

# Agriculture in India

Agricultural production is the cornerstone of food security, nutrition security, sustainable development & poverty alleviation in India. The agriculture sector contributes approximately 18 percent of the total gross domestic product (GDP) and almost 40% of total NDP (Net Domestic Product). Nearly 64% of the total workforce is employed in horticulture or agribusiness-based businesses. But there is still a lot of potential in agriculture that hasn't been channeled.

In India's rural areas, farmers are producing the bulk of the country's food. But they are falling behind because of a myriad of challenges that they face, due to both internal and external factors. Challenges such as limited access to technology, market monopoly, seasonal shifts, inequitable information flow, and more that are affecting their overall growth. Tech might just be the solution to all farm issues. New technology in agriculture could help farmers forecast climate more accurately, reduce water usage, increase yields and boost their net profits. As per an estimate, the use of new technology in Indian agriculture can help in saving \$2 billion in a year with every farmer saving \$16 each. The use of various technologies in agriculture is bringing about a paradigm shift in agriculture, changing the way people farm in turn contributing to the increased agricultural productivity.

## HOW NEW TECHNOLOGY IN AGRICULTURE HELP INDIAN FARMERS

Utilization and adoption of new technology in the ag space has been far behind the curve compared to other sectors. The recent surge in smartphone usage in rural areas has helped the agribusiness sector take its first concrete steps towards technology adoption. Leveraging technology in agriculture can help farmers not only solve their ongoing problems, but also learn about new technologies that will help them automate their farms. Let's look at how technology can help farmers in some key high-impact areas across pre- and post-harvest.

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### Drones

Drones are the future of agriculture. Equipped with technology-based sensors, drones can be used in precision agriculture - monitoring crop health, weed and pests detection, crop scouting, analysis of soil health, irrigation management and livestock management among others.

### E-commerce input markets

Scattered input markets with high dependency on dealers or middlemen are among the dominant causes of increased costs of production. Indian farmers have no negotiating power on the buying side, making them more vulnerable. A single platform which gives farmers an access to a wide range of products of various brands with a clarity brought in by technology can be a milestone in addressing India's agri woes.

### Data sciences

Farmers in India have to think about agriculture as a business, thereby applying data sciences for precision agriculture. A farmer makes hundreds of decisions between planting and harvesting with each decision impacting yields and profitability. In fact,

farmers are effectively in the database business without enough data to make decisions. If farmers are equipped with tech tools or apps which provide them with customized and personalized data, dramatic changes can be seen in yields and profitability.

### Artificial Intelligence (AI)

AI is going to be the next big thing in agriculture. Right from sowing the seeds to pests and irrigation management, AI will enable farmers in getting the best results for their hard work. Cognitive IoT technologies build a ground for drawing inferences after collecting large amounts of structured and unstructured data, providing organizations with better insights and suggestions to take action for improving crop yields. This will also contribute in determining the best practices be it choices of seeds, fertilizers or pesticides or the technique deployed at a particular stage of farming

### UNDERSTANDING MODERN FARMING WITH FARMING APP

The technology disruption has caused the agriculture sector to slowly integrate technology into farm operations because, to say the least, it has an enormous impact on farm productivity and efficiency. Agritech, or AgriTech/AgTech as it's more commonly referred to, has reduced the amount of effort required for farming related operations.

As one of technology's most prominent kiddiewink, smartphones have established their usability and versatility in a myriad of industries, including conventional ones like agriculture. Placed on the palm of your hand, agricultural apps are revolutionizing how land is tilled and harvested. Moreover, it's given the farmer on various levels of the agro-ecosystem—the ability to have a greater say in the process that goes into food production and distribution.

New tech advancements in farming are mostly about simply employing mobile applications or a hardware system to automate redundant processes and cut down on dependence on human labor. Even though options are pretty limited right now, users of smart farming solutions opt for a UI/UX that's both flexible and extremely easy to use.

### MODERN AGRICULTURE TECHNIQUES IN INDIA

Genetic manipulation: Modern agriculture has crop and livestock breeding methods that most farmers are looking for. Generally, hybrid seeds are used. This is where two or more species of plants are used to produce a higher quality offspring. Genetic engineering is another specialization, where molecular building blocks are developed.

Intensive farming: Proper soil aeration to improve air circulation in the soil is important. Therefore, for a greater yield of farm produce, it is necessary to do excessive tilling of the land. Regular deep and whole-land cultivation is a first-rate structure of farming.

Monoculture: Monoculture is the growth of only one type of crop on a given plot of land. It makes land-farming easy. Since the crop to be planted is of the same type, the land is tilled in the same way. This makes land-farming and management very simple.

Usage of Synthetic Fertilizers: Utilizing fertilizers to increase the fertility of the land one plans to farm is a big deal. Over the years, over prolonged periods, repeated uses of land led to a plateau in the fertility of the land. Since tilling the land is an old fashioned technique because there was not enough land to go around, using fertilizers has helped.

Irrigation technologies: Water

supply is one of the most important factors in determining the survival of plants. Insufficient rainfall has a tendency to be insufficient for crop production. So, top techniques are being deployed on the ground to address this problem.

Chemical pest control: Pests should range from bugs that eat young vegetation and their leaves to rodents like moles and squirrels, or animals that are wild or domesticated. When used correctly, pesticides yield results. This reduces the invasion of vegetation by pests for the purpose of producing healthy, productive plants.

### ADVANTAGES OF NEW TECHNOLOGIES IN AGRICULTURE

Farmers don't have to spray water, fertilizer and pesticides in uniform quantities over entire fields anymore. Instead, they can use minimal amounts needed for very specific areas or even treat individual plants differently. The benefits of this include, Steadier crop




yields, A decrease in water, fertilizer and pesticide use, in turn, keeps food prices low. Reduced impact on surrounding environment, Prevent runoff, Safety improvements for workers also automation is enabling more precise

monitoring and management of natural resources, including air and water quality. This technology helps farmers gain more control over their plant and animal production, processing, distribution and storage, leading to efficien-

cies up and prices are down.. Growing safer crops that produce healthier food and reducing environmental and ecological footprint.

Farming through technology, the possibilities are endless. The farmers



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**HAPPY 74<sup>th</sup> REPUBLIC DAY OF INDIA**

The Board of Directors, Management and Staff of Bank of Baroda (Tanzania) Limited wish Indian nations and friends of India a very happy 74<sup>th</sup> REPUBLIC DAY OF INDIA.

# 74<sup>th</sup> India Republic Day

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