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Study on Application and Benefits of Technology in Agricultural Marketing

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Abstract – In order to accelerate the productivity and employability of individuals, agriculture requires successful technological use. The key aim of this paper is to explain how developments in the agricultural sector can be used effectively. Many kinds of technology are used to increase efficiency. Types of technology, the importance of agricultural technology, the use of technology for agricultural markets, the benefits of technology in agriculture are the major fields taken into consideration. The use of technologies will improve the sustainability of farmers' livelihoods.

Keywords – Technology, Agricultural Sector, Production, Sustainable Farming Systems, Information Technology, Application, Benefits

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INTRODUCTION

Agriculture is an important field to the survival of contemporary people. Plants are the food chain manufacturers, and the life cycle is just not feasible without them. Agriculture is a wide-ranging area that needs the cooperation of other industries in order to succeed entirely. These involve the company, management and technology disciplines, which play a key role in the industry. I concentrate on technology in this article and especially on information and communication technology critical to information delivery in the agricultural value chain.

Agriculture in rural areas is considered to be the main profession of people. New and revolutionary methods must be introduced in agriculture to feed the growing population. New technologies are needed to promote advanced yield frontiers, use the input resourcefully and diversify into more viable and value-added crop models. Both of these innovations are knowledge-intensive and involve a robust testing and extension infrastructure, as well as professional farmers. Furthermore, a stronger gui is needed in order to emphasise communal knowledge sharing, providing benefits to everyone. The optimal utilisation of capital is the guiding factor behind the use of agricultural technology. Several technologies for resource management are green manure, seed rotation, etc (New Technologies in Agricultural Development, 2014).

An vital aspect to the country's overall growth and development is improving agricultural growth. It is because 65 per cent of the population live in this market. Yet agriculture's contribution to the Gross Domestic Product (GDP) is 14%. A number of agricultural revolutions have been underway to improve the industry. This includes the Ecological Revolution, the Evergreen Revolution, the Blue Revolution, the White Revolution, the Yellow Revolution, the Bio-Technology Revolution, the ICT. In order to maximise efficiency, technology must be used and the expansion of these existing structures is essential. The expansion of agriculture in conjunction with infrastructure is considered to be the main feature of agricultural development. Private sector involvement will help rapidly absorb technology in this sector (New Technologies in Agricultural Development, 2014).

TYPES OF TECHNOLOGIES:

Technologies, applications, hardware, and org-ware are also divided into three groups. It is necessary to consider the variations between technologies and their synergies and complementarities in the understanding of the use of technology in the agricultural sector. Hardware relates to physical instruments and applications to procedures, abilities, expertise and details used to use org-ware, operational technology and to possession of technological and administrative arrangements. In cultivation, hardware is executed by various seed varieties, agricultural software or analysis by new crops, and the local organisations that support the use of adaptation of agriculture technology. In agriculture, hardware is exemplified by Hard and soft technologies are sometimes deployed in isolation; its incorporation with org-ware has been recognised as necessary for adaptation achievement (Technologies for Adaptation in the Agricultural Sector, 2014).

The adoption of water harvest technology is an indicator of technical advancement and has included these three forms of technology. In the early 1980s, the farmers worked and improve soil quality to rehabilitate deteriorated property. The result is the development of tiny troughs in the soil in which farmers placed small quantities of compost, sorghum and millet. This method is performed in the conventional seeds. Water and nutrients are precisely concentrated to where they are needed in these wells and hold water for a long time. This enhances the survival of the plants through dry spells and restores the deteriorated soil. The seeds or trees grown in the wells may be regarded as hardware. The practise of pit development and soil productivity can be regarded as software and the farmers' farm schools used by other farmers throughout the area to communicate the knowledge are referred to as org-ware (Technologies for Adaptation in the Agricultural Sector, 2014).

It is important to use these three forms of technology to promote growth and development in the agricultural sector. The field of interest is the priority that is sometimes provided and used in isolation to hard technology or hardware. It is important that farmers are sufficiently informed of these technology and use them properly as they make use of them. Training centres that provide farmers with awareness and information, the use of technology to produce and profitability have been established. The countries must be encouraged and helped to implement each other in a mutually supportive way, all three forms of technology. It must be guaranteed that advances are used in the agriculture industry for safe and operational applications (Technologies for Adaptation in the Agricultural Sector, 2014).

IMPORTANCE OF AGRICULTURAL TECHNOLOGY:

Water, fertilizers, and nutrients no longer have to be used in whole fields evenly by farmers. The minimum requisite amounts and the goal areas can instead be used, or individual plants can be treated accordingly. Benefits include:

- Higher crop productivity
- Decreased use of water, fertilizer, and pesticides, which in turn keeps food prices down
- Reduced impact on natural ecosystems
- Less runoff of chemicals into rivers and groundwater
- Increased worker safety in addition, robotic technologies enable more reliable monitoring and management of natural resources, such as air and water quality. It also gives producers greater control over plant and animal production, processing, distribution, and storage, which results in:
- Greater efficiencies and lower prices
- Safer growing conditions and safer foods
- Reduced environmental and ecological impact

APPLICATION OF TECHNOLOGY IN AGRICULTURE MARKETING:

1. In the area of agricultural inputs IT can be used for controlling demand and supply. The need for agro-inputs can be calculated and supply tracked accordingly, based on the annual crop schedule. The agriculturalists will access details on the availability of crops, fertilizers and pesticides in various regions. This would allow him to obtain inputs quickly and at a lower cost. The website could also provide information on the availability of quality planting materials for horticultural species in the numerous state nurseries and agricultural universities.

2. Universities of agriculture and other national institutions routinely release enhanced varieties of different crops. The important features of these variants should be communicated to farmers via the website, such as their performance, disease tolerance and adaptability.

3. In order to reduce more harm to the crop, it is important to identify and monitor the pest and diseases in cash crops quickly. The website can show audio-visual clips of the causative body and the affected/diseased plant component with their control measure. This will help farmers in rural regions to detect and correct the disease.

4. The incidences of such pests and diseases are influenced by weather. To minimise economic damage, an epidemic prediction module needs to be built to preventive intimate the presence of plagues and diseases and steps to be taken.

5. There are some 28,000 soil survey maps of the Department of Agriculture that require digitalisation to maintain them continuously and to extract necessary knowledge through GIS technology.

6. Basic agricultural data can be generated by remote sensing & GIS where the survey numbers in the cadastral village maps can contain attributes such as ownership, soils productivity, crop pattern, etc. The data may be combined and interpreted to support decision-making at various levels. These details may also be exchanged with other agencies.

7. In order to develop successful Watershed planning initiatives underpinning the Agriculture Department integrated information structures with different elements of watershed programmes must be established and tracked at different levels if suitable technologies for surveillance and assessment are developed.

8. It is vital that the specifics of all watersheds and villages in Maharashtra, utilising GIS, are gathered in the preparation of a successful crop plan. When this information is accessible, it helps to prepare a production schedule on micro-level. Farmers will need to provide details on the seeds of different crops and the predicted yield in different seasons. This will allow them to choose alternate plants in a specific season considering potential supply glut.

9. Micro-level data can be used to prepare for the farmers an interactive module which takes account of local agro-climate conditions and suggests an alternate crop plan for them. Appropriate software to track the crop plan effectively by different officers at different levels may be created and updated. Policymakers may use the GIS technologies to evaluate crop area and performance. It will help shape the market/credit policies in the short and long term.

10. For predicting rainfall, region in various plants, yield estimates and soil resources, the use of data for satellite imagery to predict agriculture-related details should be implemented.

11. The interactive module must be prepared to support the agriculture budget to record and raise awareness of the viability of cultivable data.

12. To increase efficiency, it is essential to make the latest knowledge accessible to farmers on the facets of development and post-production of the different economic crops. A crop guide with accurate and authentic details on essential varieties, planting techniques, prescribed fertilizer doses, the kinds and control of pesticides, harvesting and post-harvest methods including the primary processing of farmers is urgently needed. This data should be updated and dynamic.

13. In India there are 30 per cent post-harvest losses of fruits and vegetables. It is therefore vital that our farmers are educated to reduce such losses by adequate collection, processing, grading, wrapping and storage methods. Farmers should be aware of the storage requirements, storage methods and optimal storage time of economic crops. This will help him to keep the product in decent shape despite the demand glut.

14. A database of numerous agricultural agencies and institutions is urgently needed. Information should be gathered for farmers from agricultural input producers and distributors, agro processing suppliers, exporters and importers. Detailed reports on function in other agencies, such as NRCs, SAUs, and training centres, should also be included. In the context of compiling study results, scientific guidelines from four agricultural universities in Maharashtra should also be generated for the agricultures research database.

15. The use of IT for agricultural expansion would in future be highly prioritized. During the development of any IT framework for agriculture, farmers as players, generators and users of expertise should remain focused. In order for the collaboration of scientists, extension staff and farmers to transmit technologies and knowledge more efficiently, extensive usage of digital information technology should be encouraged. Considering farmers' individual farm management, some helpful software packages should be created and published on the website. Drip designs, Green House design, cropping patterns, farm accounting and management are some of the applications that require immediate attention.

16. In the Department of Agriculture and in the business sector, multimedia extension content in the local language should be promoted. The farmers will profit greatly from multimedia CDs in different topics.

17. The equipment for the public extension must be highly qualified and capable of supplying grass root knowledge and technologies. It can play a key role in distributing knowledge-based technology that is fundamental to agriculture. Similarly, involvement of the private sector can be

facilitated, including cooperatives, NGOs and farmers' organisations. The use of IT to disseminate knowledge by these institutions has been shown to be quite successful. These agencies will promote Agro Cyber Cafes, particularly run by unemployed farmers, like PCO/STD boots at the village level.

18. The privat entity shall have the facilities and the hardware for an Agro cyber cafe, while the government can provide assistance in the form of CDs and applications to ensure the district KVKs, line departments and markets have accessible suitable details. The department should have those details for reimbursement to farmers and farmers' associations. Ideally, Agro Cyber Cafes will be in any village.

19. Local Loop Wireless In delivering and running telecoms and Internet networks in the rural areas, technology has been found to be extremely successful. The state should follow an ICT policy comprising of internet, cable television and Community radio, covering 10 million farmers and aiming at covering every farming family in their attempts to disseminate and sell knowledge.

20. Marketing of agricultural products calls for a broad network of national and foreign links to link market access among the markets and exporters/producers/traders/industries and customers. It is essential to develop this network from which day by day details may be given concerning the arrival of commodities and the prevailing prices, export documents and information relating to leading national and foreign marketing bodies.

21. Globally and internationally relevant requirements on grading, packing, marking, stockpiling, transportation, shipment, health and plant health, quality assurance and quality certification in agriculture sectors would allow both domestic and foreign trading and processing industries to conduct large-scale agricultural marketing operations. The producers should be provided with information on export practises, legislation and regulations to encourage exports.

22. For policy development, infrastructure planning and analysis, data on various aspects of agricultural marketing are relevant. The Atlas of Agricultural Markets at the State level must be established to include knowledge for any crop, major processing regions, movement and storage of each product and large consumer centres. This will promote the implementation of effective marketing policy in the agricultural field, both public and private.

23. The rules of the WTO and GATT would have a significant effect on agriculture. Therefore the usage of ICTs should be widespread in simpler application of these regulations.

24. Many of the central government-built institutions in India, such as the NCDC, NAFED, TRIFED, NDDB and the APEDA, specifically participate in the implementation of agricultural marketing programmes to assist farmers in their marketing processes. Other bodies are available to support exports, such as commodity boards and export promotion councils. The farmers and targeted communities should be able to take maximum advantage of the new prospects across all the related programmes and policies of these organisations. You will use the Website to distribute this knowledge effectively.

25. It is important that extension workers and farmers are computer scientists in order to penetrate the Information Technology on the grass root level. The State wants to implement a massive computer literacy campaign at diverse stages. There is basic programming knowledge for current employees in the agricultural department and universities. However, anyone interested in these fields should be recognised and specialised computer application training should be provided. In the development of IT capability of farmers and woman organisations, Local NGOs and institutions should also be active. The subject of information technology should be included in the Agriculture Colleges' degree programme.

26. To consolidate, process and distribute knowledge on different facets of agriculture, a Virtual University for Agrarian Prosperity as a centre of excellence needs to be set up. In order to receive strategic assistance from the Commissioner of Agriculture and NIC, it may be formed in Pune. A Technical Advisory Committee composed of data generators, data administrators and data consumers could be held at the virtual university. The plant must be fitted with the new equipment, applications and skilled workers. Department and SAUs with expertise in agriculture, horticulture, conservation of land and water, post-collection management and marketing could attract the workforce. In addition, the centre should be operated by professional personnel with experience in

hardware and programme administration. To ensure that the source of knowledge that is circulated is accurate, an appropriate process must be established. An app with revenue data such as the correct recording may also be built for better use of such centres.

THE BENEFITS OF TECHNOLOGY IN AGRICULTURE:

- Modern machines can control the efforts of farmers.
- They reduce the time.
- Used supply water to the crops.
- While Machines are useful in sowing the seeds.
- They are used in the transportation.
- Irrigational technology.
- Application of synthetic fertilizers.
- Chemical pest control.
- They increase the price and demand of the products.
- Better marketing and exposure to the price.
- Facilities in online trading and E-Commerce.
- Further, Improve the fertility of the soil.
- Decrease the use of water, Fertilizers which keeps the prices down.
- Low run of chemicals and also waste materials into seas and water.
- Reduce impact on the ecosystem.
- Suitable for the campus environment.

CONCLUSION:

Indian growers, and those who operate for their welfare, must be able to cope with the developing scenario of full or partial deregulation and reduced public security, open up agricultural demand swings and leverage future export opportunities. More specifically, an expert in computer skills can lead the farmers' community in terms of online farming and marketing because our farmers lack the computer expertise.

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