International Journal of Society Reviews (INJOSER) e-ISSN: 3030-802X
Vol. 2 No. 12, October 2025, pages: 2337~2346

AGROECOLOGY-BASED AGRICULTURE TO SUPPORT SUSTAINABLE AGRICULTURE: A SYSTEMATIC LITERATURE REVIEW

Sapto Wibowo
Politeknik Banjarnegara
sapto_wbw@yahoo.com

Abstract

Agroecology-based agriculture is an approach that integrates ecological principles into agricultural systems to achieve environmental, social, and economic sustainability. This study conducted a systematic literature review of recent publications to evaluate the contribution of agroecology in supporting sustainable agriculture and to identify supporting factors and challenges in its implementation. The results of the study show that crop diversification, utilisation of local resources, maintenance of soil fertility, and natural pest control are agroecological principles that contribute significantly to ecosystem stability and agricultural productivity. On the other hand, the successful implementation of agroecology is greatly influenced by policy support, the role of farming communities, access to training, and the availability of markets for agroecological products. However, challenges such as the dominance of conventional agriculture, limited access to resources, and cultural resistance remain major obstacles. This study recommends the application of multi-stakeholder collaborative strategies to strengthen the development of agroecology as an effort to transition to a sustainable and resilient agricultural system.

Keywords: Agroecology, sustainable agriculture, systematic literature review, crop diversification, biological control, policy support, implementation challenges.

Introduction

Modern agriculture, with all its technological advances and production intensification, has succeeded in significantly increasing food production in recent decades. Through the use of chemical fertilisers, synthetic pesticides, high-yielding varieties, and modern irrigation technology, farmers have been able to achieve high levels of productivity to meet the growing food needs of the global population (Martinez-Abraham, 2023) . However, this success has not been without serious consequences such as soil degradation, environmental pollution, loss of biodiversity, and increasingly alarming climate change. The accumulation of these negative impacts raises serious questions about the extent to which modern agricultural systems can contribute to long-term sustainability (Bharucha & Prabhu, 2025) .

The degradation of natural resources caused by intensive agriculture has prompted scientists, policymakers, and farming communities to seek new, more environmentally friendly and sustainable approaches. The challenges of agricultural development today are not only about increasing food production, but also maintaining ecological, social, and economic sustainability (Hammada, 2024) . Therefore, an