

APPLICATION OF ARTIFICIAL INTELLIGENCE IN AGRICULTURE

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Summary:

The agriculture and allied sectors are considered to be the bed rock of the India's economy. Artificial intelligence enables solutions in agriculture and helps farmers by improving crop productivity and reduce wastage. Artificial intelligence coupled with appropriate image classification models, when used in agriculture can result in improving yield production, reducing manual intervention and decreasing instances of crop diseases. In addition, Artificial intelligence implementation and applications have enormous advantages which could revolutionize the agri-food sector and its related business.

Introduction:

Agriculture may be the most ancient occupations, yet its relevance has only become bigger with the imminent threat of food insecurity. Artificial intelligence is a creative tool that simulates the human intelligence and ability process by machines, principally computer systems, robotics and digital equipment. Artificial intelligence will play a vital role in modernizing agricultural activities. Artificial intelligence systems require continuous feeding of new information and increasing the amount of information in the backend database used for performing tasks with utmost accuracy, including mapping the history and guiding the predictions. Technology powered by Artificial intelligence ensures the sustainable quality food production for the coming decades. Artificial intelligence is based on the principle that human intelligence can be defined in a way that a machine can mimic it and execute tasks,



from the simplest to those that are even more complex. The goals of artificial intelligence are learning, reasoning and perception.

Applications of Artificial intelligence in Agriculture:

Artificial intelligence technology helps to yield healthier crops, control pests, monitor soil and growing conditions, organize data for farmers, help with the workload, and improve wide range of agriculture related tasks in the entire food supply chain (Kamilaris and Prenafeta-Boldu., 2018).

Use of Weather Forecasting:

Farmers face problem in order to determine the right time of sowing seed due to change in climatic conditions, Artificial intelligence can guide the farmers about time of sowing and also selection of crops.

Soil and Crop Health Monitoring System:

Quality of the crop is mainly determined by the type of the soil and also soil nutrition. Soil quality is deteriorating due to increased rate of soil degradation due to various reasons across the country. One of the Artificial intelligence applications called Plantix helps in estimating the nutrient deficiencies in soil including plant pests and diseases which helps determining the application of right nutrient in the form of right fertilizer and finally it helps in improving the harvest quality.

Analyzing Crop Health by Drones:

In this technique, the drones will capture data from fields and then data is transferred via a USB drive from the drone to a computer and analyzed by experts and provide detailed report containing the current health of the farm (Huuskonen and Oksanen., 2018). It helps farmers to identify pests and bacteria helping farmers to timely use pest control and methods to take required action.

Precision farming and predictive Analysis:



Artificial intelligence helps in providing guidance to the farmers about weather management, crop rotation, timely harvesting, type of crop to be grown, optimum planting, pests attack and nutrient management.

Price Realization for Farmers:

A better price realization for farmers is possible through an effective price discovery model. Predictive modelling using artificial intelligence can be instrumental in presenting more accurate demand-supply information and predicting demand for agricultural produce to farmers.

Conclusion:

Artificial intelligence in agriculture is not only helping farmers to automate their farming but also shift to precise cultivation for higher crop yield and better quality while using fewer resources.

References:

Huuskonen, J. and Oksanen, T. (2018). "Soil sampling with drones and augmented reality in precision agriculture". *Computer and Electronics in Agriculture*. 154: 25-35.

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