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SUB THEME OF THIS ISSUE

Cotton

COVER PAGE

Introducing this issue

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Editor's Desk

Dr. Y.Eswara Prasad

India is traditionally a cotton producing country, being world's number one in acreage. Despite having the largest area under cotton (91.32 lakh ha) in the world (351.75 lakh ha), India ranks third in world output of cotton due to its abysmally low average yield when compared to world's average and also due to poor quality in terms of varietal purity and trash content. The production costs of cotton are also high in India compared to other countries.

The country is importing around 22 lakh bales of cotton due to price and quality considerations. Though there is a 10% import duty on cotton, most of the cotton is imported duty free in the country as it is for the production of goods that are exported.

This issue is focused on cotton status in India in terms of production, supply, distribution, exports, imports, pesticide residues in cotton and also on the status of Bt cotton in India.

Cotton production, supply and distribution in India and world ('000 Metric tonnes)

Particulars	2005-06		2006-07	
	India	World	India	World
Beginning stocks	1,908	11,753	2,028	11,428
Production	4,180	24,884	4,572	25,167
Imports	87	9,616	109	9,542
Total supply	6,176	46,253	6,709	46,137
Use	3,440	25,412	3,647	26,496
Loss	0	-256	0	-313
Exports	708	9,670	925	9,439
Ending stocks	2,028	11,428	2,137	10,514

Source : United States Department of Agriculture

Although India is a major cotton producer with significant potential to expand output, it is important to take suitable measures to keep domestic production in pace with the quantity and quality needs of an expanding textile and apparel industry.

State-wise area, production and productivity of cotton in India

Area in lakh hectares ; Production in lakh bales ; Yield in kgs per hectare

States	2003-04			2004-05			2005-06			2006-07		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y
Gujarat	16.40	40.30	40.30	19.60	73.00	651	20.77	89	728	23.90	90	640
Maharashtra	27.40	30.80	30.80	29.80	52.00	296	28.89	36	212	31.24	55	299
Andhra Pradesh	8.40	18.90	18.90	11.78	21.90	316	10.37	32	525	9.48	32	574
India	76.30	138.7	138.7	82.90	232.0	489	88.73	244	467	91.32	270	503

Source : www.indiastat.com

India accounts for over 18 percent of world cotton production and has the largest area under cotton (8.5-9 Million hectares) representing 25 percent of the global cotton area. Compared with 2003-04 (7.63 Million hectares), India's cotton area in 2006-07 stands larger at 9.13 Million hectares. The expansion in cotton area is attributed to higher cotton prices in domestic market. States that have registered increased cotton area for 2006-07 include Gujarat, Maharashtra, Rajasthan, Madhya Pradesh and Punjab.

In India, cotton yields increased significantly in the 1980's and through the first half of 1990's but since 1996 there is no increase in yield. In the past, the increase in cost of production of cotton was partially offset by increase in yield, but now with stagnant yield, the cost of production is rising. Besides low yields, Indian cotton also suffers from inconsistent quality in terms of length, micronaire and strength. Modern textile machinery, both spinning and weaving require cotton and yarn of high strength and good micronaire value. Low micronaire cotton is difficult to process cost effectively on modern machinery.

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How are the prospects for Indian cotton ?

- Given the importance being attached to the textile industry for exports, the demand for cotton is likely to grow significantly in the coming years but cotton output is unlikely to match the demand growth. Hence, prospects for exports of cotton from India are good.
- Cotton is on India's Open General Licence at zero duty which means that it can be imported without seeking prior approval and no customs duty has to be paid.
- The demand is expected to be substantial for long-staple cotton while the medium-staple variety may also have to be occasionally imported.
- India's textile industry already enjoys an advantage in world markets. This industry is being further developed, and this will spur demand for cotton, especially the long-staple variety.
- If yields keep moving towards the world average, the country could become a big player in world trade very quickly.

Country-wise area, production and productivity of cotton

Country	Area ('000 Ha)		Production ('000 bales)		Yield (Kg/ha)	
	2005-2006	2006-2007	2005-2006	2006-2007	2005-2006	2006-2007
India	8,873	9,132	24,400	27,000	467	503
United States	5,586	5,186	23,890	20,431	931	858
China	5,060	5,300	26,200	27,500	1,127	1,130
Pakistan	3,100	3,250	9,850	10,500	692	703
World	34,393	35,175	1,14,290	1,15,590	724	715

Source : U.S. Department of Agriculture

Adoption of Bt-cotton in India

Year	Area under Bt-cotton in India (ha)	No. of farmers adopting Bt cotton in India	Area under Bt cotton in A.P (ha)
2002-03	29,307	Few only	3,800
2003-04	85,927	≥ 40,000	5,200
2004-05	5,34,731	3,00,000	74,900
2005-06	12,50,833	10,00,000	2,26,700
2006-07	35,61,000	≥ 10,00,000	6,57,000

Source : Daily Cotlook

The total area planted in the country under Bt cotton has gone up from 6.2% in 2004-05 to 39% in 2006-07. Out of the 91.32 lakh hectares under cotton cultivation in India, about 35.61 lakh hectares is under certified Bt cotton cultivation.

The overall cotton production in the country has also increased from 24.4 million bales in 2005-06 to 27 million bales in 2006-07. While the area under certified Bt cotton cultivation has gone up significantly, increase in the total area under cotton cultivation is marginal at about 5%. Approved Bt cotton also enjoys a lion's share in the overall hybrid seeds market in the country. Of the 150 lakh packets of hybrid seeds sold last year, certified Bt seeds account for about 35 lakh packets.

Andhra Pradesh stands second in Bt cotton acreage with 6.57 lakh hectares, which is around 69.3 percent of total area of the state, according to a data released by Directorate of Cotton Development.

Problems associated with pesticides used in conventional cotton production

- Nearly 25 million people (48 people / minute) around the world die every year due to pesticide poisoning.
- Of the total pesticides used in India, 44.5% of pesticides are used in cotton. This amounts to nearly 2462.13 crores.
- The ill effects of nearly 400 types of pesticides used in cotton are not known.
- The fodder obtained from conventional cotton is toxic for cattle.
- The oil obtained from cotton seeds is used as an ingredient in food preparation. Hence, it affects human too.

What are the merits of organic cotton cultivation ?**Environment friendly technology**

- Organic cotton production relies on non-chemical inputs and will decrease pollution hazards.
- The use of natural products and bio-control agents for pest management does not carry risks of carcinogenic damage.
- Chances of pollution is very minimal or totally absent.
- Organic farming helps to restore or preserve the natural equilibrium between different components of the ecosystem.

Reduction in cost of cultivation

Organic farming creates rural employment and use of on-farm resources makes it more cost effective.

Management of insecticide resistance

Organic farming results in the growth of natural enemies which helps in controlling the insect pests from developing resistance to pesticides.

Minimum support prices for cotton in India

Variety	2002-03	2003-04	2004-05	2005-06	2006-07
F414/H-777/J-34	1675	1725	1760	1760	1770
F414/H-777/J-34	1695	1750	1785	1800	1810
F414/H-777/J-34	1715	1780	1815	1835	1845
LRA-5166	1750	1800	1835	1835	1845
JKHY1/MECH-11	1800	1850	1885	1885	1895
S-6/10	1860	1910	1960	1985	2005
H-4/H-6	1875	1925	1960	1980	1990
RCH-2	—	—	—	1990	2000
Bunny/Brahma	1925	1975	2010	2010	2020
MCU-5	1950	2000	2035	2055	2065
Surbhi	—	—	2035	2055	2065
DCH-32 MP	1975	2030	2065	2100	2320
DCH-32 SOUTH	2075	2130	2170	2200	2430
Suvin	3000	3080	3135	3135	3145

Source : www.agricoop.nic.in

Approved Bt cotton cultivars for commercial cultivation in Andhra Pradesh

2002	2003	2004	2005
MECH 12	MECH 12	MECH 12	RCH 2
MECH 162	MECH 162	MECH 162	RCH 20
MECH 184	MECH 184	MECH 184	RCH 368
		RCH 2	MRC 6322
			MRC 6918
			NCS 145
			(Bunny) Bt
			NCS 207
			(Mallika) Bt

Pesticides/pesticides formulations banned in India

S.No.	Particulars
A.	Pesticides Banned for manufacture, import and use
1.	Aldrin
2.	Benzene Hexachloride
3.	Calcium Cyanide
4.	Chlordane
5.	Copper Acetoarsenite
6.	Clbromochloropropane
7.	Endrin
8.	Ethyl Mercury Chloride
9.	Ethyl Parathion
10.	Heptachlor
11.	Menazone
12.	Nitrofen
13.	Paraquat Dimethyl Sulphate
14.	Pentachloro Nitrobenzene
15.	Pentachlorophenol
16.	Sodium Methane Arsonate
17.	Tetradifon
18.	Toxafen
19.	Aldicarb
20.	Chlorobenzilate
21.	Dieldrine
22.	Maleic Hydrazide
23.	Ethylene Dibromide
24.	TCA (Trichloro acetic acid)
B.	Pesticide / Pesticide formulations banned for use but their manufacture is allowed for export
25.	Nicotin Sulfate
26.	Phenyl Mercury Acetate
27.	Captafol 80% Powder
C.	Pesticide formulations banned for import, manufacture and use
28.	Methomyl 24% L
29.	Methomyl 12.5% L
30.	Phosphamidon 85% SL
31.	Carbofuran 50% SP

Is there a need to denotify certain varieties of cotton to overcome the quality problems?

One of the problems being faced by the cotton spinning mills in the country is that they are unable to procure cotton of uniform variety in bulk purchases since wide range of varieties of seeds are used by farmers which yield cotton of varying staple length, micronaire, strength and other properties.

The Cotton Advisory Board appointed a 5-member panel which has suggested the government that only 30 percent or 40-45 varieties of cotton seeds out of the 150 plus certified varieties which are in circulation in the country need to be retained to get good quality cotton. The other varieties, which have been officially released but have lost their relevance with time, should be denotified by the government. The panel, however, has not taken into account the other 175 to 200 different varieties of cotton seeds for sowing produced by the private companies in the country and being used by the farmers, many of which are officially not certified.

In case of the varieties developed by the public research institutions, it is a well-known fact that only about a quarter of them account for 95 percent of the cotton produced from such varieties. In other words, the 100 different varieties of seeds which the panel wants to be denotified are in fact not in use in any significant quantities in the country, though their official denotification is still necessary. In this matter, the concept of **one variety in one village** is more relevant.

World cotton prices (US cents per lb)

	2002-03	2003-04	2004-05	2005-06	2006-07
August	49.62	60.49	53.56	53.99	60.92
September	49.02	64.08	56.37	57.48	59.48
October	49.58	72.56	52.60	57.75	57.87
November	52.30	76.77	49.23	56.80	58.71
December	55.24	73.62	51.03	56.63	61.62
January	56.71	76.15	51.28	59.10	60.42
February	58.61	73.94	52.17	60.75	--
March	61.04	72.23	56.40	58.62	--
April	60.78	69.45	56.96	57.16	--
May	57.80	70.04	55.96	55.43	--
June	58.50	64.55	53.99	56.42	--
July	60.21	57.02	54.91	56.65	--

Source: Daily Cotlook

India competes with U.S. cotton exporters for China trade

India is becoming a keen competitor for U.S. cotton growers in selling the fiber to China, the world's top consumer. The U.S. Department of Agriculture (USDA) forecasted China's cotton imports for 2006/07 at 17.25 million (480-lb) bales. India's cotton exports during this year were projected at 4.1 million bales. India enjoys the advantage of offering cotton that is discounted from more expensive varieties and lower freight costs in transporting the fiber to its Chinese customers.

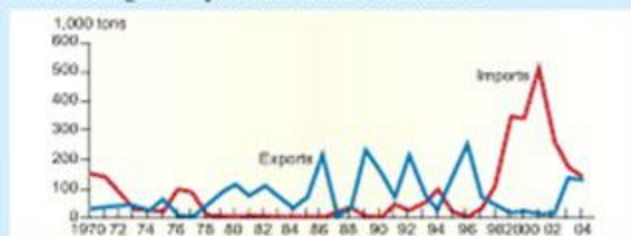
USA is the world's top exporter of cotton. USDA has pegged U.S. cotton exports in 2006/07 at 16 million bales, with most of that bound for China and Turkey, the second biggest market for U.S. fiber. Demand in the two Asian giants has not been fully tapped by US since both have concentrated mainly on turning cotton into textiles and apparel for export to the world market, primarily to the United States.

USDA forecasts cotton consumption for 2006/07 in China at 50 million bales while that of India stands at 17.8 million bales. Expanding incomes and increasing affluence in the two countries with a combined population topping 2.0 billion would indicate a huge market for cotton in the years ahead.

There's a lot of potential demand in both countries. China's ability to increase cotton output is hamstrung by the need to produce more grain for its people and limited land. India has the land, but the challenge here is to "keep that demand moving." It is evident that by processing cotton produced in to fibre and apparels, India can cater to the needs of huge domestic demand and also can concentrate on nearby external markets, which is possible only by producing quality cotton.

Is India going to be a net importer of cotton in the future?

India has traditionally been a net cotton exporter, but emerged as a significant net importer in 1998. Increased import demand has been associated with a combination of steady growth in domestic consumption, rising exports of cotton-based textiles and a period of stagnating cotton production during 1997-2002. Rising imports have also been supported by more liberal import policies for cotton since the early 1990s and, in the late 1990s, by increased demand for quality cotton which could not be met from domestic production. Although imports declined in 2003 and 2004 along with the recovery in cotton production, it remains uncertain if the recent gains in production can be sustained.



Source: U.S. Department of Agriculture, Foreign Agricultural Service, Production, Supply, and Distribution database.

Cotton imports were liberalized in 1991, when the imports which were permitted previously through Cotton Corporation of India (CCI) was terminated and imports were placed on Open General License, allowing unrestricted imports by private traders. The import duty was originally set at zero, but little imports occurred until the late 1990s, when world prices declined and India faced domestic supply shortfalls. The import duty was raised to 5.5 percent in 2000 and to 10 percent in 2002, but remains low relative to tariffs imposed on most other agricultural products. Export-oriented textile units, which are exempt from the import duty, account for most of India's cotton imports.

Whether Bt cotton gaining/losing importance?

The first genetically modified crop in India, Bt cotton, has been introduced against bollworm infestation. Following several years of field trials, to study its agronomic, environmental and biosafety impact through experiments, Genetic Engineering Approval Committee (GEAC) approved the commercial cultivation of three Bt cotton hybrids in 2002 namely MECH-12 Bt, MECH-162 Bt and MECH-184 Bt. Transgenic technology is suitable for the Indian farmer despite small farm holdings. The area under Bt cotton is increasing rapidly despite of its mixed performance.

Rigorous scientific studies conducted in India and abroad demonstrate that Bt cotton and its products are safe for the environment, humans, animals, and agriculture. The use of Bt cotton is a positive step towards environmental protection through reduced use of insecticides in the crop production. On the other hand, it also avoids pesticide hazards to farmers. This reduced use of insecticides may enhance the effectiveness of biological control and implementation of Integrated Pest Management (IPM) programs.

However, a report commissioned by the Andhra Pradesh Coalition in Defence of Diversity, shows that the Bt cotton has had barely any impact on yield, has only allowed for a small reduction in the use of pesticides, and yet the seed costs so much that farmers are even worse off than before. Obviously, there are some areas where Bt cotton's performance was below optimal, for reasons that largely lie outside Bt technology, such as growing cotton in grossly unsuitable areas, faulty management practices, vagaries of the weather. However, it has been observed that the farmers seldom practice IPM along with Bt cotton cultivation. Research has to be taken up on a wide scale recording performance of Bt cotton to direct the farmers as Bt cotton is still a controversy.

MRLs for cotton fixed by the Codex Alimentarius Commission (CAC)

Pesticide	MRL(mg/Kg)
COTTON SEED	
Acephate	2.0
Aldicarb	0.1
Amitraz	0.5
Azinphos-Methyl	0.2
Carbofuran	0.1
Chloromequat	0.5
Chlorpyrifos	0.05
Clethodim	0.5
Cyfluthrin	0.05
Cyhalothrin	0.02
Dicofol	0.1
Dimethipin	1.0
Dissulfoton	0.1
Endosulfan	1.0
Ethephon	2.0
Fenamiphos	0.05
Fenpropathrin	1.0
Fenvalerate	0.2
Glyphosate	10.0
Heptachlor	0.02
Metalaxyl	0.05
Methamidophos	0.1
Methidathion	1.0
Methomyl	0.2
Oxamyl	0.2
Paraquat	0.2
Permethrin	0.5
Phorate	0.05
Phosmet	0.05
Pirimicarb	0.05
Profenofos	2.0
Propargite	0.1
Pyriproxifen	0.05
Quintozene	0.01
Triazophos	0.1
COTTON SEED OIL, CRUDE	
Amitraz	0.05
Chlordane	0.05
Chlorpyrifos	0.05
Cyhalothrin	0.02
Dicofol	0.5
Dimethipin	0.1
Endosulfan	0.5
Fenamiphos	0.05
Fenpropathrin	3.0
Fenvalerate	0.1
Glyphosate	0.05
Methidathion	2.0

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