Nilojyoti KONER* and Arindam LAHA*

Economics of Zero Budget Natural Farming in Purulia District of West Bengal: Is It Economically Viable?

In the light of the growing concerns about the sustainability of the current input-intensive agriculture system, the need for an alternative farming system has arisen. Among the various alternative farming models practised across the world, Zero Budget Natural Farming (ZBNF) has recently come into the spotlight. This paper envisages the economic viability of ZBNF in a local setting. In the empirical survey, the study considers one cluster of farmers practicing ZBNF in Purulia district of West Bengal, India. Empirical evidence presented in this paper is based on the performance of this alternative model of farming in respect of three important parameters, namely cost of cultivation, yield and income. Evidence reveals that the natural farmers have experienced a reduction in per hectare production cost and per hectare yield for their crops in the post-conversion period. More importantly, farmers adopting the ZBNF model (i.e. treatment group) in Purulia were able to enhance their income, compared to their chemical counterparts (i.e. control group). Moreover, an in–depth analysis of performance has been carried out, thereby identifying the factors influencing the long-term sustainability of ZBNF. Results indicate that the long term sustainability of this model of farming is contingent upon the interplay of agro-climatic conditions and various other socio-economic factors.

Keywords: Sustainable Agriculture, Zero Budget Natural Farming, Chemical Farming, Cluster, India
JEL classifications: Q15, Q18

* The University of Burdwan, West Bengal 713104, India. Corresponding author: konernilojyoti@gmail.com.
Received: 13 December 2019, Revised: 27 February 2020, Accepted: 2 March 2020.

Introduction

Agriculture has been the backbone of the Indian economy for centuries. More than half of the country's population at present depends on agriculture and allied services for their livelihoods (Tripathi *et al*, 2018). Over the last few decades there has been a major transformation in the Indian agricultural sector. With the introduction of 'Green Revolution' technologies, agriculture in India has transitioned from subsistence to commercial farming. However, in spite of the success, the input intensive 'Green Revolution' in recent decades has often masked significant externalities, affecting natural resources and human health, as well as agriculture itself. Besides, there is also the added impact of neo-liberal economic reforms. Policy measures such as the reduction or withdrawal of input subsidies, privatisation and marketisation of economic activities have adversely affected the Indian peasants' community (Goswami *et al*., 2017). Moreover, the twin effects of the 'Green Revolution' and the neo-liberalisation of the Indian economy have led to a deep agrarian crisis. The smallholders[1] have become its worst victim. The prevailing agriculture system in India is characterised by high production costs, high interest rates for credit, volatile market prices for crops, and rising costs for fossil fuel-based inputs and private seeds. As a result, Indian farmers (especially the smallholders) increasingly find themselves in a perpetual cycle of debt. More than a quarter of a million farmers have committed suicide in India in the last two decades (Parvathamma, 2016).

In the light of these growing concerns about the sustainability of the current input intensive agriculture system, the need for an alternative farming system has arisen. Various forms of alternative low-input farming practices have emerged in different corners across the world, promising reduced input costs and higher yields for farmers, chemical-free food for consumers and improved soil fertility. In the Indian context, implementation of the National Mission for Sustainable Agriculture (NMSA)[2] signifies a policy reversal away from the 'biologically centred green revolution'. In addition, various initiatives such as Paramparagat Krishi Vikash Yojana (PKVY), Rashtriya Krishi Vikash Yojana (RKVY), Mission Organic Value Chain Development for North Eastern Region (MOVCDNER), Participatory Guarantee System (PGS), and National Programme for Organic Production (NPOP), Network Project on Organic Farming (NPOF) have been undertaken by the government of India in order to promote Organic Farming[3]. Interestingly, the PKVY scheme in its revised guidelines has also included various other organic farming models like Natural Farming, Vedic Farming, Cow Farming, Homa Farming and Zero Budget Natural Farming (GOI, 2019). Among these alternative organic models, ZBNF has recently come into the spotlight. In the Economic Survey, 2018-19, and successively in the budget 2019, the finance minister of India has announced that the government will promote ZBNF with the aim of reducing the cost of cultivation and thereby 'doubling farmers' income'[4] (Bhosle, 2019; GOI, 2019). ZBNF promises to end a reliance on loans and to drastically cut production costs, thereby ending the debt cycle for desperate farmers.

In this context, this study seeks to assess the economic viability of ZBNF. Apart from the introductory section, the

[1] The smallholders (include small and marginal farmers) account for more than 85percent of the total farmers in India (GOI, 2019).

[2] The principal objective of the NMSA is to make agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific integrated farming systems and to conserve natural resources through appropriate soil and moisture conservation measures.

[3] "Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on the ecological processes, biodiversity and cycles adapted to local conditions rather than use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved" (IFOAM, 2019).

[4] The government of India has set a target to double farmer's income by 2022. It has three pillars: one is increasing the total output from agriculture by increasing productivity, the second is to ensure cost effectiveness thorough efficient uses of resources, and the third is to ensure remunerative prices for the farmers (Nirmal, 2019). ZBNF is considered to be an important strategy aimed at achieving cost reductions and thereby 'doubling farmers' income'.