

GHANA COMMUNICATION TECHNOLOGY UNIVERSITY (GCTU)



[Evolution of agricultural technology]-[2023/2024]

[Faculty Of Engineering]

[Computer Engineering]

[ENGR 141][Engineering Technology]

[BCE][100]

[26/02/2024]

[Yussif Sumaila]

[1703936497]

Evolution Of Agricultural Technology

Agricultural technology is the use of technology in agriculture, horticulture, and aquaculture with the aim of improving yield, efficiency and profitability. Agricultural technology dates back about thousands of years ago. There has been so many described agricultural revolutions, which identify major shifts in agricultural practice and productivity. These revolutions have been closely connected to technological improvements.

Over the last past five years there have been vast improvement in the agricultural industry with the aid of new modern agricultural technologies introduced. Some of these key trends include:

Artificial Intelligence – advanced technology such as remote sensing, satellites, or UAVs allow farmers to gather information about crops, soil, and weather conditions. These digital tools can monitor plant health, humidity, soil pH level, and more. Sensors collect as much data as possible and create algorithms that can later be adapted to machine learning techniques.

Food Processing and Storage

Another example of appropriate technology is about food preservation and post-harvest processing. Many farmers lack the possibility of storing their products and need to sell them immediately after harvesting. A huge setback here is that prices are the lowest at that moment, so there is no chance for any major income. Luckily, there were several solutions, such as, for example, safe irradiation practices, developed to enhance the product longevity and nutrition.

Alternative Energy Sources

Electricity is still a major issue in many poor and rural areas. Alternative energies are an excellent example of appropriate solutions to this issue. Harnessing renewable energy sources like wind or solar can be an effective and sustainable way to improve poor farmers' productivity and help to protect the environment.

Hydroponics

Hydroponics is a method of cultivating plants without soil. Instead, it relies on a nutrient-rich water solution to deliver essential minerals and nutrients directly to the plant roots. This approach allows for precise control over growing conditions and can lead to

increased crop yields and faster growth rates.

Positive impacts of agricultural technology

1. *Increased food production:* Technologies like improved seeds, fertilizers, pesticides, and machinery have significantly boosted yields, allowing us to feed a growing population. Precision farming techniques further optimize resource use and reduce waste.

2. *Improved resource management:* Technologies like drip irrigation and GPS-guided tractors conserve water and optimize fertilizer application, minimizing environmental impact.

3. *Enhanced food quality and safety:* Controlled environments and monitoring systems improve food quality and reduce contamination risks.

Negative impacts of agricultural technology

1. *Health concerns:* Excessive pesticide use can have negative health impacts on farmers, consumers, and wildlife.

2. *Job displacement:* Automation and advanced machinery can lead to job losses in the agricultural sector, requiring workforce retraining and adaptation.

3. *Dependence on technology:* Overreliance on specific technologies can make farmers vulnerable to disruptions and price fluctuations.

g

REFERENCES

ChatGPT(Gemini) , Agriculture Technology | National Institute of Food and Agriculture". nifa.usda.gov. Retrieved 2020-12-23.