

## ***Abstract***

Agriculture contributes substantially to the output and employment of a predominantly agricultural and over-populated country like India. Although, Indian agriculture provides food for a large section of World population and occupies first or second ranks in the production of different crops, productivity levels are much lower as compared to many countries. Use of modern inputs in Indian agriculture is comparatively lower than the developed countries and it is highly skewed among the regions in India. Compound annual growth rate of production of major crops decreased during the period 1990-91 to 2010-11 compared to its earlier two decades. Steadily declining size of agricultural holdings is a key fact about the evolution of Indian agriculture. Indian agriculture is dominated by the marginal and small farmers in terms of both numbers and operated area. The debates on inverse farm size-productivity relationship have been alive as well.

Agriculture forms the backbone of Assam's economy. Over 70 percent population of Assam gets their means of livelihood from the agriculture. Agriculture and allied sector contributed more than 20 percent to the State Domestic Product during 2014-15. But the productivity of agricultural crops is comparatively lower than the national average (except for a few crops). Growth of agricultural production and the indices of agriculture in the state are lower than the all India level.

The basic feature of the cropping pattern in the state is the predominance of food crops, mainly rice. Fragmentation of holdings into multiple plots acts as a major drag on the adoption of technological improvements in agricultural production and thereby impedes the growth of agricultural productivity. Although a large number of land reform measures have been introduced and land reform acts have been passed in Assam since 1948, the implementation of these acts has not been effective and the impact has been negligible.

Identifying the reasons of low productivity and finding out ways to achieve high production of crop output is the main research question of the thesis. To address this, both secondary and primary data have been used. The primary data have been collected by multistage sampling. The field study is confined among the farmers of two western districts of Assam. We focused on three important crops, viz., rice, jute and rubber.

Rice is the staple food for the inhabitant of Assam. The share of rice in total cereals stood at 97.5 percent in 2011-12. Rice is grown in a wide range of agro-ecological situations

of Assam in all the three seasons in a year. Yield rate of rice in Assam is lower than the all India average. The gap between state average and the national average has been rapidly increasing, which poses a serious policy challenge. Besides natural causes, rice production in the state has been hampered by input and service constraints. It is the overwhelming importance of rice in the state agriculture which made us choose the crop.

Jute is a field crop classified as a fiber crop with industrial value. Although, jute is one of the important cash crops in Assam, area under jute has drastically reduced and so the production been declined in the recent decades. As in rice, jute production in the state has also been hampered by input and service constraints. Jute is a declining crop. But historically Assam has been an important producer of crop. These considerations made us choose jute.

Rubber plantation has been rapid popularity in the state. The state, specially its western districts, has seen fast growth of rubber production. Natural rubber production of Assam as a share of Indian production has increased both in terms of area and output in recent years. Unlike declining popularity of autumn and winter rice, wheat, jute, etc., rubber is an emerging crop, which made us choose it.

The primary data were collected from 184 rice farmers, 115 jute farmers and 102 rubber farmers in two districts of western Assam, Goalpara and Bongaigaon. We chose two adjacent districts in order to ascertain if difference in district administration makes any difference to crop production, provided other factors remain more or less the same. Compared to Goalpara, more farmers in Bongaigaon have cultivated modern varieties of winter rice. Number of farmers having owned land is more in Goalpara. Average yield of total rice is higher in Goalpara than in Bongaigaon. Jute cultivation is declining. But when we estimated the profit per unit of land jute yielded higher value than rice. Number of growers having owned jute land is more in Goalpara than in Bongaigaon. Use of chemical fertilizers in jute cultivation is relatively higher in Goalpara than in Bongaigaon. Production as well as average yield of jute among growers in Goalpara is higher than in Bongaigaon. In rubber, yield as well as production among the growers in Goalpara is higher than the growers in Bongaigaon. Thus, Goalpara is better in yields of three selected crops, rice, jute and rubber.

The production functions of the three crops have been estimated. The estimation has been done by both the standard OLS method and Stochastic Frontier method. In the latter case we can ascertain if there is any technical inefficiency in production. The analysis of the findings leads us to conclude the following. Most of the farmers are land poor. There is sub-optimal use of land input. A greater provision of land would add significantly to output. Capital,

fertilizers, planting materials were found to be important for output increase. Public extension services were found to be critical in at least one case (winter rice, modern variety). An increase in the use of these inputs would help in enhancing the output level. We also found evidence of technical inefficiency in the production of a majority of crops. In the concluding chapter we forwarded suggestions and recommendations for improvement of agricultural production in the

