

The Secret of Successfully Managing Cotton Leaf Curl Virus Disease in North India

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of ICAR-Central Institute for Cotton Research for more than two decades. He also worked as Principal Investigator of Plant Pathology under All India Coordinated Research Project on Cotton for over a decade. He has contributed significantly in strengthening the research and development network for cotton crop in the North Zone.

Cotton leaf curl virus disease (CLCuD) earlier known as African leaf curl of cotton was reported for the first time from Nigeria on Gossypium peruvianim and G. vitifolia Regional Station, Sirsa, Haryana farmers' fields for the first time in in 1912 by Farquharson. The recent

use of molecular virology tools to identify Cotton leaf curl Gezira virus (CLCuGV) has confirmed that the virus is still widespread throughout the cotton belt in sub Saharan Africa/Sahel region. This virus has been responsible for yield loss in all affected cotton-growing areas in Africa since its discovery, causing losses up to 20% when infection occurs early in the growing season and/or with highly susceptible cultivars (Brown, 2020).

It started affecting cotton crop (G. hirsutum) in Pakistan from 1967. However, severe incidence was reported from 1990 onwards mainly due to large scale cultivation of variety S 12 which proved highly susceptible to CLCuD.

The lint yield per hectare dropped from 768 kg/hac in 1991-92 to 543 kg/ha in 1992-93 and 488 kg/ha in 1993-94 reducing the production from 12.8 million bales in 1991-92 to 9.05 million bales in 1992-93 and 8.04 million bales in 1993-94 (Hussain and Ali, 1975).

In India, CLCuD was first observed in Indian Agricultural Research Institute, New Delhi on G. barbadense 1989 (Anonymous, 1990; Varma et al., 1993). Later in 1993, it was observed on G. hirsutum at

Sriganga Nagar district of Rajasthan (Ajmera, 1994). The disease spread to the entire North Zone in an area of around 1.5 million hectares in 4-5 years.

First symptoms are noticed on young leaves -, veins become thickened and the leaves appear darker curling upward/downward in the shape of a cup. A leaf like structure called "enation" appears under the surface of some of the affected leaves. The affected lants remain stunted and severely affected plants do not form flower and bolls, resulting in drastic reduction of yield. The CLCuD is induced by complexes of cotton



Dr. Dilip Monga *Ex-Head. Central Institute* for Cotton Research (CICR), infecting begomoviruses intimately associated with satellite molecules viz. alpha satellite and beta satellite and is transmitted by white fly (*Bemisia tabaci*).

Practical Technologies That Helped in Fields

At Central Institute for Cotton Research (CICR), studies were initiated on Development of screening systems, Transmission studies of Cotton leaf curl virus (CLCuV), Molecular diagnostic tools, Germplasm screening/ resistant variety development, Forecasting systems, Identification of weeds as career, Viral strains and their recombinants and Entomopathogens for whitefly management as a component of IPM.

However, multi location date of sowing experiments, weed eradication campaigns and technologies for whitefly management developed and implemented from 2016-17onwards, helped greatly in achieving reduction of CLCuD in fields and improving productivity in the North Zone. One hundred released and fifty pre-released BG II hybrids were screened against the disease at normal (around 15th May) and late (around 7th June) sown conditions at Haryana (Hisar and Sirsa); Punjab (Abohar and Faridkot) and Rajasthan (Sriganganagar) during 2015-16. The mean percent disease intensity (PDI) of released and pre-released hybrids at normal sown dates was 36.3 33.7 respectively, whereas it was 55.6 and 50.0 in case of late sown conditions. Average seed cotton yields of released and pre-released hybrids in normal sown was 22.0 and 22.9 whereas drastic yield reduction to 8.28 and 10.72 quintals per ha was noted under late sown conditions. Based on these experiments, the cut of date for sowing of cotton in the North Zone was fixed at 15th May.

Some of the common weeds in cotton wheat cropping system of the North Zone like *Spinacea sps, Chenopodium album, Lantana camara, Convolvulus arvensis, Croton sparsiflorus, Parthenium histrophorus, Solanum americanum, Achyranthus aspera, Digeria avensis, Capsicum sps. and Xanthium strumarium* were identified as carriers of cotton leaf curl virus inoculum using PCR and protein coat amplification primer. The transmission of virus from cotton to weeds and again to cotton during the subsequent crop season was demonstrated (Kumar et. al., 2016). After CLCuV identification and confirmation of the role of weeds in disease perpetuation from one season to another, the respective state governments launched weed eradication campaigns during pre sowing periods leading to a reduction in the disease.

After the whitefly epidemic and cotton leaf curl virus disease vectored by it in 2015-16, whitefly management strategies were revisited and use of botanicals initially (mainly neem based products) followed by insect growth regulators like difenthiuron (for whitefly adults) and spiromesifen and pyriproxyfen (for nymphal populations) helped in its successful management. The role of survey, surveillance and monitoring based on economic threshold limit (ETL) was key to implementation of strategies.

Successful Public-Private-Partnership Was the Key

Bollguard and BG II hybrids were introduced successfully in Central and South Zone during 2002-03 and in North Zone in 2005-06. Initially, some of the hybrids showed high susceptibility against CLCuD. However, strict screening procedures and guidelines were devised to permit only tolerant hybrids for identification and release first under standing committee constituted by Genetic Engineering Appraisal Committee (GEAC) under Ministry of Environment and Forest and later under All India Coordinated Research Program (AICRP) on cotton under ICAR, Ministry of Agriculture and Farmers Welfare.

It is pertinent to mention here that one Hybrid RCH 134 BG II which had become very popular in the North Zone due to high productivity, showed severe CLCuD incidence in 2009 in Punjab. Disease incidence in 28 fields was observed in the range of 70-100 % with mean infection grade in the range of 1.8 to 3.4 out of maximum 4.0 in these diseased fields. Percent disease index was observed in the range of 42.5 to 96.4 (Anonymous,2009-10). It had to be withdrawn from package and practices of Punjab Agricultural University and was later stopped by the company.

The private seed companies geared up their R&D set ups with respect to cotton leaf curl virus disease by setting up screening nurseries in hot spot areas of the North Zone in Abohar and Fazilka areas and use of highly tolerant material after rigorous screening, paid rich dividends. In public sector also, under Br02a national trial under AICRP system, there used to be material from Central and South Zone showing very high susceptibility against CLCuD. Such materials were not promoted in the North Zone and susceptibility against the disease was slowly curtailed.

Over the years and especially after 2015-16 crop season, which saw an epidemic of whitefly along with high incidence of CLCuD, a committee constituted by Haryana Governor recommended conducting common trials for screening against the disease of all permitted BG II hybrids at six locations in the North Zone and recommend only CLCuD tolerant high yielding hybrids to the state governments. This model has worked very successfully for the last six years leading to a reduction in disease (see Table below) and improving productivity.

What Needs To Be Done Next?

Central Institute for Cotton Research should focus on basic research aspects like use of Crisper CAS technology, RNAi mediated resistance and inter specific hybridisation to develop new sources of resistance. A system of monitoring the strains of CLCuV prevailing in the zone visà-vis their virulence by maintaining a repository of strains in poly house on a continuous basis is needed. This will ensure that the new highly virulent strains are detected timely. This will also help in understanding the development of new strains in the system through carefully designed experiments. Further validation of existing forecasting systems will ensure timely disease prediction and implement management strategies. Strengthening of immune system of plants through systemic acquired resistance

State/ Districts										
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21				
Punjab										
Faridkot	44.9	48.1	41.9	34.1	11.8	11.9				
Fazilka	45.3	50	44.7	37.5	10.1	17.5				
Muktsar	35.3	42.3	43.9	34.1	8.8	11.4				
Bathinda	41.2	20.3	27.3	16.3	5.7	17.1				
Mansa	34	8.7	36.7	-	-					
	40.1	33.9	38.9	30.5	9.1	14.5				
			Rajasthan							
Sriganganagar	14.8	10.2	12.8	17.7	14.3	12.72				
Hanumangarh	-	5.3	9.4	11.2	9.1	7.77				
	14.8	7.8	11.1	14.5	11.7	10.2				
			Haryana							
Sirsa	34.4	1.7	12.6	16	16.4	17.4				
Fatehabad	25.1	3.4	12.7	12.9	13.6	16				
Hisar	30.7	7.8	9.7	15	15.2	16.8				
Jind	28.5	2.3	6.9	16	16	20.8				
Bhiwani	8.6	4.1	9.6	10.3	10.3	11				
Rohtak	14.6	4.6	8.3	11.2	11.2	10.4				
Sonipat	10.3	4	2.3	10.2	-					
Mahendragarh	-	3.8	5.4	12.4	-	10				
Palwal	-	4	5	10.1	11	8				
Jhajjar	-	6.5	2.3	10	-					
	21.7	4.2	7.5	12.4	13.4	13.8				

Table : CLCuD Intensity (PDI) in North Zone Under Farmer Fields

Source AICRP Cotton Pathology reports

and development of resistant varieties using new immune lines like GVS 8 and GVS 9 will be very much helpful in reducing losses in future.

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

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Dr. Jodi Scheffler is the 2022 ICAC Researcher of the Year

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The International Cotton Advisory Committee (ICAC) is pleased to announce that Dr. Jodi Scheffler of the USDA's Crop Genetics Research Unit has been named the 2022 ICAC Researcher of the Year, according to Dr. Keshav Kranthi,

Chief Scientist of the ICAC and himself a winner of the award in 2009.

ICAC honours a leading cotton researcher each year by awarding a certificate of recognition, a shield and an honorarium of \$1,000. Dr. Scheffler was selected by an independent panel of six eminent experts from six different countries.

Dr. Scheffler, who also is an ad¬junct Professor at Mississippi State University, worked for 12 years in the United Kingdom and Germany. In the UK, she es¬tablished large scale methods to track canola (Bras¬sica napus) pollen movement. This work was used to develop biosafety regulations for the UK, USA and many European countries.

During her time at USDA, Dr. Scheffler has been instrumental in identifying, developing and making available molecular markers for use by the cotton community. Her research focusses on increas¬ing cottonseed use and incorporating traits that will improve host plant resistance (HPR).

In addition to being named the 2022 ICAC Researcher of the Year, Dr. Scheffler has earned many other awards during her distinguished career, including the 2014 National Cotton Genetics Research Award, co-recipient of the 2016 Federal Laboratory Consortium's Regional STEM Education award and the 2016 Secretary of Agriculture's Abraham Lincoln Award.

About the International Cotton Advisory Committee (ICAC)

Formed in 1939, the ICAC is an association of cotton producing, consuming and trading countries. It acts as a catalyst for change by helping member countries maintain a healthy world cotton economy; provides transparency to the world cotton market by serving as a clearinghouse for technical information on cotton production; and serves as a forum for discussing cotton issues of international significance. In addition, members can take advantage of the ICAC's global network of cotton researchers, whose expertise covers the supply chain from farm to textile manufacturing, and have free access to its cuttingedge technologies like the voice-based app and virtual technology cotton training programme. Committed to ensuring cotton's continued sustainability, the ICAC is the only intergovernmental commodity body covering cotton that is recognised by the United Nations. For more information, please visit www.icac.org, Twitter or LinkedIn.

CAI Estimates Cotton Crop for 2021-22 Season at 315.32 Lakh Bales – Reduces the Crop Further by 8.31 Lakh Bales than its Previous Estimate

otton Association of India (CAI) has released its May estimate of the cotton crop for the season 2021-22 beginning from 1st October 2021. The CAI has further reduced its cotton crop estimate for the 2021-22 season by 8.31 lakh bales to 315.32 lakh bales of 170 kgs. each (i.e. 335.03 lakh running bales of 160 kgs. each) from its previous estimate of 323.63 lakh bales of 170 kgs. each (equivalent to 343.86 lakh running bales of 160 kgs. each). The state-wise breakup of the Cotton Production and Balance Sheet for the season with the corresponding data for the previous crop year are given below.

The total cotton supply for the months of October 2021 to May 2022 is now estimated by the CAI at 367.22 lakh bales of 170 kgs. each (equivalent to 390.17 lakh running bales of 160 kgs. each), which consists of the arrivals of 288.38 lakh bales of 170 kgs. each (equivalent to 306.40 lakh running bales of 160 kgs. each), imports of 7 lakh bales of 170 kgs. each (equivalent to 7.44 lakh running bales of 160 kgs. each) and the opening stock now estimated by the CAI at 71.84 lakh bales of 170 kgs. each (equivalent to 76.33 lakh running bales of 160 kgs. each) at the beginning of the season. The CAI has adopted the opening stock for the season at 71.84 lakh bales of 170 kgs. each (equivalent to 76.33 lakh running bales of 160 kgs. each) i.e. at the same level as finalised by the Committee on Cotton Production and Consumption (COCPC) at its recent meeting held on 23rd May 2022 by making one-time downward revision of 3.16 lakh bales of 170 kgs each in its earlier opening stock estimate of 75 lakh bales of 170 kgs. each (equivalent to 79.69 lakh running bales of 160 kgs. each).

Further, the CAI has estimated cotton consumption for the months of October 2021 to May 2022 at 225 lakh bales of 170 kgs. each (equivalent to 239.06 lakh running bales of 160 kgs. each) while the export shipments upto 31st May 2022 are estimated by the CAI at 38 lakh bales of 170 kgs. each (equivalent to 40.38 lakh running bales of 160 kgs. each). Stock at the end of May 2022 is estimated at 104.22 lakh bales of 170 kgs. each (equivalent to 110.73 lakh running bales of 160 kgs. each) including 70 lakh bales of 170 kgs. each (equivalent to 74.38 lakh running bales of 160 kgs. each) with textile mills and the remaining 34.22 lakh bales of 170 kgs. each (equivalent to 36.36 lakh running bales of 160 kgs. each) with the CCI, Maharashtra Federation and others (MNCs, traders, ginners, MCX, etc. including the cotton sold but not delivered).

The CAI Crop Committee has estimated the total cotton supply till end of the cotton season 2021-22 i.e. upto 30th September 2022 at 402.16 lakh bales of 170 kgs. each (equivalent to 427.30 lakh running bales of 160 kgs. each) which is less by 11.47 lakh bales compared to 413.63 lakh bales of 170 kgs. each (equivalent to 439.48 lakh running bales of 160 kgs. each) estimated by the CAI previously. The total cotton supply consists of the opening stock of 71.84 lakh bales of 170 kgs. each (equivalent to 76.33 lakh running bales of 160 kgs. each) at the beginning of the cotton season on 1st October 2021, crop for the season estimated at 315.32 lakh bales of 170 kgs. each (equivalent to 335.03 lakh running bales of 160 kgs. each) as against the previous estimate of 323.63 lakh bales of 170 kgs. each (equivalent to 343.86 lakh running bales of 160 kgs. each) and the imports for the Season estimated at 15 lakh bales of 170 kgs. each (equivalent to 15.94 lakh running bales of 160 kgs. each) that is at the same level as estimated previously as against the previous year's import estimates of 10 lakh bales of 170 kgs. each (equivalent to 10.63 lakh running bales of 160 kgs. each).

The domestic consumption is now estimated by the CAI at 315 lakh bales of 170 kgs. each (equivalent to 334.69 lakh running bales of 160 kgs. each) as against 320 lakh bales of 170 kgs. each (equivalent to 340 lakh running bales of 160 kgs. each) estimated previously. The exports for the season have been estimated at 40 lakh bales of 170 kgs. each (equivalent to 42.50 lakh running bales of 160 kgs. each). The exports estimate for the previous cotton season 2020-21 was of 78 lakh bales of 170 kgs. each (equivalent to 82.88 lakh running bales of 160 kgs. each). The carry-over stock which was earlier estimated at 53.63 lakh bales of 170 kgs. each (equivalent to 56.98 lakh running bales of 160 kgs. each) is now estimated at 47.16 lakh bales of 170 kgs. each (equivalent to 50.11 lakh running bales of 160 kgs. each).

Highlights of Deliberations held by the CAI Crop Committee on 16th June 2022

The Crop Committee of the Cotton Association of India (CAI) held its physical meeting on Thursday, the 16th June 2022, which was attended by 10 members representing various cotton growing regions of the country. The Committee arrived at its May estimate of the cotton crop for the 2021-22 season and drew the estimated cotton balance sheet based on the data available from various trade sources, upcountry associations and other stakeholders. The following are the highlights of the deliberations held at this meeting:-

1. Consumption

The CAI has reduced its consumption estimate for the current crop year 2021-22 at 315 lakh bales of 170 kgs. each (equivalent to 334.69 lakh running bales of 160 kgs. each) as against its previous consumption estimate of 320 lakh bales of 170 kgs. each (equivalent to 340 lakh running bales of 160 kgs. each). The previous year's consumption estimate was 338.16 lakh bales of 170 kgs. each (equivalent to 359.30 lakh running bales of 160 kgs. each).

Upto 31st May 2022, the consumption is estimated at 225 lakh bales of 170 kgs. each (equivalent to 239.06 lakh running bales of 160 kgs. each).

2. Production

The CAI has reduced its production estimate for the season 2021-22 to 315.32 lakh bales of 170 kgs. each (equivalent to 335.03 lakh running bales of 160 kgs. each) from its previous estimate of 323.63 lakh bales of 170 kgs. each (equivalent to 343.86 lakh running bales of 160 kgs. each) made earlier. The changes made in the state-wise cotton production estimates compared to those estimated during the last month are given below:-

States	Reduction (-) / Increase (+)
Upper Rajasthan	+1.00
Lower Rajasthan	-1.00
Gujarat	-4.24
Maharashtra	-2.46
Madhya Pradesh	+1.00
Telangana	-2.51
Andhra Pradesh	+0.70
Karnataka	-0.80
Total	- 8.31

In lakh bales of 170 kgs. each

This production estimate includes Tamil Nadu summer crop which will arrive in the months of June, July and August and it also includes the new crop which will arrive in August and September.

The Committee members will have a close watch on the cotton arrivals in the subsequent months and if any addition or reduction is required to be made in the production estimate, the same will be made in the CAI reports.

3. Imports

The estimate of cotton Imports into India has been maintained at 15 lakh bales of 170 kgs. each (equivalent to 15.94 lakh running bales of 160 kgs. each). The imports estimated for the 2021-22 crop year are more by 5.00 lakh bales of 170 kgs. each (equivalent to 5.31 lakh running bales of 160 kgs. each) compared to the imports estimate of 10 lakh bales of 170 kgs. each (equivalent to 10.63 lakh running bales of 160 kgs. each) for the previous crop year 2020-21.

Upto 31st May 2022 about 7 lakh bales of 170 kgs. each (equivalent to 7.44 lakh running bales of 160 kgs. each) are estimated to have arrived the Indian Ports.

4. Exports

The Committee has maintained its cotton exports estimate to 40 lakh bales of 170 kgs. each (equivalent to 42.50 lakh running bales of 160 kgs. each) as estimated previously.

Upto 31st May 2022, about 38 lakh bales of 170 kgs. each (equivalent to 40.38 lakh running bales of 160 kgs. each) are estimated to have been shipped.

5. Arrivals

Indian cotton arrivals during the months of October 2021 to May 2022 are estimated at 288.38 lakh bales of 170 kgs. each (equivalent to 306.40 lakh running bales of 160 kgs. each). Upto 31st May 2022, over 91% of Indian cotton arrivals are over. According to the CAI records for the cotton seasons 2017-18 to 2019-20, 9.80 % of total crop arrivals are coming during the period of 1st June to 30th September. This includes current season as well as the new crop arrivals of August and September. Considering this, around 30 lakh bales ± 5 lakh bales of 170 kgs. each are expected to arrive.

Stock as on 31st May 2022

The cotton stocks held by mills in their godowns on 31st May 2022 are estimated at 70 lakh bales of 170 kgs. each (equivalent to 74.38 lakh running bales of 160 kgs. each). The mills have on an average 81 days' cotton stock in their godowns.

The CCI, Maharashtra Federation, MNCs, Ginners, Traders, MCX, etc. are estimated to have a total stock of about 34.22 lakh bales of 170 kgs. each (equivalent to 36.36 lakh running bales of 160 kgs. each) as on 31st May 2022. Thus, the total stock held by spinning mills and stockists including the stock of cotton sold but not delivered on 31st May 2022 is estimated at 104.22 lakh bales of 170 kgs. each (equivalent to 110.73 lakh running bales of 160 kgs. each).

7. Closing Stock as on 30th September 2022

Closing stock as on 30th September 2022 is estimated by the Committee at 47.16 lakh bales of 170 kgs. each (equivalent to 50.11 lakh running bales of 160 kgs. each).

(in lakh bales of 170 kg.)									
		Productior	Arrivals as on 31st May 2022						
State	2022	1-22	2020	0-21	2021-22				
	In running b/s of 160 Kgs. each	In lakh b/s of 170 Kgs. each	In running b/s of 160 Kgs. each	In lakh b/s of 170 Kgs. each	In running b/s of 160 Kgs. each	In lakh b/s of 170 Kgs. each			
Punjab	9.64	9.07	11.16	10.50	7.44	7.00			
Haryana	17.11	16.10	23.91	22.50	15.84	14.91			
Upper Rajasthan	16.30	15.34	20.72	19.50	15.49	14.58			
Lower Rajasthan	11.51	10.83	13.81	13.00	10.48	9.86			
Total North Zone	54.55	51.34	69.59	65.50	49.25	46.35			
Gujarat	84.73	79.75	97.22	91.50	80.01	75.30			
Maharashtra	82.34	77.50	86.06	81.00	76.23	71.75			
Madhya Pradesh	21.25	20.00	19.66	18.50	19.66	18.50			
Total Central Zone	188.33	177.25	202.94	191.00	175.90	165.55			
Telangana	37.61	35.40	46.75	44.00	36.13	34.00			
Andhra Pradesh	14.88	14.00	17.00	16.00	14.08	13.25			
Karnataka	21.52	20.25	25.50	24.00	20.08	18.90			
Tamil Nadu	12.75	12.00	7.97	7.50	5.58	5.25			
Total South Zone	86.75	81.65	97.22	91.50	75.86	71.40			
Orissa	2.21	2.08	3.19	3.00	2.21	2.08			
Others	3.19	3.00	2.13	2.00	3.19	3.00			
Total	335.03	315.32	375.06	353.00	306.40	288.38			

* Including loose

The Balance Sheet drawn by the Association for 2021-22 and 2020-21 is reproduced below:-

(in lakh bales of 170							
Details	2021-22	2020-21					
Opening Stock	71.84	125.00					
Production	315.32	353.00					
Imports	15.00	10.00					
Total Supply	402.16	488.00					
Mill Consumption	285.00	294.00					
Consumption by SSI Units	19.00	25.66					
Non-Mill Use	11.00	18.50					
Total Domestic Demand	315.00	338.16					
Available Surplus	87.16	149.84					
Exports	40.00	78.00					
Closing Stock	47.16	71.84*					

* As Finalised by COCPC on 23rd May 2022

Balance Sheet of 8 months i.e. from 1.10.2021 to 31.05.2022 for the season 2021-22

Details	In lakh b/s of 170 kg.	In '000 Tons
Opening Stock as on 01.10.2021	71.84	1221.28
Arrivals upto 31.05.2022	288.38	4902.46
Imports upto 31.05.2022	7.00	119.00
Total Available	367.22	6242.74
Consumption	225.00	3825.00
Export Shipments upto 31.05.2022	38.00	646.00
Stock with Mills	70.00	1190.00
Stock with CCI, Maha. Fedn., MCX, MNCs, Ginners, Traders & Exporters	34.22	581.74
Total	367.22	6242.74

UPCOUNTRY SPOT RATES (Rs./Qtl										ls./Qtl)			
	Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]								Spot Rate (Upcountry) 2021-22 Crop June 2022				
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	20162 (71700)	20162 (71700)	20443 (72700)	20443 (72700)	20443 (72700)	20443 (72700)
2	P/H/R (SG)	ICS-201	Fine	Below 22mm	5.0 - 7.0	4.5%	15	20359 (72400)	20359 (72400)	20640 (73400)	20640 (73400)	20640 (73400)	20640 (73400)
3	GUJ	ICS-102	Fine	22mm	4.0 - 6.0	13%	20	16900 (60100)	16900 (60100)	16984 (60400)	16984 (60400)	16984 (60400)	16984 (60400)
4	KAR	ICS-103	Fine	23mm	4.0 - 5.5	4.5%	21	18615 (66200)	18615 (66200)	18700 (66500)	18700 (66500)	18700 (66500)	18700 (66500)
5	M/M (P)	ICS-104	Fine	23mm	4.5 - 7.0	4%	22	20387 (72500)	20387 (72500)	20387 (72500)	20387 (72500)	20387 (72500)	20387 (72500)
6	P/H/R (U) (SG)	ICS-202	Fine	27mm	3.5 - 4.9	4.5%	26	26067 (92700)	26067 (92700)	26123 (92900)	26067 (92700)	26067 (92700)	26067 (92700)
7	M/M(P)/ SA/TL	ICS-105	Fine	26mm	3.0 - 3.4	4%	25	21371 (76000)	21371 (76000)	21512 (76500)	21512 (76500)	21512 (76500)	21512 (76500)
8	P/H/R(U)	ICS-105	Fine	27mm	3.5 - 4.9	4%	26	26405 (93900)	26405 (93900)	26405 (93900)	26348 (93700)	26348 (93700)	26348 (93700)
9	M/M(P)/ SA/TL/G	ICS-105	Fine	27mm	3.0 - 3.4	4%	25	22074 (78500)	22074 (78500)	22215 (79000)	22130 (78700)	22130 (78700)	22130 (78700)
10	M/M(P)/ SA/TL	ICS-105	Fine	27mm	3.5 - 4.9	3.5%	26	23902 (85000)	23902 (85000)	23902 (85000)	23902 (85000)	23902 (85000)	23902 (85000)
11	P/H/R(U)	ICS-105	Fine	28mm	3.5 - 4.9	4%	27	26826 (95400)	26826 (95400)	26826 (95400)	26826 (95400)	26826 (95400)	26826 (95400)
12	M/M(P)	ICS-105	Fine	28mm	3.7 - 4.5	3.5%	27	27276 (97000)	27276 (97000)	27417 (97500)	27417 (97500)	27417 (97500)	27417 (97500)
13	SA/TL/K	ICS-105	Fine	28mm	3.7 - 4.5	3.5%	27	27333 (97200)	27333 (97200)	27473 (97700)	27473 (97700)	27473 (97700)	27473 (97700)
14	GUJ	ICS-105	Fine	28mm	3.7 - 4.5	3%	27	27136 (96500)	27136 (96500)	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)
15	R(L)	ICS-105	Fine	29mm	3.7 - 4.5	3.5%	28	27558 (98000)	27558 (98000)	27558 (98000)	27558 (98000)	27558 (98000)	27558 (98000)
16	M/M(P)	ICS-105	Fine	29mm	3.7 - 4.5	3.5%	28	28261 (100500) (28261 (100500)	28261 (100500)	28261 (100500)	28261 (100500)	28261 (100500)
17	SA/TL/K	ICS-105	Fine	29mm	3.7 - 4.5	3%	28	28317 (100700) (28317 (100700)	28317 (100700)	28317 (100700)	28317 (100700)	28317 (100700)
18	GUJ	ICS-105	Fine	29mm	3.7 - 4.5	3%	28	27979 (99500)	27979 (99500)	28120 (100000)	28120 (100000)	28120 (100000)	28120 (100000)
19	M/M(P)	ICS-105	Fine	30mm	3.7 - 4.5	3.5%	29	29526 (105000) (29526 (105000)	29385 (104500)	29385 (104500)	29385 (104500)	29385 (104500)
20	SA/TL/K/O	ICS-105	Fine	30mm	3.7 - 4.5	3%	29	29666 (105500) (29666 (105500)	29526 (105000)	29526 (105000)	29526 (105000)	29526 (105000)
21	M/M(P)	ICS-105	Fine	31mm	3.7 - 4.5	3%	30	30510 (108500) (30510 (108500)	30369 (108000)	30369 (108000)	30369 (108000)	30369 (108000)
22	SA/TL/ K / TN/O	ICS-105	Fine	31mm	3.7 - 4.5	3%	30	30651 (109000) (30651 (109000)	30510 (108500)	30510 (108500)	30510 (108500)	30510 (108500)
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	30651 (109000) (30651 (109000)	30651 (109000)	30651 (109000)	30651 (109000)	30651 (109000)
25	K/TN	ICS-107	Fine	34mm	2.8 - 3.7	3.5%	34	31635 (112500) (31635 (112500)	31635 (112500)	31635 (112500)	31635 (112500)	31635 (112500)
26	M/M(P)	ICS-107	Fine	35mm	2.8 - 3.7	4%	35	31916 (113500) (31916 (113500)	31916 (113500)	31916 (113500)	31916 (113500)	31916 (113500)
27	K/TN	ICS-107	Fine	35mm	2.8 - 3.7	3.5%	35	32760 (116500) (32760 (116500)	32760 (116500)	32760 (116500)	32760 (116500)	32760 (116500)

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