Smart Farming and Agriculture Technology

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According to the Food and Agriculture Organization (FAO) of the United Nations (UN), 20–40% of crop yields worldwide are lost to pests and diseases, even though two million tons of pesticides are used annually. Using agricultural solutions, pesticide and fertilizer use has to be optimized and managed. Farmers and academics collaborating in both public and private realms, together with ongoing advancements in digital farming, are the driving forces behind advanced agricultural technology. Modern technologies and focused crop-needs monitoring have superseded traditional agricultural methods and forecasts.

Agri tech, short for Agri Technology, is another name for agriculture technology. It is effective in accurately managing, mapping, and tracking farming decisions. A variety of forms, including satellite images, sensors, agricultural machinery, and software solutions, are available for agriculture applications. Unmanned aerial vehicles, or drones, have progressed from photography in recent years to sophisticated soil quality, depth, and texture research as well as crop reconnaissance. In order to identify agricultural enemies early on, it may map both the yield and specific crops. This enables farmers to eradicate pests at an early stage and administer accurate chemical treatments.

The world's population, which is predicted to increase by 33% to over 10 billion people in 2050, depends heavily on agriculture. Almost 40% of the planet's land surface is used for agriculture. 1.3 billion people are employed by it worldwide, which is half of the labor pool. Despite its highly variable employment percentage, the agricultural sector continues to be the world's second largest employer, trailing only the services sector.

Supplies including seeds, water supplies, soil quality but texture, market needs, and—most importantly—weather conditions play a major role in farming operations. The food and agriculture industries use up to 70% of the water that we draw from rivers and groundwater, which is three times higher than it was fifty years ago. However, because of the necessity for irrigation, it is predicted that the need for water for farming would rise by an additional 19% by year 2050. The ecology might actually dry up due to the rising need for irrigation. Natural resources are depleting and seasons are becoming more unpredictable in a world where problems like environmental degradation and global warming are being addressed. Reducing waste water without compromising productivity is crucial during these periods. Water utilities may be limited.

The primary determinants of crop productivity are the soil test results and local meteorological conditions. Seasons and geography must also be taken into account when determining market needs. Maintaining profitability and efficiency in agriculture requires the advancement of economic analytics.

Agriculture revolutions changed the game in the agriculture industry over time. Several industries, including agriculture, have seen significant transformation as a result of industrial revolutions and international support for research and development. Modern farming technology has transformed traditional farming into managed, efficient farming with more intelligent agricultural solutions. Modern agricultural technology is revolutionizing farming management. The idea of farm management refers to the assortment of diverse tactics and approaches used in farming in order to maintain the farm's profitability and productivity.

Four methods are used in farm management:

1. Controland operation

2. Examine, comprehend, and describe

3. Identification and

4. prescription

The day-to-day administration and operation of a real farm, property, cooperative, or similar farm-based producing/marketing business is the focus of agriculture solutions. Studies on farm management offer an explanation and comprehension of agricultural systems and issues associated with farming. The diagnosis mode is used to handle the identification of issues and vulnerabilities in the farm-level systems. Prescriptive activities ultimately try to prescribe action plans for farming that address deficiencies or issues in the agricultural management process, ultimately bringing the focus back to operations and control.

Obstacles farmers and stakeholders must overcome

Approximately 33% of the food produced worldwide is produced by the 500 million or so small farming families. During their farming, these farmers must overcome several obstacles, such as finding high-quality seeds and charging a fair price for their produce. They frequently lack the necessary knowledge and skill set to increase output and reduce losses. This makes it difficult yet necessary to empower and encourage them.

Similar to farmers, agricultural input firms are crucial to a crop cycle's success. Agri-input businesses are essential to raising agricultural production because they provide a range of services such as fertilizer addition, post-harvest processing, and crop protection against pests and diseases.

To choose the best crop to cultivate, farmers must accurately understand a number of factors, including the type of cultivable land, moisture content, weather, and the chemistry among soil and agri-input resources. This last point is particularly critical and can be easily misunderstood. In order to facilitate successful precision farming techniques, the difficulty is not only comprehending the technical aspects of cultivation, but also efficiently disseminating the information to the agricultural community in real-time.

Disrupting agriculture

The way that agriculture is traditionally approached is changing. According to the World Bank's report (2008), the first technology revolution in agriculture had encouraging results, with wheat yields in East Asia rising by almost 300% between 1962 and 2004.

The new problems facing the agriculture sector include increasing production while using fewer energy and chemicals and building resilience against climate change. The agriculture industry now needs technical improvements as a result of these reasons. Technology should address both the supply and demand sides of the food shortage problem, as well as the value chain.

Digital agriculture is the way of the future

Farm digitization is becoming more prevalent in the agricultural industry as a result of rising population needs. In order to facilitate cooperation between different stakeholders and farmers and guarantee a successful cultivation cycle, digitalization in the agricultural sector has become essential.

An intelligent cloud-based system has been built by Cropin, an Agtech pioneer that is focused on digitalizing agriculture. With the use of data gathered over a ten-year period, our full-stack solution helps agriculture stakeholders enhance crop output and quality through intelligent farming backed by predictive intelligence. It uses business analytics to improve agricultural operations and digitizes the whole production cycle.

Cropin is a self-learning and intelligent technology that offers the agriculture industry as a whole improved agricultural solution. It satisfies the needs for real-time analysis, reporting, interpretation, and understanding that contemporary agricultural technology demands for more intelligent agricultural solutions. Cropin's digitalization of farms is automating agriculture while using less resources. The world's existing problems—the steadily rising population and the depletion of resources—call for sustainable development across all spheres of society. Cropin empowers and strengthens Agri and the resources inside the agri-ecosystem, bringing sustainability to agriculture. This is made feasible by giving farmers access to advice and notifications, as well as by giving companies access to actionable insights.

Farms financial and field operations are managed using CropIn's SaaS (platform as a System)

cloud platform. Human computation mistakes might occur when farmers manually maintain their data on paper. Farmers were given computer spreadsheets to manage financial data thanks to emerging technologies. Agri tech and satellite photography enabled field zone monitoring in farming in the meantime. Farmers now have difficulties in managing constantly monitored data and accounting records as a result of agriculture technology's enhancement of farming. An agri tech SaaS, one of the most effective tools for managing data analytics and imagery from satellites in smarter agricultural solutions, was made possible by technological advancements. The functions of this system include data collection, analysis, and management from farm to table.

Digitizing processes may be very beneficial for agri-input firms. They may communicate warnings and insights derived from data, boost farmer involvement, and offer customized value-added services. This interaction eventually develops into farmer loyalty. Demo plots are registrable, and digital records of farm operations are possible. Gathered information about farmers at events may be utilized to interact with them and increase brand recall. High-net-worth people and smallholder farmers can be reached with this.

A case in point- AWBA

In order to digitize and strengthen the country's rural agricultural communities, Cropin teamed up with Awba, the biggest producer and distributor of agricultural chemicals in Myanmar.

- Among the difficult assignments Awba had to do were:
- growing the company in a sustainable way
- Plot-level data capture when delivering product demos
- resolving issues on the field effectively
- providing farmers with weather- and satellite-based warnings

Awba benefited from Cropin's participation in both dealer management and marketing. Through the publication and dissemination of impact indicators and farmer education, digitization produced a farmer database. Additionally, this enabled farmers and aided in product customisation. In addition to increasing production via sharing best practices, Cropin strengthened Awba's brand loyalty.

Impact of Agriculture Technology

- Enabled farmer engagement and loyalty
- Manage and track dealers/distributors
- Efficient management of 15,000 strong sales and farm teams
- Visibility of high- and low-density sales points
- Understand farmers' challenges

Similarly, by digitizing 0.2 million acres of agriculture, Cropin has made it possible for over 250 organizations in 92 countries to undergo change. In order to accomplish the shared objective of raising production, digitalization guarantees cooperation between diverse stakeholders and farming communities. It makes it possible for businesses in the industry to assess the area and give farmers precise input in real time.

Cropin's intelligent cloud platform solution is driven by GPS technology, temperature and moisture sensors, artificial intelligence, precision farming, contemporary agriculture, data analytics, and satellite monitoring of crops. Thanks to this data, agri-input businesses are better able to provide farmers with precise information in real-time, which helps them improve their sales approach and boost productivity all while concentrating on increasing revenue. Farmer participation may help agri-input firms develop customer loyalty, which can boost sales metrics.

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