

ANALYSIS OF ORGANIC FARMING IN INDIA

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ABSTRACT

Organic farming is not a new notion; it is a traditional farming approach that has been practised since ancient times. It is a proper approach to cultivating the soil and growing food grains since it is chemical-free farming. It is critical to investigate ways to increase the sustainability of organic farming in India. Organic farming, in comparison to conventional farming, offers a number of advantages and profits, which is why it is so popular in our nation. The area under organic farming in India has increased since the inception of the National Programme for Organic Production (NPOP). Organic farmers have recently improved their farming knowledge and skills. India has one of the world's biggest livestock populations, and cattle are an important part of organic farming. The study found that agricultural workers and agricultural land in use have a direct relationship with organic farming, which indicates that when these variables grow, so will organic farming, resulting in a rise in agricultural production.

Keywords: Organic Farmers, Livestock Population, Production.

I. INTRODUCTION

Agriculture is the backbone of the Indian economy. The foundation of Indian agriculture primarily demonstrates that it employs ancient farming techniques. Conventional agriculture had helped India in producing adequate food for its own use as well as surpluses for export. Panchagavya is one of the greatest agricultural strategies for boosting soil fertility and livestock management that is based on traditional ways. Farming in our nation is presently developing rapidly as a result of advanced technology, irrigation facilities, improved seeds, appropriate financial facilities, and so on, and farmers are increasing their level of life as well as earning a solid income. However, following the detrimental effects of the green revolution on land, soil, productivity, and the environment, a substantial number of farmers have shifted to organic farming, an alternative agricultural technology that can operate in a friendly ecology while sustaining and improving crop output. Organic farming is very often regarded as the most well-known alternative to conventional farming (Narayanan, 2005). It is also one of the traditional techniques of farming, it is also called as natural farming. Because it is completely chemical-free, and lands are only cultivated with natural materials such as animal dung, green manures, organic compost, and organic pesticides, among others. Organic farming helps to safeguard soil fertility, food grain nutritious value, and the environment.

Organic farming supports the notion that the soil, plants, animals, and humans are all interlinked. Therefore, its purpose is to develop an agricultural production system that is integrated, ecologically sound, safe, and commercially viable. Soil is a biological system with several components that is related to an organism. Humans engage with these natural elements in order to develop ecological balance and produce long-term agricultural productivity (Rana, 2011). Domestic animals have been employed for farming in India since ancient times. Farmers' economies are heavily reliant on their animals. During the lean agricultural season, small and marginal farmers, as well as landless individuals, rely on animals to supplement their income. Moreover, animal waste/dung can be used to make high-quality fertilizers. Soil fertility is improved when organic fertilizers are used. Microbes are formed in soil as a result of these organic fertilizers, which are beneficial to land cultivation. On a broad scale, animal excrement contains nitrogen, phosphate, and potassium. As a result, dung manure is the ideal chemical fertilizer replacement. Therefore, food grain quality has been enhanced, and its nutritious content has been preserved. That is why; organic food is in more demand in today's market. Many farmers nowadays use the mixed farming approach to cultivate their land. As a result, the land will be required to produce a huge quantity of food grains while also increasing productivity and allowing farmers to make more money. Although money is not the only aspect that affects a farmer's socioeconomic standing, it has a significant impact on it and helps them better their financial situation day by day. The government is working on improving agricultural policy and developing new strategies to boost organic farming. As a result, the

government offers farmers financial resources, irrigation systems, innovative technology, and other necessities for the agriculture industry at reasonable costs. Hence, the following are the key factors of organic farming: i) the agricultural workers ii) agricultural land in use and iii) the livestock population

II. LITERATURE REVIEW

The organic movement has decades of expertise practising environmentally sound agriculture as well as building inspection and certification methods to provide customers with assurance and trust in reality (Geier, 1999). According to Chander et al. (2011), more than 1.8 million farmers cultivate their land organically, and organic production is continuously increasing by 15% each year. As a result, a number of developing and tropical nations are experimenting with organic livestock farming. Some organic farmers in European nations experienced challenges in managing organic farms and organic livestock, such as inadequate data about organic agriculture, animal welfare difficulties, importing country restrictions, and so on. As per Dikshit & Birhal (2013), the livestock population in India has led to a highly developed agriculture sector. Indian farmers use a mixed agricultural approach to develop their land; hence they are completely reliant on animals. As a result, livestock are utilised in mixed agricultural systems because of their favourable environmental externalities. The usage of animal dung manure improves the soil's nutritional value while also protecting the environment. The success of organic farming, according to Bodapi & Chander (2013), is dependent on the farmer's expertise, proper farming practise, and application of organic manures, among other factors. As a result, farmers use their traditional agricultural expertise and indigenous farming techniques to promote organic farming and animal husbandry as well as protecting the environment. Patel et al. (2016) demonstrated that Indian women are deeply engaged with livestock in a variety of ways, including fodder gathering, watering, and health care; milking and household level processing, value addition, and sale. As an alternative organic farming strategy for India, the National Academy of Agricultural Sciences (NAAS) recommended a holistic approach involving integrated nutrient management (INM), integrated pest management (IPM) for increased input use efficiency, and adoption of region-specific promising cropping systems. To begin, the practise of organic farming should value crops such as spices, medicinal plants, fruits, and vegetables (Bhattacharya & Chakraborty, 2005).

OBJECTIVES OF THE STUDY

To examine the relationship between the total organic production of food grain and the key factors of organic farming.

III. RESEARCH METHODOLOGY

The study is based on secondary data. The required data on organic farming in India for the period of 15 years from 2004-05 to 2018-19 is collected from various sources such as Agricultural Pocketbook-2019, Registrar General of India, Land in Use Statistics, Directorate of Economics and Statistics etc. Further data is analyzed with the help of SPSS Software, using the Multiple Regression and ANOVA.

Independent and Dependent Variables:

The Organic Farming production of food grain is taken as the dependent variable in the model and the agricultural workers, agricultural land in use and the livestock population in India are treated as independent variables.

Research Hypothesis:

H₀: There is no significant relationship between organic farming production and the agricultural workers, agricultural land in use and the livestock population.

IV. DATA ANALYSIS

Figure 1 shows that food grain production, number of agricultural workers and livestock in India depicts increasing trend during the study period. The size of agriculture land is almost constant.

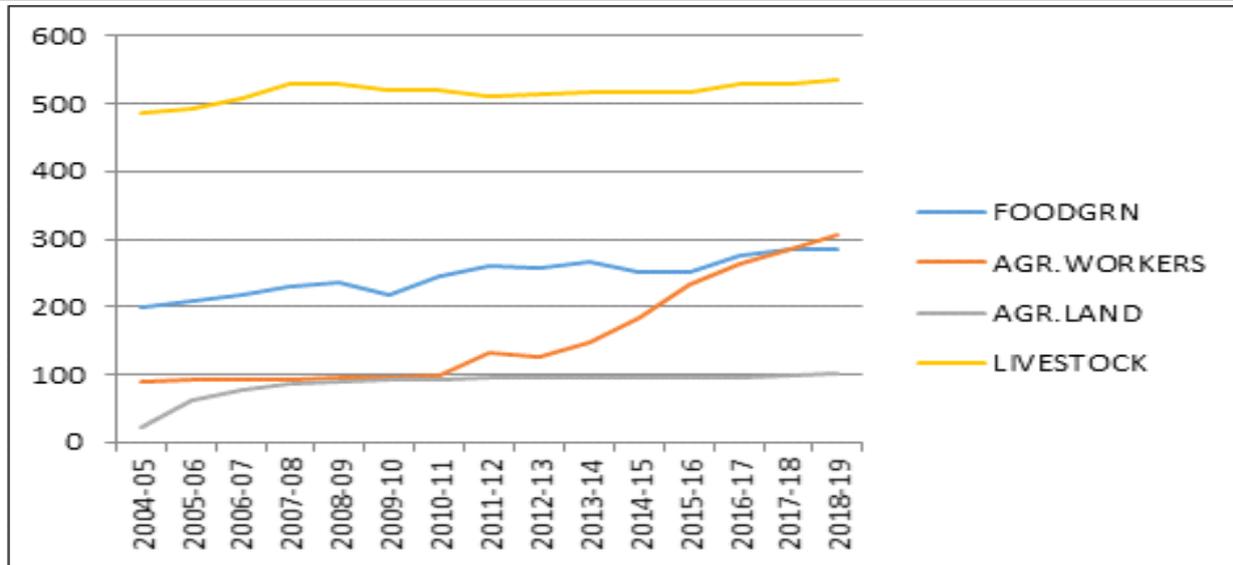


Figure 1: Food grain production, Agricultural workers, Agricultural land and Livestock in India

(Source: Agricultural Pocketbook-2019)

The Organic Farming production of food grain being the dependent variable in the model and the agricultural workers, agricultural land in use and the livestock population in India as independent variable, shows a positive relationship. The table-1 below explains the relationship with high correlation among each other. This shows that as the Independent variables increases, the dependent variable, organic farming, which depends on these variables, also increases in India.

Table-1: Correlations between the dependent and independent variables

	Agri. Workers	Land in use	Livestock Pop.	Org. farming
Agri. Workers	1	0.50	0.55	0.83
Agri. Land in Use	0.50	1	0.83	0.78
Livestock population	0.55	0.83	1	0.72
Org. Farming	0.83	0.78	0.72	1

Table-2: Model Summary

Model	R	R ²	Adj. R ²	S. E. Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.927 ^a	.860	.822	11.425	..860	22.508	3	11	.0005	1.590

As per table 2, the R² value represents the proportion of the variance in the dependent variable that can be explained by the estimated multiple regression equation; it also signifies the degree of goodness of fit of the estimated multiple regression equation. The Adjusted R² avoids the overestimating error in measuring the impact of adding an independent variable on the amount of variance being explained by the regression equation. The R² value of 0.860 and adjusted R² of 0.822 reports Organic Farming depends on the various independent variables by 85.9%. This means that 85.9% of the variance in Organic farming in India can be described by Agricultural workers, Agricultural Land in Use, and Livestock Population in India, while the remaining 14.1 percent may be explained by other factors which are not included in the model. The strength of Model is also high as well as significant at a 1% level of significance. Serial correlation may have an impact on a model as it is based on time series data. Durbin Watson value is estimated as 1.589 units, which is less than 2 units, indicating that the model has no serial correlation having non-autocorrelation in residuals. A rule of thumb for this test statistic is that values in the range of 1.5 to 2.5 are relatively normal.

Table-3: ANOVA^b

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	8814.377	3	2938.126	22.508.	.0005 ^a
Residual	1435.911	11	130.5374		
Total	10250.28	14			

a. Predictors: (Constant), AGR_WRKS, AGR_LAND, LIVESTK

b. Dependent Variable: ORG_FRMG

The ANOVA statistics mentioned in Table-3 show that the model as a whole is significant for predicting the influence of independent variable on the dependent variable i.e. the level of organic food grain production: $F(3, 11) = 22.508$ and p is $.0005 < .01$. The p -value of the F statistics is 0.0005 which shows that all the independent variables in the model used are jointly influences the dependent variable, which is very much significant.

Table-4: Regression Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta	Std. Error		
(Constant)			170.6352	189.1586	0.90207	0.386343
1 AGR_WRKS	0.587876	0.135587	0.202743	0.04676	4.33578	0.001183
AGR_LAND	0.494881	0.199789	0.657974	0.265631	2.47702	0.030736
LIVESTK	-0.01365	0.207356	-0.0265	0.402651	-0.0658	0.948703

On the basis of the OLS regression results in table IV, the hypothesis is tested. The data show that Agricultural Workers has a t -value of 4.335 units and a probability value of 0.001 units, Agricultural Land in Use has a t -value of 2.478 units and a probability value of 0.030 units, all of which are considered significant in all senses, except for the Livestock Population in India, which has a t -value of -0.065 units and a probability value of 0.948 units, which is greater than the 5% significance level. Simultaneously, the positive sign in both the Agricultural Workers and Agricultural Land in Use variables indicates a direct association with Organic Farming, implying that as these variables increase, so will the production of organic food grain.

V. CONCLUSION

The aim of the present paper is to explain the importance of Organic Farming in India with the help of various variables for a period of 15 years. The result showed that with the help of livestock and low cost of agricultural inputs, farmers earned good profit. Hence, farmers are highly interested to cultivate their land organically. It is shown that organic farming is growing as a trend for farmers because increase net return, reduce the crop failure risks and protect environment. With the help Multiple Regression and ANOVA method the model proves to be a significant from all respect and can be used for future scope.

VI. REFERENCES

- [1] Bhattacharya, P., & Chakraborty, G. (2005). Current status of organic farming in India and other countries, *Indian Journal of Fertilizers*, (9), 111–123.
- [2] Chander, M., Bodapati, S., Mukherjee, R., & Kumar, S. (2011). Organic livestock production: an emerging opportunity with new challenges for producers in tropical countries. *Rev. sci. tech. Off. int. Epiz.*, 30(3), 569-583.
- [3] Dikshit, A. K., & Birthal, P. S. (2013). Positive environmental externalities of livestock in mixed farming systems of India., *Agricultural Economics Research Review*, 26(347-2016-17074), 21-30.
- [4] Geier, Bernwad, 1999, International Federation of Organic Agriculture Movements, in *Sustainable Agriculture Solutions: The Action report of the Sustainable Agriculture Initiative*, Novello Press, London.

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- [5] Rana SS 2011. Organic Farming. Department of Agronomy, College of Agriculture, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur, pages. 90
- [6] Bodapti, S., & Chander, M. (2013). Integrating indigenous knowledge of farmers for sustainable organic farming: An assessment in Uttarakhand state of India. Indian journal of traditional knowledge, 12(2), 259-264. Agricultural Pocketbook-2019
- [7] Directorate of Economics and Statistics
- [8] <https://www.agritech.tnau.ac.in>
- [9] <https://www.apeda.gov.in>
- [10] <https://www.organicindia.co.in>
- [11] <https://www.farmersrights.org>