



# Trends in Agricultural Economics

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## **Fading Glory of West Bengal Agriculture in the Context of Globalization: Need for a Change in Cropping Pattern**

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**Abstract:** West Bengal emerged as one of the progressive agriculturally developed states in India during the period of 1980s. Mainly, land reforms policy of the government coupled with HYV seeds technology and better farming practices placed the agriculture of the state to a high growth path during this period. However, during the globalization period of nineties and thereafter, the growth of agriculture of the state declined significantly due to sudden fall in productivity growth rate. The existing farming practices do not provide further support to the agricultural development of the state. The state needs to diversify its cropping pattern towards the high-valued commercial cash crops to regain its high growth of the agricultural sector.

**Key words:** Output growth rate, cropping pattern, land reforms

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### **INTRODUCTION**

As an aftermath of green revolution paddy cultivation emerged as the most popular variety of agricultural crops in West Bengal. The availability of groundwater, modern HYV seeds technology, better farming practices, favourable climatic condition and political stability were primarily responsible for boosting agricultural production in the state. All these happened during the early 1980s and the phenomenal growth scenario of the agriculture of the state had been continued over more than a decade. The success of foodgrain production in the state brings to the end of hunger in fertile land.

However, the productivity-driven prosperity of the 1980s could not sustain in the subsequent period; in fact, the declining growth performance has now become a cause of concern for farmers of the state. Of late, it has been noticed by researchers that the pace of development of agriculture comes to a bare minimum level and foodgrain dominated cropping pattern of the state does not providing any significant support to the farmers in general (Ghosh, 2009). Against this backdrop this paper attempts a renewed enquiry of the agricultural performance of state on the basis of the research works of Saha and Swaminathan (1994), Ghosh and Kuri (2007) and Ray and Ghosh (2007).

#### **Growth Analysis of 1980s**

Saha and Swaminathan (1994) worked on the agricultural growth performance of West Bengal is indeed one of the most careful and systematic efforts to assess agricultural productivity and growth at a regional level and to examine the factors contributing to the tremendous growth performance.

Saha and Swaminathan (1994) observed that the exponential growth of aggregate production for the period 1981-82 to 1990-91 was an impressive 6.4% per annum. In deed, it was one of the highest growth rates achieved by any Indian states during the 1980s. They have also estimated that with the exception of Darjiling and Jalpaiguri districts, the index of aggregate crop production grew by over 5% annually in all the districts of West Bengal. In the six districts viz., Bankura, Birbhum, Medinipur, Purulia, Nadia and Howrah, the growth rates were higher than the state average. Prior to 1980, the high-growth districts were those in the Gangetic plains of West Bengal. The Northern sub-Himalayan districts of Jalpaiguri, Darjiling, Kooch Behar and West Dinajpur continued to lag behind the southern districts. Authors have clearly shown that there is a perceptible change in the ranking of districts over time. Many of the districts (Birbhum, Bankura, Purulia and Medinipur) that were ranked in the middle or lower for the period prior to 1980s (1965-80) moved to the top of the table.

The decomposition of output growth into area and productivity effects shows that for the paddy crops (viz., aus rice, aman rice) the increment in yield was the main contributing factor. However, in West Bengal the main triumph for paddy cultivation was the boro variety of rice which is a HYV crop and cultivated in the summer season. For this particular paddy crops, however, the high growth rate of production (14.29% per annum during the 1980s) came mainly from its expansion of area which grew at 12.00% per annum during the same period i.e., more than 80% contribution from area effects. The state, however, failed to perform well in pulse production and the growth of production of pulse crops declined by 1.7% per annum during the decade of 80s. Even a positive yield growth rate could not enable to a positive production growth rate on account of very high negative growth rate of area under cultivation (-4.2% per annum). The steady expansion of area under potato and mustard resulted to very high production growth of these two cash crops. On average, potato production grew at the rate of 7.9% per annum during 1980-81 to 1988-89. Again 18.5% per annum production growth rate of mustard was sponsored by 14.8% growth in area and 5.1% in yield growth.

### **Cropping Patten Changes**

The study of Saha and Swaminathan (1994) made it clear the cropping pattern of the state is primarily foodgrain dominated. More specifically, rice was the main crop of the state. Among foodgrain crops wheat and pulses were not as important crops in West Bengal in 1980s as during the 70s (in terms of share of GCA). The cropping pattern of the state turned heavily against aus rice and pulse crops. Though in recent years there is an indication that the high-valued commercial crops such as potato, vegetables, oilseeds etc. are gaining their importance in pattern of the state (Ghosh and Kuri, 2005). But the space is too slow to make any significant changes in the agrarian system of the state.

### **Factors Responsible for Growth**

According to Saha and Swaminathan (1994), during 1980s in rural West Bengal, farming practices improved and high-yielding varieties were used on a larger scale than before. The transition in West Bengal's agricultural production performance occurred after a landmark programme of land reform and after the establishment of new, democratic panchayat institutions in the West Bengal countryside (Saha and Swaminathan, 1994). The panchayats are the local self-administrations and are active in different production-related activities. This helped the farmers to enhance their productivity and hence agricultural production. In their opinion, the introduction of HYV seeds technology and better support services through the

local panchayats and improved farming practices were the driving forces behind the impressive growth performance of the state during the decade of 80s.

#### **Phase of Declining Growth Trend**

However, this impressive growth performance could not sustain for a very long period. Ghosh and Kuri (2007) investigated the data on crop production of state and the districts therein and had shown that growth rate aggregate agricultural output declined significantly during the subsequent decade of 90s. According to Ghosh and Kuri (2007) the decomposition of output growth across the districts, as well as on the whole state, confirms that yield growth plays the most important role in high output growth in the state during the decade of 1980s. The contribution of area was the next. The cropping pattern effect has never been an important factor in explaining output growth during the 1980s. Authors have also claimed that the high yield growth rate and hence high output growth rate during the 1980s was mainly due to the joint influence of institutional reforms in the form Operation Barga (land reforms) and technological factors (HYV seeds, fertilizer etc.). In a recent study Ghosh (2010) further confirmed the declining tendency of the growth of production of major crops during the nineties. It has also been confirmed that the slowing growth rate of production of major crops were mainly due to the falling yield growth rate and the higher growth path of eighties was associated with higher degree of variability. The remarkable growth performance of the 1980s did not sustain for very long periods and the sharp fall in yield growth rate during the decade of 1990s caused the slowing down the output growth. In this periods a declining trend has also noticed in the growth of area and cropping pattern, although not as much as yield.

#### **Ecological Sustainability of Boro Paddy Cultivation**

Both the study of Saha and Swaminathan (1994) and Ghosh and Kuri (2007) made it clear that the growth of yield of paddy cultivation was the main force behind the 'success' of West Bengal agriculture in recent history. Research study also pointed out that the cropping pattern of the agriculture of the state was foodgrain dominated and the remarkable yield growth of the foodgrain crops enabled the state to reach the high growth path in agriculture. More specifically, paddy crops were the main foodgrain crops in the state. Again there happened an intra-paddy crop substitution in the state; *aus* paddy crop was being replaced gradually by high yielding boro paddy crops. In fact, boro paddy has been the triumph of modern agriculture in rural Bengal. Boro paddy is a HYV variety and is grown in summer season and ground water reserves serves as the main source of water for its cultivation. It also requires very high doses of chemical fertilizer. Cultivation of this crop is also profitable for the farmers from the commercial view point.

However, in recent past, concern has been expressed about the economic and ecological sustainability of this so-called profitable crop. In the article titled Modern Agriculture and the Ecologically Handicapped: Fading Glory of Boro Paddy Cultivation in West Bengal, published in Economic and Political Weekly (June 30, 2007), Ray and Ghosh (2007) have studied this question beautifully. Authors have clearly shown that the farmers' efforts to cultivate and increase the yield of boro paddy have resulted in the uncontrolled use of groundwater and agrochemicals. The water and soil substrate have become a matter of serious environment concern because of the change in the traditional cropping pattern that altered the natural properties of a stable and friendly agro-system. Modern agricultural practice in the state is very exploitative of land and people. What is more that the farmers are

not aware of the inadequacies of modern agriculture but they cultivate the crop out of compliance. They have prescribed that what the farmers needed was a tangible alternative, a choice that valued water as a precious resource and recognized the ecological margin of the use of land.

### **CONCLUSION AND POLICY PRESCRIPTION**

In a nutshell, it has been observed that the agricultural sector of the state gathered momentum, at least in terms of growth, during the decade of 1980s. More specifically, the introduction of new democratic setup in rural Bengal at the grass root level coupled with land reforms and new agricultural technology (HYV) enabled the agricultural sector of the state to reach the high growth path among the Indian states. A noticeable change in the cropping pattern has also been occurred, i.e., foodgrain crops dominated the cropping pattern of the state. Especially, the boro paddy crop replaced the pulse crops. Again the overall decomposition of output growth into its several components shows that improvement in productivity of crops was the main contributory factor to output growth. Next to productivity factor, the area expansion was another factor contributing to output growth. The cropping pattern effect was never an important factor for the output growth. The recent study on output growth confirms that there is a drastic fall in the productivity growth rate. A declining trend has also been noticed in the growth of area and cropping pattern, though not much serious as yield. In short, the state has been experienced with the slowing down of growth performance in agriculture in recent years. This is the main cause of concern of today, especially with respect to the food security issue of the state. The situation demands the diversification of cropping pattern of the state which can again enable the growth path of the agriculture to reach a significantly high level. Thus, the trends of components of output growth in West Bengal urgently called for the introduction of an extension and development package to unveil the untapped potential of agriculture in the state. Appropriate extension programmes along with the changes in the cropping pattern are utmost necessary to take the advantage of globalization and to achieve a higher growth path in agriculture to mitigate the emerging threats of food security in the state of West Bengal. Policies should framed so as to encourage the farmers to cultivate the crops which need lesser amount of ground-water, pesticides and chemical fertilizer but have a huge demand in the global market. A change in the cropping pattern towards the high valued commercial crops such as potato, jute, horticultural crops and medicinal crops will enable the state not only to maintain the sustainability of the agro-economic system but also to take the advantage of globalization of the economy. Policies that encourage contract farming, future trading in agricultural commodities, leasing of land, the formation of land-sharing companies, allotment of homestead-garden plots, direct procurement of farm commodities and the setting up of special purchase centres, will all drive the agriculture of the state to a new height in the coming years.

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