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Doubling the Cotton Farmers' Income: Economic Perspective

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GUEST COLUMN

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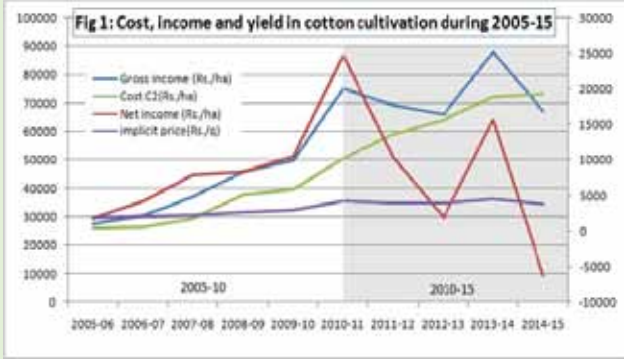
Doubling the farmers' income by 2022-23 is the goal set by the Government of India to promote farmers' welfare, reduce agararian distress and parity in the incomes. The Ministry of Agriculture and Farmers Welfare in its recent report on Doubling Farmers' Income (DFI) clarified that the income to be doubled is real income (which was adjusted for inflation) rather than nominal income (http://agricoop.gov.in/sites/default/files/DFI%20Volume%202.pdf). At the national level, this average income is targeted to be doubled by 2022-23. The aggregate all-India average income of an agricultural household during the base year's (2015-16) is estimated to be Rs 96,703 per year at current prices. The doubling would imply that the average farm household income would go up to Rs 1,93,406 measured at 2015-16 prices. The report also advised to raise the ratio of farm to non-farm income to 60:40 from the existing 70:30. If we take the existing ratio into consideration the income from farming should be about Rs. 135000 per ha per year. If we consider the projected ratio (60:40) it will be about Rs. 116000 / year. The average size of land holding of Indian farmer is 1.15 ha (as per 2010-11 census). That means a farmer should earn about Rs. 100000 / ha by 2022 from farming at the projected ratio of 60:40. This is true about cotton also.

In line with the national goal, if the income of the cotton farmers is to be doubled, the income from cotton cultivation also needs to be doubled. In 70-80% of cotton area, cotton is cultivated as a single crop. In this context the income and expenditure in cotton cultivation is analyzed to find out where we stands now and what needs to be done to double the income from cotton cultivation.

Current level of income:

Average gross income from cotton cultivation was Rs. 73200 / ha during 2010-15 while net income was Rs. 9259 / ha. Net income showed a negative trend during 2010-15 (fig 1) while the gross income remained stagnant. Net income



decreased from Rs. 24682 / ha during 2010-11 to Rs. 15604 / ha during 2013-14 and it was negative (Rs. 6318 / ha) during 2014-15. Under this situation can we achieve the target of achieving an income of Rs. 100000 / ha from cotton cultivation in the stipulated period? Indeed it is a herculean task. If we have to achieve the target what should be done?

Genesis of the current situation

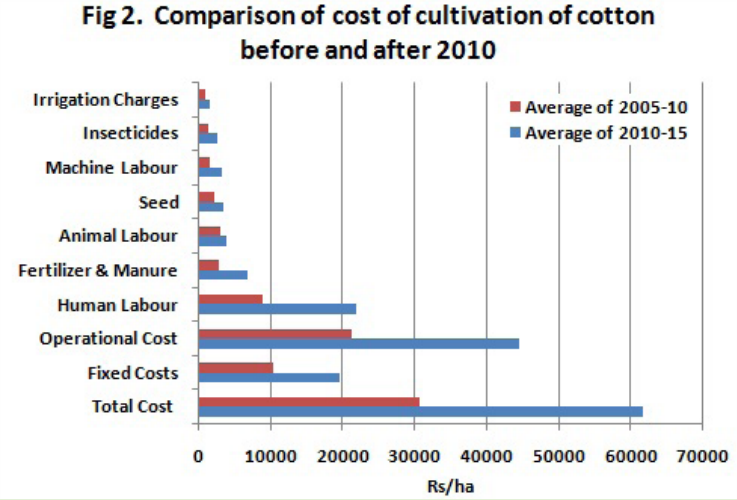
Fall of the income in cotton cultivation during 2010-15 was due to stagnation in yield and prices as well as constant escalation in cost of cultivation. If we examine the costs and returns over the last decade (2005-06 to 2014-15), it is clear that the cost of cultivation of cotton escalated at a rate of about 12.8% per annum during 2005-10 as well as during 2010-15 (table 1). But during 2005-10, the positive growth in productivity and out-put price countered this increase in total cost. During 2005-10, the productivity registered a positive growth of 5.22% and the output price increased at the rate of 12.47% per annum. This made the gross and net income to increase at the rate of 17.32% and 53.54% respectively. But the situation reversed after 2010-11. Cost of cultivation continued to increase at the same rate where as productivity of cotton as well as output price remained almost stagnant. So the profit of the cotton farmers decreased and the farmers even incurred losses during 2014-15. Reversing the trend and achieving the target of doubling income made a multi pronged approach as given below.

Table 1. Annual compound growth rates of cost, income and yield in cotton cultivation

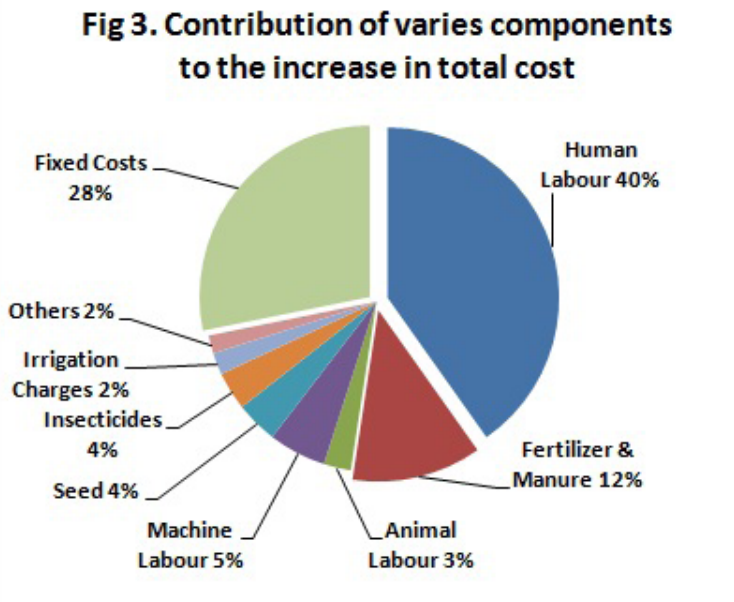
Particular	2005-10	2010-15
Gross income	17.32	0.06
Net income	53.53	-26.33
Cost of production	12.81	12.86
Output price	12.47	-0.76
Yield	5.22	0.57

Curtail the costs

If we compare average cost of cultivation during 2010-15 (second period) with that of 2005-10 (first period), the cost of cultivation recorded 100% increase ie., it increased from Rs. 31817 / ha to Rs. 63941 / ha (Fig 2) . Seventy two percent of this increase was contributed by operational costs and the remaining 28 % was contributed by Fixed Costs. Major contributor among the operational cost was the cost of human labour,



which increased from Rs. 8964 during 2005-10 to Rs. 21916 / ha during 2010-15 ie., 144% increase. This component alone contributed to 40 % of increase in total cost (Fig 3). But the actual quantity of of human labour employed increased by 27 % only from 88 mandays /ha during 2005-10 to 112 mandays /ha during 2010-15. The major increase was due to the increase in wage rate which was about 140%. During the first period it was Rs. 88 per man day (8 hours)



which increased to Rs. 200 per man day during the second period. There may be many reasons for wage escalations. As farmers have no control on wage rates they have to curtail the quantity of human labour requirement. In cotton production picking of cotton and weeding/inter culture are the major activities which consume about 60-65% of human labour. Hence cotton picking should be mechanized to reduce the human labour consumption. For this much research efforts need to be made to devise machines suitable to Indian conditions. Cultivation of early maturing determinate type varieties where picking is early and will be over in 1-2 rounds will reduce the human labour requirement. Similarly all options for weed control, including chemical, mechanical, cultivation of cover crops, mulching should be integrated to reduce human labour consumption.

Another component among the Operational Costs which contributed to this hike is the cost of fertilizers and manures. The cost of fertilizers and manures increased from Rs. 2778 during first period to Rs. 6722 / ha during second period. This contributed 12% to increase in total cost. Nutrient consumption increased from 13kg/ ha to 23 kg/ha. Similarly the consumption of manures increased from 46q/ha to 91q/ha. This coupled with the increase in prices, increased the cost of fertilizers and manures to Rs. 2778 to Rs. 6722 per ha. This needs to be reduced through cost effective technologies. Nutrient requirement should be partially met through recycling of farm waste and growing green manure / mulch crops / legume based inter crops where ever possible. Growing of early maturing, compact types would also reduce the nutrient requirement.

The other components which contributed to increase in cost of cultivation include Machine Labour, seed cost, Insecticides and Irrigation Charges. Machine Labour contributed 5% to increase in cost while cost of seed and Insecticides contributed 4% each. Irrigation Charges contributed 2% to increase in cost. All these costs needs to be reduced by adopting proper management procedures.

Increase productivity

If we examine the productivity during 2010-15, it is almost stagnant averaging around 17 q/ha. If the cost of cultivation increases at the current rate it will become about 130000 / ha after 5years. To cover this expenditure at current level of output price of Rs. 4000/ q farmer needs to produce at least 33 q / ha. It is almost double when compared with current level of productivity. Is it possible to double the productivity within 5 years without doubling the inputs? If we want to double the productivity what should be done. The following strategies have been suggested by the ICAR-CICR, in the project document of TMC MM II submitted to the Min. Of Textiles, Govt of India.

- IPM/IRM based Pest management with a special emphasis on pink boll worm and whitefly.
- New short duration varieties and hybrids (Bt. variety, ELS cotton, Desi variety and Bt. hybrid).
- Weed management: Pre-emergence Pendimethalin and Turga Super.
- Row direction: North-South directional planting.
- High density planting (HDPS).
- Moisture conservation: Broad bed and furrow / Ridge and furrow system, Cover crop and mulching.
- Soil test based Nutrient Management (right rate, right time, right method and right type).
- Canopy management with tested chemicals (Ethrel and mepiquat) coupled with manual methods of clipping wherever possible.
- Drip irrigation wherever possible with polymulch.
- Mulching - plastic or biological and cover crops.

Further Indian cotton needs to be made competitive in the international markets so that the increased output may be siphoned out through exports to avoid negative impact on the domestic prices.

Price support

Output price is very important aspect which has direct impact on the income of the farmers. The growth of the cotton prices did not match with the growth of production costs during 2010-15. Rather they were stagnant during this period. The minimum support prices fixed by the government were low and in most of the years they were lower than the cost of production.

Price should be at such a level where a farmer who is producing at national average

productivity level should get the average targeted income of Rs. 100000 / ha. As the average cotton productivity is about 17 q / ha, if the farmer has to get Rs. 100000 income the price should be about Rs. 6000 / q of seed cotton. But at current level it is about Rs. 4000 / quintal. MSP fixed by the government during 20017-18 is also in the range of Rs. 4220 – 4320 / q for varies qualities and grades. The announcement of the fixing of MSP at 1.5 times of the cost of production by the Govt. of India is a welcome move in this direction. Cost of production varies widely from state to state and situation to situation. There is a difference of about Rs.2000 per q between highest and lowest cost of production. In these situations whether single MSP to all states is relevant or not is debatable. Implementing this with the existing limited procurement facilities is a big task before the government. Further cost escalation in the value chain needs to be considered while implementing this policy.

Value addition to the Cotton Stalks

In India, around 30 million tonnes of cotton stalks are produced annually, and less than 10 % of the stalks are put to commercial use. The briquettes and pellets made from the cotton stalks can be used as boiler fuels in many industries, brick kilns, and gasification. The stalks used in briquetting and pelleting would fetch about Rs 2000/tonne of stalk. About 2.5 tonnes of stalk is produced in one ha of cotton field which will give about Rs. 5000 additional income if this is utilized for briquettes and pellets making. Cotton stalks can be utilized for bio-enriched compost preparation and oyster mushroom cultivation. The burden of collection and logistics of cotton stalks from the field limits its uses in Industrial application. These can be taken as an entrepreneurial activity by the farmers to fetch additional income from cotton cultivation.

Conclusions

It is clear from the above analysis that the current level of income from cotton cultivation is very low and showing negative trend. The main factors behind this are increasing cost of cultivation coupled with stagnant productivity and output price levels. To achieve the targeted income by the year 2022, it is necessary to limit the growth in production costs as well as increase the productivity by utilizing all possible means. It is also very important to keep the prices at a level where farmers will get profits.

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

Cotton Yarn Production

(In Mn. kg)

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (P)
April	273.77	268.06	268.20	316.61	328.68	349.38	333.84	339.75
May	283.69	255.56	286.19	314.97	332.92	348.14	360.30	344.97
June	284.79	248.29	288.40	317.69	330.69	346.72	351.53	337.96
July	302.16	256.73	301.34	332.12	340.00	356.36	342.87	341.83
August	300.34	262.74	302.85	336.30	338.09	354.67	333.93	330.68
September	297.68	258.97	296.74	326.09	334.03	338.53	326.09	326.03
October	301.55	241.83	302.65	328.79	323.53	342.12	310.24	326.14
November	283.52	243.85	282.88	312.13	335.66	320.06	326.15	350.79
December	308.78	269.82	314.21	341.67	353.96	353.31	341.86	355.33
January	296.87	279.19	315.07	340.38	349.82	343.98	345.24	349.78
February	272.99	269.01	302.59	321.31	330.35	336.55	330.01	
March	283.63	272.29	321.57	340.20	356.78	347.84	352.79	
TOTAL	3489.78	3126.34	3582.68	3928.27	4054.51	4137.64	4054.85	3403.26

P – Provisional

(Source: Office of the Textile Commissioner)

Glimpses of Ram Navami Celebrations held at the Shree Ram Temple, Cotton Green, on March 25, 2018

UPCOUNTRY SPOT RATES

(₹\Quintal)

March 2018

2017-18 Crop

Growth	P/H/R	P/H/R	GUJ	KAR	M/M	P/H/R	M/M/A	M/M/A	P/H/R	M/M/A	M/M/A	P/H/R	M/M/A	GUJ	M/M/A/K	GUJ	M/M/A/K	M/M/A/K/T/O	A/K/T/O	M(P)/K/T
G. Standard	ICS-101	ICS-201	ICS-102	ICS-103	ICS-104	ICS-202	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-105	ICS-106	ICS-107
Grade	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine	Fine
Staple	22 mm	22 mm	22 mm	23 mm	24 mm	26 mm	26 mm	26 mm	27 mm	27 mm	27 mm	28 mm	28 mm	28 mm	29 mm	29 mm	30 mm	31 mm	32 mm	34 mm
Micronaire	5.0-7.0	5.0-7.0	4.0-6.0	4.0-5.5	4.0-5.5	3.5-4.9	3.0-3.4	3.5-4.9	3.5-4.9	3.0-3.4	3.5-4.9	3.5-4.9	3.5-4.9	3.5-4.9	3.5-4.9	3.5-4.9	3.5-4.9	3.5-4.9	3.5-4.9	3.0-3.8
Strength/GPT	15	15	20	21	23	26	25	25	26	26	26	27	27	27	28	28	29	30	31	33
1	11838	11979	8239	9420	10320	11192	9898	10348	11417	10095	10489	11529	10995	11276	11276	11501	11642	11979	12204	15213
2		...		...		...			HOLIDAY				...			...		...		
3	11838	11979	8239	9420	10320	11192	9898	10348	11417	10095	10489	11529	10995	11276	11276	11501	11642	11979	12204	15213
5	11895	12035	8239	9420	10320	11220	9617	10067	11445	9814	10348	11557	10854	11276	11135	11501	11501	11838	12204	15213
6	12035	12176	8239	9561	10461	11360	9617	10067	11585	9814	10348	11698	10854	11417	11304	11614	11670	11979	12345	15353
7	12035	12176	8155	9561	10461	11220	9476	9926	11445	9701	10264	11557	10714	11332	11164	11529	11529	11838	12260	15269
8	12035	12176	8155	9561	10461	11220	9476	9926	11445	9701	10264	11557	10714	11332	11164	11529	11529	11838	12260	15269
9	12035	12176	8155	9561	10461	11276	9476	9926	11501	9701	10264	11614	10770	11389	11220	11585	11529	11838	12260	15269
10	12035	12176	8155	9561	10461	11276	9476	9926	11501	9701	10264	11614	10770	11389	11220	11585	11529	11838	12260	15269
12	11951	12092	8127	9505	10404	11192	9420	9870	11417	9645	10208	11529	10714	11360	11164	11557	11473	11782	12204	15213
13	11895	12035	7986	9448	10320	11135	9280	9786	11360	9561	10151	11473	10657	11332	11079	11529	11389	11754	12176	15157
14	11951	12092	7930	9420	10320	11192	9280	9786	11417	9561	10151	11529	10657	11332	11079	11529	11389	11754	12176	15157
15	11951	12092	7930	9420	10320	11192	9280	9786	11417	9561	10151	11529	10657	11332	11079	11557	11417	11782	12176	15157
16	11979	12120	7930	9420	10348	11220	9308	9814	11445	9589	10179	11557	10686	11360	11107	11585	11445	11810	12204	15185
17	11979	12120	7930	9420	10348	11220	9308	9814	11445	9589	10179	11557	10686	11304	11107	11529	11389	11754	12204	15185
19	11979	12120	7930	9420	10348	11248	9251	9758	11473	9533	10123	11585	10573	11192	10995	11417	11276	11698	12148	15129
20	11895	12035	7705	9336	10264	11164	9026	9673	11389	9308	9898	11501	10432	11135	10911	11360	11192	11585	12063	15072
21	11923	12063	7564	9308	10264	11192	8886	9589	11417	9167	9758	11529	10320	11164	10967	11417	11248	11670	12092	15100
22	11923	12063	7508	9280	10264	11192	8773	9505	11417	9083	9758	11529	10236	11164	10967	11417	11248	11670	12092	15100
23	11923	12063	7424	9251	10151	11192	8689	9476	11417	9026	9729	11529	10236	11164	10967	11417	11248	11670	12092	15100
24	11923	12063	7367	9223	10067	11192	8633	9448	11417	8998	9701	11529	10236	11164	10967	11417	11248	11642	12092	15072
26	11923	12063	7311	9223	10067	11192	8520	9336	11332	8998	9701	11529	10236	11164	10967	11417	11248	11642	12092	15072
27	11923	12063	7311	9223	10067	11192	8520	9336	11332	8998	9701	11529	10236	11164	10967	11417	11248	11642	12092	15072
28	11923	12063	7311	9223	10067	11220	8520	9336	11360	8998	9701	11557	10264	11192	10995	11445	11276	11670	12120	15072
29	11923	12063	7311	9083	10011	11220	8323	9336	11360	8802	9701	11473	10404	11164	10967	11417	11248	11642	12092	15072
30	11867	12007	7311	9083	10011	11164	8323	9195	11304	8802	9561	11417	10432	11192	10995	11445	11276	11670	12120	15072
31	11867	12007	7311	9083	10011	11164	8323	9195	11304	8802	9561	11389	10432	11164	10995	11417	11389	11670	12120	15072
H	**12035**	**12176**	**8239**	**9561**	**10461**	**11360**	**9898**	**10348**	**11585**	**10095**	**10489**	**11698**	**10995**	**11417**	**11304**	**11614**	**11670**	**11979**	**12345**	**15353**
L	**11838**	**11979**	**7311**	**9083**	**10011**	**11135**	**8323**	**9195**	**11304**	**8802**	**9561**	**11389**	**10236**	**11135**	**10911**	**11360**	**11192**	**11585**	**12063**	**15072**
A	**11940**	**12081**	**7799**	**9363**	**10266**	**11209**	**9100**	**9714**	**11415**	**9409**	**10025**	**11536**	**10568**	**11259**	**11078**	**11486**	**11393**	**11755**	**12167**	**15159**

H = Highest L = Lowest A = Average

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COTTON ASSOCIATION OF INDIA
Established 1921

COTTON ASSOCIATION OF INDIA

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UPCOUNTRY SPOT RATES

(Rs./Qtl)

Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	Spot Rate (Upcountry) 2017-18 Crop MARCH 2018					
							26th	27th	28th	29th	30th	31st
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)	11867 (42200)	11867 (42200)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	12063 (42900)	12063 (42900)	12063 (42900)	12063 (42900)	12007 (42700)	12007 (42700)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	7311 (26000)	7311 (26000)	7311 (26000)	7311 (26000)	7311 (26000)	7311 (26000)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	9223 (32800)	9223 (32800)	9223 (32800)	9083 (32300)	9083 (32300)	9083 (32300)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10067 (35800)	10067 (35800)	10067 (35800)	10011 (35600)	10011 (35600)	10011 (35600)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	11192 (39800)	11192 (39800)	11220 (39900)	11220 (39900)	11164 (39700)	11164 (39700)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	8520 (30300)	8520 (30300)	8520 (30300)	8323 (29600)	8323 (29600)	8323 (29600)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	9336 (33200)	9336 (33200)	9336 (33200)	9336 (33200)	9195 (32700)	9195 (32700)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	11332 (40300)	11332 (40300)	11360 (40400)	11360 (40400)	11304 (40200)	11304 (40200)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	8998 (32000)	8998 (32000)	8998 (32000)	8802 (31300)	8802 (31300)	8802 (31300)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)	9561 (34000)	9561 (34000)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	11529 (41000)	11529 (41000)	11557 (41100)	11473 (40800)	11417 (40600)	11389 (40500)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	10236 (36400)	10236 (36400)	10264 (36500)	10404 (37000)	10432 (37100)	10432 (37100)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	11164 (39700)	11164 (39700)	11192 (39800)	11164 (39700)	11192 (39800)	11164 (39700)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	10967 (39000)	10967 (39000)	10995 (39100)	10967 (39000)	10995 (39100)	10995 (39100)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	11417 (40600)	11417 (40600)	11445 (40700)	11417 (40600)	11445 (40700)	11417 (40600)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	11248 (40000)	11248 (40000)	11276 (40100)	11248 (40000)	11276 (40100)	11389 (40500)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	11642 (41400)	11642 (41400)	11670 (41500)	11642 (41400)	11670 (41500)	11670 (41500)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	12092 (43000)	12092 (43000)	12120 (43100)	12092 (43000)	12120 (43100)	12120 (43100)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	15072 (53600)	15072 (53600)	15072 (53600)	15072 (53600)	15072 (53600)	15072 (53600)

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)