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Mangal Murti
 Anand Nagar, Newalal Chowk,
 Lalganj, Purnia, Bihar, India

Mechanisation and its effect on the productivity and employment in Bihar

Mangal Murti

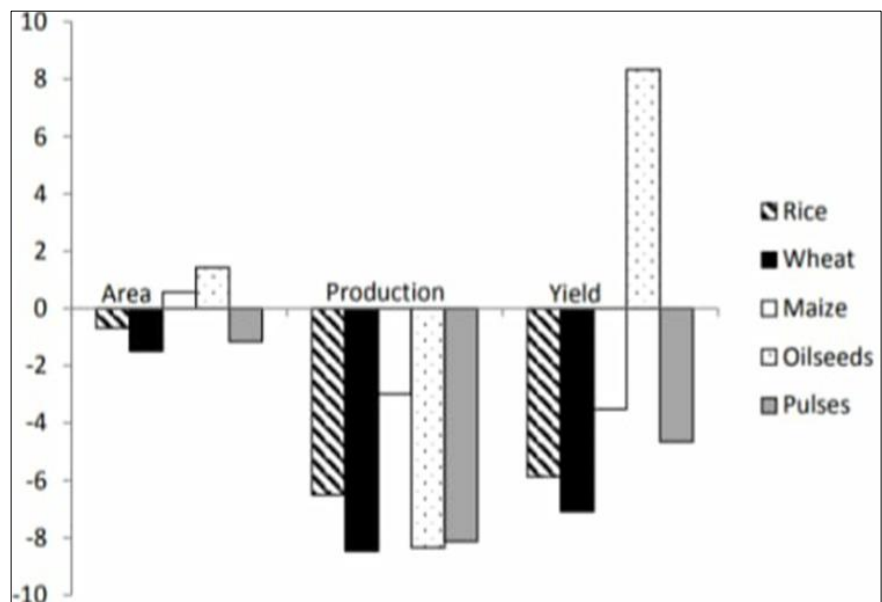
Abstract

Agriculture occupies the pivotal position in Indian economy. Major part of its population depends on agriculture for their livelihood. From ancient period to present age, it has been occupying the highest place in Indian economy or in our economic system; so, the imperative need of our age is to raise the productivity of Indian agriculture. One of the view or the view of technocrats is as for raising the productivity of agriculture is the rapid mechanization of the agriculture. The view of another school of thought is against of mechanization as the remedy for low productivity of agriculture. They put more emphasis on institutional reforms like land reforms. Behind this controversy, the fact is that farm mechanization has brought effect on the productivity and employment in agriculture sector.

Keywords: mechanisation, productivity and employment, economic

Introduction

Mechanization shortly introduced in India from the decade 1961-1970. Since then, Bihar as a populous state also adopted new ideas and methods of cultivation. Today the Indian farmer proud of raising the highest yield of crop and low cost of production owing to mechanization [1]. Availability of abundant groundwater resources in the state, farmers produce a variety of both food and non-food crops, a part from major cereals and pulses, farmers also take interest in growing fibers, oil seeds, fruits and vegetables. Recently, the state has also increased its production of flowers on a large scale for both the domestic and external markets. Figure shows the area, production and yield of principal crop in Bihar in the year 2012-2013 to 2015-2016.



Source: Computed from data of Government of Bihar

Fig 1: CAGRs for the Area, Production and Yield of Principal Crops in Bihar, 2012–13 to 2015–16

Corresponding Author:
Mangal Murti
 Anand Nagar, Newalal Chowk,
 Lalganj, Purnia, Bihar, India

Mechanization and productivity are co-related to each other. Productivity in Bihar has been consistently upward trends due to the use of farm tools and machine. Farm power is an input for timely performing various farming operations and process related to agriculture production. Thus, we find a marginal rise in the cost of production causes substantial gain in farm income only due to mechanization. Further it may be observed that mechanization enters farm economy through large size of holdings. Large holdings have average investment so as to bear risk undoubtedly and afford the use of mechanical power. By virtue of these advantages, big farmer becomes bigger considerably. Income of the small farmers may not to be compared with the large farms. This is the main reasons of income of inequalities amongst farmers.

In addition to it, mechanization may be adopted not to increase income but to afford much leisure time. Mechanization can always lead to better method of production consequently in saving of time and effort while raising the same level of output as earlier. Use of mechanical power often reduces the quantum of manual work and facilitates several farm operations. Since mechanization and large-scale farming also help in reducing the cost of production. The experience of many developed country shows the human and animal labour becomes costlier than machines.

Though it is believed that labour is cheaper in India mainly in Bihar but the study of 'C. H. Hanumantha Rao' shows that the causes of increasing use of tractors and other tools of farming in Punjab and Haryana is due to the fact that these machines are relatively cheaper inputs ^[2]. However, in the state like Bihar mechanization has been adopted on a limited scale. This is due to lack of capital or poverty of the masses on the one hand and small or marginal holdings which are further sub divided and fragmented of holdings, lack of fuel power on the other. Due to the prevailing circumstances in the state, it may not be desirable to introduce farm mechanization but we cannot deny the large benefits of agricultural production. In fact, mechanization increases the labour efficiency and land so it raises the agricultural production per hectare and increases cropping intensity.

But mechanization has very limited scope in Bihar, which are suffering from acute problem of unemployment. Machines are always labour saving. On the basis of a study, 'Hanumantha Rao' estimates that tractorisation displaces 20-30% of the total human labour on account of tillage and transportation. A mechanical thresher displaces around 15% labour and harvest combine around 25% in addition to mechanical thresher. We are well aware of this fact that India is known to be country of small holdings. Similarly, size of holdings in Bihar has small and tiny ^[3]. So, mechanization will have limited application in Indian agriculture particularly in Bihar. Bihar still is an under-developed state with rapid growth rate of population, small and marginal holdings, illiterate farmers with a low per capita income, deficient of electric and fuels. Further farmers with small and tiny holdings are still living with hand to mouth with very little savings. Thus, the policy of selective mechanization should be adopted for the following agricultural activities:-

1. Deep ploughing of land with the help of tractor for removing the deep- rooted grass.

2. Land improvement by land levelling machine and with the help of bulldozers.
3. Construction of dams and soil conservation work. For irrigation purposes.
4. Mechanization can usually adopt for hauling and processing of farm produce.

Thus, mechanization can be of immense use in this regard.

Policy of Bihar government

Agriculture is the prime source of wealth and is the key to the overall development of the state economy. Bihar has a total geographical area of about 93.60 lakh hectares, out of which the net cultivated area is 56.03 lakh hectares. Fertile Gangetic alluvial soils, and abundant water resources, particularly groundwater resources, form the basis of agriculture in Bihar. The state government has given top priority to agriculture and has prepared a roadmap for the agriculture sector. Main objectives of the roadmap is to achieve food and nutritional securities of masses, increase farmer's income, maximum employment opportunities for agriculture labours and eventually stop their migration.

The first agriculture roadmap, which was implemented in Bihar between 2008 and 2012, launched several programs like the seed extension scheme, seed gram scheme and use of agriculture equipment. This roadmap also stressed on the availability of certified seeds for 23 crops, which were distributed on a subsidy. There was also an emphasis on bio-farming, farm mechanization and the implementation of new techniques for System of Rice Intensification (SRI) cultivation. According to sources, the total food grain production in Bihar was 178.29 lakh tons in 2012-13, the year when the first agriculture roadmap (2007-12) indeed. Thereafter, food grain production in the state became high, in terms of both the total produce and the per hectare yield, in the financial year 2016-17. The yield stand at 185.61 lakh tons, which exceeded the expectations of the state agriculture department by 5 lakh tons 4. The six goals of the two-phase.

Agriculture Roadmap (2012-17 and 2017-22) are: -

1. Food security
2. Nutrition security
3. Increase farmer's income
4. Employment generation and control on migration of agriculture labours
5. Extensive participation of woman
6. Conservation of natural resources and their sustainable use

Second Agriculture Roadmap

Second agriculture roadmap was launched by 2017. The main objective of the second Agriculture Roadmap was to ensure the safety of food grains and nutrition and to increase the income of farmers. These objectives are sought to be achieved by ensuring the adequate supply of electricity to farmers, enhancing storage facilities and promoting food processing initiatives to help achieve the rainbow revolution that would make Bihar self-reliant in agricultural production and make the sector export oriented. Under this roadmap the state government planned to enhance the storage capacity of farm produce by making new godowns. Steps were taken to boost the full processing industry to ensure that farmers get better price of their crop. In order to solve the problems of climate change and global warming, and for maintaining the ecological balance, the state government also launched a

green mission to increase the forest area from 9-15% by 2017.

Further, the state government setup its second agriculture university and three new agriculture colleges, one each at Saharsa, Purnia and Kishanganj, to promote research work and the use of advanced farm techniques for the development of the agriculture sector. Chief-minister of Bihar announced that the state government would soon send a team of farmers to China at its own expense to enable them to learn the agricultural techniques adopted by the farmers there. These initiatives were taken to provide farmers in Bihar the opportunity to learn new techniques of growing crops and plants by adopting the new methods of cultivation.

Third agriculture roadmap

The President of India, Shree Ram Nath Kovind launched the Bihar Krishi Roadmap 2017-22 on November, 9 2017 with the allocation of a sum of Rs 1.54 lakh crores for the agriculture and the allied sectors consisting of food processing, irrigation facilities, flood protection and dairy development projects ^[5].

Conclusion

This roadmap has been launched to strengthen the farming community and improve the performance of agriculture sector. The roadmap also covers implementation of programs by twelve departments including Agriculture, Animal Husbandry, Revenue and Land Reforms, Water Resources, Power and Food processing. As part of the scheme for advance payment for the purchase of agricultural inputs, and amount of Rs 6000 each has been transferred into the bank account more than 20,000 farmers to enable them to undertake organic farming under this roadmap.

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