Sea-Island Cotton -Egyptian Cotton & Pakistan

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رَبِّ هَبْ لِي حُكْمًا وَأَلْحِقْنِي بِالصَّالِحِينَ ﴿٨٣﴾ اے میرے مالک! عطا کر مجھے حکمت اور شامل فرما تو مجھے صالحین میں (سورۃ الشعراء:83)

Introduction

Cotton is the most important fiber crop of the world. Although, the plant is perennial by nature, butis always grown as an annual crop.The plant produces fibers, seeds and sticks. Fibers attain economic value when they are picked from the plant and separated from the seed through a process called ginning. Along with yield, improvement in the quality of lint is essential. There has been some success in improving the quality (Afzal, 1986).

Cotton is a sun-loving crop. It requires about 180 days with temperature above 15°C to complete its growth cycle. It is primarily produced in about 45 countries lying between 37°N and 32°S. Its cultivation has, however, been extended to 43°N in Central Asia and 45°N in the People's Republic of China.

Cotton plant becomes economically valuable after ginning. Different methods and contraptions have been used to gin cotton through the ages, but the invention of "Sawgin" by Eli Whitney in 1794 laid the foundation of the modern textile industry. The crop has been known for about nine thousand years, but became economically important after 1794.

Length, strength and fineness along with maturity and regularity are important. Old world or *arboreum*is short and harsh with staple length of about 15 / 16 inch. New World *hirsutum*is a medium to medium long species with 15/16 to 1-3-16 inch staple. Barbadence has the longest (1½ inch and above) and finest staple of all cottons.

Egyptian Cotton

Cotton era began in 1820 when Muhammad Ali Pasha, a ruler of Egypt brought Louis Alexis Jumel, a French Textile engineer who found a cotton plant in a private garden in Cairo. It had unusually long and strong fibers. He collected the seeds and developed the strain further, and by 1821 was harvesting substantial amount of what come to be called Jumel Cotton. It found ready market in Europe (Afzal, 1986 and Beckert 2015).

Egyptian Cotton gained popularity and importance because of its long staple and fine quality. It is the second longest staple cotton after Sea Island cotton.
Americans have succeeded in crossing Egyptian cotton with local upland cotton - PIMA is the result.

Sea-Island Cotton

According to Fran field (1975) it is exceptionally fine and long staple cotton now grown in the West Indies. According to Beckert (2015) American farmers first grew Sea Island cotton in 1787 on islands just off the coast of Georgia, USA with seeds brought from Bahamas. Sea Island cotton spread up and down the coast of Georgia and South Carolina, USA. The Crop, however failed at any substantial distance from the cost. Further inland, a different strain of cotton thrived – so called Upland cotton.

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Surprisingly American farmers stopped growing Sea Island cotton, and it retreated to its ancestral homeland – West Indies where it is now grown. It is grown only in West Indies, and the production is limited to about 10,000 bales a year. Upland cotton on the other hand has found favor in many countries of the world. Sea Island cotton, however, remains confined to the West Indies but it is the most expensive cotton of the world.

Pakistan has the distinction of being the home of only world specious of cotton – *G.* Stocksii. This wild species of cotton is endemic to the arid hinterland of Karachi, Afzal (1992). Till the introduction of American Upland cotton, Desi cotton is supposed to have been differentiated from its wild ancestors was grown in Pakistan.

> *Roberts (1915) has made this revelation, "the first attempt to grow American cotton was made in 1814 when some upland Georgian seed was distributed by the office of the Director of land Records. Apparently the crop grew quite well, and became common in the form stray plants in the fields of desi cotton, for many years after wards".*

> *Robets (1915) further states that, " sometime after 1909, an experienced member of the firm of MessersRali Bothers, informed the writer that, American cotton would never succeed and, that there was no demand for it; last January this firm paid a premium of Rs. 2-9-0 a mound of Kapas for American, in one of our sales".*

The stray plants American Cotton grew as a mixture in desi cotton for about 30 years. These plants were so common as to be named "Narma" – soft lint – by the growers. First variety of American cotton – 4F was developed from a collection of these plants and was grown over an area of about 2000 acres in Lyallpur (presently Faisalabad) in1914, Roberts (1915).

To promote agriculture especially cotton and jute in British India, a Royal Commission on Agriculture was setup. It presented its report in 1923. In pursuant to the recommendations of the Royal Commission, Indian Central Cotton Committee (ICCC) was established in 1923 with headquarter in Bombay. A Cotton Technological Research Institute was also set upatMotunga, Bombay. Soon after independence ICCC's counterpart – Pakistan Central Cotton Committee (PCCC) was set up at Karachi, the then Federal Capital of Pakistan. For technological research on cotton Pakistan Institute of Cotton Research and Technology (PICRT) was also setup at Karachi. However, the total research effort in the field of agriculture especially cotton has not been commensurate with the needs. The total impact has not measured up to much, and the people have not yet had time to stop being poor. To add insult to the injury MINFA has abolished and PICRT demolished and the land sold to the American government.

Contribution *of cotton in the economy of Pakistan*

Pakistan is an agricultural country and cotton is the lifeline of agriculture. Cotton's contribution to the economy of Pakistan is tremendous to say the least. Dr. Nazir Ahmed (1955), the first Vice President of PCCC reported that the income (Price + export duty) realized by GOP from export of Cotton during 1949 – 55 was as under:

Export duty on American Cotton = Rs. 90/- per bale
Export duty on Desi Cotton = Rs 60/- per bale
16 (a) Total revenue realized Rs. 3710 million (In 1955 1US$ = Rs. 3-6-0)

Currently the share of cotton textiles in total exports in approximately 60% Cotton is the life line of Pakistan, and such deserves narrow focus attention. GOP, it is suggested, should promote cotton

culture. There is a need to broaden the research vision, and whole spectrum of cotton research need attention. New avenues of research must be explored.

Research on cotton is being done by the provincial governments and, the efforts are heavily supplemented by PCCC. As a policy, PCCC supplements the research efforts of the provinces but does not supplant these. As a matter of general interest, gross expenditure on entire agriculture in the Punjab during 1906 – 07 was Rs. 50,000/- and in 1945 – 46 was Rs. 10,364,700/- (Roberts 1951).

To finance PCCC a cess was levied on every bale of cotton either consumed locally or exported. Currently cess is Rs. 50/- per bale. PCCC research budget during 1991 – 92 was Rs. 57 Million, and during 2005 – 06 was Rs. 158 million. It is however, emphasized that if American Cotton had not been introduced in the Punjab during 1884 (Roberts 1915) The present affluence of the farmers and by extension the whole country would probably not have been possible.

Pakistan is a producer of medium staple cotton. Staple length is the most important fibre characteristic as it contributes 39% to the strength of yarn. Off course, other characteristics are also important and cannot be ignored. Contribution of various fiber characteristics to yarn strength is given below.

Fiber Characteristics	**Contribution to Yarn strength (%age)**
2.5 SL	39
Fineness (Micron ire)	18
Pressley strength (lb / sq. inch)	20
Unexplained	23
Total	100

Research on Egyptian cotton

During mid-fifties PCCC decided to start research for growing Egyptian Cotton. For this purpose a research station was established at Thatta, Sindh. The scheme ran for about five years. It failed, and the scheme and the research station were closed.

Scientific knowledge has advanced and new techniques have become available. In view of this, a fresh effort should be made to grow not only Egyptian cotton but Sea Island cotton as well. Efforts should also be made to cross both Sea Island and Egyptian cottons with local cultivars.

American did succeed in crossing Egyptian Cotton with local upland and PIMA was the result. If the efforts are successful, rewards will be tremendous. This research will certainly propel Pakistan's textile from trash market to budget or even fashion market.

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