Boosting Cereals Production Through Smart Farming for Food Security and Sustainable Economic Growth

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Introduction

The geometric increase in human population coupled with increase in the number of food processing and manufacturing industries to meet the daily demand for food is a source of concern to the populace as there is no adequate agricultural technology to boost the yearly yield of grains in commercial quantities to meet the industrial demand. (FAO, 2017). As the world continues to face the challenges of population growth, agricultural sector must innovate to meet the rising demand for food in order to stem the problem of food scarcity. Wheat is a cereal widely milled into flour which is then used to make a wide range of foods such as bread, pasta, cakes, noodles, pastries, among others but that the demand and supply of wheat grain for industrial primary processes do not match each other; this challenge could be attributed to farming techniques which could not meet up with wheat production needed for human consumption. Agricultural yield annually are low resulted from some unforeseen factors such as drought, inadequate capital/ funding, poor agricultural technology, lack of improved seed varieties, poor storage and processing, bad road network, poor agricultural education and extension, insecurity/ kidnapping, lack of government supports. This study aimed at employing smart agriculture technology which is a technology that relies on its implementation the use of Artificial Intelligence (AI) and Internet of Things (IoT) in farm management (Bacco et al.., 2019). Thus, this technology explores smart farming as a veritable tool for sustainable expansion of grains and cereal cultivation in Nigeria.

Materials and Methods

The study areas selected to cover six significant locations in Ogun state which are Ayetoro, Oja- Odan, Arigbajo, Oke-Odan, Wasimi and Gbokoto. Here, smart farming technology for wheat cultivation was deployed; the hectares of farmland were mapped out using aerial satellite images; and the following farming stages: clearing, stumping, harrowing, planting, weed control, pest control, harvesting and storage were monitored via cropin technology which involves the use of drones, satellite images, artificial intelligence and machine learning to monitor planting, control pest, enhance yield in order to meet the food processing industry production demand. An econometric survey of wheat yield/harvest was carried out in these six community-based institutions running agriculture related courses and the wheat yield per hectare was estimated through crop cutting experiment while total land area cultivated was estimated at 12,820 hectares.

Results

The result of the crop in technology adopted shows that there is a significant increase of 85% in the yield per hectare and the total land area cultivated. The annual yield is significantly enormous compared to the crude farming output hence this econometric survey could be likened to the work of FAO

Conclusion

It is concluded that his innovative idea if fully deployed and financed could enhance continuous supply of raw wheat from the farm to the food processing industries thus leading to uninterrupted production of foods such as bread, pasta, cakes, noodles, pastries for food security and sustainable economic growth.

Keywords: Smart farming, food, population, sustainable, industry, raw material.