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Emerging Trends of ICTs in Agriculture

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INTRODUCTION

Information and Communication Technology (ICT) is the use of the latest updated innovations to uplift the development of the country along with the lifestyle of people and literacy rate to serve the economy and modern era effectively. ICT includes, Internet, Social Media, Toll-Free Helplines, Webinars, E-marketing, Web-Communication, GIS/RS Technology, Drone Technology, Artificial Gardening, Intelligence, Smart Communication, and Smart Agriculture, etc.

Nowadays modern agriculture technology plays a big role in farming. It is a need of time to educate a farmer to make him use modern agriculture technology making farming easier and affordable too. It is an innovation and emergence in agriculture which is directly related to the literacy of people more the people have literacy rate more will be effectiveness, as it is seen that the developed countries were also suffering from shortage of food as a result of rising population. Developed countries such as China, America, Russia, England, Brazil, Canada and many more countries from the western world have focused on iterating and awarding agricultural community about the innovation by strengthening their agricultural advisory department and policies reform according to circumstances of digital era.

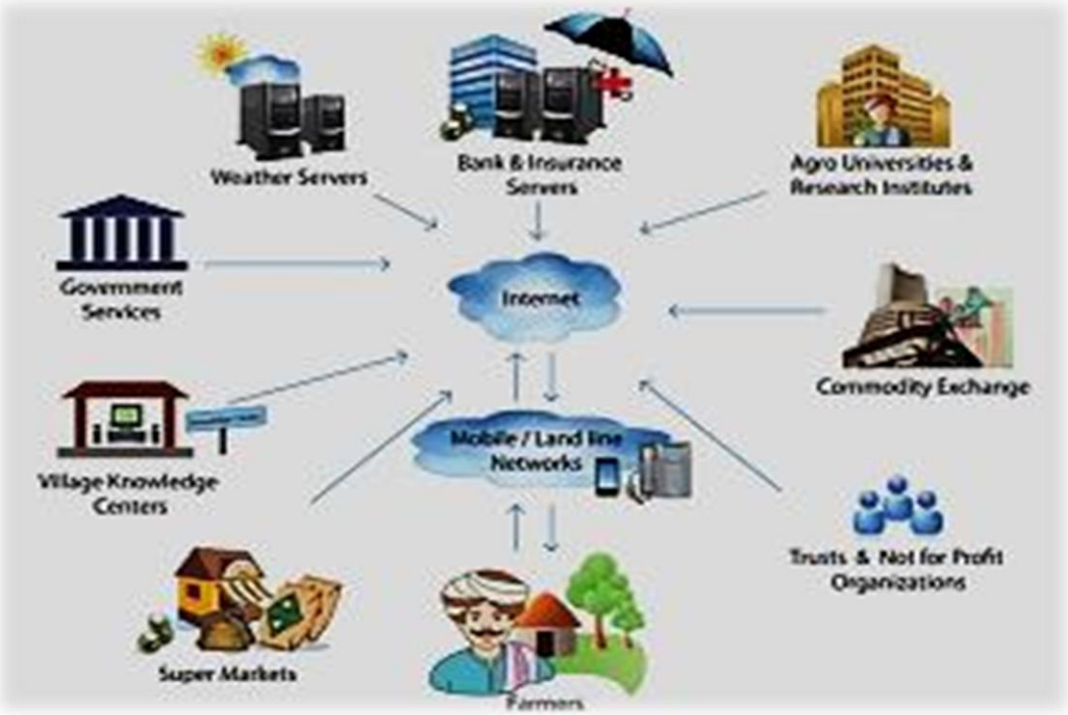
Innovative pathways they are using to meet the modern challenges to agriculture, and strong role of agricultural extension department they also enhanced their trade and lifting upward their life style and turning it in mechanical, scientific robotic lifestyle with more comforts and durability with advancement. However, countries which are under-developed such as Pakistan has comparatively less literacy rate and the economical structure of such countries are not much supportive to innovative adaptation but they compete the market place by managing with debt, loans to implement modern technology to their agriculture and are still relying but competing to emerge with the passage of time. The reforms in the agricultural advisory of developing countries are more slow due to conflicts of interest and many other useless factors they have communication issues still dependent upon the TV Shows, Radio-Telecast, Mobile phones services and are lying a way far to meet the needs of upcoming modern lifestyle due to very less emergence and enhancement in agriculture and less reforms in advisory services but competing emerging and making their stakeholders to assure it is beneficial for their survival they are emerging with passage of time with handsome outcome and uplift to the economy of their country and is also competing for some crops with developed countries.

Soil and crop sensors have been introduced in different developed countries where agriculture is practiced in modern way to fulfill the requirements of modern and upcoming era. These sensors can play a key role in management of farms and proper choose of more favorable conditions for perfect yield of crop. These sensors can measure the nutrient availability, nitrogen leveling water availability of soil, condition of soil, its composition and also the Ph. of soil, where the crop sensors identify that which thing is essential for plant and what is its proper time like fertilizer and manure application, irrigation schedule and allow and stop it automatically whenever needed also help in maintaining level of humidity, preventing erosion of soil resulting in more accurate less and effective use of limited resources. Farming machinery has been developed which is capable of working automatically according to situation and some machines are manual based having revolutionized technology with extra sensitive sensors to sense the correct tillage correct fertilizer spreading maintenance of furrow and

stream correction ploughing and prevention machine and crop from devastating effects and troubles faced due to weather change.

Wavelength management has also been introduced which is an initiative proving beneficial for the modern era with an exceedingly increasing population, this system help farmers, as well as the urban community to raise crops without weather limit just to calculate the correct sunlight requirement according to season and correct wavelength, is needed to grow any of crop in any alternative season, full-spectrum Light bulbs and Light Emitting Diode (LEDs) proved very beneficial for improvement and encouraging modern farming to a new trend to fulfill need based on future. The technology named as Geographical Information System (GIS) by which geography of any land can be seen and measured calculated and can be examined on daily basis just by this system the system introduce relation with satellite view of crop the bird's eye view which is more resolved and well explaining the factual circumstances by which one can keep an eye on his/her land whenever wherever needed. It is also a fact that scientist are taking road to make path for introduction of this technology in crop inland view pests, humidity, and irrigation management just as far as a click.

Pakistan is also a developing country with an agriculture backbone supporting the economy of the country has a strong contribution to Gross Domestic Product (GDP). Due to less economical support, less job creation, and low literacy rate of farmers in Pakistan are still relying on traditional sources because the advisory or information system in Pakistan is not much efficient. The gap in the dissemination of information across the country persists as progressive farmers generally seeking to expand worker communications. The proportion of Extension Field Staff (EFS) is lower than the proportion of farmers and the extension staff is not able to disseminate information to all farmers. There are many variants of sources of information including traditional and modern media, which provides farmers with updated information. More awareness with ICT means more yield. Agricultural extension has a basic role in awaking and fostering the adoption of the latest and up-to-date technologies that enables farmer to make better resolutions in farming.



The most emerging tools of ICTs may include; Television Programs, Mobile Phones, and Radio Telecast, as well as Agriculture based Websites, Toll-free helplines, GIS/RS tech, Artificial Farming, Drone Technology, Webinars, Digital Marketing, are used as communication channels and disseminating information to help out farmers for greater yield using low-cost techniques and without wasting our natural resources badly and to increase their economy share for prosperity of Pakistan. Very less farmers are familiar with the internet-based trends and services. Now the provinces should initiate reforms in the agricultural advisory so that the farmers should be introduced to modern technology, use of remote sensing technique, weather forecasting, artificial gardening and newly introduced departmental based drone technology contributing to the economy of Pakistan with handsome revenue generation.

ICT has great importance in the growth of the country and with innovation; it increases the competition and chances of survival that adopt the criteria for the modern upcoming era. The farming business is completely dependent on nature. In many parts of the developing world, this sector is in danger due to tremendous changes in climate, global warming and many other factors like, low literacy rate and negligence of reforms in the agricultural extension sector is also a barrier in accomplishing a task to emerge ICTs. There is dire need to make farmers aware about benefits of emerging technology and educate them or their young ones so that upcoming generation will be capable of adopting innovative technology such as Drones, GIS/RS and many more, effectively by exploiting less natural resources.