

Green Entrepreneurship Startups



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OVERVIEW OF SUSTAINABLE AGRICULTURAL DEVELOPMENT

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Abstract---Sustainable agriculture is farming in sustainable ways meeting society's present food and textile needs, without compromising the ability for current or future generations to meet their needs. It can be based on an understanding of ecosystem services. There are many methods to increase the sustainability of agriculture. When developing agriculture within sustainable food systems, it is important to develop flexible business processes and farming practices. Agriculture has an enormous environmental footprint, playing a significant role in causing climate change, water scarcity, water pollution, land degradation, deforestation and other processes; it is simultaneously causing environmental changes and being impacted by these changes. Sustainable agriculture consists of environment friendly methods of farming that allow the production of crops or livestock without causing damage to human or natural systems. It involves preventing adverse effects on soil, water, biodiversity, and surrounding or downstream resources, as well as to those working or living on the farm or in neighboring areas. Elements of sustainable agriculture can include perm culture, agro forestry, mixed farming, multiple cropping, and crop rotation.

Keywords---Sustainable Agriculture, Environment and Natural Recourses

1. INTRODUCTION

Agribusiness is a system of a series of businesses ranging from procurement of production facilities, planting, post-harvest business, storage sorting business, and packaging of agricultural products as well as several supporting activities that serve the system such as information service agencies, and government agencies that issue related policies and regulations. Agribusiness development is highly dependent on ecosystem and environmental factors such as: land, water, diversity of biological resources and climate. Therefore, agricultural development carried out through an agribusiness approach that can grow sustainably, should be directed to have high capabilities consistently and continuously in the natural environment where agribusiness is developed. It will be successful if at each node of the agribusiness subsystem can set the tasks to be achieved proportionally between economic benefits and social and ecological aspects. Sustainable agricultural development strategy in the subsystem of production or

"on farm" is through the implementation of site-specific agricultural technology packages based on local resource needs, namely:

a). Have technical feasibility, where the technology applied is always easily and practically applied.

b). Economically feasible, where the technology applied will give favorable results. c). Have a social/cultural feasibility, where the technology applied is always generally acceptable to the public at large.

d). Have environmental feasibility in which the technology applied is not damage the environment or can ensure the sustainability of Natural Resources.

7 best practices of sustainable agriculture:

1) Conservation Tillage

Conservation tillage is a farming technique that reduces or eliminates conventional tillage activities to reduce soil disturbance and erosion. It includes methods like no-till or reduced tillage, where farmers hardly disturb the soil and leave crop residue on top. Conservation tillage contributes to better soil health, moisture retention, erosion prevention, and carbon dioxide emissions reduction.

2) Crop Rotation

Changing the crops that are cultivated in a field over time is an agricultural practise known as crop rotation. It contributes to increased agricultural output by managing pests and diseases, enhancing nutrient availability, and improving soil health. Crop rotation allows farmers to disrupt the cycles of pests and diseases, lessen soil erosion, and advance resilient and sustainable agricultural practices.

3) Agro forestry

Agro forestry is a method of land management that combines trees or shrubs with livestock or agricultural products. It increases sustainability and ecological services by fusing the benefits of trees and agricultural output. For increased production and better environmental results, agro forestry practices include the variety of plant species, preservation of biodiversity, sustainable land use, and promotion of ecological resilience.

4) Integrated Pest Management

By combining cultural, biological, and chemical control strategies, integrated pest management (IPM), a form of pest management, aims to reduce the usage of synthetic pesticides. Its goals are to efficiently control pest populations, lessen the dangers and

harm caused by pests, and promotes ecologically friendly and sustainable pest management techniques.

IPM uses cultural techniques including crop rotation and intercropping to interrupt pest life cycles, manage pest populations, and use fewer pesticides in sustainable agriculture. Biological control, which employs natural enemies to fight pests, is also a component of IPM.

IPM practices that use fewer pesticides protect non-target creatures, maintain ecosystem health, and lessen environmental contamination. IPM increases natural pest management by promoting beneficial insects, which lowers pest populations and the need for chemical pesticides.

5) Soil Management

A fertile, nutrient-rich environment for plant growth, improved water infiltration and retention, and the maintenance of beneficial soil organisms all depend on healthy soil, which is crucial for sustainable agriculture. It is a cornerstone of sustainable farming methods since it increases crop output, decreases the demand for synthetic inputs, and mitigates climate change through carbon sequestration.

Composting, organic amendments, and cover crops are crucial techniques in sustainable agriculture. The use of cover crops enhances soil structure, controls weed growth, and boosts organic matter. Composting increases microbial activity, improves soil fertility, and adds nutrients. The sustainability of agricultural systems, nutrient cycling, and long-term soil health are all benefited by organic amendments.

6) Water Conservation

Increased water retention promotes water resource conservation and irrigation effectiveness, while increased soil fertility increases agricultural productivity and nutrient availability. By storing carbon dioxide, reducing greenhouse gas emissions, and improving overall environmental sustainability, carbon sequestration in soil aids in the fight against climate change.

Optimizing crop output, maintaining water availability for future generations, reducing the danger of water shortages, and promoting sustainable use of water resources are all dependent on effective water management in agriculture. These factors all contribute to global food security and environmental sustainability.

Dribble irrigation, precise watering, and water recycling are agricultural practises that ensure targeted and sustainable irrigation practises for increased crop productivity and water conservation. These practices also encourage efficient water use, reduce water loss due to evaporation and runoff, and conserve water resources.

Reducing the possibility of water scarcity while ensuring long-term availability for agriculture and ecosystem health are all benefits of water resource conservation. Water quality is protected, aquatic ecosystems are maintained, and environmental and human well-being are sustained by reducing water pollution.

7) Biodiversity

The diversity of living things in a particular ecosystem is referred to as biodiversity. The promotion of ecosystem resilience, pollination, natural pest management, soil fertility, and all-around sustainable farming practices depend critically on biodiversity in the agricultural sector.

Conservation of biodiversity is aided by actions like maintaining hedgerows, wildflower strips, and wildlife habitats in agricultural environments. Hedgerows offer helpful insects and birds a home, food, and places to nest. While natural habitats provide safe havens for many species, enhancing ecological balance and encouraging sustainable farming, wildflower strips draw pollinators and beneficial insects.

Bee and butterfly conservation increase crop pollination, which boosts crop yields and quality in agricultural production. Encouragement of beneficial insects for natural pest management lessens the need for chemical pesticides and aids in keeping pest populations under control. These methods help to ensure the long-term sustainability and productivity of agricultural systems by promoting ecosystem resilience, which promotes a healthy and balanced environment for both crops and wildlife.

2. BENEFITS OF SUSTAINABLE AGRICULTURE

➤ Environment benefits

Sustainable agriculture is an eco-friendly approach that reduces the reliance on limited natural resources. Its careful farming methods, such as crop rotation, intercropping, and companion planting, help protect soil health and water quality while eliminating the need for damaging practices.

➤ Economic benefits

Sustainability in agriculture can create stronger local economies and economic opportunities for small-scale farmers, allowing them to produce more food with fewer resources. It also has a significant financial advantage over conventional farming. Droughts or other natural disasters, such as floods, can affect the yield from traditional farming, leading to economic losses. Sustainable agriculture typically involves fewer expenses since it encompasses far fewer inputs.

➤ Social benefits

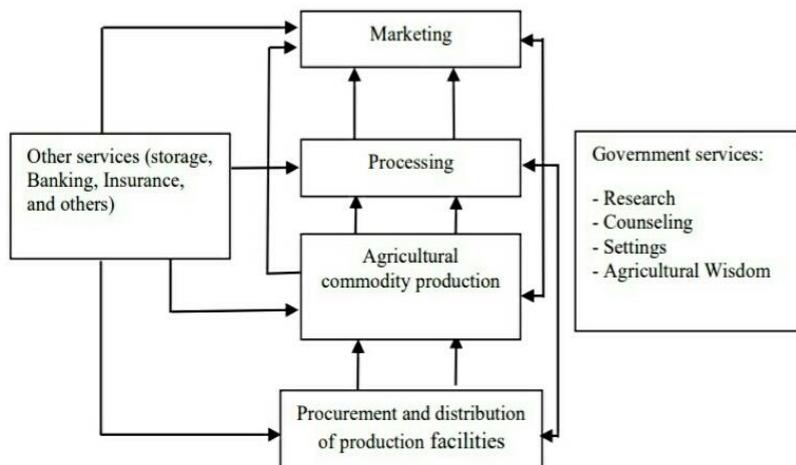
Sustainable agriculture encourages social equity and helps create a more equitable food system. Through sustainable production methods, agricultural harvests can become more reliable and adaptable over time, allowing consistent access to affordable food for everyone, regardless of their economic situation.

➤ Positive impacts of Food Security

Sustainable agriculture practices can have many positive impacts on food security. They create a more efficient, stable, and resilient food system than traditional farming practices, making it an effective strategy for meeting the global demand for food.

Moreover, this approach provides a way to protect natural resources and mitigate climate change effects on crop yields, improving the ability to provide food for both the present and future generations.

Structure of the Components of Agribusiness



3. CONCLUSION

The purpose of sustainable agriculture is to protect and save natural resources. Some of these may become depleted, e.g. soil nutrients, or seriously damaged or contaminated (groundwater or water courses). Some natural resources such as phosphorus are expected to run out later this century. Therefore, more sustainable agricultural practices are emerging to conserve and protect resources. With the growing population and its need for more food, we must practice farming in environmentally responsible ways. Sustainable agriculture helps to preserve natural resources while promoting social equity and economic profitability. Not only does it reduce the environmental impact of the traditional farming system, but it also results in higher yields and healthier products for consumers. Sustainable agricultural methods aim to preserve essential resources, such as soil fertility, which is critical for farming success. These new productive systems can benefit areas with limited or scarce resources.

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