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Front Line Demonstration – A Good Extension Practice for Bridging the Yield and Knowledge Gaps in Cotton - Part II

Contd. from Issue No. 24, dated 14th September, 2021

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**EXPERT'S
Column**

	
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Summary of the Demonstrations Conducted Under FLD Cotton for the Past 20 Years

In India, through the networking centres of ICAR- AICRP on cotton, a total of 3 581 acres of demonstrations were conducted with the budget total outlay of Rs.105 lakh under Intensive Cotton Development Programme (ICDP) of Ministry of Agriculture, Government of India from 1995-96 to 1999 2000. A total of 4134 hectares of demonstrations were conducted with the budget total outlay of Rs.225.00 lakh under Technology

Mission on Cotton - Mini mission II from 2000-01 to 2004-05. From 2005-06 onwards, FLDs were conducted in three different components. A total of 9359 acres of demonstration on cotton production technology, 139 unit demonstration on cotton IPM and 112 unit demonstration on cotton farm implements were conducted from 2005-06 to 2012-13 with a budget outlay of Rs. 461.54 lakh. From 2014-15, the FLD in cotton were sponsored by National Food Security Mission on Cotton - Commercial Crops, Ministry of Agriculture and Farmers welfare, Government of India with three different components viz., FLD on Integrated Crop Management in Cotton, FLD on ELS/ Desi / Seed Production in cotton and FLD on intercropping in cotton. A total of 2630 demonstrations on cotton FLD on ICM in cotton, 1386 demonstrations on

Desi / ELS / Seed Production and 989 FLD on intercropping in cotton were conducted during 2014-15 and 2020-21 with a total budget outlay of Rs.394.56 lakh (Table 1).

Table 1 - Front Line Demonstrations Conducted Through ICAR-AICRP on Cotton under NFSM-CC (2014-15-2020-21)

Year	No. of Demonstration	Budget in Lakh Rs
2014-2015	455	40.00
2015-2016	538	47.50
2016-2017	626	46.45
2017-2018	740	53.50
2018-2019	794	63.27
2019-2020	940	68.18
2020-2021	912	75.66
TOTAL	5005	394.56

(Source: FLD Annual Report published by PC (Cotton Improvement) ICAR-AICRP (Cotton) (from 2014-15 to 2020-21))

Impact of FLD on Cotton Yield

The average seed cotton yield (kg/ha) obtained in FLDs conducted nationwide from 2014-15 to 2020-21 are given in Figure 2. The average seed cotton yield obtained in the demonstrations conducted by ICAR - AICRP centers throughout the country from 2014-15

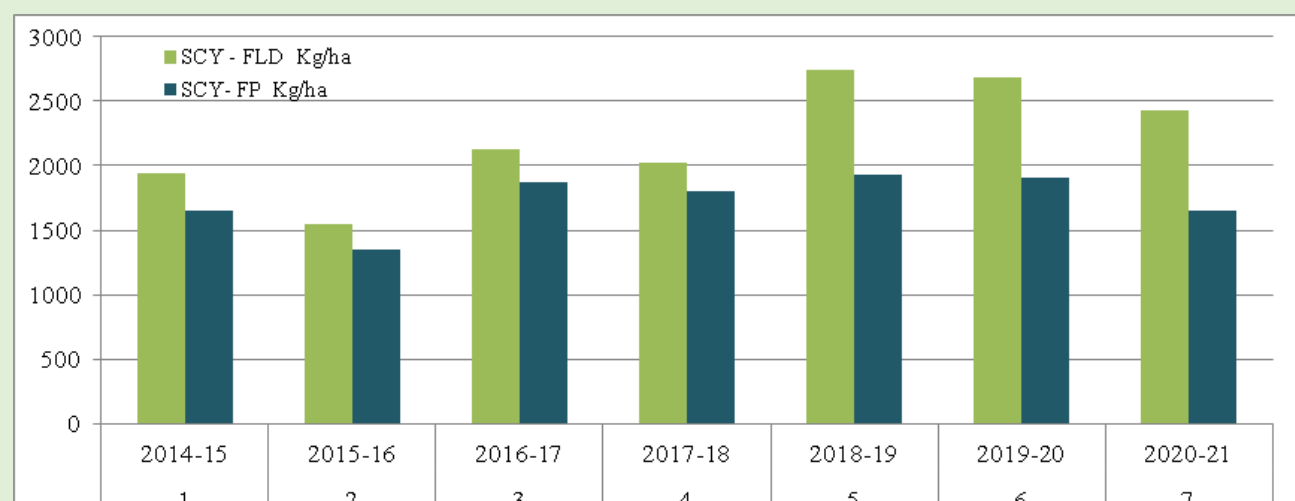
to 2020-21 on cotton production technology and Integrated Crop Management ranged from 1547 kg/ha to 2736 kg/ha. The average seed cotton yield obtained in FLD for the past seven years was 2213 kg/ha. Similarly, the average seed cotton yield obtained in the farmers' own practices without the advice of Scientists were also collected from 2014-15 to 2020-21. It ranged from 1352 kg/ha to 1929 kg/ha. The average seed cotton yield obtained in farmers' practices in the past seven years was 1738 kg/ha.

Special Features of FLD

The program was successful in dissemination of good cultivation practices in cotton viz., improved varieties / hybrids, Integrated Nutrient Management, Integrated Weed Management, Irrigation Management, Intercropping, promotion of Desi and ELS cotton, Integrated Pest Management and usage of Farm Implement in cotton cultivation. In this program, the successful beneficiary farmers facilitate the other fellow farmers to adopt the new technologies and hence a farmer to farmers' technology dissemination is promoted. The analysis on yield parameter over seven years under NFSM-CC revealed that an average of 27.00 % increase in yield was obtained in FLDs as compared to farmers' regular practices. Also, the impact analysis on cost reduction revealed that there was reasonable reduction in cost of cultivation in FLDs as compared to farmers' regular practices.

The program mandatorily includes women and resource poor farmers as beneficiaries as per the GOI's norms and hence there is inclusive

Fig.2. Average Seed Cotton Yield Obtained in FLDs and Farmers' Practices from 2014-15 to 2020-21 (SCY kg/ha) in India



(Source: FLD Annual Report published by PC (Cotton Improvement) ICAR-AICRP (Cotton) (from 2014-15 to 2020-21))

Seeing is believing is the principle



Visit of Scientists from CCSHAU, Hisar to FLD conducted during 2020-21
(Source: ICAR-AICRP FLD Annual Progress report, 2020-21)

development due to the program. The program also enabled the scientists to obtain direct feedback from cotton farmers and suitably reorient their research programs, develop appropriate technology packages and to create effective linkage among scientists, extension personnel and farmers.

Challenges Faced in Conducting FLD

The special feature of FLD is conducting field demonstration under the close supervision of scientists. But there are pros and cons in scientist conducting the demonstrations in the sense that the visits made by scientists to the fields were not sufficient many times and in some times during

crucial period the scientists might not visit the FLD due to pressing other research commitments. Since there is meager inclusion of modern Information and Communication Technology (ICT) tools in this approach, the advisory on crop protection aspects was insufficient to meet out the needs of farmers.

Future Prospects as regards FLD

Considering the benefits of the program, to sustain it, the challenges faced by the program must be addressed properly. Hence, there is a pressing need to modernise this proven TOT approach with new extension innovations for fostering the productivity of cotton and thereby the profitability of cotton growers in India.

Yield enhancement is the motive



Scientists from ANGRAU, Nandhyal in the FLD farmer's field during 2020-21
(Source: ICAR-AICRP FLD Annual Progress report, 2020-21)

Conclusion

Indian cotton is performing well in terms of its acreage and production but the productivity is its concern for long years. To address this concern, various stakeholders in cotton are intervening with technological and extension innovations. Among the extension approaches, conducting Front Line Demonstration" has been proved to be the most efficient one. The results of this age old proven Transfer of Technology approach adopted in cotton emphasized the potential of increasing the yield in India to the tune of world average through demonstrating the sustainable and profitable technologies developed by the Indian Cotton Research System.

Reference

FLD Annual Reports published by PC (Cotton Improvement) ICAR-AICRP (Cotton) from 2014-15 to 2020-21

Acknowledgement

The authors acknowledge the scheme NFSM-CC-FLD by GOI and the facilitation extended by the Council and the ICAR-ACIRP-FLD participating centres for successfully conducting the program over years.

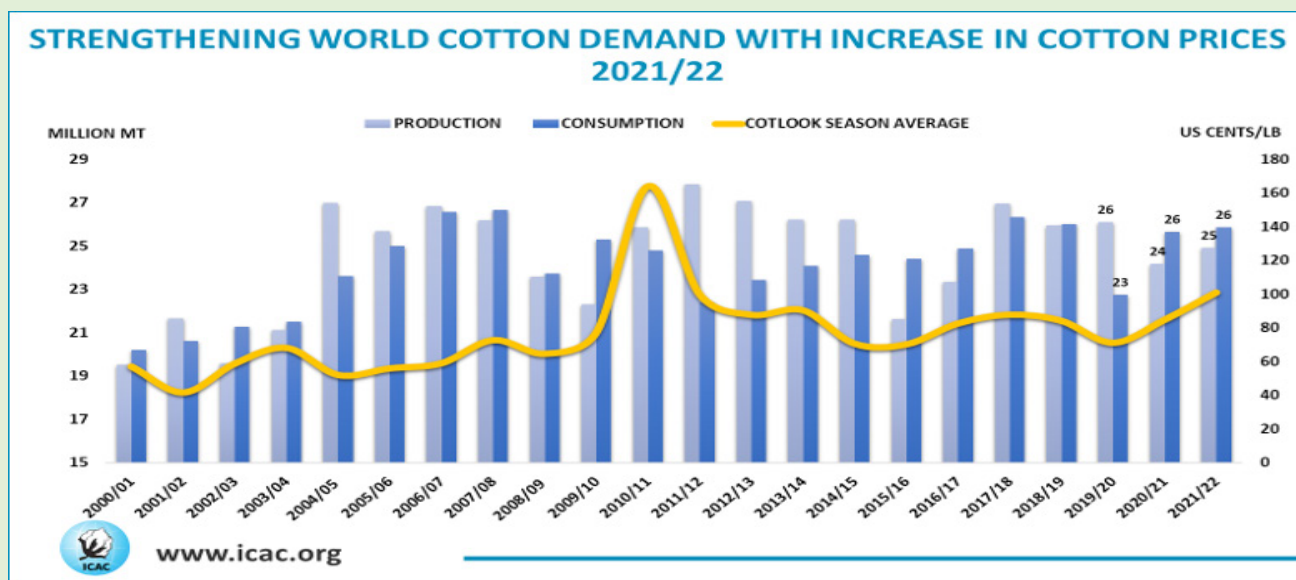
(The views expressed in this column are of the authors and not that of Cotton Association of India)

Perfect Storm of Factors Point Toward a Bull Market for Cotton

Strengthening world cotton demand, an expected imbalance in cotton supply and demand and tighter ending stocks indicate that the cotton industry is heading toward a bull market. One month into the 2021/22 season, cotton prices have been trending upward with the Cotlook A index season average at 101.34 cents per lb. Cotton prices are also high in China, with the CC Index averaging 126 cents/lb since the season began.

With demand exceeding production, ending stocks are expected to decline for the second year in a row to stand at 19.7 million tonnes in 2021/22, 5% lower than the previous season.

World cotton production for the 2021/22 season has been revised to 24.9 million tonnes, with area under cotton also revised to 32.8 million hectares.



The resurgent Covid virus remains a threat that could derail the market rally but the opening of economies and an increase in consumer demand that occurred when the vaccinations began spreading across the globe indicate that consumption doesn't appear to be slowing down.

As a result of these bullish factors, the Secretariat's current price forecast of the season-average A index for 2021/22 ranges between 76 cents to 126 cents, with a midpoint at 98.20 cents per pound.

Source: ICAC Cotton This Month, September 2, 2021

Supply and Distribution of Cotton

Seasons begin on August 1	Million Metric Tons					
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
				Est.	Est.	Proj.
BEGINNING STOCKS						
WORLD TOTAL	20.40	18.73	19.25	19.11	22.13	20.66
China	12.65	10.35	9.03	8.88	8.94	9.22
USA	0.83	0.60	0.82	0.83	1.31	0.42
PRODUCTION						
WORLD TOTAL	23.35	26.96	25.96	26.12	24.19	24.93
India	5.87	6.35	5.66	6.21	6.03	5.90
China	4.90	5.89	6.04	5.80	5.91	5.73
USA	3.74	4.56	4.00	4.34	3.18	3.76
Pakistan	1.66	1.80	1.67	1.32	0.89	0.98
Brazil	1.53	2.01	2.78	3.00	2.34	2.17
Uzbekistan	0.96	0.96	0.64	0.53	1.03	0.94
Others	4.70	5.40	5.18	4.92	4.81	5.46
CONSUMPTION						
WORLD TOTAL	24.90	26.35	26.01	22.75	25.66	25.87
China	8.28	8.50	8.25	7.25	8.40	8.20
India	5.15	5.42	5.40	4.45	5.61	5.89
Pakistan	2.22	2.35	2.36	1.98	2.15	2.15
Europe & Turkey	1.66	1.73	1.82	1.60	1.70	1.74
Bangladesh	1.41	1.66	1.58	1.50	1.64	1.66
Vietnam	1.17	1.51	1.51	1.45	1.52	1.54
USA	0.71	0.70	0.63	0.47	0.50	0.55
Brazil	0.69	0.68	0.73	0.61	0.72	0.70
Others	3.62	3.80	3.73	3.44	3.43	3.44
EXPORTS						
WORLD TOTAL	8.29	9.14	9.30	9.03	10.48	10.21
USA	3.33	3.64	3.37	3.38	3.57	3.29
India	0.99	1.13	0.76	0.70	1.31	1.12
CFA Zone	1.00	1.06	1.18	0.97	1.32	1.44
Brazil	0.61	0.91	1.31	1.95	2.34	2.01
Uzbekistan	0.38	0.22	0.16	0.10	0.01	0.01
Australia	0.81	0.85	0.79	0.30	0.24	0.59
IMPORTS						
WORLD TOTAL	8.09	9.04	9.22	8.68	10.48	10.21
Bangladesh	1.41	1.67	1.54	1.50	1.66	1.65
Vietnam	1.20	1.52	1.51	1.46	1.55	1.56
China	1.10	1.32	2.10	1.55	2.80	2.64
Turkey	0.84	0.96	0.79	1.02	1.27	1.12
Indonesia	0.74	0.77	0.66	0.55	0.47	0.51
TRADE IMBALANCE 1/	-0.20	-0.10	-0.08	-0.35	0.00	0.00
STOCKS ADJUSTMENT 2/	0.07	0.00	0.00	-0.01	0.00	0.00
ENDING STOCKS						
WORLD TOTAL	18.73	19.25	19.11	22.13	20.66	19.72
China	10.35	9.03	8.88	8.94	9.22	9.36
USA	0.60	0.82	0.83	1.31	0.42	0.35
ENDING STOCKS/MILL USE (%)						
WORLD-LESS-CHINA 3/	50	57	58	85	66	59
CHINA 4/	125	106	108	123	110	114
COTLOOK INDEX A 5/	82.77	87.98	84.35	71.33	84.96	

1/ Include Argentina, China (Mainland), Colombia, Mexico, Pakistan, Turkey and traditional importers

1/ The inclusion of linters and waste, changes in weight during transit, differences in reporting periods and measurement error account for differences between world imports and exports.

2/ Difference between calculated stocks and actual; amounts for forward seasons are anticipated.

3/ World-less-China's ending stocks divided by World-less-China's mill use, multiplied by 100.

4/ China's ending stocks divided by China's mill use, multiplied by 100.

5/ U.S. Cents per pound

Source : Review of the World Situation, September 2021



**Since 1921,
we are dedicated to the cause of Indian cotton.**
Just one of the reasons, you should use our Laboratory Testing Services.

The Cotton Association of India (CAI) is respected as the chief trade body in the hierarchy of the Indian cotton economy. Since its origin in 1921, CAI's contribution has been unparalleled in the development of cotton across India.

The CAI is setting benchmarks across a wide spectrum of services targeting the entire cotton value chain. These range from research and development at the grass root level to education, providing an arbitration mechanism, maintaining Indian cotton grade standards, issuing Certificates of Origin to collecting and disseminating statistics and information. Moreover, CAI is an autonomous organization portraying professionalism and reliability in cotton testing.

The CAI's network of independent cotton testing & research laboratories are strategically spread across major cotton centres in India and are equipped with:

- State-of-the-art technology & world-class Premier and MAG cotton testing machines
- HVI test mode with trash% tested gravimetrically

LABORATORY LOCATIONS

Current locations : • **Maharashtra :** Mumbai; Yavatmal; Aurangabad; Jalgaon • **Gujarat :** Rajkot; Ahmedabad • **Andhra Pradesh :** Adoni
• **Madhya Pradesh :** Khargone • **Karnataka :** Hubli • **Punjab :** Bathinda • **Telangana:** Warangal, Adilabad



COTTON ASSOCIATION OF INDIA

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Revision in Testing Charges at CAI Laboratories

The following are the charges for cotton testing in the laboratories of the Cotton Association of India with effect from 1st October 2020.

Particulars	Per Sample Testing Fees in Rs.		
	Testing Fees	GST	Total
HVI Test	145	26	171
Micronaire Test	85	15	100
Colour Grade on HVI	85	15	100
Gravimetric Trash Test on HVI	85	15	100
Moisture	85	15	100
Grading (Manual Classing)	235	42	277

VOLUME BASED DISCOUNTS

Particulars	Per Sample Testing Fees in Rs.		
	Testing Fees	GST	Total
For 250 samples and above but less than 500 samples	140	25	165
For 500 samples and above but less than 750 samples	135	24	159
For 750 samples and above but less than 1000 samples	130	23	153
For 1000 samples and above but less than 2000 samples	125	23	148
For 2000 samples and above but less than 5000 samples	120	22	142
For 5000 samples and above but less than 10,000 samples	115	21	136
For 10,000 samples and above	100	18	118

The fees under the above volume based discount scheme is payable within 15 days from the receipt of the invoices to be raised on monthly basis.

We would also like to inform that the parties can avail the benefit of testing of cotton at multiple laboratories of the Associations against the CAI Credits made by them.

We earnestly request you to avail the facility of testing at the Association's laboratories.



**COTTON
ASSOCIATION
OF INDIA**
Established 1921
ISO 9001:2015

Cotton Association of India

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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) 2020-21 Crop September 2021					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Gravimetric Trash	Strength /GPT	13th	14th	15th	16th	17th	18th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0 – 7.0	4%	15	11614 (41300)	11614 (41300)	11614 (41300)	11614 (41300)	11614 (41300)	11614 (41300)
2	P/H/R (SG)	ICS-201	Fine	Below 22mm	5.0 – 7.0	4.5%	15	11782 (41900)	11782 (41900)	11782 (41900)	11782 (41900)	11782 (41900)	11782 (41900)
3	GUJ	ICS-102	Fine	22mm	4.0 – 6.0	13%	20	9505 (33800)	9505 (33800)	9505 (33800)	9505 (33800)	9505 (33800)	9505 (33800)
4	KAR	ICS-103	Fine	23mm	4.0 – 5.5	4.5%	21	10826 (38500)	10826 (38500)	10826 (38500)	10826 (38500)	10826 (38500)	10826 (38500)
5	M/M (P)	ICS-104	Fine	24mm	4.0 – 5.5	4%	23	11726 (41700)	11726 (41700)	11726 (41700)	11726 (41700)	11726 (41700)	11726 (41700)
6	P/H/R(U) (SG)	ICS-202	Fine	27mm	3.5 – 4.9	4.5%	26	13835 (49200)	13835 (49200)	13835 (49200)	13835 (49200)	13835 (49200)	13835 (49200)
7	M/M(P)/SA/TL	ICS-105	Fine	26mm	3.0 – 3.4	4%	25	12148 (43200)	12148 (43200)	12148 (43200)	12148 (43200)	12148 (43200)	12148 (43200)
8	P/H/R(U)	ICS-105	Fine	27mm	3.5 – 4.9	4%	26	14060 (50000)	14060 (50000)	14060 (50000)	14060 (50000)	14060 (50000)	14060 (50000)
9	M/M(P)/SA/TL/G	ICS-105	Fine	27mm	3.0 – 3.4	4%	25	12429 (44200)	12429 (44200)	12345 (43900)	12345 (43900)	12345 (43900)	12345 (43900)
10	M/M(P)/SA/TL	ICS-105	Fine	27mm	3.5 – 4.9	3.5%	26	13273 (47200)	13273 (47200)	13188 (46900)	13188 (46900)	13188 (46900)	13188 (46900)
11	P/H/R(U)	ICS-105	Fine	28mm	3.5 – 4.9	4%	27	14229 (50600)	14229 (50600)	14229 (50600)	14229 (50600)	14229 (50600)	14229 (50600)
12	M/M(P)	ICS-105	Fine	28mm	3.7 – 4.5	3.5%	27	14482 (51500)	14482 (51500)	14341 (51000)	14341 (51000)	14341 (51000)	14341 (51000)
13	SA/TL/K	ICS-105	Fine	28mm	3.7 – 4.5	3.5%	27	14510 (51600)	14510 (51600)	14369 (51100)	14369 (51100)	14369 (51100)	14369 (51100)
14	GUJ	ICS-105	Fine	28mm	3.7 – 4.5	3%	27	14819 (52700)	14819 (52700)	14679 (52200)	14679 (52200)	14679 (52200)	14679 (52200)
15	R(L)	ICS-105	Fine	29mm	3.7 – 4.5	3.5%	28	14622 (52000)	14622 (52000)	14622 (52000)	14622 (52000)	14622 (52000)	14622 (52000)
16	M/M(P)	ICS-105	Fine	29mm	3.7 – 4.5	3.5%	28	14960 (53200)	14960 (53200)	14960 (53200)	14960 (53200)	14960 (53200)	14960 (53200)
17	SA/TL/K	ICS-105	Fine	29mm	3.7 – 4.5	3%	28	14988 (53300)	14988 (53300)	14988 (53300)	14988 (53300)	14988 (53300)	14988 (53300)
18	GUJ	ICS-105	Fine	29mm	3.7 – 4.5	3%	28	15522 (55200)	15522 (55200)	15522 (55200)	15522 (55200)	15522 (55200)	15522 (55200)
19	M/M(P)	ICS-105	Fine	30mm	3.7 – 4.5	3.5%	29	15522 (55200)	15522 (55200)	15522 (55200)	15522 (55200)	15522 (55200)	15522 (55200)
20	SA/TL/K/O	ICS-105	Fine	30mm	3.7 – 4.5	3%	29	15578 (55400)	15578 (55400)	15578 (55400)	15578 (55400)	15578 (55400)	15578 (55400)
21	M/M(P)	ICS-105	Fine	31mm	3.7 – 4.5	3%	30	15691 (55800)	15691 (55800)	15691 (55800)	15691 (55800)	15691 (55800)	15691 (55800)
22	SA/TL/K / TN/O	ICS-105	Fine	31mm	3.7 – 4.5	3%	30	15747 (56000)	15747 (56000)	15747 (56000)	15747 (56000)	15747 (56000)	15747 (56000)
23	SA/TL/K/ TN/O	ICS-106	Fine	32mm	3.5 – 4.2	3%	31	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)
24	M/M(P)	ICS-107	Fine	34mm	2.8 - 3.7	4%	33	26152 (93000)	26152 (93000)	26152 (93000)	26152 (93000)	26152 (93000)	26152 (93000)
25	K/TN	ICS-107	Fine	34mm	2.8 - 3.7	3.5%	34	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)
26	M/M(P)	ICS-107	Fine	35mm	2.8 - 3.7	4%	35	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)
27	K/TN	ICS-107	Fine	35mm	2.8 - 3.7	3.5%	35	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)

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