

Chapter 39

Issues and Challenges in Smart Farming for Sustainable Agriculture

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ABSTRACT

Sustainable agriculture helps to promote farming practices and methods in order to sustain farmers and resources. It is economically viable, socially supportive, and economically sound. It assists to maintain soil quality, reduce soil erosion and degradation, and also save water resources. Sustainable agriculture improves the biodiversity of the land and thus leads to the healthy and natural environment. The sustainable agriculture is very essential to ordinate with the increasing demand for the food, climate change, and degradation of the ecosystem in future. It plays a major role for preserving natural resources, reducing greenhouse gas emissions, halting biodiversity loss, and caring for valued landscapes. Sustainable agriculture is applied to farming in order to preserve the nature without compromising the quality of the future generation basic needs and thus enable to make smartness in farming. The common practices included in smart farming for sustainable agriculture are crop rotations that mitigate weeds, disease, insect, and other pest problems.

INTRODUCTION

The word “sustainable” is the process of maintaining changes in the environment. Sustainable agriculture is a measure in which it should emphasize long-term support in producing food and beverages and also at the same time in an eco-friendly mannered (Srisruthi, Swarna, Ros, & Elizabeth, 2016). Sustainable agriculture helps to balance the needs for food with ecological preservation. It helps to promote farming practices and methods in order to sustain farmers and resources. It is economically viable, socially sup-

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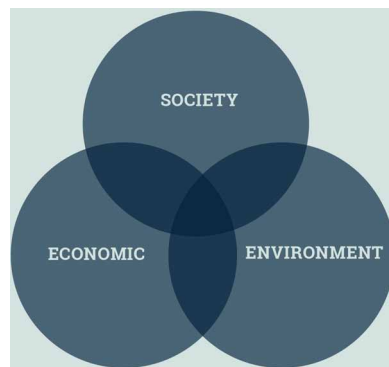
portive and economically sound. It assists to maintain soil quality, reduce soil erosion and degradation and also save water resources. Sustainable agriculture improves the biodiversity of the land and thus leads to a healthy and natural environment. Sustainable agriculture is important ordinate with the increasing demand for the food and control climate change and degradation of the ecosystem in the future. It plays a major role in preserving natural resources, reducing greenhouse gas emissions, halting biodiversity loss and caring valued landscapes.

Sustainable Agriculture

Sustainable agriculture is applied to farming in order to preserve nature without compromising the quality of the future generation basic needs and thus enable to make smartness in farming. The common practices included in smart farming for sustainable agriculture are crop rotations that mitigate weeds, disease, insect and other pest problems. Thus it leads a way to make the hazardless environment. Sustainable agriculture comprises of sustainability of farmers, the productivity of agricultural resources and environment-friendly. Recycling and harvesting of water is the milestone to form sustainable agriculture. Moreover, as the need for food rises every day, it has to be preserved in order to meet the need sufficiently.

The living organisms are dependent on the nature of biodiversity. This has been contaminated slowly by emitting wastes, degraded dead plants, use of fertilizers and pesticides, dilution of water, etc. Moreover, because of this desecration of an environment and emission of greenhouse gases actually affects the plants, animals as well as human beings. So, it is very important to sustain and make a better environment for plants and for human beings. Thus, smart farming is a primary key to meet better agricultural systems and make better sustainable agriculture for the future.

Figure 1. Three factors for sustainable agriculture



Smart Farming

The sustainability of agriculture can be carried up with a technique called smart farming. Smart farming is basically a concept of promoting precision agriculture and create eco-friendliness to increase the quantity and quality of the nourishment with modern sophisticated technology (O'Grady & O'Hare, 2017). Smart farming enables the farmers to monitor and control over the plants remotely and satisfy their necessary requirements of the plants and animals. Internet of Things (IoT) is a new technology

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