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*Source : Directorate of Cotton Development, Nagpur*

## UPCOUNTRY SPOT RATES

(Rs./Qtl)

| Sr. No. | Growth | Grade Standard | Grade | Staple | Micronaire | Gravimetric Trash | Strength /GPT | Spot Rate (Upcountry) 2019-20 Crop August 2020 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 10th | 11th | 12th | 13th | 14th | 15th |
| 1 | P/H/R | ICS-101 | Fine | Below 22mm | 5.0 – 7.0 | 4% | 15 | 10151 (36100) | 10151 (36100) | | 10151 (36100) | 10151 (36100) | |
| 2 | P/H/R (SG) | ICS-201 | Fine | Below 22mm | 5.0 – 7.0 | 4.5% | 15 | 10320 (36700) | 10320 (36700) | | 10320 (36700) | 10320 (36700) | |
| 3 | GUJ | ICS-102 | Fine | 22mm | 4.0 – 6.0 | 13% | 20 | 5849 (20800) | 5849 (20800) | H | 5849 (20800) | 5849 (20800) | H |
| 4 | KAR | ICS-103 | Fine | 23mm | 4.0 – 5.5 | 4.5% | 21 | 6974 (24800) | 6974 (24800) | | 6974 (24800) | 6974 (24800) | |
| 5 | M/M (P) | ICS-104 | Fine | 24mm | 4.0 – 5.5 | 4% | 23 | 8577 (30500) | 8577 (30500) | | 8577 (30500) | 8577 (30500) | |
| 6 | P/H/ R (U) (SG) | ICS-202 | Fine | 27mm | 3.5 – 4.9 | 4.5% | 26 | 9589 (34100) | 9589 (34100) | | 9589 (34100) | 9589 (34100) | |
| 7 | M/M(P)/ SA/TL | ICS-105 | Fine | 26mm | 3.0 – 3.4 | 4% | 25 | 7283 (25900) | 7283 (25900) | O | 7283 (25900) | 7283 (25900) | O |
| 8 | P/H/R(U) | ICS-105 | Fine | 27mm | 3.5 – 4.9 | 4% | 26 | 9729 (34600) | 9729 (34600) | | 9729 (34600) | 9729 (34600) | |
| 9 | M/M(P)/ SA/TL/G | ICS-105 | Fine | 27mm | 3.0 – 3.4 | 4% | 25 | 7649 (27200) | 7649 (27200) | | 7649 (27200) | 7649 (27200) | |
| 10 | M/M(P)/ SA/TL | ICS-105 | Fine | 27mm | 3.5 – 4.9 | 3.5% | 26 | 8802 (31300) | 8802 (31300) | L | 8802 (31300) | 8802 (31300) | L |
| 11 | P/H/R(U) | ICS-105 | Fine | 28mm | 3.5 – 4.9 | 4% | 27 | 9786 (34800) | 9786 (34800) | | 9786 (34800) | 9786 (34800) | |
| 12 | M/M(P) | ICS-105 | Fine | 28mm | 3.7 – 4.5 | 3.5% | 27 | 9533 (33900) | 9533 (33900) | | 9533 (33900) | 9533 (33900) | |
| 13 | SA/TL/K | ICS-105 | Fine | 28mm | 3.7 – 4.5 | 3.5% | 27 | 9645 (34300) | 9645 (34300) | | 9645 (34300) | 9645 (34300) | |
| 14 | GUJ | ICS-105 | Fine | 28mm | 3.7 – 4.5 | 3% | 27 | 9589 (34100) | 9589 (34100) | I | 9589 (34100) | 9589 (34100) | I |
| 15 | R(L) | ICS-105 | Fine | 29mm | 3.7 – 4.5 | 3.5% | 28 | 9870 (35100) | 9870 (35100) | | 9870 (35100) | 9870 (35100) | |
| 16 | M/M(P) | ICS-105 | Fine | 29mm | 3.7 – 4.5 | 3.5% | 28 | 9842 (35000) | 9842 (35000) | | 9842 (35000) | 9842 (35000) | |
| 17 | SA/TL/K | ICS-105 | Fine | 29mm | 3.7 – 4.5 | 3% | 28 | 9898 35200 | 9898 35200 | D | 9898 35200 | 9898 35200 | D |
| 18 | GUJ | ICS-105 | Fine | 29mm | 3.7 – 4.5 | 3% | 28 | 9870 (35100) | 9870 (35100) | | 9870 (35100) | 9870 (35100) | |
| 19 | M/M(P) | ICS-105 | Fine | 30mm | 3.7 – 4.5 | 3.5% | 29 | 10039 (35700) | 10039 (35700) | | 10039 (35700) | 10039 (35700) | |
| 20 | SA/TL/K/O | ICS-105 | Fine | 30mm | 3.7 – 4.5 | 3% | 29 | 10123 (36000) | 10123 (36000) | | 10123 (36000) | 10123 (36000) | |
| 21 | M/M(P) | ICS-105 | Fine | 31mm | 3.7 – 4.5 | 3% | 30 | 10236 (36400) | 10236 (36400) | A | 10236 (36400) | 10236 (36400) | A |
| 22 | SA/TL/ K / TN/O | ICS-105 | Fine | 31mm | 3.7 – 4.5 | 3% | 30 | 10264 (36500) | 10264 (36500) | | 10264 (36500) | 10264 (36500) | |
| 23 | SA/TL/K/ TN/O | ICS-106 | Fine | 32mm | 3.5 – 4.2 | 3% | 31 | 10545 (37500) | 10545 (37500) | | 10545 (37500) | 10545 (37500) | |
| 24 | M/M(P) | ICS-107 | Fine | 34mm | 3.0 - 3.8 | 4% | 33 | 14763 (52500) | 14763 (52500) | Y | 14763 (52500) | 14763 (52500) | Y |
| 25 | K/TN | ICS-107 | Fine | 34mm | 3.0 - 3.8 | 3.5% | 34 | 15044 (53500) | 15044 (53500) | | 15044 (53500) | 15044 (53500) | |

Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [ By law 66 (A) (a) (4) ]

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