

CLIMATE-SMART AGRICULTURE

Alexandra-Ioana Ibric, Tabita Adamov, Baicu(Zoican) Ștefana, Tiberiu Iancu
University of Life Sciences "King Mihai I" from Timisoara, Faculty of Management
and Rural Tourism

Abstract: A concept called climate-smart agriculture (CSA) seeks to solve the problems caused by climate change while preserving sustainable farming practices. In order to improve food security, promote rural livelihoods, and reduce environmental consequences, it entails integrating climate change adaptation, mitigation, and resilience techniques into agricultural systems.

• Introduction

In addition to being a major cause of climate change, agriculture is perhaps one of the most exposed industries. Temperature, precipitation, extreme weather events, and other factors are all impacted by climate change, which has an impact on agriculture. With the ability to increase poverty and hunger in many parts of the world, these changes are probably going to have a significant influence on food production and food security.

Promoting the use of climate change-resistant, sustainable agriculture methods is one of the foundational tenets of CSA. This covers practices including the cultivation of drought-tolerant plants, conservation tillage, agroforestry, water management, and soil preservation. Even in the face of altering weather patterns, these techniques can aid farmers in reducing climate change's negative effects on their crops and increasing yields.

• Material and method

The writers of this scientific study have pursued numerous steps in regards to the logistics of the work in order to accomplish the purpose of the paper, which is to highlight some particular approaches and aspects of Climate-smart agriculture:

- data gathering,
- data analysis and interpretation,
- and, last but not least, data interpretation.

To further the paper's goal, authors used a multicriteria analysis and a variety of information sources.



• Results and discussions

The main objective of Climate-Smart Agriculture is current agricultural technology and advancements that provide high yields and resilient systems, such as inorganic fertilizers, pesticides, foods, food supplements, high yield varieties, and land management and irrigation techniques. This was essential to meet the food needs of a growing population and to encourage the economic growth needed to reduce poverty.

Some of the key solutions of CSA include:

- Crop diversification and integrated farming systems that utilize a mix of crops and livestock to increase resilience to weather extremes and reduce vulnerability to crop failure.
- Conservation agriculture practices that minimize soil disturbance, improve soil health and water retention, and reduce greenhouse gas emissions. Some of these practices include:
 - Reduced tillage
 - Cover cropping
 - Mulching
 - Agroforestry
- Water management strategies that enhance water use efficiency and reduce the risk of water scarcity and drought. Some of these strategies include:
 - Irrigation efficiency improvement:
 - Watershed management
 - Rainwater harvesting:
 - Integrated water resources management
 - Water reuse and recycling

• Conclusions

CSA provides a framework for sustainable agricultural practices that contribute to climate change response at various levels, from the farm to the global scale.

Agricultural practitioners must invest in research and development of technologies and good practices in order to implement and scale up CSA. The role of public finance in providing the necessary support and incentives for farmers to make necessary investments is also critical.