

*e-text*Paper-CC13 (*U-III*)

Land use &amp; Agriculture Geography

**Measurement of Agricultural Productivity****Dr. Supriya**

Assistant Professor (Guest)

Ph. D: Geography; M.A. in Geography

Post Doc. Fellow (ICSSR), UGC- NET-JRF

Department of Geography

Patna University, Patna

Mob: 9006640841

Email: [supriyavatsa52256@gmail.com](mailto:supriyavatsa52256@gmail.com)

<b>Content Writer &amp; Affiliation</b>	<b>Dr Supriya, Asst. Professor (Guest), Patna University</b>
<b>Subject Name</b>	<b>Geography</b>
<b>Paper Code</b>	<b>CC-13</b>
<b>Paper Name</b>	<b>Land use &amp; Agriculture Geography</b>
<b>Title of Topic</b>	<b>Measurement of Agricultural Productivity</b>
<b>Objectives</b>	<b>To understand the agricultural or crop productivity and methods of its determination</b>
<b>Keywords</b>	<b>Production. Crop-productivity, agriculture</b>

## Measurement of Agricultural Productivity

Dr. Supriya

### Introduction:

Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs. Agricultural productivity is not a synonym of fertility. It is generally used to express the power of agriculture in a particular region to produce crops without regard to whether that power is due to the bounty of nature or to the efforts of the man.

Productivity like disparity is a relative concept. The term productivity has been used in different meanings and has aroused many conflicting interpretations. Some time it is considered as the overall efficiency with which a production system works, while others it is defined as a ratio of output to resources expended separately, or collectively. This term has also incorrectly and interchangeably been used with production. In reality, production refers to the volume of output while productivity signifies the output in relation to resource expended. Production can be increased by employing more resources without increasing productivity. On the other hand productivity can be increased without increasing production by employing less input for the same production level. But it is commonly agreed that productivity is the ability of a production system to produce more economically and efficiently. Therefore, agricultural productivity can be defined as a measure of efficiency with which an agricultural production system employs land, labour, capital and other resources.

### Definitions of Agricultural Productivity

Dewett (1966) explains it as, "Productivity expresses the varying relationship between agricultural output and one of the major inputs, like land or labour or capital, Other complimentary factors remaining the same....." It may be born in mind that productivity is physical rather than a value concept.

The 23rd annual conference of the Indian society of agricultural economics, some economists suggested that the yield per acre should be considered to indicate agricultural productivity.

A number of objections were raised against this view because it considered only land which is just one factor of production while other factors are also responsible, and therefore it was arbitrary to attribute productivity entirely to land and express it per acre of land. It was suggested, for instance, that productivity could also be measured in terms of per unit of labor and different regions compared on that basis. After a thorough discussion, it was generally agreed that the yield per acre may be considered to represent the agricultural productivity in a particular region and that other factors of production be considered as the possible cause for the variation while comparing it with the other regions. A.D. Pandit (1965) has expressed the connotation of productivity in these words. "Productivity is defined in economics as the output per unit of input... the art of securing an increase in output from the same input or of getting the same output from a smaller input." He further suggests that increases in productivity, whether in industry or agriculture, is generally the result of a more efficient use of some or all the factors of production, viz. land labour and capital. Saxon incorporates the productivity as a physical relationship between output and the input which gives rise to that output. Haring considers productivity in broad terms, to denote the ratio of output to any or all associated inputs in real term.

I. A. Saxon (1965) consider productivity as a physical relationship between output and input, which gives rise to that output.

Horring (1964) considers productivity in broad terms, to denote the ratio of output to any or all associated inputs, in real term.

Agricultural productivity can be defined as a measure of efficiency in an agricultural production system which employs land, labour, capital and other related resources.

### **The Measurement Of Agricultural Productivity**

The measurement of production and inputs required for the production of that output is known as agricultural productivity. In other words, it is an input-output ratio. In traditional measurement of agricultural productivity geographers and economists used to take into account the inputs like labour and capital and see them as costs which are incurred in the production of agricultural produce. The traditional approach of measurement of agricultural productivity, however, does

not take into account of social and environmental costs which are also incurred in the production of crops and raising live-stock.

At present, in the measurement of agricultural productivity, the question of sustainability of soil, health of ecosystem and social acceptability have become increasingly important. Agricultural productivity of a micro or macro region is closely influenced by a number of physical (physiography, climate, soil, water), socioeconomic, political, institutional and organizational factors.

Thus, agricultural productivity is a function of interplay of physical and cultural variables and it manifests itself through per hectare productivity and the total production. Agricultural productivity also depends on attitudes of the farmers towards work and their aspirations for better standard of living.

The measurement of agricultural productivity helps in knowing the areas that are performing rather less efficiently in comparison to the neighbouring areas. By delimiting the areas of low, medium and high productivity, agricultural plans may be formulated to remove and minimize the regional inequalities. It also provides an opportunity to ascertain the ground reality, the real cause of agricultural backwardness of a tract/area or region.

In the recent decades geographers and economists have developed sophisticated tools and techniques to determine the agricultural productivity. Some of the well known techniques developed and used for the measurement of agricultural productivity and agricultural efficiency per unit area/per unit of time are given below:

1. Output per unit area.
2. Production per unit of farm labour.
3. To assess agricultural production as grain equivalents (Buck, 1967).
4. Input-output ratio (Khusro, 1964).
5. Ranking coefficient method (Kendall, 1939; Stamp, 1960; Shafi, 1990).

6. Carrying capacity of land in terms of population (Stamp, 1958).
7. Giving weight to the ranking order of the output per unit area with the percentage share under each crop (Sapre and Deshpande, 1964; Bhatia, 1967).
8. Determining an index of productivity (Enyedi, 1964; Shafi, 1972).
9. Computing the crop yield and concentration indices ranking coefficient (Jasbir Singh, 1976).
10. Involving the area, production and price of each cultivated crop in each of the constituent areal units of the region, and then relating the outturn in terms of money of the unit to the corresponding productivity of the region (Husain, 1976).
11. To assess agricultural production in terms of money.
12. Assessing the net income in rupees per hectare of cropped area (Jasbir Singh, 1985).

Each of the techniques advocated and applied for the measurement of agricultural productivity suffers from one weakness or the other. The application of a technique may give satisfactory results at the micro or meso level but the same technique fails to deliver the goods at the national or global level.

The input and output ratio technique seems to be a reasonably good one but the determination of inputs including environmental and social costs involved in the production is not an easy task.

The conversion of production of all crops in terms of money is also a useful technique but it is constrained by the prevailing prices of agricultural commodities which fluctuate from one areal unit to another and from one region to another.

-----\*-----\*-----\*-----