

ROLE OF PRIVATE SECTOR R&D IN LONG AND EXTRA LONG STAPLE COTTON PRODUCTION IN INDIA

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Introduction

Cotton, the White gold, enjoys a predominant position amongst all cash crops in India and is the most important commercial crop cultivated mainly for its textile fibre till date due to its inherent eco-friendly and comfort characteristics. Qualitative and quantitative transformation has taken place in cotton production in India ever since Independence. With the combined efforts of the millions of cotton farmers, talented scientists and technology providers, dynamic seed production industry in the private sector and field extension agencies and aided by favorable weather conditions, the national cotton production has touched a new record of 244 lakh bales in 2005-06, as compared to 26 lakh bales produced in 1947-48 at the time of independence,

The production during 2006-07 was estimated to be even higher at 270 lakh bales, but actual production was only 210 lakh bales. Official projections have been made to achieve 375 lakh bales by the end of the 11th five-year plan i.e 2011-12.

Quantitative change in area and production of cotton in India

Period	Area (Million ha)	Production(million bales of 170 kg each)
1947 - 48	4.3	2.3
1966 – 67	7.8	5.3
1996 - 97	8.9	17.8
2002-03	7.67	8.62
2005 - 06	8.8	24.3
2006-07	9.13	28.0

Indian cotton crop is the most diverse in the world, both in terms of botanical status and fibre quality range. Three of species of *Gossypium* contributing to the cotton trade and industrial consumption viz., *hirsutum*, *arboreum* and *herbaceum* are commercially grown in the country. The fourth, *G.barbadense* which includes the highest quality of fibre with extra-long staple, figures as a parent in many of the hybrid cottons, which is a significant feature of Indian cotton Scenario.

Long and Extra Long Staple Cotton:

Among the fibre properties which contribute most to spinning value are staple length, fibre fineness and strength. The staple length constitutes the basic norm for evaluating quality of cotton in the trade and by the consuming textile industry. Historically, staple length classification into various categories has undergone changes over the years and different parameters have been adopted in Egypt, U.S.A and India with marginal differences.



Current standard for Staple length classification of Indian cotton are as follows

S.No	Category	Range of 2.5% span length(mm)
1	Short	20.0 and below
2	Medium	20.5 – 24.5
3	Medium long	25.0 – 27.0
4	Long	27.5 – 32.0
5	Extra Long	32.5 and above

Extra long staple cotton category includes extra long staple (ELS) and long staple (LS) varieties produced in Egypt and ELS varieties produced in other countries. ELS cotton is produced from the lint fibres of *Gossypium barbadense*, a perennial plant originally domesticated in South America. World over, the *Gossypium barbadense* species contributes to the ELS cotton production. However in India, both *G.barbadense* species and the interspecific hybrids between *G.hirsutum* and *G.barbadense* account for this group. ELS cotton fibres are generally stronger and finer than upland cotton fibres. Normally extra long staple cotton varieties are used for producing fine and superfine counts for yarn. This category of yarn is the mainstay of the handloom industry for weaving the traditional Indian apparel of muslin, sarees, dhotis etc. They are also used for knitting high-end varieties of garments, worn close to the skin and kids-wear. There is a steady growth for the products manufactured out of fine and superfine varieties (ie. yarn, fabric, garment and made-ups) both in the local as well as export markets.

Production of three staple length group of cotton underwent dramatic change overtime and the long and Extra long staple cotton share raised to 47% from 17% over the last four decades.

Qualitative change in production of three staple length group of cotton

Period	Production in Million bales(170 kg each)			
	Long and extra long	Medium	Short	Total
1947 - 48	--	1.53(67)	0.76(33)	2.29
1961 – 66	0.92 (17)	3.70(68)	0.82(15)	5.44
2004 – 05	10.90 (47)	11.25(48)	1.04(5)	23.20

Long and Extra long staple cotton has therefore assumed considerable economic significance in the cotton production scenario.

ELS cotton in the world:

Due to the decline in ELS price witnessed during the year 2004-05, world ELS cotton area declined from 7.35 lakh hectares to 6.45 lakh hectares (14% decline) during the year 2005 – 06. Further unfavorable weather conditions also affected world productivity which declined to 872 kg per hectare. As a result, world production of Extra Long Staple cotton declined to 5.63 lakh tonnes from 7.33 lakh tonnes (23%



decline). Currently the area and production of the ELS cotton is only around 2 per cent of the total cotton area and production.

Area, Production and Productivity of ELS Cotton in the World

	Area (l. ha)		Production (l. tonnes)		Productivity (kg/ha)	
	2004-05	2005-06	2004-05	2005-06	2004-05	2005-06
ELS Cotton	7.35	6.45	7.33	5.63	997	872
World Cotton	356.00	345.00	263.00	248.00	738	720
ELS as % of world cotton	2.1	1.8	2.8	2.3		

Important ELS producing countries are USA, Egypt, Sudan, China, India, Australia, Israel, Peru, Tajikistan, Uzbekistan and Turkmenistan. United States of America and Egypt alone account for about 60 per cent world ELS Cotton production.

Extra Long Staple Cotton Production in Major ELS Cotton producing countries:

Countries	2004-05		2005-06		World share %
	(l.tonnes)	(l.bales)	(l.tonnes)	(l.bales)	
USA	1.62	9.53	1.37	8.05	24.3
Egypt	2.90	17.07	2.02	11.88	35.9
China	0.87	5.12	0.80	4.71	14.2
India	0.70	4.11	0.52	3.06	9.3
Sudan	0.45	2.65	0.35	2.06	6.2
Australia, Israel & Peru	0.23	1.35	0.22	1.29	3.9
Tajakistan, Uzbekistan & Turkmenistan	0.52	3.06	0.32	1.88	5.7
Others	0.04	0.23	0.03	0.18	0.5
Total	7.33	43.11	5.63	33.11	

ELS COTTON IN INDIA:

The Current demand for ELS cotton in India is estimated around 9.0 lakh bales and is expected to increase to 20 lakh bales by 2010.

Cotton Requirements in Different Staple Classes

Staple Length Class (mm)	Requirement in 2006-07 (Lakh Bales)	Requirement in 2009-10 (Lakh bales)
Long (27.5 – 32)	70	110
Extra Long (>32.5)	13	20
Total	223	350

The annual production of ELS Cotton in India is around 2 lakh bales and India has to depend mostly on import of ELS cotton. With the carry over stocks dwindling down to 15000 bales, urgent efforts are need of the hour to improve the domestic production.

