Science and technology for agricultural development

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Science may not be the first thing that comes to mind when you think about development, but it very often forms the foundation of solutions and trace-up some of the world' s most critical aspects such as ensuring that people can grow enough food for consumption. There have been some recent developments though on a relatively small scale. Access to science-based information can make the difference between whether the harvest will flourish or fail. Agricultural information is readily accessible to farmers in the developing world. Knowledge sharing and knowledge transfer are the keys to building the livelihoods of some of the world's poorest smallholder farmers who grow food to eat or to sell on a small scale. Surprisingly, mobile technology is fast becoming as one of the best ways to reach farmers with information. Around 40% of people in the developing world now actively subscribe to mobile services with 130 million new subscribers every year and mobile 2G coverage is available for around 95% of users. Agriculture has a rich

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tradition of embracing technology to improve crop production, revolutionize how farmers can run their business and transform the rural communities. Technology is changing the agricultural industry by replacing human labour with machines that are operated or controlled by people or other machines. In the agricultural industry productivity is a key factor. if the production is high, the farmer will make more profits. Technology has helped farmers replace the old ways of farming with machines that can do the job in less time right from the day of planting to the day of harvesting. On the other hand many smallholder farmers around the world are still doing their agricultural work in the same way as their ancestors did thousands of years ago. Traditional farming approaches may continue to work for some but new practices can help many to substantially improve yield, soil quality and natural capital as well as food and nutrition security. For instance, advances in satellite mapping and information and communications technologies (ICTs) are transforming more traditional agricultural extension work today. Today it is possible to grow crops in a desert by using agricultural biotechnology. With this technology plants have been engineered to survive in drought conditions. Through genetic engineering scientists have managed to introduce traits into existing genes with a goal of making crops resistant to droughts and pests.

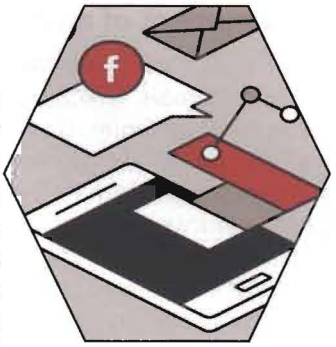
Extension advisory service

In this digital era dissemination of information is a must for maintaining sustainability in agriculture or other field. Extension is one of the essential services in the present scenario to bridge the gap between scientist and farmers to ensure that what is developed in the lab reaches the field. Technology development and information dissemination, strengthening farmers' capacity, facilitation and policy support forms the pillars in relation to application of science.

Use of machines and high intensive tools on farms

Now it is possible to cultivate on more than two acres of land with less labour and can cut down the cost by deploying used machinery and other harvesting technology in place of new equipments. With regard to intensive tools, farmers can use tools like drone for identifying the weeds, insect pest etc. Modern agricultural technology allows a small number of people to grow vast quantities of food and fibre in a short period of time.

Modern transportation



This helps in making the timely availability of products available in the markets. The modern transportation technology help farmers to easily transport fertilizers or other farm products to farms and also speed up the supply of agricultural products from farm to the markets where the consumers get them on daily basis.

Cooling facilities

Cooling facilities help farmers to deliver green vegetable and other perishable crops to keep them fresh when it is transported to the market. These cooling facilities are installed in food transportation trucks so that crops like tomatoes will stay fresh till the delivery. Consumers' get these products fresh and the farmer can easily sell their products as the products will be having high demand.

Genetically produced plants

Genetically produced potatoes, can resist diseases and pests, which rewards the farmer with good yields and saves his time. These crops grow very fast and produce healthy yields. Since resistant to most diseases and pests the farmer will have to spend less on pesticides which in return increases in their return. Biotechnological advances allow farmers to grow more crops on less land using farming practices that are environmentally sustainable. Through biotechnology seeds yield more per acre, plants naturally resist insect pests and diseases, and farming techniques improve soil conservation. Farmers can help plants and animals fight diseases and adapt to environmental stress and climate change. We can enhance the nutritional content of foods and improve human health through plant- and animal-produced therapies. The benefits of biotechnology are especially meaningful at a time when our global population is growing and our demand for food is increasing, especially in developing countries. Today, this technology has reached a stage where transgenic plants have been developed as a result from genetic engineering experiments in which genetic material is moved from one organism to another, so that the latter will exhibit desired characteristics.

Development of animal pasture

This has solved the problem of hunting for grass to feed animals which can be manufactured and consumed by animals. The price of these feeds are affordable for farmers too. Most of these manufactured animal feeds have extra nutrition which improves the health of the animals which in turn improves the yield of the animals. Most of these genetically produced animals will produce more milk or fur compared to normal animals. This benefits the farmer because their production will be increased.

Irrigation of plants

In dry areas like deserts, farmers have embraced technology to irrigate their crops. A good example is in Egypt, where farmers use water pumps to collect water from river Nile to their crops. Most of these farmers grow rice which needs a lot of water, so they manage to grow rice using the irrigation methods developed by advanced technology. Advanced water sprinklers are being used to irrigate big farms and this helps the crops get enough water which is essential in their growth. Some farmers mix nutrients in this water which further improves the growth of the crops.

Internet

Use of Internet makes every information easily accessible only in a few clicks away. In today's world of competition information is the key to success. Availability of right information at the right time can make all the difference.

Science and science- based technology has transformed modern life which has led to major improvements in agriculture as well as in the living standard of the people. Application of science has made possible the things that were hard for farmers to carry out in the field. The modern technology has developed new avenues in scientific farming and the development in information technology has played a great role in creating awareness among the farmers to adopt the science-based technology in every day agriculture. ■