



Review Paper

Modernization of Agriculture in Colonial Punjab and its impact on the Rural Economy

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Abstract

Agriculture was the main occupation of the overwhelming majority of population as well as the mainstay of the government income in the Punjab under British rule. Therefore, it became one of the main areas which determined the policies of the British. This was also because the economic transformation of the province depended on the dissection and form of agricultural change. At the outset of British rule in Punjab, the agricultural operations in use, the quality of seeds, animal husbandry, the system of crop rotation and marketing of agricultural produce was almost becoming marked by stagnation and obsolescence. The establishment of British rule in Punjab opened the way for the introduction of western science and technology in the province. Various technological improvements such as the use of high yielding varieties of seeds, improved irrigational system, better livestock, new techniques of cultivation such as better system of rotation of crops, use of more manure, control and avoidance of crop diseases and better system of marketing of agricultural produce were systematically introduced by the British. Changes in the methods of production brought significant changes in the social and economic set up in the province and their impact was generally positive and long lasting. This paper discusses the impact of modernization of agriculture in colonial Punjab.

Keywords: Agriculture, Technology, Colonial Punjab, Modernization, Impact, Rural economy.

Introduction

After the defeat of Sikh forces in the 2nd Anglo-British war, the British finally annexed Punjab on 29 March, 1849. Punjab was the last frontier of the colonial expansion in India. The history of Punjab turned a new leaf with the arrival of the British regime. Soon after annexation, the colonial government started consolidating its political position by strengthening the law and order and also by initiating development activities on a large scale, keeping in mind its economic interests too. The British extended the agricultural frontiers as agriculture was the main occupation of the overwhelming majority of population as well as the mainstay of the government income in the Punjab. Therefore, it became one of the main areas which determined the policies of the British. This was also because the economic transformation of the province depended on the dissection and form of agricultural change.

The British regime began with modernization of agricultural operations and introduction of new technology through research and education. Introduction of new varieties, better methods of cultivation, research on diseases, manuring and crop rotation visibly improved the quality and quantity of crops and the new technologies were adopted and accepted by the peasantry to a large extent.

Discussion

One of the notable features of British policy was that they paid special attention towards the process of introducing technological innovations in the agriculture of the Punjab. According to M.L. Darling, immediately after annexation, the British Government introduced new implements and seeds and encouraged the growth of commercial and marketing spirit in agriculture¹. Agricultural policy was drafted for Punjab and an important development in this policy of the British was made by the setting up of Punjab Agri-Horticultural Society in Punjab in 1851 with Henry Lawrence being the President and majority of Europeans as its members. The society remained in force for twenty year period (1851-71) during which it attempted to improve the agriculture, floriculture and horticulture of Punjab. Although it failed to achieve its objectives, yet it gave a distinct direction for policies to be adopted for the development of agriculture in the province on modern lines².

In the year 1906, Department of Agriculture was organized under a Director of Agriculture with the objective of implementing agricultural research in agricultural operations. It had its headquarter located initially at Lyallpur³. The department was separated from that of Land Record with effect from 1 July 1906. The policy of the Agricultural Department

was to explain and demonstrate the results of investigations carried out on its experimental farms at Lyallpur, Sargodha, Montgomery and Jullundur etc.

The Punjab Agricultural College was established at Lyallpur in 1909 with the objective of formalizing agricultural education. It offered a four year graduation degree of B.Sc. in Agriculture⁴. Another agricultural centres were opened at Gurdaspur in 1909 and at Jullundur in 1912 to 1913 to demonstrate the methods of dry farming to the farmers⁵.

Modern Cultivation Techniques

More contemporary techniques of cultivation such as better rotation of crops, use of manure and control of crop diseases were introduced gradually. Experiments with various rotations were carried out in the agricultural farm at Lyallpur. The farmers were advised not to follow the crops of the same type of root system. The cultivation of crops which collected nitrogen with their roots was encouraged in the rotation along with green manuring. Moreover, with the development of irrigation, separate rotations of crops were developed for the different categories of land. The colonial Government's approach was comprehensive in the sense that it included promotion of latest implements for greater agricultural output. The task of popularizing the improved implements was supplemented by the village Farmers Associations, which were organized in 1911-12⁶. The cultivators formed the associations and undertook to follow the advice and recommendations of the agriculture department in all matters connected with the agricultural improvements. They kept the department in touch with the local needs. In 1920-21 these associations were made operative practically in every district. Moreover, farmers' week was observed in the governmental farms in most circles. The cultivators were brought from all over the circle to these centres, so that they might benefit from the exhibition of the latest development and discoveries in agricultural practices⁷.

Three methods were employed to control the crop diseases. In the first place, the varieties which were resistant to diseases were popularized. Secondly, the peasants were educated to adopt improved methods of cultivation such as careful preparation of soil, watering and manuring at proper time and appropriate scheme of rotation. Lastly, the disease spreading bacteria and pests which destroyed the crops were examined by chemical and biological methods. Thus, it is clear that there was a shift, under the impact of the British agricultural policy from primitive to more scientific methods of agriculture⁸.

The Agricultural Department had various experimental farms on which the research work in connection with the testing of relative merits of different types of crops, seed selection, evolution and testing of new experiments, research in connection with rotations of crops, work on the efficiency of manure, etc., was carried out. In 1920 agricultural department

had 7 experimental farms, 15 district farms to work out the local problems and 9 seed farms for the multiplication of pure seeds⁹.

New Varieties of Crops and Improvement in Yield

The research oriented exercises were highly relevant to indigenous requirements. As a result of the work done on the various experimental farms, many new varieties of crops suitable to the climate and soil of the Punjab were introduced. These were wheat, cotton, sugarcane, gram, barley, rice, dates, potatoes, flax, tea, New-Orleans cotton, indigo, tobacco in addition to some English fruits and vegetables¹⁰. The most important of these varieties was wheat, which was the staple crop grown for sale. The development and expansion of irrigation canals had led to a great expansion of the area under spring crops, especially wheat, which ordinarily covered about 10,000 square miles. In good years such as 1894, 1895 and 1901 it covered more than 10,900 square miles but in famine years of 1897 and 1900 the area under cultivation got truncated only to about 7,800 square miles¹¹. There were many indigenous varieties of wheat, both red and white, bearded and beardless¹². The response to British research, experimentation and agricultural policy was manifested in better crop selection and improved yield. Improved varieties of wheat proved to be more successful than others. Among them Punjab 11 wheat, Punjab 8A wheat and Wheat No. 265, Pusa 12, were most prominent. The experiments in wheat demonstrated that Punjab 11 wheat was best suited to the canal colonies while Pusa 12 was well-adapted to the un-irrigated parts of the province¹³.

The area under the cultivation of Punjab 11 wheat in Lower Chenab, Lower Bari Doab and Lower Jhelum colonies was 302,500 acres¹⁴. Pusa 12 wheat continued to be the most popular wheat in the Sialkot, Hoshiarpur and Jullundur districts. The area cultivated for wheat, bajra and jowar increased from 9.3 million to 10.7 million acres. The area under it in 1917 was 10,000 acres. It gave an increased out-turn of at least 25 percent and a premium of 2 annas per maund. It was also very popular for eating purposes¹⁵. In 1891, about 550,000 tons of wheat was exported from the province. In 1901-02 this figure rose to 623,000 tons. During the ten years ending with 1912 the net export of Punjab wheat to Karachi averaged 899,080 tons which rose to 2,172,094 tons during ten years ending with 1921. Thus, within very little time the agricultural conditions witnessed remarkable improvement, giving cultivators a definitive advantage¹⁶.

The positive impact of experimentation and research under the British was seen on the cultivation of vegetables also. Among the vegetables, the improved varieties of potatoes were tested in the hills and plains. Scotch varieties were known to have a higher yield. Five scotch varieties – Factor, Admiral, King, Edward, Talisman and Scot were the most important. Other varieties of vegetables such as cauliflower, peas, radish, tomatoes, carrots, onions, chillies etc., were also introduced¹⁷.

Besides new cotton varieties, several improved *desi* (indigenous) varieties were also evolved by the Department of Agriculture. In the South-East Punjab, where *desi* cotton was mostly grown, a useful white flowered variety known as Hansi cotton was evolved¹⁸. The area under it was 22,440 acres in 1922¹⁹. The area of Lyallpur district which used to be the most backward and desolate region of the Punjab in 1891, became the model of Punjab agriculture in 1901. More brilliant success was achieved in the discovery of better varieties of cotton than those ordinarily grown. The high yielding varieties gave more income than the *desi* cotton from the same area.

A variety of American origin cotton, technically called 4F and popularly known as 'Amreekan' was discovered by Mr. D. Milne. The importance of this variety lied in the fact that it could be used in Lancashire, where there was very little demand for the ordinary cotton with its shorter staple²⁰. It was introduced in Punjab in 1914-15 and the area sown was only five acres²¹. However, the area under it increased in the year 1919-20 to 511,000 acres. Thus, it clearly establishes that cotton cultivation became more organized and productive. The yield per acre rose consistently after the British began to promulgate advanced and contemporary modes of agriculture²². The increase in yield per acre for cotton from 1891 to 1925 is shown in Table-1.

Table-1
Yield per Acre (in lbs) for Cotton in Punjab

Year	Year per Acre
1891-95	81.2
1896-1900	73.6
1901-1905	75.8
1906-1910	95.6
1911-1915	93.2
1916-1920	103.2
1921-25	115.6

Source: Geirge Blyn, Agriculture Trends in India 1891-1947: Output, Availability and Productivity. Philadelphia, University of Pennsylvania Press, 1966.

The department of agriculture was actively involved experiments and research on agriculture farms in laboratories with a view to securing the adoption by the Punjab peasant of the new methods of farming. The most encouraging results of the British agricultural policy were observed in the cultivation of wheat and cotton where improved varieties of seeds played an important role and were the result of establishment of a chain of agricultural research stations by the Government of India.

These research organizations were managed and operated by scientists rather than bureaucrats. These stations, especially the one at Pusa, contributed significantly by identifying superior wheat strains by selecting from hundreds of indigenous varieties. These new seeds became immensely popular²³.

Conclusion

When the British annexed Punjab, a large area of the province was already under wheat cultivation as this was the staple food of the population. However, due to absence of sufficient and modern means of transportation, wheat could not be exported out of Punjab and it could not be marketed on a large scale to other provinces. Realizing this, the British concentrated on opening of rail connection in Punjab and also building better metallic roads. These measures opened the agriculture market for the province. The superior quality of Punjab wheat along with the introduction of new and better varieties of the crop led to a substantial demand for the Punjab wheat by the mid 1860s, and soon large quantities of wheat began to be exported from Punjab²⁴. This staple crop soon overtook the area of inferior crops like Jowar and Bajra and the Punjab came to be known as a country of wheat. The quality of wheat from Punjab was also got tested by the agriculture department in England and a leading expert, Forbes Watson, who examined more than one thousand samples of Indian wheat, was of the view that these Indian samples were equal in quality with the wheat samples from Australia and America²⁵. Since the wheat from the Punjab was dry and without moisture, it was suitable for making flour for baking. At the time of the unavailability of wheat from other countries, England started importing wheat from Punjab and soon it found a firm foothold in the England market, so much so that it replaced the wheat imported by England from America and Russia. Other than different parts of India, the Punjab wheat also found a market in other countries of Europe as well. This led to increase in cultivation of wheat and increase in the area under wheat in Punjab. According to Himmat Singh, Punjab was producing nearly 42 percent of the total wheat produced by India by the end of the nineteenth century²⁶.

The rural economy benefitted the most from opening of market for commercialization of agriculture in Punjab. Many inferior crops like jowar and bajra, which were cultivated in large tracts before the arrival of British, soon lost their area to wheat in the Central districts of Punjab as well as in the canal colonies, which had best irrigation facilities. Similarly the cultivation of more cotton was also encouraged by the British regime. Its demand increased especially at the time of American Civil War during the period of 1861 to 1865. At that time, area under cultivation of sugar-cane was replaced by cotton, which had a better commercial value. Many historians have brought out that commercialization of agriculture did not bring much profit to the local peasants as they had to borrow money from the moneylenders to pay land revenue in cash and on fixed time as they could earn only at the time of sale of their crops, which in turn increased their indebtedness²⁷. However, the scientific and

technological interventions for agricultural development during the colonial rule in Punjab did have an overall positive impact, as the yield of crops increased manifold. The region continued to progress in the field of agriculture even after independence largely due to the progress made during the colonial rule.

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