Chapter 18

Harvesting Data Big Data Analytics in AgTech

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Abstract

Smart farming leverages cutting-edge technologies like cloud computing and the Internet of Things (IoT) to incorporate technology into farm management. Farming operations make decisions based on Big Data, comprised of an enormous amount of data from various sources. Innovative agricultural technologies are transforming farming techniques and sustainability. The paper discusses about the innovations in precision agriculture by highlighting the technological use like augmented and virtual reality, robotics, IoT, Big Data, AI, and automation. The text emphasizes how these innovations enhance crop output and performance by optimizing resource utilization and utilizing data from daily activities. This paper explores the shift in agriculture from an input-intensive to a knowledge-intensive sector. To increase productivity and operational efficiency, the agriculture sector is shifting from wireless sensor networks to IoT and data analytics. Climate-smart agriculture (CSA) is enhancing agricultural output, greenhouse gas emission mitigation, responsive capacities, and revenue, through the integration of climate change science and big data analytics. The article focuses on the integration of wireless sensors and IoT into traditional farming practices, emphasizing their potential to transform traditional statistical methodology into quantitative approaches.

Keywords

Agricultural Informatics, Agr-Itech, Climate-Smart Agriculture, Data Analytics, Sustainable Farming

1. Introduction

Smart farming is a revolutionary approach that integrates technology such as artificial intelligence, big data, cloud computing, IoT, and robots to make intelligent decisions in agriculture [1]. Smart farming

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