

NEW FARMING TECHNIQUES AN EASY WAY OF FARMING TO BOOST AGRICULTURAL SUSTAINABILITY AND FARMER'S LIFE

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INTRODUCTION

India is the second largest producer of agriculture products in the world and agriculture contribute a big part in our GDP. In India, people are becoming more aware of fresh food and healthy lifestyle during this COVID-19 pandemic. The new modern agricultural techniques optimize crop yields and offer promising results to farmers. Nowadays, awareness about new farming techniques and efficient use of pesticides among farmers are somehow in better condition but there is more needs to be done. Crops are grown in nutrient rich soil without pesticides, some farmers use organic fertilizers and they harvest their crops in timely manner. These efforts have strengthened the power of making farmer's life better.

Improvisation in agricultural technologies offers some solutions for sustainable agricultural farming such as hydroponics related farming, indoor vertical farming, digital farming and modern greenhouse practices like less use of artificial nitrogen etc. The controlled farming system enables farmers to grow foods free from harmful pesticides, chemical insecticides and toxic chemical fertilizers. There are some popular farming techniques adopted by farmers of India like intensive subsistence farming, artificial farming, commercial farming and jhooming farming etc.

Jhooming Farming

One of the popular farming methods is 'jhooming' in the north states of Assam, Meghalaya, Nagaland, Manipur, Mizoram, Chhattisgarh and Andaman & Nicobar Islands. In this process of growing crops, first they clear the land and burn them thereafter. The burn soil contains potash which increases

the nutrient content of the soil. There are carbon monoxide, carbon dioxide, nitrous oxide and other gases emissions which were noticed as a result of burning crops, plants and trees in jhoom farming. A study reports that under the population and govt. pressure there has been a decline in the production of principal crops under shifting jhoom cultivation in 16 Mizoram villages in last few years. But, the last report by India State of Forest Report (ISFR, 2019) says that the forest cover of the country is 21.67% of the geographical area and 76.32 % in Meghalaya, 75.46% in Manipur, 85.41% in Mizoram etc. There is a continuous decline noticed from 2015 to 2019 in the north states. In 2018 NITI Aayog report points out that jhoom must not be alone attributed as a reason for the loss of forest, which the ISFR 2015 does.

Intensive Subsistence Farming

In intensive subsistence farming, the farmer cultivates the land or plot using traditional tools and techniques. Generally, farmers plough the land for their own or local consumption, they produce enough food through this method. Also to get higher production they use chemical fertilizers and try different irrigation techniques. There are two types of intensive subsistence farming one is dominated by rice and the other crops are wheat, pulses, maize, millet, sorghum, soya bean and vegetables etc. In the intensive subsistence farming the method, technique and the tools of cultivation are equally intensive and farming is on subsistence basis. In India, the farmers of North-East, Orissa, Andhra Pradesh, Kerala, West Bengal and Tamil Nadu are a good example of intensive subsistence farming in agriculture.

Commercial Farming

Commercial farming is the farming technique in which crops are produced with the intention of selling to the industry or market. This technique contributes to the economy of the country and crops are also exported to the world. This is the labor – intensive technique and the farmers use a high amount of pesticides, fertilizers and harmful insecticides to boost the yield of the crops. Tobacco is one of the examples of commercial farming. In India, field trials on Bt brinjal has been started in Sept, 2020 as Bt brinjal will be the second genetically modified crop after Bt cotton. India take first step towards the commercialization of Bt brinjal but the question raise here is that when Indian markets have enough brinjal, what is the need of this GM variety? Two varieties of Bt brinjal developed by ICAR has been approved for field testing by GEAC of the environment ministry in eight Indian states.

Hydroponics Farming

Hydroponics, aquaponics and related alternative polyhouse farming technique are required to improve the overall status of farmers. Hydroponics and aquaponics are emerging techniques for both the plants and fishes. This will help farmers to increase their productivity and improve their status economically. As for the knowledge, hydroponics technique was developed with the aim to increase the crop's yield. In starting, there are 12 essential nutrients were mixed together with the name of Hoagland's Media (developed by scientist Dennis R. Hoagland). But, later several factors led to the introduction of soil-less farming on a large scale in the early 1990s. During this time of COVID-19 pandemic and climate change, India need to work on this technology as USA and European countries already started using hydroponics systems. Another example is UAE, which is working in this sector since 2015 as Dubai based Barton Breeze is now the leader in the Gulf region.

DIGITAL FARMING

In digital farming, with the help of apps farmer connects directly to the scientists and government officials working in agriculture sector. They guide the farmers in the selection of seeds which give him better results. Also, digital tools and apps can help farmers to connect with the new markets where they can purchase seeds and compare their prices. These kinds of apps provide agricultural and agronomical information to the farmers about their soil, mineral deficiencies, harvesting time etc. Recently, Mahindra & Mahindra's Farm Equipment Sector (FES) launch an app 'Krish-e', with the help of this app you can watch your field on your mobile through cameras, drones etc. But, the question raise here is that whether the poor farmers will be able to use such expensive services. However, India is far behind from the USA, china and European countries. On 12th Oct, 2020 Google's parent company Alphabet officially announced that its computational agricultural project which is "Mineral" (run by 'X'). The work of Mineral is to grow the crops with the help of robots without using manpower

CONCLUSION

In India, there are lots of new and old farming techniques but agricultural sustainability is a complex idea with many hurdles including economic, social and the environmental. Today, farmers are facing new challenges with complex choices and the policy makers are making the policies according to the benefit of business men, industrialists and Politian. Farmers can do better if they get support through the government and other organizations to understand the agricultural practices. For example, adopting agro-forestry practices, crop rotation practices, reducing or eliminating tillage, applying pest management practices, use of digital farming etc. Some farmers are aware and know about new technologies and agricultural practices but the percentage of these farmers are very less. There are a lot of lack of awareness and lack of agricultural knowledge especially in the North-Indian states among farmers. To help farmers, it is our duty that we should support farmers equally as we support research, technologies and other sectors.