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hectares in 2011-12, from 2018-19 the area under other fruit crops increased by 567 hectares, the total area under fruit crops increased by 411300 hectares. The growth rate of other fruits cultivation was 2.9. The total area under fruit crops has increased from 798100 to 6555700 hectares from 2011-12 to 2018-19.Compound growth rate analysis helps us to identify changing cropping patterns and land use patterns under different crops and shows that area, yield and productivity of fruit crops are changing. Irrigation facilities and water resources available in Satara district are found to be unreliable and cropland is reduced due to irregular rainfall. Well irrigation, canals are extended to benefit agriculture and improve agricultural cropping system.

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NEW TRENDS IN THE AGRICULTURAL SYSTEM IN INDIA

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Abstract :

This article is about the Advances in science and technology, along with global urbanization, is major factors driving the advancement of agricultural research. The additional population growth has created the challenge of producing the best food for all people. Increasing agricultural productivity using traditional farming techniques is creating this limitation. The threat to the environment due to reliance on chemical fertilizers and pesticides to increase productivity and for pest management is a major obstacle affecting global food production. New innovations are urgently needed in agriculture and these innovations must be integrated with mainstream agriculture. Vertical farming and organic farming are research areas to address these challenges. Vertical farming uses vertical stacking of fields, allowing smaller plots of land to be used for greater production. This is because food supply demand can be met from cities, reducing fuel - related transportation costs and environmental damage in the process. On the other hand, organic farming is based on the principles of reducing chemical inputs in agriculture and is therefore environmentally friendly. Thus, these techniques can be used to increase production

and productivity to meet the growing food demand.

Keyword: Precision Farming, Organic farming, Artificial Intelligence (AI)

Introductions:

Agriculture is considered to be the most important sector for any country. India is an economy based sector which employs more than half of the population. Indian agriculture and Indian farmers play a vital role in everyone's life. The growth of the agricultural sector. As a result, agriculture has become an emerging sector today. The latest trends in the agricultural sector have increased Indian food production over time. This has restricted us from being a net exporter of agricultural products. As per the estimates for the year 2021-22, the total foodgrain production in the country was estimated at 325.15 million tonnes. However, the Indian Council of Agricultural Research (ICAR) estimates that the demand for food grains will increase to 350 million tonnes by 2030. Therefore, a country like India needs to develop new technologies in the agricultural sector to meet the growing food demand.

The most challenging task facing agricultural science today is to ensure a continuous and sufficient supply of food for the growing human civilization. There has been a significant increase in population in urban centers around the world. This growth is accompanied by changes in eating habits and growing concerns about food quality. Here, food quality means the minimum amount of chemical (pesticides/fertilizers) residues used in crop production along with optimum levels of nutrition in the food, due to uncontrolled/ injudicious use of chemicals in agriculture. Agriculture has also been entrusted with the role of restoring the ecological imbalance that has been created. According to the United Nations population projections, the world population could reach 9.15 billion by 2050, therefore, the expected rate of growth in the world population over the next forty years will be 2.25 percent, thus providing a potentially large market for food, and food production will need to be doubled to meet this demand. It is estimated that global food production will need to increase by 70 percent to feed the global population by 2050, and food production by developing countries will need to double. Environmental stress, water and land resource scarcity are major obstacles to this task. There are changes in agricultural science in the indigenous languages of the people associated with the global spread of science and technology. The use of modern fertilizers and pesticides has increased crop production and productivity, But the trend is more pronounced in developed and industrialized countries. Countries like China have made their presence felt by nearly doubling their grain production since 1961. In developing countries, due to lack of financial resources and technological Lack of knowledge of progress prevents farmers from switching to modern intensive farming methods and therefore remains isolated from global relations. Dietary changes and the growth of food-based retail industries are indicators that globalization has had an impact on food systems around the world. At the same time, this trend has created environmental problems because excessive use of chemicals in agriculture is not desirable for preserving the environment, biodiversity, and soil quality. Thus, the increasing global Trade and the easy availability of chemicals and technology have led to changes in agricultural systems. Recent trends in agriculture include meeting the demands of a growing global population and environmental concerns. To address the growing concern about the problem, there has been a rise in organic farming, vertical farming, and intensive farming. Vertical farming will help meet the food and other demands of a rapidly growing urban population. On the other hand, organic farming will help increase the harmony between the environment and man-

made activities carried out for agriculture.

Methodology –

This Research Paper is studied on the basis of Primary and secondary data collected from various articles, thesis, books, newspapers and internet related to Recent Trends in Agriculture.

Objectives

1. To study the recent trends in the agricultural sector

2. To understand the concept of agricultural productivity in India.

Content -

The recent Trends in the agricultural sector are as follows –

Artificial Intelligence (AI)

Artificial Intelligence (AI) companies produce robots that can perform various tasks in the agricultural sector with ease. These robots have learned to manage weeds and harvest crops faster than humans. To ensure quality and eliminate waste, such robots are air-conditioned to pick and pack produce at the same time.

These robots play a vital role in removing obstacles faced by farmers. Robots excel in It has the ability to work on a large scale with speed and precise standards. Such robots reduce the wastage of cultivated crops.

Precision Farming

Precision farming is a type of agricultural management system that uses new technologies at every stage of farming, from soil preparation to the precise use of seeds, fertilizers, and pesticides. With the help of technology, farmers are empowered to make the right decisions about farming. They don't have to rely on luck. The use of such technology can also prevent the increasing cost of farming and the damage caused by natural disasters. It also helps in reducing the negative impact on the environment. Modern technological equipment is used in precision farming. In this, with the help of sensors, the status of crops, soil, weeds, debris or plant diseases can be detected. With the help of this technique, every small change in the crop can be monitored. This technology, which started in the 1980s in America, is now used worldwide.

It is being accepted. Potato farming is being done in the Netherlands with this technique. This technique has helped in increasing the quality and production of potatoes. This method of farming has helped farmers in reducing the cost of farming and increasing their profits.

Benefits of Precision Farming

1) It helps in increasing agricultural productivity.

2) Soil health is not compromised.

3) Crops do not require excessive use of chemicals.

4) Resources like water are used properly and adequately.

5) It helps in increasing the quality and productivity of the crop.

6) The cost of farming is low.

7) This type of farming helps in improving the socio-economic status of the farmers.

Vertical farming -

The concept of vertical farming was coined by Prof. Despomier; it is a system of commercial farming that uses traditional farming methods such as hydroponics and aeroponics to produce more produce faster. Vertical farming can generally be defined as a system of commercial farming. Vertical farming is a large-scale farming practice in urban high-rise buildings. The concept envisions the cultivation of fruits, vegetables, medicinal plants, fuel crops, and other plant products in cities. They are sold directly in the city. This reduces transportation costs and makes efficient use of land and water resources. Vertical farming is a technology that is a step ahead of greenhouses as it involves the use of resources in vertical arrays and can meet the food supply demand with the resources of mega cities.

The phrase vertical farming was first used by Gilbert Ellis Bailey in his book "Vertical Farming" in 1915. He discussed the European concept of vertical farming. He introduced the concept of underground vertical farming, currently practiced in the Netherlands.

Vertical farming is practiced in open air or mixed-use skyscrapers for climate control and use. It is a sustainable form of agriculture for individual or community use. A modified version of this concept is the skyscrapers. It involves planting crops on the periphery so that they receive ambient light, and cultivating plants and animals in skyscrapers in a closed system for large-scale cultivation. These systems are being tested in various locations (Singapore, Canada, London). The 9,300 square meter (about the size of a city block) vertical farm with 30 floors will provide 2,000 kilocalories of nutrition per day to about 15,000 people.

Organic farming -

Organic crop production has increased by reducing the excess use of fertilizers and pesticides and replacing them with Vermicompost and compost. Moreover, adopting this technology will help in reducing the use of chemical pesticides.

Regenerative Agriculture -

Due to concerns about climate change and climate variability, organizations and individuals are moving towards adopting regenerative agriculture. This broad term refers to practices that increase carbon sequestration in the soil through the use of reduced tillage and cover crops. Regenerative agriculture is determined to be no small feat in bringing about change, yet organizations have made a useful soil health pact. Regenerative agriculture utilizes a variety of sustainable farming techniques.

Investing in Indoor Farming

Startup companies are receiving huge support for indoor production of items like lettuce and tomatoes. Recently, vertical farming startups are aiming to use sensors and protective culture to produce vegetables in small enclosed spaces in urban areas.

Field Mapping -

GPS receivers collect location information to map field boundaries, roads, irrigation systems, and problem areas in crops such as weeds or diseases. The accuracy of GPS allows farmers to map areas in the field, Helps create agricultural maps with accurate acreage for distances between road locations and points of interest. Field mapping helps in more accurate planting, spraying and harvesting.

Agricultural diversification -

The agricultural sector meets various developmental needs including the demand for food grains. In recent years, products such as fruits, vegetables, spices, cashews, betel nuts, coconuts, flowers, orchids, dairy and animal husbandry products have been The agricultural industry has been diversified to produce commercial and horticultural crops. The demand for these products is constantly increasing. The liberalization of the economy has created a lot of scope for the development of the agricultural sector in terms of production and trade.

Increasing food production -

India has experienced an increase in food production, especially after the Green Revolution in agricultural practices. The annual growth rate in food was recorded at 2.08 percent in the 1970s. The annual growth rate of food in the 1980s was recorded at 3.5 percent. Grains were the hallmark of the Green Revolution which made India self-sufficient in food grains and an exporter. This pace could not be maintained in the 1990s as the annual growth rate fell to 1.7 percent, which The annual population growth was close to 2019. According to the official data sheet, our country achieved 296 million tonnes (MT) of foodgrain production in 2019-20 and is expected to achieve more than 300 MT in 2024-25. The demand for food is likely to increase in the near future due to the increasing population size and rising incomes.

Agricultural Exports -

India is considered to be the largest exporter of agricultural products. Therefore, this is an important emerging trend in agricultural marketing under liberalization. Due to demonetization, agricultural Exports are increasing. India is in a favorable position in terms of agricultural exports as the agricultural sector is subject to less import of inputs, less labour, good weather conditions and low input costs. Agricultural exports play a very important role in the growth of the country's economy. Moreover, it has increased employment opportunities and diversified agricultural activities.

Developing new biological techniques -

During the Green Revolution, the increasing use of chemical fertilizers and pesticides was greatly encouraged to meet the increasing demand for food by the growing population. Environment and Agriculture To prevent further damage to the area, more emphasis is being placed on using biological technology for agricultural work and more emphasis is being placed on developing new organic crops.

Soil and Plant Fitness Monitoring System -

Soil nutrition has a significant impact on crop diversity and the quality of those crops. Soil quality assessment because of the deteriorating condition of the soil due to increasing deforestation rates. German technology startup PEAT created the AI-based application Plantix. It detects plant pests and diseases as well as It can detect nutrient deficiencies in the soil and farmers can use this knowledge to recommend fertilizers that will improve crop quality. Farmers can take pictures of their plants using their smart phones.

This allows farmers to consult on soil restoration methods, with the help of video graphs available in the system.

Conclusion -

There are recent trends in the agricultural sector that can increase agricultural production and improve environmental conditions. These trends help improve the economic conditions of farmers and provide employment to the younger generation. It will also help in increasing the national income of the country. Moreover, it makes the future of agriculture in India brighter and more successful.

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