1.1 Statement of the Problem:

Agriculture, the backbone of Indian economy, plays the most vital role in sustaining growth and generating income for a vast majority of the people in the country. More than three decades have gone by since the inception of national planning, but still the primary sector which includes agriculture, forestry and logging, mining and quarrying dominates the national economy contributing about half of our national income and providing employment to a very high proportion of working population.¹

In spite of its unique role in the Indian economy, the performance of agriculture is still distressing even as compared to some of the developing countries. The average index of food production per capita (Base, 1969-70) was at 101 in India as against 124 in China, 105 in Pakistan, 113 in Burma, 154 in,

¹ The contribution of agricultural sector to national income in 1971-72 was 49.5% which decreased to 42.5% in 1980-81. But still the contribution of this sector was significant. See "Economic Survey" 1981-82, Govt. of India, p. 72. Similarly, the agricultural sector was so important that it provided employment as high as 66.69% of the total working force as per "Census of 1981", provisional population tables, p. 31.
Agricultural production in India increased at a compound rate of 2.81% per annum during the post-green revolution period i.e. from 1967-68 to 1978-79. But the linear growth rate of agricultural production achieved during the first decade of planning from 1952-53 to 1961-62 was higher at 3.2% per annum.

Thus, it seems that the growth rate of agricultural production in the country has declined in recent years, despite planned development efforts made by the government. The production of rainfed crops such as coarse grains, pulses and oilseeds has remained almost stagnant. The production of oilseeds, rather decreased slightly from 8.75 million tonnes in 1971-72 to 3.34 million tonnes in 1980-81.

Population, on the other hand has been multiplying at an exploding rate, raising the demand for food and fibre. According to an estimate made by Brahmananda the linear annual growth rate of population in India was 2.1% during 1950 to 1976 against the growth rates of area under agricultural production 0.9% and agricultural productivity (yield per acre) 1.4% during

---


4/ "Growth Rates of Agricultural Production in India", Ministry of Food and Agriculture, Govt. of India, in Agricultural Situation in India, May, 1964, Vol.XIX, No.2, p. 100.

the same period.\textsuperscript{6} Further, the limited possibility for the extension of arable land in the future poses a serious problem in the growth of agricultural production in the country. Till today, India is dependent on cereal imports for meeting a part of the subsistence needs of the population. The large majority of India's population live on inadequate and unbalanced diets. Again, the gap between food supply and population is likely to become wider in the near future, because the income elasticity of demand for food in low income countries is very high.

Therefore, sustained growth in productivity of agricultural crops is urgently called for to meet the increasing demand for food and raw materials.

1.2 The Problem in Assam:

Assam endowed with fertile soil and abundant rainfall, a variety of crops and dense forests, crude oil and natural gas, coal and lime stone presents a paradoxical picture of backwardness in the midst of potential plenty.

Like the national economy, the economy of the State is also predominantly agrarian. A very high proportion of working force is still engaged in the primary sector which alone contributes as high as 60\% to the State income at current prices in 1980-81.\textsuperscript{7} But the relative position of agriculture in Assam


is pathetic as compared to many other States of the country. This has been revealed if we compare the growth rates of agricultural production in Assam with some of the major States in the country.

During the period from 1952-53 to 1961-62, annual linear growth rate of agricultural production was 1.3% in Assam as against the growth rates of 5.6% in Punjab, 4.9% in Madras, 3.4% in Bihar and 3.2% in All India. Among the States which depicted growth rates below All India, Assam, Orissa and West Bengal showed very low rates of growth. But as regards productivity, Rajasthan and Assam recorded negative growth rates at -0.8% and -0.2% respectively.

Again, there were considerable variation between the growth rates of food-grains and non-food-grains production. For food-grains, the growth rates were negative in Gujrat and West Bengal and varied in the rest of the States ranging between 0.6% in Assam and 4.6% in Punjab per annum. Regarding productivity of food-grains, Assam, Rajasthan and West Bengal witnessed negative growth rates. In the case of non-food-grains production also, Assam showed a lower growth rate (2.0% per annum) than most of the States in the country. The corresponding annual linear growth rates in Punjab, Maharashtra and Gujarat were 9.1%, 5.6% and 5.4% respectively as against 4.4% for All India.

---

during the period from 1951-52 to 1961-62.  

Assam exhibited a very low productivity growth rate of food-grains even in recent years. The annual average growth was 0.2% in Assam as against 2.8% in Punjab, 1.2% in Haryana, 3.2% in Gujarat and 2.8% in Maharashtra during the period from 1967-68 to 1976-77.

The poor situation of agriculture in Assam has further been confirmed by another study which shows that, Assam registered an annual compound growth rate of food-grains production as low as 0.87% as compared to 5.67% in Punjab, 3.43% in Haryana, 3.29% in Andhra Pradesh and 2.24% for All-India during the entire post-green revolution period from 1968-69 to 1980-81.

From this situation, we can generalise that the performance of Assam in agricultural production particularly in food-grains production is disappointing. Therefore, a probe into the causes for this tardy growth rates is urgently called for. Assam, being a predominantly agricultural State with a very high population growth rate must produce substantial food-grains in the immediate future. She should also maximise the production of cash crops which would serve as the basis of industrialisation. Since the growth of agricultural productivity is the

---

9/ Ibid.
yardstick of agricultural progress, it will be of great impor-
tance to make a critical study of the agricultural productivity
trends in Assam to identify the growth constraints and to make
appropriate suggestions for ushering in agricultural breakthr-
ough in the State.

Apart from the above reason, such type of study is new
in the State. Neither the Government of Assam nor any other
private institution, has undertaken any scientific study of the
growth rates covering the entire plan years. Studies of produc-
tion trend at district or regional level within a State have
practical relevance for scientific planning and effective imple-
mentation of development programmes. The present study is an
attempt in this direction.

1.3 Design of the Study:

The present study proceeds to examine the broad trends
and variations in area, production and productivity of selected
crops in the State. The study is also extended to district level
to examine the differential growth rates of yield per hectare.
The time period chosen for analysis of these trends is the plan
period of 1951-52 to 1977-78, i.e. from the beginning of the
First Plan to the end of the Fifth Plan.

The concept of agricultural productivity used here is
in terms of yield per hectare and the analysis is carried out
with this concept, throughout.

As regards data used in this study, we make use of mainly
official statistics available from Directorate of Economics and
Statistics, Government of Assam, Irrigation Department, Planning
and Development Department, the Agriculture Commission Report, World Development Report 1984, various reports from Agro-Economic Research Centre at Assam Agricultural University, Jorhat and reports from Directorate of Evaluation, Government of Assam. As far as practicable, the latest available data have been used.

In computing the growth rates over a fairly long period covering nearly three decades for the entire State, as well as for the regions or districts, there is no alternative but to necessarily depend on official data. As regards quality of data used, relevant points have been discussed in the concerned chapters.

1.4 Objectives of the Investigation:

The principal objectives of the investigation are:

(a) to examine the growth rates of agriculture in Assam in relation to population growth rate.

(b) to study the broad trends in area, production and productivity of major crops grown in the State during the period from 1951-52 to 1977-78.

(c) to examine the inter-district variation in productivity of major crops and its causes.

(d) to identify the major obstacles in increasing agricultural production and productivity.

(e) to make suggestions for increasing agricultural productivity in the State.

1.5 Methodology:

The linear and compound growth rates of production, area and productivity have been worked out for food-grains, non-food-grains and all-crops in Assam. The same growth rates (both linear and compound) of area, production and productivity (yield
per hectare) of the selected crops viz. rice, rape and mustard, jute, sugarcane and potato have also been computed separately. For clear exposition, the trends in production and productivity of the said crops have been presented graphically.

But in the case of inter-district analysis, only the compound growth rates of area, production and yield of the selected crops have been computed and productivity differentials shown on the basis of the growth rates. Apart from this, crop-productivity index has been worked out at the district levels to identify the rank differentials.

The index numbers of production, area and productivity for the selected crops are not readily available. Therefore, their indices have been specially constructed with base triennium ending 1969-70 = 100 by utilizing the official data to work out the growth rates.

The study also attempts to allocate additional production between area and productivity on the reasoning that if productivity had remained constant, output would grow at the same rate as that of growth rate of area and, therefore, the growth of output attributable to productivity would be the difference between growth rate, output and area.

In order to examine the variability in production and productivity of crops, co-efficient of range, mean co-efficient of dispersion and co-efficient of variation have been adopted.

The study period so chosen from 1951-52 to 1977-78 has been sub-divided into three sub-periods (1) 1951-52 to 1960-61,
(ii) 1961-62 to 1970-71 and (iii) 1971-72 to 1977-78. The growth rates of area production and productivity of the selected crops have been worked out separately for these sub-periods in order to examine the decadal variation in area, production and productivity of the crops.

The central hypothesis of the study is that agricultural productivity (specially of major crops) in Assam has declined over the years mainly because of the inadequate supply of farm inputs, lack of motivation of farmers, imperfect response to technological change and lack of proper farm management.

The study is intended to test the hypothesis in the course of investigation.

1.6 Plan of the Study:

The next chapter (Second chapter) opens with a discussion of productivity (yield per hectare) of Indian agriculture. Historical trends in growth of overall agricultural productivity in general and of major crops in particular during the plan period are examined. The production trends are compared with the available data related to other developing countries. Growth-retarding factors that explain the instability and fluctuations of production of major crops of the country are examined. A note on the concept of agricultural productivity is also included in this chapter.

The third chapter contains a profile of the agricultural economy of Assam as a background to the subsequent discussion of
the different factors of agricultural productivity in Assam. Certain basic issues of agricultural economy pertaining to size of land-holdings, nature and quality of soil, land utilization pattern, rainfall and climate and cropping pattern of the State are explained and the resultant observations are made on the basis of the study. The levels of agricultural productivity with reference to certain major crops are compared with some of the States of the Indian Union.

The fourth chapter is devoted to the study of growth rates, not only for food, non-food and all-crops, but also for selected individual crops. The second dimension of this chapter is that it analyses the relative contribution of area and productivity to output. This study has practical implication for the formulation of a sound policy for agricultural development.

The fifth chapter deals with the district-wise growth rates of productivity of the selected crops. The factors that explain inter-district variation in crop productivity have been examined with relevant data. Various statistical techniques have been adopted to study the differential growth rates witnessed in different districts.

In the sixth chapter, the factors affecting agricultural productivity have been examined. This chapter is primarily concerned with a review of strategy of agricultural development during the planning era in Assam and an assessment of the institutional, economic and technological measures initiated and the results achieved during the planning era. This evaluation has
been made with a view to finding out the causes for low agricultural productivity in the State.

The concluding chapter, besides dealing with the summary of the main findings, includes a discussion on policy measures for stepping up agricultural productivity in Assam.

At the end, appendix tables and a selected bibliography have been given.