Preface

This work is an effort to study the development of science in agriculture in colonial India. It explores the process of developments in agriculture through science by taking a specific case of Madras Presidency. It is not an investigation into scientific works in agriculture or an experience in pure scientific understanding. It does not delve into laboratory experiments or results. But it tries to evaluate them in the context of political, economic and social influence. It mainly focuses on the issue of why and how scientific agriculture was introduced and institutionalised and how science brought changes in Indian agriculture. It mainly explores the introduction and institutionalisation of agriculture science in colonial India. The discipline of modern science was a development of eighteenth and nineteenth centuries, which attracted and had entered into many disciplines. Importance of scientific understanding was recognised in modern agriculture.

Science of farming may be defined as the knowledge to get from the land the best possible succession of crops at the lowest possible expense, without lessening the fertility of the soil. In this understanding, science of farming not only includes enhancing the yields of crops alone but also informs maintenance of soil fertility, soil condition, etc. They all require knowledge of plant, its growth, and plant requirement, soil conditions which in turn helps them to have a properly balanced production.

Colonisers have considered the colonies as metropolitan estates created to supply raw products to home country. Colonial government had encouraged the improvement of agricultural resources. But they had set the aim to promote primarily the interests of the metropolis needs and at the same time tried to create an impression of a benevolent raj. Colonial raj was based not on army strength alone but allied with the science and technology for the expansion of

---

power and extraction of the resources. Science and technology was also used to create faith in and give legitimacy to the colonial rule. The study spans the years 1835 to 1928 a period which marks for several changes consisting of the consolidation of political power of the government and more importantly the year 1835 was marked with the establishment of agricultural and horticultural society in Madras which was formed as a first scientific institution. Subsequently, the Society had played an important agency in improvement of agriculture in the presidency through introduction and acclimatisation of new plant species. The study closes in 1928 when the Royal Commission had evaluated the progress achieved in scientific agriculture. The Royal Commission's report was acknowledged as a masterly review of problems of agriculture and made landmark influence in the institutionalisation of agricultural science. The Royal Commission on agriculture described the departmental efforts as a failure. Therefore present study seeks to evaluate upon them.

Application of science to production of crops was seen usually as a modern development although there are several works that portray the development of science in ancient agriculture. Despite existence of several differences of opinions on the origin and growth of science in agriculture, it is still possible to make distinction of the development of modern agriculture science. The term science understood in modern context originated during eighteenth and nineteenth centuries embracing the knowledge of scientific development. Modern agriculture in a way made a deeper impact than the agriculture that was based on the empirical methods, knowledge, and implements. The understanding of elements of agriculture such as plants, its influence of environment, manure, water requirement were known to the farmers from generation to generation in rudimentary form but this knowledge had remained unexplained in terms of concrete scientific principles. It was

---

2 Agriculture science is said to have a modern beginning from the days of Liebig, Schubler in Germany, Boussingluit in Germany and Lawes and Gilbert in England.
developed into modern form as scientific discoveries were adopted when the development was made in many other scientific disciplines. Before nineteenth century agriculture was not treated as an academic discipline, at most it was considered only as training up of a skill.

The study concerns the process of institutionalisation of agricultural science in colonial India and the nature and directions of such developments. Madras Presidency has been examined as a case in point as it had shown interest first among all other provinces by establishing an experimental farm at Saidapet as early as in 1865. It is also the first province to introduce agriculture as an academic learning by opening a college at Saidapet in 1876.

There is no literature which deals with colonial efforts of agriculture development although there is copious literature dealing with the revenue and land tenure as the major source of the British government’s extortionist policy. Much in-depth attention was paid to how Raitwari system, Zamindari system of land revenue was institutionalised to milk-out maximum wealth from the rural economy. Since agriculture was India’s paramount industry and employer, it is important to examine the role of government in its development. Colonial governmental intervention in improvement of Indian agriculture was remained unexplored. But during the nineteenth and early twentieth century colonial government in colonies concentrated upon the mode of production and production of specific crops. Few studies have highlighted the localised crop patterns and the broader changes that were brought into agriculture through western science in British colonies. Scholars like Masefield, Headrick, Drayton emphasise the colonial mode of agrarian transformation.

Science had considerably influenced the coloniser’s patterns of shaping the socio-economic and political structure of colonial India and created

---

3 Science has been called in to help agricultural practices of the orient at the time of colonial establishment.

necessary conditions that supported expansion, consolidation and exploitation. This work is an effort to understand the role of science under colonial situation in shaping and reshaping the field of agriculture in colonial India in the context of Madras Presidency. Under colonial situation, science did not act as an independent agency and was not a fully-grown up institution even, but science itself was making its own growth. The process of introduction and institutionalisation of agricultural science in colonial Madras Presidency has been discussed in different chapters.

The chapter one ‘Historical background’ is a introductory in nature presents briefly the nature of science in metropolis and then explores science in indigenous agriculture and various perceptions on indigenous science of agriculture. In Europe, the merchant rulers and private traders encouraged scientific innovations. Landlords and entrepreneurial cultivators took initiatives to promote scientific and technological innovations. Scientific pursuits acquired institutional organisations. These together had created conditions to agricultural revolutions. The second part of the chapter presents science in indigenous science in agriculture.

In chapter two, ‘Experimental Farming’ examines the introduction of the major commercial crops. The chapter concerns the changes in agricultural crops, which had been made in the early phase through agricultural and horticultural societies and experimental farms. During the early phase, introduction of new crops and new varieties occupied colonial concern, as there was growing demand for quality and quantity of the raw products supplied to metropolis. In the early phase agriculture was influenced notably by the agricultural horticultural society and botanical gardens, which were established at Madras and Ootacamund respectively. The Agricultural Horticultural Society became a new entrepreneurial authority in new agriculture in Madras through offering prizes, premiums to the ryots for the production of improved products such as American long staple cotton, Mauritius sugarcane, tea, coffee, tobacco, etc. American experts were deputed
by the Court of Directors for instruction to the indigenous ryots of improved methods and techniques practiced in America and other places. Exotic varieties brought from different countries were tried under expert supervision for several years. Under the supervision of a botanist Robert Wight and three American experts conducted experiments on cotton, rice, etc. Supply of implements consists a steam ploughs, harrows, cultivators, seed drills, horse hoes, threshing machines, winnows, chaff cutters, water lifts, etc. were obtained from England. A model farm of about 350 acres was opened at Saidapet by the collector of chingleput district in 1865 aiming partly to demonstrate the value of the new implements and partly for experimenting with the improved system of agriculture. These early experimental activities did not produce a success because the lack of scientific knowledge among the experts about local ecology, soil conditions, and climate restrained early efforts for improvements.

In chapter three, ‘Formulation of Agricultural Policy’, emergence of the agricultural department of Imperial and Provincial level was dealt with. The agricultural science policy of Imperial and provincial governments was not coherent and it changed according to the metropolitan interests and the influence of Indian pressures.

In chapter four, ‘Agricultural Science in Education,’ concerns specific issue of how agricultural science was introduced and institutionalised as an academic discipline. It includes mainly what constituted the curricula of agricultural education and how and why important it was to the interest of the colonial state. Agricultural education was instituted to train natives aiming primarily to fill the subordinate positions intending to reduce the cost of administration and at the same time calculated to contribute in helping to revenue settlement thereby to realization of more revenue from agriculture. The improvement of the ryot was regarded as a secondary importance as training in agriculture was mostly imparted to those who had aspired for government positions though they declared the objective of education was to prepare pupil for farming after the completion of course. The undertaking of
the mid-nineteenth century constituted the large-scale settlement of revenue system, and the need for trained persons led to the establishment of agricultural college at Saidapet. It was the first of its kind. Although agricultural education was introduced largely expecting to create trained ryots, they were geared to train persons for government positions.

In Chapter five ‘Expansion of Agricultural research’ consists study of structure and nature of research development. The chapter makes a detailed examination of emergence of the provincial and local research stations which were established for specific purpose.

In chapter six, ‘Dissemination of Agriculture Science,’ progress made through agricultural science is assessed. The chapter also evaluates the spread of agricultural science through different media. It examines impact of agriculture science on agricultural modernization. The role played by agricultural associations and print media in spreading scientific agriculture is also examined. Finally an overall assessment of agricultural science is made in the seventh and last chapter, it further examines why progress achieved was very limited and also assess how were the reactions of the ryots to the western science of agriculture.

The present work is based primarily on archival and contemporary documents. It may seem empirical but this work has consciously allowed the data to tell the story of the use and progress of agricultural science in colonial Madras Presidency. A number of scientists and minor official functionaries figure in this work. Unfortunately no detailed information is available on them. This remains a major limitation of this work.