Cotton Research in Madras — A Retrospect

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Cotton happened to be one of the few crops in which the East India Company was actively interested during the first half of the nineteenth century, more to feed and maintain the textile industry of England than to help in the development of the national resources of India. The aim though selfish, has been largely responsible for the subsequent establishment of a stable and efficient Indian industry in the twentieth century. Our dependancy on foreign cloth has not only ceased completely but our textile products are now in great demand in other countries. In the space of one hundred years, India has forged herself to a prominent place among the nations hitherto leading in the manufacture of cotton textiles.

As part of the general plan drawn up for the cultivation of American cotton in India, experiments were conducted during the nineteenth century at select centres of Madras State by the East India Company with varieties of *barbadense* and *hirsutum* cottons imported from countries in America. Their only objective was to explore the possibilities of large scale cultivation of long staple cotton races, then largely consumed by the mills in England. Although several attempts were made and hopes of successful acclimatisation were expressed during the pendancy of the trial, the venture proved a thorough failure in the end. The only surviving relic of the experiment is the *Bourbon* cotton now found admixed with indigenous *nadam* as a perennial crop in portions of Coimbatore and Salem districts. The interest in such large scale cultivation waned by about the year 1860 but the observational plots of American types were continued to be studied at the Agricultural Farm at Saidapet upto the last decade of that century. The trends and results were no more promising or successful than those recorded by the East India Company.

The first signs of success in the cultivation of American cotton were obtained during the years 1907 to 1915 when the few seeds of *Cambodia* variety brought by Mr. Steele of Harvey and Company from Indo China, grown in the backyards of Virudupatti and tried as irrigated crop in Coimbatore district, gained great popularity with the farmers. The area increase was thereafter phenomenal and purely voluntary. Mr. H. C. Sampson, Deputy

Director of Agriculture selected pure lines from the new variety and distributed it as No. 15. Later in the year 1920, the breeding and agronomy of the crop were entrusted to a whole time officer styled as Cotton Specialist. Madras owes its pre-eminent position it holds today to the contribution of successive specialists in the evolution, multiplication and maintenance of sturdy long staple varieties like Cambodia 2, Madras Uganda 1 and 2. The discovery of the two last named strains made double cropping of tankfed wetlands in the south possible, reduced imports of high priced East African styles needed for fine and superfine yarns and helped in development of regions experiencing short water supply during critical periods of growth. Madras carved for herself a niche among the countries producing long staple cotton of 1-1/16 inch.

The lesson of East India Company and the work on exotic varieties at Saidapet farm opened the eyes of the then Government on the need for undertaking improvement work on indigenous races. Even as early as the year 1914, the efforts of the regional Deputy Directors in Agriculture met with good success. Northerns 14 which is still unbeaten today is acclaimed as one of the very best Indian Cottons; Westerns 25 and *Karunganni* C-7 held sway in the respective regions until the year 1929 when the newer types Westerns 1 and Karunganni 1 started replacing them; Karunganni 2—a bread and butter strain—has been ousting rapidly its erstwhile populpar type Karunganni 1; and newer races have been developed for *Mungari* and *Cocanadas* areas. Thus the cotton research in the State not only changed the picture in kapas yield per acre but also in ginning outturn, staple length and spinning performance. The farmers realised bigger monetary returns, the old and new mills drew regular supplies of specified qualities, trade prospered in regional market centres and the research workers took on hand newer problems for solution and for the betterment of the crop and the cultivator.

The cotton grower owes a great deal to the farsighted programmes drawn up and partly put into effect by the early workers in the State on the hybridisation within the indigenous races of India and between varieties in exotic American types. The big jumps in staple length, ginning outturn and adaptability made in Asiatic cottons were due to crosses effected with *indicum*, *benyalense* and *cernuum* races. In the Karunganni area, types exceeding one inch in staple have been isolated; in Northerns region, an eight percent increase in ginning has been registered; in

Westerns zone, drought evading and high ginning types have been evolved and in *Mungari* and *Cocanadas* tracts, quality has been stepped up without sacrificing any of the other good attributes, Similarly, the achievements in American cotton would not have been possible but for the imports of a large number of reputed types from all over the world and crossing them with local Cambodia cotton.

The work done on agronomy of cotton has likewise yielded valuable results applicable to Cambodia and Karunganni areas. The main recommendations were on sowing dates, seed rates, pre-cultivation practices and manures. Irrigated Cambodia in Coimbatore taluk and in South Arcot District registered increases ranging from forty to three hundred percent when planted early in September and in December months respectively; removal of Sorghum stubble immediately after harvest improved the Karunganni cotton yield by ten percent in Coimbatore district; a heavy seed rate sufficient to create a population of 40,000 plants per acre was the best for winter irrigated Madras Uganda 1. Mixed cropping of indigo with *irungu* sorghum in Tinnies area and clusterbeans with irrigated Sorghum in Coimbatore district advanced the yield of succeeding cotton by about sixteen percent; and application of 40 lb. nitrogen in the form of ammonium sulphate to irrigated Cambodia and 29 lb. nitrogen to unirrigated Karunganni proved to be very remunerative.

The division of India in the year 1947 and the paramount need for saving foreign exchange, created new problems in the supply and consumption of cotton by Indian mills which were steadily expanding their production and capturing external markets. Madras had to devise ways and means of stepping up production to meet the emergency. Her plans included among the other orthodox items, long range programme of intensive cultivation of fallows in canal and tank fed rice regions where supplementary irrigation from wells and other sources would be possible. The success achieved with the short duration Punjab cotton 216F was beyond question and the progressive increase in acreage registered in the Cauvery delta during the last two years angurs well. The behaviour of the Madyapradesh H. 420 cotton as mixture with bunch groundnut sown in June—July months in Ceded districts and select portions in Circars was likewise very encouraging and the practice contributed to the increased profits of the farmer. Similar mixed cropping with irrigated and raingrown crops advocated in other regions proved to be more remunerative than the cultivation of the component crops in an unmixed state. Sea Island cotton in

West Coast districts and perennial varieties like Moco in backyards of most districts appeared to offer great scope for expansion in the future. They are new ideas which need constant attention, pursuasion and review for being put into general practice.

Crop losses arising out of pests and diseases were cut down by plant protection measures, by breeding for resistance and by advocating changes in agronomy. Considerable work has been done on resistance to jassids, stem weevil and blackarm attacking American types. The problem of jassids in Tungabadhra project was got over by early planting in the middle of August and blackarm was partly minimised by pretreatment with organo-mercury compounds. Legislative enactments have been passed for controlling pests like stem weevil and boll worms which reduce yield and lower quality.

The growth of mill industry in the State especially in the southern districts owes a great deal to the fruits of cotton research obtained at Coimbatore and other attached centres. The wealth of the farmers in the Cambodia area is due to the introduction, evolution and spread of improved types by the Agricultural Department. In the larger interests of the cotton farmers, the Government have been forced to adopt legislative measures for safeguarding the reputation and quality of the *staple cottons grown in respective areas.* Their proper implementation with the whole-hearted co-operation of the traders would ensure continued prosperity for all concerned while any relaxation in vigilance might place the good name, quality and price in jeopardy. It is therefore incumbent on all growers and traders to help the State in everyone of her efforts to establish and maintain a reputation for her cotton varieties developed and released periodically by the research staff who are obliged to spend considerable time, labour and money. Madras State offers immense possibilities for expanding cotton cultivation without affecting food production. Great progress can be achieved in a decade or two, if the store of scientific knowledge accumulated on the study of cotton varieties is focussed on the new problems. There is every possibility of Madras producing eventually all her annual requirements of raw cotton which may be tentatively placed at 8·5 lakh bales in the years to come, when she will have expanded her mill industry to the full.