

INDIA'S AGRICULTURE PRODUCTION AND FERTILIZER CONSUMPTION

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ABSTRACT: This paper analysis the impact of fertilizers on the production of agriculture sector. The study depicts that agriculture production and the yield per hectare both are associated with the usage of fertilizers in the country. Agriculture production will get increase with the increased usage of fertilizers.

KEYWORDS: Agriculture Production, Fertilizers and Yield per Hectare.

INTRODUCTION:

Indi's population is growing at a very fast pace and it is estimated that we will be need more food as compared to today. With the growing population the agricultural land is decreasing and hence to satisfy the ever increasing food demand the solution is to either bring more forest land under agriculture or increase the agricultural productivity. The latter option has been preferred over the first one in order to ensure the ecological balance and the bio diversity which is not possible with shrinking forest cover. The first step towards increasing agriculture productivity is management and measurement of soil health i.e. to study the soil composition in order to identify the deficiency of nutrients which are essential for healthy plant growth [1]. The soil has an inherent capacity to make good the nutritional deficiencies through the various organic microbial activities which happen inside it. But in order for that to happen the land is either to be kept unused or else crop rotation is to be ensured. However, that would have an adverse impact on the agricultural productivity [2]. Hence in order to increase the agricultural output farmers started the use of the chemical fertilizers which compensated the deficiency of nutrients thereby leading to healthy plant growth.

REVIEW OF LITERATURE:

India is agrarian nation with enormous population load [4]. As per the data related to the sector wise GDP of the country, agriculture contributes around 21 percent to the GDP of India. Fertilizers are considered as one of the key inputs for amassed crop yields and agriculture profit. The role of fertilizer in the agriculture has been well defined by the scientist who have won noble prize for wheat production who stated that wheat and rice have given birth to green revolution and fertilizers further poured fuel to this green revolution [3]. This statement applied to Indian agriculture sector too, as there is a huge land available in the country for the agriculture activities and the crops production. Keeping in view the limitation of the cultivable land in India, fertilizers are vital components for the agriculture production. Hence, the fertilizers prove fruitful for the increased agriculture production [2].

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OBJECTIVES:

The main objective of this paper research is to analysis the impact of fertilizers on the production of agriculture sector.

RESEARCH METHODOLOGY:

The study utilised the secondary data related to the usage of fertilizers by Indian farmers for agriculture and the total production of the agriculture sector. Data has been taken from the official reports of the Ministry of Agriculture and Total two variables have been used in the present study which has been explained as:

Independent Variables: In present study, consumption of fertilizers has been taken as the independent variables in the regression model where the impact of fertilizers on the production of agriculture sector has been measured.

Dependent variables: Total production of agriculture for food grains have been taken as the dependent variable in the regression model.

Further, Fertilizers consist of the three types of fertilizers mainly; Nitrogen, Potassium and Phosphorus. The consumption of the fertilizers has been taken in quantity in tonnes. In this paper regression model has been used to measure the cause and effect relation between usages of fertilizers on the production of agriculture sector. Time series data has been taken for analysis purpose and showed in tabular form. Null hypothesis tested through regression model are given below:

Null Hypothesis: More use of fertilizers does not have a significant impact on the agriculture production.

RESULTS AND DISCUSSIONS:

Table 1 shows the agriculture production of India for the year 2001 to 2016 comprising variables namely; agriculture production and consumption of fertilizers

Table 1: Agriculture Production

Year	Agriculture Production (Million Tonnes)	Consumption of Fertilizer (lakh tonnes)
2015-16	275.68	267.52
2014-15	251.57	255.76
2013-14	252.02	244.82
2012-13	265.04	255.36
2011-12	257.13	277.90

2010-11	259.29	281.22
2009-10	244.49	264.86
2008-09	218.11	249.09
2007-08	234.47	225.70
2006-07	230.78	216.51
2005-06	217.28	203.40
2004-05	208.60	183.98
2003-04	198.36	167.99
2002-03	213.19	160.94
2001-02	174.78	173.60
2000-01	212.85	167.02

Interpretation: It can be interpreted from the table 1 that there is an increase in the agriculture production from 212.85 million tonnes to 275.68 million tonnes. Hence, there is an increase in the agriculture production during last fifteen years, but if we look at the trend of the data then it shows a mix trend in some years it is increasing and for other years it keeps on decreasing, there is a not a constant increase or decrease in the agriculture production. Consumption of fertilizer got increased from 167.02 lakh tonnes to 267.52 lakh tonnes.

	R Value	R Square Value	Adjusted R Square Value	Std. Error
1	.870 ^a	.757	.720	14.59865

a. Predictors: Consumption of Pesticides, Consumption of Fertilizer

Interpretation: Table 2 shows the regression model for the agriculture production and consumption of fertilizers in India. It is found that the value of R was found to be .870, which indicates the high degree of positive correlation between agriculture production and consumption of fertilizers. Further, the value of R-square was found to be 0.757, which indicates that the consumption of fertilizers causes 75 percent variation in the value of agriculture production, which is a significant percentage.

Model		Sum of Squares	Degree of Freedom	Mean Square Value	F-value	p-value
1	Regression	8635.971	2	4317.985	20.261	.000 ^b
	Residual	2770.568	13	213.121		
	Total	11406.539	15			

a. Dependent Variable: AGRICULTURAL PRODUCTION – FOODGRAINS
b. Predictors: Consumption of Fertilizer

Interpretation: The results of ANOVA signifies that dependent variable i.e. agriculture production and independent variables i.e. consumption of fertilizer are significantly associated to each other.

Table 4: Regression Coefficients						
Model		Unstandardized Coefficients value		Standardized Coefficients value	t-value	p-value
		B-value	Std. Error value	Beta value		
1	(Constant)	90.102	29.064		3.100	.008
	Consumption of Fertilizer	.509	.102	.794	4.991	.000

a. Dependent Variable: AGRICULTURAL PRODUCTION – FOODGRAINS

Interpretation: Results showed that the value of regression coefficient for the variable consumption of fertilizer was found to be 0.794, at a t-value of 4.991, and p-value of 0.000, which indicates that the consumption of fertilizer has a positive and significant impact on the agriculture production. Hence, it can be said that with the increased use of fertilizers, agriculture production can be increased. Hence, the null hypothesis which states that the Increased use of fertilizers do not have a significant impact on the agriculture production, gets rejected in the study.

CONCLUSION:

It can be concluded from the study that agriculture production and the yield per hectare both are associated with the usage of fertilizers in the country. Agriculture production will get increase with the increased usage of fertilizers. Fertilizers play an important role in the agriculture, but with the change in the eco system of the earth, it is expected from the farmers to make use of eco-friendly fertilizers in minimum proportion to avoid harm to environment and to maintain the fertility of the land too.

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