

Weekly Publication of



**Cotton
Association
of India**

COTTON STATISTICS & NEWS

Edited & Published by Amar Singh

2021-22 • No. 42 • 18th January, 2022 Published every Tuesday

Cotton Exchange Building, 2nd Floor, Cotton Green, Mumbai - 400 033
Telephone: 8657442944/45/46/47/48 Email: cai@caionline.in
www.caionline.in

Methods of Technology Transfer Pertinent for Sustainable and Profitable Cotton Production in Asia

Dr. Usha Rani is currently Principal Scientist at ICAR-Central Institute for Cotton Research, Regional Station, Coimbatore. She earned her B.Sc (Agri), M.Sc (Agri) and Ph.d in Agricultural Extension from Tamil Nadu Agricultural University. Her current research activities are dedicated to find out innovations in Transfer of Cotton Technology so that through support of appropriate, tailor made and translated technological information; yield and income of cotton growers can be enhanced. She has been dedicating since 2000 to the issue of Technology Transfer in Cotton through conducting nationwide demonstrations and has been involved in studies on usage of Information and Communication tools viz., web portal, mobile phone, social media etc., in dissemination of agricultural technologies and gender mainstreaming in cotton sector.

Despite geographical and political diversity among the cotton growing countries of Asia, these nations have several similarities and face common

challenges pertaining to cotton production. The extension system in majority of the Asian countries has played a very essential role in fostering cotton production. Despite massive efforts by several extension agencies, the anticipated results have not been achieved in many of the Asian countries due to the various challenges faced by the cotton sector.

Nevertheless, continued efforts to bring out desirable changes are underway in most of these countries. This article proposes few appropriate methods of technology transfer which may be pertinent for promoting the sustainable and profitable cotton production in the Asian region.

EXPERT'S Column



Dr. (Mrs.) Usha Rani
Principal Scientist, ICAR
- Central Institute for Cotton
Research, Regional Station,
Coimbatore

Cotton in Asia

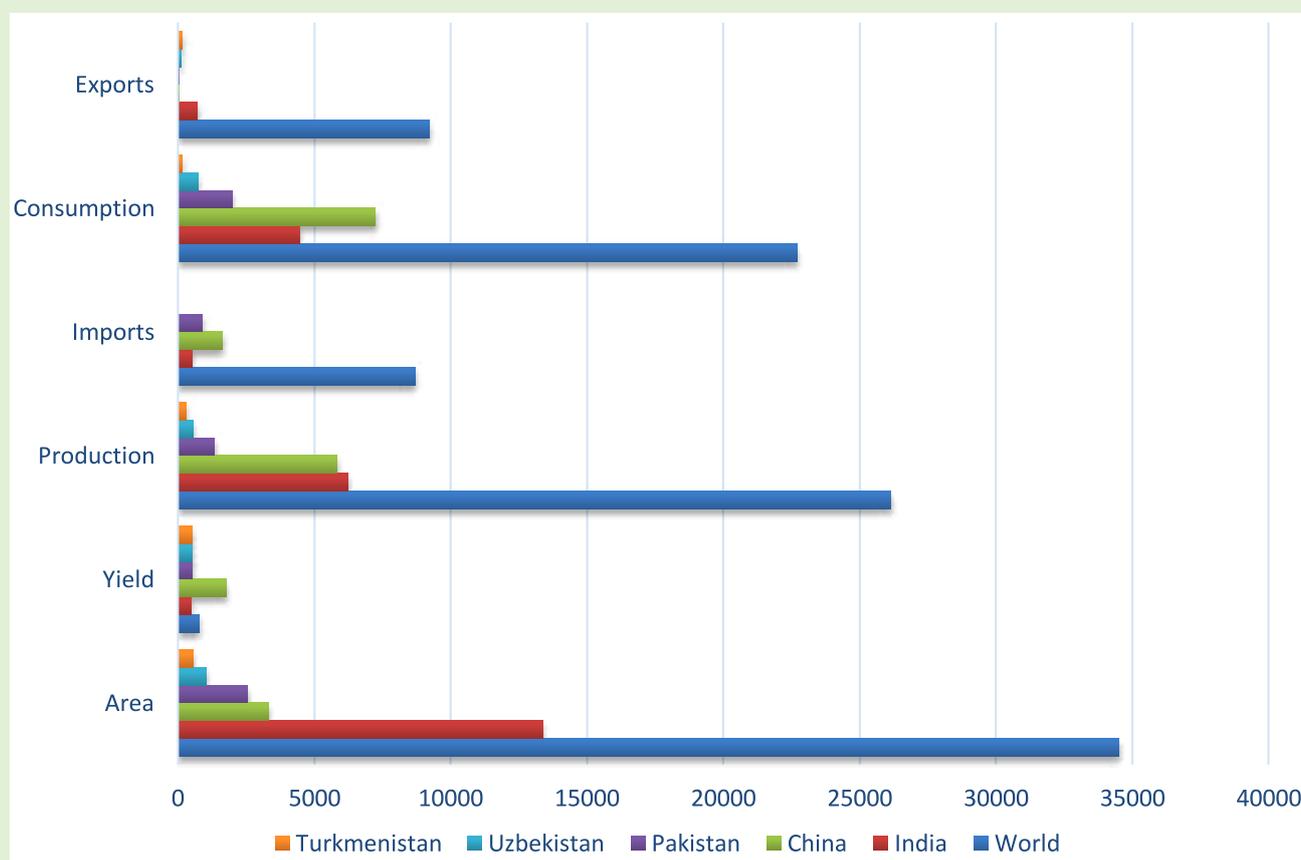
The Asian region is the epicenter for cotton production, trade and consumption. The countries in the Asian region account for almost two third of the area under cotton and they consume around 70% of the global cotton produced. Among the top ten cotton producing countries which account for more than 90 of

cotton in the world, five (India, China, Pakistan, Uzbekistan and Turkmenistan) fall in Asia. India, is the largest producer of cotton in 2021-22, with

the crop projected production of 6.61 million metric tonnes. On the productivity front, China is leading in this region with 1758 kg/ha in 2019-20.

Scenario of Cotton in Major Cotton Producing Countries in Asian Region during 2019-20 (Table & Graph)

Country	Area Harvested	Production	Import	Export	Domestic Consumption	Yield
	'000 ha	'000 metric tonnes				Kg/ha
India	13373	6205	496	696	4453	464
China	300	5800	1600	30	7230	1758
Pakistan	2527	1320	890	9	1984	522
Uzbekistan	1034	531	0	100	724	513
Turkmenistan	545	283	0	149	141 (ICAC)	519
World	34495	26134	8679	9197	22689	758



(Source: ICAC Country online, 2021)

The major cotton importing countries viz., China and Bangladesh (19% each), Vietnam (17%), Indonesia (8%) and Pakistan (7%) are situated in this region. Among the three dominant exporters of cotton which account for two thirds of global cotton trade exporters, Central Asia (others USA and Francophone Africa) belongs to this region. The total number of cotton growers in Asian region ranges between 32 million and 56 million people, primarily located in China and India. While China plants around 14% of the world's cotton, its farmers represent 70% of global cotton growers.

This is due to the fact that the average farm size in China (0.2ha) is significantly smaller than any other country in the world. The countries viz., China, Vietnam and Thailand in this region have 70-85% of women cotton growers and India has 55%. In this region, only India grows all the four cultivated species of cotton. Even though, majority of the countries in this region cultivate *Gossypium hirsutum*, few of them viz., India, Turkmenistan, Uzbekistan and China also cultivate *Gossypium barbadense*. Countries like India, Pakistan, Myanmar and Thailand also cultivate *Gossypium arboreum* to a limited extent. The species *Gossypium herbaceum* is cultivated in India and East and Central regions of Iran.

Key Issues Related to Asian Cotton

The cotton sector in Asia has several similarities and face common challenges. These include, predominance of small holder production systems, low level of mechanisation, vulnerability to climate change, high cost of production and low profit margins, key pests developing resistance to major insecticides, soil degradation, dwindling agro-biodiversity, restricted access to novel technologies due to IPR related issues, more moisture and trash content and poor fibre quality and lack of appropriate ginning technology.

Low productivity level and changes in species composition in India; soil pollution caused by plastic film and chemicals, labour shortage due to urbanisation, northward moving of rainfall caused by global climate change and intense competition for land from food crops in China; non availability of 100% certified seed for the total cultivated area in Pakistan; non availability of short duration cotton variety in Bangladesh;

inflated price of inputs in Tajikistan, labour issues in Uzbekistan and Turkmenistan; lack of financial and technical assistance in Afghanistan; lack of systematic cotton variety development and production research in Bhutan and high cost of cultivation in Nepal, are the main constraints faced by the cotton growers in their respective countries.

Cotton industry in this region also faces competition from man-made fibres viz., nylon, polypropylene and polyester. In order to survive in a competitive environment, cotton producers in this region must raise yields, reduce resource use, enhance fibre performance characteristics and develop new end-use applications.

Extension System in Asia

In Asia, agricultural extension has played a very essential role in realising higher crop yield in the era of green revolution. Agricultural extension system in this region is known for offering technical guidance, providing information, helping farmers to identify the problems and organise themselves into groups. Traditionally, State Agricultural Extension Departments in Asian countries shoulder responsibility to educate farmers. The Department of Agriculture functions under the Ministry of Agriculture is primarily responsible for realising development. The extension wing consists of a number of officers in the head office but has a clear line of command from national level to the province, district and down to the village level.

In most of the Asian countries, extension services, function through its four or five sub divisions. In some of the Asian countries, the status and role of extension have been changed because the NGOs and Private sector along with Government are undertaking extension activities.

Many private companies which market fertilizers, seeds, insecticides etc., are also providing extension services to cotton farmers. In many of the Asian countries, the Better Cotton Initiative (BCI) and implementing partners of BCI are also involved in extension activities. In South East Asian countries, the agricultural extension system is pluralistic in the mainland countries and public sector led in the maritime countries.

Challenges faced by Asian Cotton Extension System in Transferring Technologies Pertinent to Agriculture in General and Cotton in Particular

It is a fact that extension efforts in Asia have not always achieved the anticipated results of bridging yield gaps. The extension services are faced with many challenges. But continued efforts to bring out desirable changes are underway. Weak organisational structure, low level of participation of farmers in development works, lack of appreciation and incentives for extension staff and the wide communication gaps among the researchers, policy makers, planners, farming communities and the extensionists are some shortcomings of the present system.

Overlapping of extension activities carried out by the national extension services and various fertilizer and pesticide companies, lack of coordination between extension and other agencies working for the improvement of agriculture, poor research - extension - farmers linkage, non-availability of critical inputs, proper marketing facilities and essential credit for farming, the degree of centralisation / decentralisation, top-down approach, lack of extension staff and extension staff loaded with non-extension tasks, lack of essential extension skills and innovations, inadequate in-service training of extension agents, inadequate finances and funding for extension works, poor, weak and deteriorated infrastructure, absence of quality control and impact assessment mechanism, unclear extension mandates and lack of job description for extension staff are the other challenges faced by Asian cotton extension system.

Unless appropriate national extension systems for the development of agricultural extension services are established in Asian countries through institutional reforms, backed by national policies these countries would not be able to exploit their full potential in agriculture.

Extension Methods Relevant for Promoting Cotton Production in Asia

Extension is as an effective mechanism and a service or system which helps farmers to help themselves. Farmers are exposed to

various educational procedures to equip and enable them to improve their farming practices, cultivation techniques; increase production efficiencies and enhance income levels; improve livelihoods, and elevate the social, economic and educational standards. Inappropriate extension methodology could be a prime reason why extension services in Asia reach only a very limited number of farmers. There are several extension methods with specific characteristics, features and properties and the success of promotion depends upon the correct choice of extension methods. It is imperative for the agencies who promote cotton in Asian countries to acquaint themselves with the various extension methods used over generations and innovated in the recent past.

Time Tested Conventional Extension Methods

In Asian countries, farmers have low literacy levels, hence visual aids are especially effective as they learn more effectively by seeing. For the literate audience, the information provided through print media viz., newspapers, magazines, journals, leaflets, pamphlets and brochures is of great importance since it has low production cost. Information disseminated by mass media viz., radio and television still have immense potential in Asian countries for cotton advisory works. The farm radio forum and community radio have sufficient popularity among cotton farmers in Asian countries since they involve the participation of localities. Launching of campaigns for a single aspect is the main extension method followed by many of the input dealing companies in Asia. Conducting field demonstrations under the close supervision of cotton scientists is another proven technique.

While conducting group meetings and demonstrations, slide and film shows have proved very helpful. Farmer Field School (FFS) approach is a successful extension method to diffuse the cotton technologies in the Asian region and needs to be continued. Cotton research and development institutes in the Asian region conduct periodic on farm and off farm training programs for all stakeholders in cotton and that need to be continued with exclusive training programs for women and for the resource poor tribal cotton growers.

Promising Contemporary Extension Methods

The developments in the ICT sector throw enormous opportunities to the cotton extension sector in Asia. India has been highly successful in using mobile and internet services for cotton advisory and this can be replicated in other Asian countries. Tele centers in Lao People's Democratic Republic and Vietnam, VERCON (Virtual Extension, research and Communication Network) in Bhutan, interactive e-mail facilities in Philippines, mobile phone based advisory services in India and initiatives on privatisation of extension by Pakistan need to be strengthened for cotton technology transfer. The major ICT tools like Expert Systems - Information System, Decision Support System and Crop Doctor, Video Conferencing, Interactive multimedia, Web search tools, Social media, Pedia, Video and Data base need to be included in the ICT initiatives like web portals - knowledge repositories based online advisory and market services, Village Knowledge Centres (VKCs) and Village Resource Centres (VRCs), mobile based advisory services and hybrid initiatives for technology transfer and information support in Asian cotton cultivation.

Harnessing social media for cotton development, web based cotton schools, special capacity building programs for cotton input dealers, cotton market information services, customer hiring centers for major farm implements to be used in cotton farms, grouping of cotton farmers viz., Commodity Interest Groups, Self Help Groups, Farmers' Organisations, Farmers' Producer Companies, Corporate Social Responsibility of private companies for cotton technology transfer and pluralism in cotton extension involving both public and private sectors can also be thought of in Asia.

Convergence of Conventional and Contemporary Extension methods

Convergence of Conventional and Contemporary Extension methods in the form of a synergistic TOT approach for profitable and sustainable cotton production is a new extension approach proposed by the cotton extension scientists of ICAR- Central Institute for Cotton Research in India.

This will be a convergence of all customary and contemporary extension methods tailored for cultivation of cotton crop in India. It includes Decision Support System for selecting a suitable variety/hybrid, Field Demonstration for cultivating a new variety / hybrid, soil sampling and soil health card before land preparation, a booklet with entire package of practices for ready reference during cultivation, weekly voice SMS during the entire crop season, weekly advisory through website for knowing the do's and don'ts in cotton cultivation, short duration video films to accurately understand a particular technology, using Whatsapp groups for clarifying the suddenly occurring pests / diseases / disorders, mobile apps to know the strategies to manage the pests and diseases, method demonstration to disseminate the best harvesting and post harvesting practices, market intelligence to sell the seed cotton for the best price, personal field visits by scientists and exposure visits by farmers to see and believe the advantages of technologies, specialised training programs to improve the skill and radio broadcast and video telecast for spreading the success of this package to mass farmers. This approach can be followed in other Asian countries for promoting sustainable and profitable production of cotton.

Conclusion

Technology diffusion is a powerful tool for changing the cultivation behavior and livelihood of many small scale cotton farmers in Asian countries. But the fact remains that extension efforts in Asia have not produced the anticipated results due to various challenges. Few conventional extension methods need to be continued and few contemporary extension methods need to be included in the technology transfer initiatives in Asia. Adopting the suggested extension methods with proper national policy framework for the development of agricultural extension services in Asian countries will certainly promote the sustainable and profitable production of cotton.

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

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

Cotton Exchange Building, 2nd Floor, Opposite Cotton Green Railway Station,
Cotton Green (East), Mumbai - 400 033.
Tel.: +91 8657442944/45/46/47/48 • E-mail: cai@caionline.in • www.caionline.in



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

Cotton Exchange Building, 2nd Floor, Opposite Cotton Green Railway Station, Cotton Green (East), Mumbai - 400 033, Maharashtra, INDIA
Tel.: +91 8657442944/45/46/47/48 • E-mail: cai@caionline.in • www.caionline.in

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 January 2022					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Gravimetric Trash	Strength /GPT	10th	11th	12th	13th	14th	15th
3	GUJ	ICS-102	Fine	22mm	4.0 – 6.0	13%	20	12654 (45000)	12654 (45000)	12654 (45000)	12795 (45500)	12795 (45500)	12935 (46000)
								Spot Rate (Upcountry) 2021-22 Crop					
1	P/H/R	ICS-101	Fine	Below 22mm	5.0 – 7.0	4%	15	13020 (46300)	13076 (46500)	13076 (46500)	13076 (46500)	13076 (46500)	13160 (46800)
2	P/H/R (SG)	ICS-201	Fine	Below 22mm	5.0 – 7.0	4.5%	15	13188 (46900)	13244 (47100)	13244 (47100)	13244 (47100)	13244 (47100)	13329 (47400)
3	GUJ	ICS-102	Fine	22mm	4.0 – 6.0	13%	20	-	-	-	-	-	-
4	KAR	ICS-103	Fine	23mm	4.0 – 5.5	4.5%	21	-	-	-	-	-	-
5	M/M (P)	ICS-104	Fine	24mm	4.0 – 5.5	4%	23	16563 (58900)	16563 (58900)	16563 (58900)	16591 (59000)	16591 (59000)	16675 (59300)
6	P/H/R (U) (SG)	ICS-202	Fine	27mm	3.5 – 4.9	4.5%	26	19150 (68100)	19009 (67600)	19009 (67600)	19037 (67700)	19093 (67900)	19234 (68400)
7	M/M(P)/SA/TL	ICS-105	Fine	26mm	3.0 – 3.4	4%	25	-	-	-	-	-	-
8	P/H/R(U)	ICS-105	Fine	27mm	3.5 – 4.9	4%	26	19290 (68600)	19150 (68100)	19150 (68100)	19178 (68200)	19234 (68400)	19375 (68900)
9	M/M(P)/SA/TL/G	ICS-105	Fine	27mm	3.0 – 3.4	4%	25	-	-	-	-	-	-
10	M/M(P)/SA/TL	ICS-105	Fine	27mm	3.5 – 4.9	3.5%	26	-	-	-	-	-	-
11	P/H/R(U)	ICS-105	Fine	28mm	3.5 – 4.9	4%	27	19600 (69700)	19459 (69200)	19459 (69200)	19487 (69300)	19543 (69500)	19684 (70000)
12	M/M(P)	ICS-105	Fine	28mm	3.7 – 4.5	3.5%	27	-	-	-	-	-	-
13	SA/TL/K	ICS-105	Fine	28mm	3.7 – 4.5	3.5%	27	-	-	-	-	-	-
14	GUJ	ICS-105	Fine	28mm	3.7 – 4.5	3%	27	-	-	-	-	-	-
15	R(L)	ICS-105	Fine	29mm	3.7 – 4.5	3.5%	28	19375 (68900)	19234 (68400)	19234 (68400)	19262 (68500)	19262 (68500)	19346 (68800)
16	M/M(P)	ICS-105	Fine	29mm	3.7 – 4.5	3.5%	28	20696 (73600)	20556 (73100)	20556 (73100)	20556 (73100)	20556 (73100)	20668 (73500)
17	SA/TL/K	ICS-105	Fine	29mm	3.7 – 4.5	3%	28	20752 (73800)	20612 (73300)	20612 (73300)	20612 (73300)	20612 (73300)	20724 (73700)
18	GUJ	ICS-105	Fine	29mm	3.7 – 4.5	3%	28	20584 (73200)	20443 (72700)	20443 (72700)	20443 (72700)	20443 (72700)	20584 (73200)
19	M/M(P)	ICS-105	Fine	30mm	3.7 – 4.5	3.5%	29	21090 (75000)	20949 (74500)	20949 (74500)	21006 (74700)	21090 (75000)	21231 (75500)
20	SA/TL/K/O	ICS-105	Fine	30mm	3.7 – 4.5	3%	29	21231 (75500)	21090 (75000)	21090 (75000)	21146 (75200)	21231 (75500)	21371 (76000)
21	M/M(P)	ICS-105	Fine	31mm	3.7 – 4.5	3%	30	21596 (76800)	21455 (76300)	21455 (76300)	21512 (76500)	21596 (76800)	21709 (77200)
22	SA/TL/K/TN/O	ICS-105	Fine	31mm	3.7 – 4.5	3%	30	21680 (77100)	21540 (76600)	21540 (76600)	21596 (76800)	21680 (77100)	21793 (77500)
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	32310 (114900)	32310 (114900)	32310 (114900)	32310 (114900)	32310 (114900)	32310 (114900)
25	K/TN	ICS-107	Fine	34mm	2.8 - 3.7	3.5%	34	32732 (116400)	32732 (116400)	32732 (116400)	32591 (115900)	32591 (115900)	32591 (115900)
26	M/M(P)	ICS-107	Fine	35mm	2.8 - 3.7	4%	35	33322 (118500)	33181 (118000)	33181 (118000)	32900 (117000)	32900 (117000)	32900 (117000)
27	K/TN	ICS-107	Fine	35mm	2.8 - 3.7	3.5%	35	34306 (122000)	34025 (121000)	34025 (121000)	33884 (120500)	33884 (120500)	33884 (120500)

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