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Sustainable Cotton Production

(Continued from Issue No.10 dated 6th June 2017)

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Pest Management

GUEST COLUMN

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1. Generally, sap-sucking insect pests such as aphids, leaf hoppers, thrips and whiteflies occur to a great extent during the vegetative phase. They extend into the reproductive phase of the crop, only if the variety is highly susceptible and if chemical application in the crop tilts in favour of their survival. Spotted bollworms and sometimes pink bollworms generally occur during the early flowering phase. American bollworms occur during September-October in Central and South India and rarely later. Pink bollworm starts from late October and reaches peak infestation during November to January. It is considered as a winter pest.

2. Long duration (180-240 days) cotton varieties have a long flowering phase of 60-80 days and a long fruiting window of 60-120 days which makes the crop vulnerable to insect pests for a longer phase of time that can extend over 3-4 months. Short durations crops have a shorter flowering window of 15-20 days and a shorter boll formation window of 50-60 days which makes it easier for pest management.

3. Integrated pest management methods must be used to avoid chemical pesticides, as far as possible.

4. Cultivation of 'sucking-pest resistant varieties' help in avoidance of 'early-season' chemical usage. Strictly avoid chemical insecticide sprays during the first two months of the crop. Ecosystems of the crop evolve in a healthy manner during the first 2-3 months of the crop. With 'sap-sucking pest resistant varieties' natural enemies of insect pests thrive and keep insect pests under control naturally as long as human interventions do not disrupt the balance. The natural enemy complex of insect pests comprises of predators, parasitoids and pathogens that are common to sap-sucking pests and bollworms. Insecticides strongly disrupt the naturally occurring parasitoids and predators of insect pests which build-up during the early vegetative phase of the crop

and help in managing insect pests all through the season. Avoidance of insecticides will help in conserving naturally occurring insects such as ladybird grubs and beetles, Chrysoperla grubs and adults, Syrphid flies, Geocoris grubs and bugs, Aenasius spp., Aphilinus grubs and wasps, mirid bugs and spiders can effectively control aphids, jassids (leaf hoppers), thrips, mirids, whiteflies and mealybugs.

5. Inter-cropping with legume crops such as cluster bean, cowpea or sorghum or soybean or black gram, encourages establishment of predators and parasitoids of sucking pests.

6. Nitrogenous fertilizers should be applied judiciously to the minimum to prevent the proliferation of sap-sucking pests. Limited usage of nitrogenous fertilizers plus full application of P+K before flowering helps in reduction of sucking-pest infestation.

7. Fields must be kept free of weeds at least for the first 2-3 months of the crop.

8. Mealy bug infested plants should be uprooted and destroyed.

9. Neem preparations and biological control options must be preferred during the first 3-4 months for effective pest management with least disruption in the naturally occurring biological control.

10. Pheromone traps, selective light traps, are efficient for pest monitoring and management.

11. Avoid insecticide sprays against minor lepidopteran insects such as the cotton leaf folder, Sylepta derogata and cotton semilooper, Anomis flava which cause negligible economic damage to cotton. These larvae serve as excellent hosts for parasitoids such as Trichogramma spp., Apanteles spp and Sysiropa formosa, that attack bollworms such as H. armigera and Pectinophora gossypiella.

12. Strictly avoid WHO Class-I (Extremely Harzardous category) insecticides such as Phosphamidon, Methyl parathion, Phorate, Monocrotophos, Dichlorvos, Carbofuran, Methomyl, Triazophos and Metasystox.

13. Synthetic Pyrethroids must be avoided during the first 4-5 months after sowing so as to prevent any resurgence of whiteflies and H. armigera.

14. Insecticide mixtures must be strictly avoided all through the crop phase to prevent whitefly and other pest outbreaks.

Pesticide Management:

Currently, a total of 65 pesticides are approved by the Central Insecticide Board (CIB) for use on cotton in India. These include six fungicides, nine herbicides, five biopesticides and 45 chemical insecticides. The CIB approved list includes several insecticides that are harmful to the environment and as listed by many global authorities such as the WHO (World Health Organization), IARC (International Agency for Research on Cancer) and US-EPA (United States Environmental Protection Agency) as chemicals that could possibly/probably cause cancer. This list should be reviewed in light of environmental hazards, human safety and ecological harm that these chemicals can have from their application in cotton fields.

Indian farmers continue to use insecticides, which are considered to be extremely hazardous to the environment and which have been severely regulated by the FAO (Food and Agricultural Organization), WHO and the UNEP (United Nations Environment Programme). In small scale cotton production systems, it is very common for farmers to use the cheapest of available insecticides for pest control. Many of the cheaper insecticides either belong to WHO Class 1 (extremely or highly hazardous) or are related to carcinogenicity to some extent. A total of 28 insecticides were severely restricted for manufacture, import and use by the Rotterdam Convention on Prior Informed Consent (PIC) on 24th February 2004, by 95 countries including India as a signatory. For example, Monocrotophos and Methyl parathion which are still part of the list of CIB (Central Insecticide Board) approved insecticides for cotton in India are also being recommended by the state agricultural universities in India. These are amongst the PIC group and have been phased out by several countries across the globe.

Insecticides recommended for cotton and food crops, by several Indian Agricultural Universities fall in the category of WHO Class 1a (extremely hazardous category; Methyl Parathion & Phorate) and WHO-Class 1b (highly hazardous; Monocrotophos, Dichlorvos, Carbofuran, Methomyl, Triazophos and Metasystox). Interestingly, Diclorvos was never approved for use in cotton, but is being recommended by the agricultural universities in India.

The Annual Cancer Report 2015 published by the US-EPA lists the following commonly used pesticides under category-C (Possible human carcinogens): Acephate, Alpha-cypermethrin, Bifenthrin, Carbendazim, Cypermethrin, Dimethoate, Fipronil, Pendimethalin and

Pyrithiobac sodium. Thiodicarb, Metiram and glyphosate are categorised under 'probable human carcinogens'. Three pesticides, Permethrin, thiacloprid and Carbaryl are categorized as 'likely to be carcinogenic to human beings' and pesticides such as Buprofezin, Flonicamid and Fenoxaprop ethyl are under the category of 'suggestive evidence of carcinogenic potential'. Thus at least 18 pesticides out of the 65 chemicals approved for use as pesticides in cotton are related to human cancer and at least 7 out of the 65 chemicals belong to WHO Class-1 category of extremely or highly hazardous, top the environment.

About 50% of insecticide usage on cotton across the world is done with knap sack sprayers, mainly in developing countries, wherein these insecticides pose a acute hazard to farm workers. The problem becomes aggravated due to the lack of protective clothing and mechanical equipment where people will come in direct contact with chemicals. Toxicity is characterised by nausea, diarrhea, blurred vision, and, in severe cases, respiratory depression, convulsions and death.

There is an imminent need to restrict and regulate harmful insecticides in the country. The use of bio-pesticides and biological control needs to be properly deployed in pest management to ensure least use of chemical pesticides for pest management. As mentioned earlier, short duration cotton varieties can help in achieving this goal.

Crop Management Policies

Proper management of chemicals is important to achieve the goal intended, without any detrimental side-effects to ecology, environment and populace. Chemical intensive agriculture can lead to unsustainable ecologies in agriculture. Realising these threats to sustainability, from the 1990s, there were conscious efforts to change the cotton production strategy, using the ecosystem management approach. The strategic changes were enabled through the development and adoption of Integrated Pest Management (IPM), Integrated Nutrient Management (INM), Organic cotton, transgenic Bt-cotton, reduced tillage, drip and other micro-irrigation systems, Insecticide Resistance Management (IRM) technologies. In the context of sustainability, these technologies can be viewed as major shifts from an input oriented to an ecosystem based approach for managing the cotton production system in a sustainable manner. Efforts on quantification of sustainability of these systems in a scientific manner have been few and often incomplete due to lack of comprehension about the specific indicators and scale to measure sustainability.

Yet there is a general consensus that compared to conventional system, organic cotton production restored ecosystem services (improved soil structure and water infiltration, promoted crop residue and farm waste recycling, increased carbon sequestration, improved nutrient recycling and enhanced the activity of predators, parasites and pollinators) to such an extent that the use of permitted/approved external inputs also declined. Some studies indicate that compared to conventionally managed farms, adoption of organic cotton production system has resulted in an increase in cropping diversity (Strout's index), soil biodiversity and the spectrum/activity of natural enemies of cotton pests. The soils of organic cotton farms in semi-arid tropics, also had a higher soil organic carbon and improved labile carbon pool, had lower soil inorganic carbon and were less degraded (lower soil pH and exchangeable Na). Similarly, adoption of IRM strategies, in the project adopted areas of 32 districts across 11 states, economically benefitted 3.3 lakh cotton farmers and reduced pesticide usage in the cotton ecosystem by 45% compared to the non-IRM counterparts. From the above discussion it is evident that, sustainability analyses in cotton production systems have largely been restricted to economic and environmental dimensions using few indicators. If these analyses have to be made holistic, all the relevant economic and environmental indicators, along with social, trade and political dimensions need to be addressed.

Recently, the expert panel of ICAC on Social, Environmental and Economic Performance (SEEP) of Cotton Production enlisted 68 core, measurable indicators (along with uniform units) for evaluation, monitoring and comparison of sustainability of cotton production. These indicators encompass Environmental (pest and pesticide management, water management, soil management, biodiversity and land use, climate change), Economic (viability and poverty reduction, risk management and Social (labour, worker health and safety, equity and gender, farmer organisations) dimensions of sustainability of cotton production.

To put the cotton production system back onto a sustainable path, we need short duration, early maturing varieties (will impart higher water and nutrient use efficiency and avert risk due to climatic uncertainties) tolerant to pest and diseases (to reduce pesticide consumption and restore pest-natural enemy balance) along with a good crop husbandry with minimum use of external inputs and minimise production costs.

Courtesy : Cotton India 2016-17

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

Excerpts from India Meteorological Department's Weather Report of June 8, 2017

Southwest Monsoon:

Southwest monsoon has advanced into remaining parts of South Arabian Sea, Lakshadweep area, most parts of Kerala and some more parts of Tamilnadu and South West Bay of Bengal on 6th .It further advanced into some more parts of Central Arabian sea, remaining parts of Kerala and Tamil Nadu, most parts of Coastal

Forecast & Warnings 08 -14 June, 2017)

TABLE-1(C)

METEOROLOGICAL SUB-DIVISIONWISE WEEKLY RAINFALL FORECAST & Wx. WARNINGS-2017

Sr.No	MET.SUB-DIVISIONS	08 JUNE	09 JUNE	10 JUNE	11 JUNE	12 JUNE	13 JUNE	14 JUNE
1	ANDAMAN & NICO.ISLANDS	FWS	FWS	SCT	SCT	SCT	SCT	SCT
2	*ARUNACHAL PRADESH*	ISOL	SCT	FWS	FWS	FWS	FWS	FWS
3	*ASSAM & MEGHALAYA*	SCT	SCT	WS	WS	FWS	WS•	WS•
4	NAGA.MANI.MIZO.& TRIPURA	SCT	FWS	WS	WS	FWS	WS•	WS•
5	SUB-HIM.W. BENG. & SIKKIM	SCT	FWS	WS	WS	WS	FWS	FWS
6	GANGETIC WEST BENGAL	ISOL	SCT	FWS	FWS	FWS	SCT	SCT
7	ODISHA	SCT	FWS	FWS	WS	FWS	ISOL	ISOL
8	JHARKHAND	SCT	SCT	SCT	SCT	FWS	ISOL	ISOL
9	BIHAR	FWS	SCT	SCT	SCT	FWS	ISOL	ISOL
10	EAST UTTAR PRADESH	ISOL	ISOL	ISOL	SCT	ISOL	ISOL	ISOL
11	WEST UTTAR PRADESH	SCT	ISOL	ISOL	ISOL	ISOL	ISOL	DRY
12	UTTARAKHAND	SCT	SCT	SCT	ISOL	ISOL	ISOL	ISOL
13	HARYANA CHD. & DELHI	ISOL	ISOL	ISOL	ISOL	DRY	ISOL	DRY
14	*PUNJAB*	ISOL	ISOL	SCT	ISOL	DRY	ISOL	DRY
15	*HIMACHAL PRADESH*	SCT	SCT	ISOL	ISOL	ISOL	ISOL	ISOL
16	JAMMU & KASHMIR	ISOL	SCT	SCT	SCT	ISOL	ISOL	ISOL
17	WEST RAJASTHAN	ISOL	ISOL	ISOL	DRY	DRY	ISOL	DRY
18	EAST RAJASTHAN	SCT	SCT	SCT	ISOL	ISOL	ISOL	ISOL
19	WEST MADHYA PRADESH	SCT	SCT	SCT	FWS	FWS	SCT	SCT
20	EAST MADHYA PRADESH	SCT	SCT	SCT	SCT	SCT	ISOL	SCT
21	GUJARAT REGION D.D. & N.H.	ISOL	ISOL	SCT	FWS	FWS	FWS•	FWS
22	SAURASTRA KUTCH & DIU	ISOL	ISOL	ISOL	SCT	SCT	SCT	ISOL
23	KONKAN & GOA	WS	WS	WS	WS	WS	WS•	WS▪
24	MADHYA MAHARASHTRA	SCT	FWS	FWS	WS	WS	FWS	FWS
25	*MARATHAWADA*	SCT	FWS	FWS	WS	WS	FWS	FWS
26	*VIDARBHA*	SCT	SCT	FWS	WS	WS	SCT	FWS
27	*CHHATTISGARH*	SCT	SCT	SCT	SCT	FWS	ISOL	SCT
28	*COASTAL ANDHRA PRADESH*	WS	WS	WS	FWS	FWS	FWS	SCT
29	TELANGANA	FWS	WS	WS	FWS	FWS	SCT	ISOL
30	RAYALASEEMA	SCT	FWS	FWS	SCT	SCT	ISOL	ISOL
31	TAMILNADU & PUDUCHERRY	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL
32	COASTAL KARNATAKA	WS	WS	WS	WS	WS	WS•	WS•
DRY	NORTH INT.KARNATAKA	SCT	FWS	WS	WS	WS	FWS	FWS
34	SOUTH INT.KARNATAKA	SCT	FWS	FWS	FWS	FWS	FWS	FWS
35	KERALA	WS	WS	WS	WS	FWS	WS	WS
36	LAKSHADWEEP	WS	WS	FWS	FWS	FWS	WS	FWS

LEGENDS:

WS	WIDE SPREAD / MOST PLACES (76-100%)	FWS	FAIRLY WIDE SPREAD / MANY PLACES (51% to 75%)		
SCT	SCATTERED / FEW PLACES (26% to 50%)	ISOL	ISOLATED (up to 25%)	DRY	NO STATION REPORTED RAINFALL

•Heavy Rainfall (64.5-115.5 mm)	▪Heavy to Very Heavy Rainfall (115.6-204.4 mm)	▪Extremely Heavy Rainfall (204.5 mm or more)

FOG	* SNOWFALL	# HAILSTORM	HEAT WAVE	SEVERE HEAT WAVE
$ THUNDER SQUALL	DS/TS DUST/THUNDERSTORM		COLD WAVE	SEVERE COLD WAVE

Karnataka and South Interior Karnataka, some parts of Rayalaseema, Coastal Andhra Pradesh and some more parts of Central Bay of Bengal on 7th June 2017.

The Northern Limit of Monsoon (NLM) passed through Lat. 14.0°N / Long. 60.0°E, Lat. 14.0°N / Long. 65.0°E, Lat. 14.0°N / Long. 70.0°E, Honavar, Tumkur, Nellore and Lat. 15.0°N / Long. 85.0°E, Lat. 17.0°N / Long. 90.0°E, Lat. 20.0°N / Long. 91.0°E, Agartala, William Nagar, Kokrajhar and Lat. 27.0°N /Long. 90.0°E on 7th June 2017.

Heat Wave and Maximum Temperatures:

The maximum temperature is mostly likely to be above normal over plains of northwest and central India and below normal over western Himalayan region and southwest Peninsular India during most of the days between 9 to 22 June. Isolated heat wave conditions also likely at a few days over Rajasthan, South Uttar Pradesh, northwest Madhya Pradesh and south Haryana during the same period.

Rainfall Activity:

The above normal rainfall very likely along west coast and likely progress northward over the west coast and adjoining regions (Konkan & Goa, Madhya Maharashtra, Marathawada, South Gujarat) and also over the eastern coastal states of India (West Bengal, eastern parts of Jharkhand and eastern parts of Bihar, coastal and adjoining central parts of Odisha, Andhra, Telangana and South Chhattisgarh) between 9 to 16 June 2017. Normal rainfall activity over rest parts of the country outside eastern parts of central India where it is likely to be below normal during the same period.

Above normal rainfall activity very likely over the northeastern states, West Bengal, Jharkhand and Bihar and west coast (particularly over Konkan and Goa and adjoining regions) between 16 to 22 June. The remaining parts of India are likely to be below normal rainfall during the same period.

Rainfall Distribution (01.06.2017 to 09.06.2017)

Sr. No.	State	Day 09.06.2017				Period 01.06.2017 to 09.06.2017			
		Actual (mm)	Normal (mm)	% Dep.	Cat.	Actual (mm)	Normal (mm)	% Dep.	Cat.
1	Punjab	0.7	0.8	-12%	N	19.9	5.3	276%	LE
2	Haryana	0.6	0.7	-9%	N	17.5	6.5	170%	LE
3	West Rajasthan	6.8	0.5	1262%	LE	10.1	4.3	136%	LE
	East Rajasthan	4.4	1.4	218%	LE	13.9	7.5	86%	LE
4	Gujarat	2.0	1.3	56%	E	7.8	13.1	-41%	D
	Saurashtra & Kutch	2.2	1.5	49%	E	7.6	9.8	-23%	D
5	Maharashtra	6.2	4.5	38%	E	37.9	33.2	14%	N
	Madhya Maharashtra	3.6	3.9	-7%	N	30.1	32.7	-8%	N
	Marathwada	2.6	4.7	-44%	D	49.1	29.4	67%	LE
	Vidarbha	5.7	2.0	186%	LE	23.9	17.9	34%	E
6	West Madhya Pradesh	4.5	1.8	151%	LE	29.7	12.2	143%	LE
	East Madhya Pradesh	0.2	2.0	-92%	LD	13.6	13.9	-2%	N
7	Telangana	4.0	2.3	73%	LE	46.6	24.1	93%	LE
8	Coastal Andhra Pradesh	3.7	2.3	61%	LE	38.0	23.5	62%	LE
	Rayalseema	0.9	2.0	-56%	D	41.1	23.5	75%	LE
9	Coastal Karnataka	12.0	23.7	-49%	D	122.3	168.8	-28%	D
	N.I. Karnataka	4.2	2.9	45%	E	42.7	30.0	42%	E
	S.I. Karnataka	0.8	3.8	-79%	LD	23.5	37.8	-38%	D
10	Tamil Nadu & Pondicherry	0.4	1.3	-67%	LD	16.2	16.3	-1%	N
11	Orissa	2.4	4.1	-41%	D	25.9	35.1	-26%	D

L. Excess, Excess, Normal, Deficient, L. Deficient
Source : India Meteorological Department, Hydromet Division, New Delhi

Production Of Man-Made Filament Yarn

(In Mn. kg.)

Year/Month	Viscose Filament yarn	Polyester Filament yarn	Nylon Filament yarn	Poly propylene Filament yarn	Total
2005-06	53.09	1075.82	36.84	13.58	1179.33
2006-07	53.98	1270.83	32.25	13.41	1370.48
2007-08	51.07	1420.14	27.62	10.51	1509.34
2008-09	42.42	1332.09	28.07	15.08	1417.66
2009-10	42.70	1434.88	30.35	14.79	1522.72
2010-11	40.92	1462.28	33.46	13.14	1549.79
2011-12	42.35	1379.52	27.95	13.19	1463.01
2012-13	42.63	1288.15	22.91	17.18	1370.87
2013-14	43.99	1212.43	24.09	12.91	1293.42
2014-15	44.24	1158.20	32.55	12.77	1247.76
2015-16	45.41	1068.80	37.26	12.66	1164.13
2016-17 (P)	45.96	1060.42	41.08	11.45	1158.91
2015-16					
April	3.80	95.97	3.22	1.09	104.08
May	3.70	96.03	3.01	0.99	103.73
June	3.69	82.80	2.69	0.95	90.13
July	3.78	82.67	3.11	1.12	90.68
August	3.81	86.94	2.96	1.13	94.84
September	3.82	89.67	2.81	1.00	97.30
October	3.83	89.49	3.17	1.00	97.49
November	3.75	87.58	2.86	1.32	95.51
December	3.82	90.60	3.29	0.91	98.62
January	3.83	93.31	3.36	1.02	101.52
February	3.78	86.91	3.32	1.10	95.11
March	3.80	86.83	3.46	1.03	95.12
2016-17 (P)					
April	3.78	84.08	3.30	0.96	92.12
May	3.88	85.31	3.38	0.96	93.53
June	3.90	84.93	3.27	0.95	93.05
July	3.98	89.83	3.46	0.99	98.26
August	3.97	90.88	3.38	0.97	99.20
September	3.75	89.11	3.67	0.96	97.49
October	3.89	93.00	3.69	1.05	101.63
November	3.78	86.49	3.06	0.77	94.10
December	3.84	84.59	2.76	0.80	91.99
January	3.87	93.21	3.77	1.10	101.95
February	3.56	85.78	3.49	0.89	93.72
March	3.76	93.21	3.85	1.05	101.87

P - Provisional

Source : Office of the Textile Commissioner

UPCOUNTRY SPOT RATES

(Rs./Qtl)

Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	Spot Rate (Upcountry) 2016-17 Crop JUNE 2017 5th	6th	7th	8th	9th	10th
	Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]											
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	9814 (34900)	9983 (35500)	10095 (35900)	10095 (35900)	10095 (35900)	10095 (35900)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	10067 (35800)	10236 (36400)	10348 (36800)	10348 (36800)	10348 (36800)	10348 (36800)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	8211 (29200)	8155 (29000)	8099 (28800)	8127 (28900)	8155 (29000)	8183 (29100)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	9448 (33600)	9392 (33400)	9336 (33200)	9364 (33300)	9392 (33400)	9420 (33500)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10545 (37500)	10489 (37300)	10432 (37100)	10461 (37200)	10489 (37300)	10517 (37400)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	12260 (43600)	12120 (43100)	12092 (43000)	12120 (43100)	12176 (43300)	12232 (43500)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	9420 (33500)	9392 (33400)	9336 (33200)	9392 (33400)	9420 (33500)	9420 (33500)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	10151 (36100)	10123 (36000)	10067 (35800)	10123 (36000)	10151 (36100)	10151 (36100)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	12429 (44200)	12288 (43700)	12260 (43600)	12288 (43700)	12345 (43900)	12401 (44100)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	10236 (36400)	10208 (36300)	10151 (36100)	10208 (36300)	10236 (36400)	10236 (36400)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	10798 (38400)	10770 (38300)	10714 (38100)	10770 (38300)	10798 (38400)	10798 (38400)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	12485 (44400)	12345 (43900)	12317 (43800)	12345 (43900)	12401 (44100)	12457 (44300)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	11445 (40700)	11417 (40600)	11360 (40400)	11417 (40600)	11445 (40700)	11445 (40700)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	11642 (41400)	11614 (41300)	11557 (41100)	11614 (41300)	11642 (41400)	11642 (41400)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	11810 (42000)	11782 (41900)	11726 (41700)	11782 (41900)	11810 (42000)	11810 (42000)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	11979 (42600)	11951 (42500)	11895 (42300)	11951 (42500)	11979 (42600)	11979 (42600)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	12148 (43200)	12120 (43100)	12063 (42900)	12120 (43100)	12148 (43200)	12148 (43200)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	12401 (44100)	12401 (44100)	12401 (44100)	12401 (44100)	12401 (44100)	12401 (44100)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	12907 (45900)	12907 (45900)	12907 (45900)	12907 (45900)	12907 (45900)	12907 (45900)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	15607 (55500)	15607 (55500)	15607 (55500)	15607 (55500)	15607 (55500)	15747 (56000)

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