

# The Impact of Chemical Fertilizer on the Crop Yield in Jabalpur District: A Geographical Study

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**Abstract :** Agriculture played a crucial role in the Indian economy. It has been the back bone of our economic system. It is the major source of food and raw materials but also employment opportunities to a very large proportion of population. Our 70- 80% of population works under Agriculture but not sharing main role in GDP. The changing scenario of agriculture in Jabalpur district has been studied. The study revealed that agriculture land use is decreasing day by day due to various factors like population growth, usage of land of agriculture for commercial, residential, transportation and recreation purposes. The impact of use of chemical fertilizer from 2001 to 2015-16 has been discussed. Overall crop production has been increased in Jabalpur due to wide use of chemical fertilizers, various technological inputs like form machinery, use of HYV seeds, farmer education, positive role of media, Govt. Policies, good irrigation facility.

**Keywords :** GDP, agricultural geography

## Introduction

Agricultural geography is one of the most highly developed branches of economic geography. Now a day's many geographers and economists give attention to study of land use efficiency in India and abroad. Agricultural productivity is largely depending upon the land use efficiency, so it plays an important role in the study of agricultural geography. Land use efficiency is defined as the extent to which the net area sown has been cropped or resown. The total cropped area or gross area sown as percentage to net area sown gives a measure of land use efficiency, which really means the intensity of cropping.

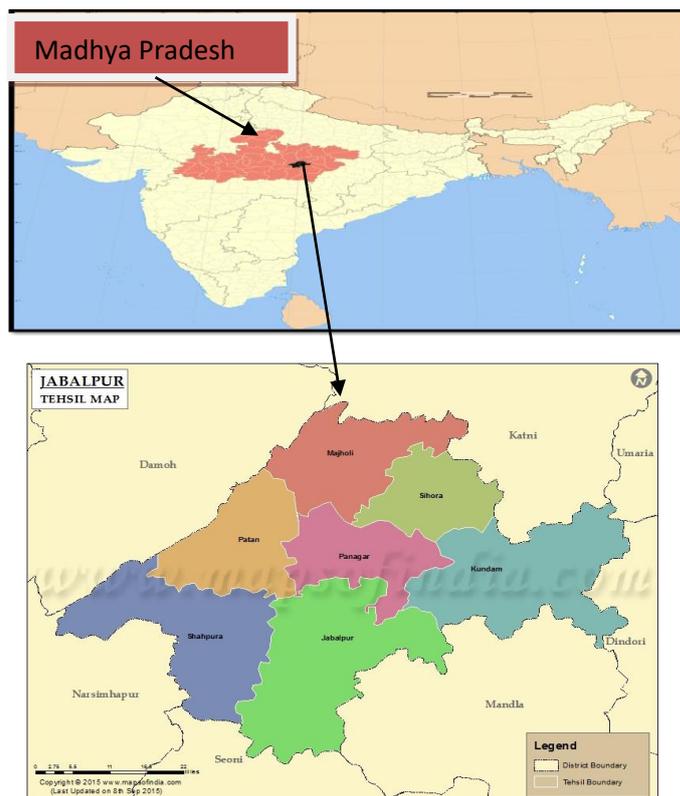
Agricultural productivity is largely depending upon the land use efficiency. It is generally believed that the land use efficiency reflects itself in the yield and the yield figure has been used as the quantitative basis for the measurement of agricultural efficiency. Land use efficiency is largely depends upon fertility of soil, technological development, availability of irrigational facilities, use of chemical fertilizers and socio-economic-condition of farmers in the study region.

## The Study Region

Jabalpur district is selected for present study purpose. Jabalpur District is a district of Madhya Pradesh state in central India. The city of Jabalpur is the administrative headquarters of the district. The district is located at 23°10'N 79°57'E / 23.17°N 79.95°E. The central point of India is located in Jabalpur district. It has an average elevation of 411 metres (1348 ft)The area of the district is 5,198 km<sup>2</sup> with of population 2,167,469 (2001 census). Jabalpur District is located in the Mahakoshalregion of Madhya Pradesh, on the divide between the watersheds of Narmada and the Son, but

mostly within the valley of the Narmada, which here runs through the famous gorge known as the Marble rocks, and falls 30 ft. over a rocky ledge (the *Dhuan dhar*, or misty shoot ). It consists of a long narrow plain running north-east and south-west, and shut in on all sides by highlands. This plain, which forms an offshoot from the great valley of the Narmada, is covered in its western and southern portions by a rich alluvial deposit of black cotton-soil. At Jabalpur city the soil is black cotton soil, and water plentiful near the surface. The north and east belong to basin of the Son River, a tributary of the Ganges and Yamuna, the south and west to the Narmada basin. The district is traversed by the main railway from Mumbai to Kolkata, and by branches of two other lines which meet at Katni junction. As of 2011 it is the second most populous district of Madhya Pradesh (out of 50), after Indore.

## Location Map of Jabalpur District



## Results and Discussion

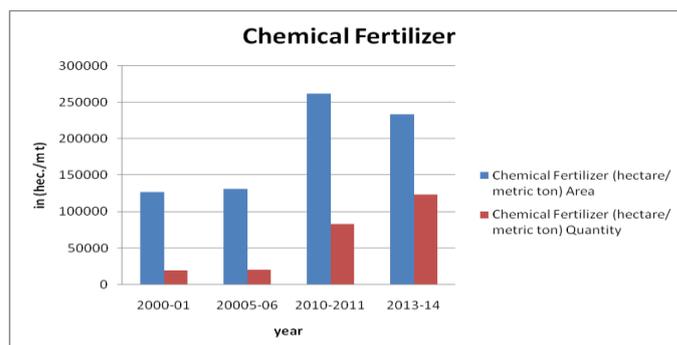
The Table 1 reveals that the production of all food crops like Rice, Wheat, Jawar, Maize increasing year by year with usage of chemical fertilizer. The graphical representation is shown in figure 1.

Table -1: Average Crop Yield Information

| Year | Rice | weat | Jawar | Maize | Gram |
|------|------|------|-------|-------|------|
| 2007 | 1367 | 2205 | 1329  | 880   | 2550 |
| 2008 | 1367 | 2205 | 1365  | 1015  | 3060 |
| 2009 | 1370 | 2210 | 1370  | 1020  | 3065 |
| 2010 | 1377 | 2217 | 1377  | 1027  | 3072 |
| 2011 | 1248 | 2952 | 2440  | 1335  | 769  |
| 2012 | 2050 | 3250 | 2300  | 2300  | 1170 |
| 2013 | 3649 | 3825 | 2545  | 2800  | 1500 |
| 2014 | 3500 | 3300 | 1651  | 2600  | 1168 |
| 2015 | 3600 | 3077 | 2600  | 2700  | 724  |

Table-2 Usage of Chemical Fertilizer

| Year      | Chemical Fertilizer (hectare/ metric ton) |          |
|-----------|---|----------|
|           | Area                                      | Quantity |
| 2000-01   | 127500                                    | 19484    |
| 2005-06   | 131700                                    | 20300    |
| 2010-2011 | 262360                                    | 83214    |
| 2013-14   | 233576                                    | 123516   |



### Conclusion:

The overall crop production has been enhanced due to wide usage of chemical fertilizers but its negative impact is more on agricultural farm workers because they are directly in contact with the use of it. Other than the Impact through food commodities is also influence on our environment. Pesticides can contaminate soil, water, turf, and other vegetation. Surface water contamination is also contaminated by use of chemical fertilizer. Pesticides can reach surface water through runoff from treated plants and soil. Contamination of water by pesticides is widespread. Groundwater pollution due to pesticides is a worldwide problem, so appropriate steps should be taken by the policy makers to minimise these negative impact due to chemical fertilizers and use biochemical fertilizer should be promoted at large scale to built environment green

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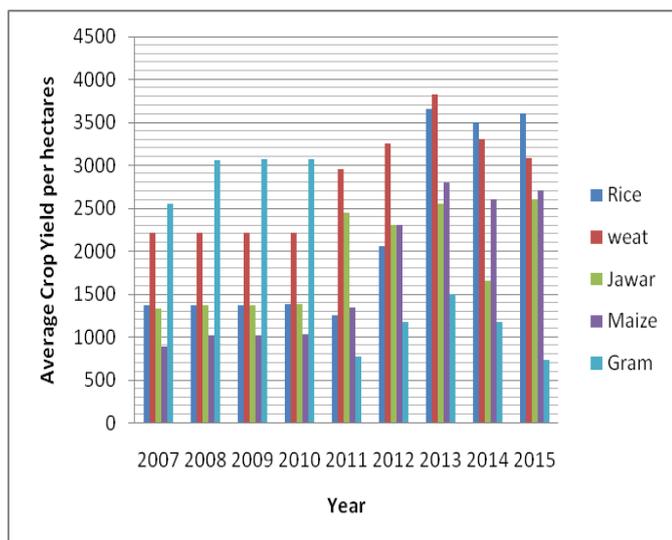


Figure: The distribution average Yield of various crops in Jabalpur during 2007-2015.

Source: - District statistical hand book Jabalpur

From the table 2, It can seen that in the year 2000-01the use of chemical fertilizer was 19484 metric ton for the area of 127500. This area as well as quantity of fertilizer is increased. This leds to drametically high yield in various crops but at the same time they are harzardious for people as wel as enviorment.