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A STUDY ON TECHNOLOGICAL INNOVATION AND APPLICATION IN FARM ACTIVITIES IN INDIA

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Abstract
India is fast developing nation with abundant potential for development in almost all sectors, particularly in Agriculture for providing food on a continuum basis for the sustainable earth. The teeming millions of people in India need to be provided food continuously. The embarking of green revolution helped India to come out of the morass of the poverty and changing the food policy. Presently the agricultural productivity is low with 2.4 tonnes per hectare and it is twice that for China. We have to think of new green revolution for making our country on a sustainable basis. The new farming innovations such as sprinkler, drip irrigation and new marketing techniques have to be utilized in a judicious manner for the increase in the productivity of Indian farm.

Keywords: Green Revolution, Technological Innovation, Sustainable Development.

It is apt to quote the words of the then prime minister of India, Jawaharlal Nehru, 'everything can wait, but not agriculture'. Tribal dominated disadvantaged district, Jhabua, Madhya Pradesh is characterized by undulating topography, fragmented holdings, rainfed farming, shallow and eroded soils, low and stagnant crop productivity and low income from ancestral farming. [1].

Robert Thomas Malthus expected a doom in the world due to ever increasing population and the less growth of food production. This was in 1978 which heralded a new era and created a fear psychosis among the people. Still we have overcome his doom saying by the technological innovation in agriculture. Now we have to find out the ways of feeding millions of people all around the world by increasing the farm productivity. Even the small farmers have witnessed the rise in the productivity.

Indian Agriculture provides livelihood for more than 50% of the Indian population. But it contributes only about 14% to the overall GDP which is well below the contribution of the manufacturing and the service sectors.

"Whenever I visit small farmers in a poor country, I'm struck by how many are laboring with hoes, plows, and other implements that haven't changed in generations. Yet farmers in wealthier countries have benefited from wave after wave of technological improvements. This gap is one big reason why some farmers produce much more food than others. Thankfully, some of the brightest minds in Africa, India, and elsewhere are creating new tools to close the gap'.

\- Bill Gates

INDIAN AGRICULTURE IN THE PRESENT CONTEXT

The Indian agricultural economy has grown from the food deficit to self-sufficiency and in reality we have become the food exporter of some prominent food grains.

'The foodgrains production rose from 50 million tonnes during 1950-51 to 203 million tonnes in 1998-99. In addition, an impressive progress has also been achieved in the production of oilseeds, fruits, vegetables, milk, poultry and fish. This all became possible due to the cutting-edge of the science and technologies-generated indigenously. The success of the Indian agriculture has received global appreciation' [2].

a. The emergence of private sector
b. Change in cropping pattern
c. Extension activities
d. Technological innovation
e. Commercial farming

The role of agriculture is laudable and it should be understood that we have to give utmost importance to the new agricultural practices. The development of drip irrigation is particularly useful for drought hit states and districts to maintain its green areas intact. In addition, the cattle population has to be reared which provides the much needed milk and calcium to the children and the elderly. In this backdrop we have to visualize the role of agriculture in India and what needs to be done in future?.

Mechanization

In order to increase the productivity of Indian agriculture the modernization and mechanization have to be carried out at once. This has been taken care of by our commercial and cooperative banks which provide the financial assistance in time. Unless the modernization is carried out in time, our country will be left in the list of underdeveloped for years together. Hence a study on the farm innovation and application activities demands merit.

The Innovative Techniques Adopted in Indian Agriculture

Indian farmers are goaded to follow the innovative agricultural practices for the increase in the productivity and the yield in the farming activities. The role of private sector is more and encouraging with regard to the adoption of new techniques in the farm business. The drip irrigation system finds favour from the government also in the form of subsidy either in part or in full. This has been noticed in the farm cultivation of coconut farming and vegetables. The innovative techniques are dairy hubs, fertilizer deep placement, mobile apps, high-roofed greenhouses, new feeding systems, farm management software and training

Dairy hubs

It is the new technique followed in many countries such as Bangladesh, Pakistan and EastAfrica. It is to be noted that in India also it is under trial. This is a good method which helps the farmers in cutting costs, generating higher income and rearing healthier milch animals. This has been a useful tool for the dairy processors also. Hence this could be extended on a large scale in India.

Fertiliser Deep Placement

Placing the fertilizer called briquette 7-10 centimeters below the soil helps releasing the nitrogen gradually to the plant. This has been a successful method deployed in African countries such as Niger and Nigeria. This method could be tested in Indian soil to study its suitability and to reduce the cost through frequent application of fertilizer which is due to the run off during rainy season.

Kisan Information Centres

Farmers are the backbone of Indian economy and they need to be provided relevant information about the onset of monsoon and the price variations in the international market on day to day basis. This in turn will be making use of the available data and resources effectively with the application of online, mobile phones and satellite communication. This has to be employed immediately to reach the unreached masses in the remote villages of India. The online and offline agricultural information may be provided to the farmers and their farming communities at large.

High-Roofed Greenhouses

In certain cold areas, the plant has to be carried out with the green houses. It is to be noted that a high roof greenhouses with 12 feet or higher will double the yield. This has been proved by the experts from USAID. 'Because of government restrictions, farmers in Turkmenistan often do not have access to large areas of land. Greenhouses are a great way to increase production, although a traditional greenhouse can only grow short tomato and cucumber plants. To combat this, experts from USAID have created greenhouses with roofs of 12 feet or higher, which has been shown to double farmers' yields z' [3].

New Feeding Systems

The high nutritive food items must be mixed in proper manner so as to increase the nutrient values. This would reduce the labour cost, increase the health of the cattle, and the farmer could derive profit in the long run,. This would increase the farm productivity by 60-70 per cent and the milk production may be maximized.

Farm Management Software and Training

Training is an important tool to hone the skills of the people who are involved in farming and related activities. When we want to increase the productivity from the farming sector, it is the high time to provide due care to the animal care, pest management and crop rotation. In addition it is better to get trained by the extension officers who are well-versed in modern farming activities including the high yield varieties and the use of innovative farming activities. Software is available for managing all these things. The Indian farming has to embrace the technology in order to meet the competition from the foreign countries.

The farm management training would be useful in making a difference in the lives of the millions of the farmers and the increase in the yield. This would usher a new era in the annals of Indian agriculture. This needs the suitable bedding and the food troughs. This could be the right decision for the sustainable agriculture.

PRECISION FARMING - SUSTAINING AGRICULTURAL PRODUCTIVITY IN INDIA

Precision farming is to be adopted for the cultivation of rice, millet, pulses, sugarcane and cotton in Tamil Nadu. The ground water depletion through the use of surface flood irrigation and ridge and furrow irrigation, escalating costs of inputs and lack of labour are the reasons for the poor farming in India. Precision farming would include the high-tech community comprises of quality planting, portray method, hybrid seeds and compost-filled trays.

THE PROBLEMS OF INDIAN AGRICULTURE AND WAYS TO ADDRESS THEM- A COMMONER VIEW

The Indian agriculture still is lamented because of the problems it faces in the day to day agricultural activities.

1. Fragmented land holding
   The cooperative farming may enhance the productivity and will solve the problems of fragmented land holding and the associated less yields.
2. Irrigation problems
   Drip irrigation, sprinkler, the water table development programmes and rising of area specific crop will go a long way in addressing the irrigation problems. The native plant has to be mixed with the new variety to withstand the pest attack and reduction of the consumption of water for its growth.
3. Seed problems
   The high yielding varieties may be used to increase the yield and the steps to be taken to avoid more chemical fertilizers.
4. Sustainability problems
   The sustainable development is one of the important ideas for up keeping the agricultural sector of India.
5. Supply chain bottlenecks
   Indian agriculture is beset with so many supply side economic tangles. This has to be addressed to remove this to put India on higher plane of agricultural production and make it food bowl of the world.

MEASURES TO INCREASE THE AGRICULTURAL PRODUCTION

The Indian agriculture needs to be updated for the increase in the agricultural yield. This includes serious attempts on the part of agricultural scientists, farmers and the policy makers to utilize this in a proper manner. The following measures may be adopted for the new dawn in Indian Agriculture.

1. Cooperative farming
2. Soft loan to farmers – Islamic banking
3. Crop insurance
4. Water management
5. Seed banks
6. Cash crops
7. Encouraging new ideas
8. Sustainable farming – crop management, pest management and the selection of right seeds
9. Organic farming
10. Storage and warehousing facilities'
11. Proper marketing channels
12. Proper agricultural policy

REFERENCES

1. Farmer's innovation – An innovative irrigation technique for vegetable cultivation, Indian Council of Agricultural Research, www.icar.org.in
2. Vision 2020, Indian council of Agricultural Research, http://www.icar.org.in/
3. Six innovations revolutionising farming, http://www.theguardian.com