Role of Traditional Indian Knowledge System (IKS) and AI for Sustainable Mechanization in Agricultural Crops

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Editors

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NEW DELHI PUBLISHERS
New Delhi, Kolkata

This First Edition Published in 2026

Title: Role of Traditional Indian Knowledge System (IKS) and AI for Sustainable Mechanization in Agricultural Crops

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Description: First edition | New Delhi Publishers 2026 | Includes bibliographical references and index.

Identifiers: ISBN 9789349897175 (Print) | 9789349897519 (eBook)

Cover Design: New Delhi Publishers

NEW DELHI PUBLISHERS

Head Office: 90, Sainik Vihar, Mohan Garden, New Delhi, India

Corporate Office: 7/28, Room No. 208/209, Vardaan House, Mahavir Lane, Ansari Road, Daryaganj, New Delhi, India

Branch Office: 216, Flat-GC, Green Park, Narendrapur, Kolkata, India

Tel: 011-23256188, 011-45130562, 9971676330, 9582248909

Email: ndpublishers@gmail.com

Website: www.ndpublisher.in

Forward

The integration of Indigenous Knowledge Systems (IKS) with contemporary scientific methods presents a possible route towards sustainable development as we confront the global concerns of climate change, biodiversity loss, and food security. With its roots in sustainability, ecological balance, and a holistic outlook on life, the IKS and its connection to agriculture constitute a rich and old subject of study. An in-depth analysis of ancient techniques that have been honed and shown to be successful over ages is desperately needed. These methods give insights about resilient agricultural methods, biodiversity conservation, and resource management that are frequently disregarded in contemporary agriculture, making them both culturally and scientifically significant. Documenting Indigenous Technical Knowledge is also crucial for local communities to enhance agricultural practices and productivity.

Artificial Intelligence (AI) technology, on the other hand, is at the forefront of emerging technologies that can be used in a variety of fields and applications, including agriculture. From hand ploughs and horse-drawn machines, farming has undoubtedly advanced significantly. New technologies intended to increase productivity and maximise the yield are introduced with every season. However, both individual farmers and multinational agribusinesses frequently fail to take advantage of the benefits artificial intelligence in agriculture presents for their farming practices. AI could help address a number of issues and lessen the drawbacks of conventional farming. In agriculture, artificial intelligence can be used to monitor meteorological conditions, gather information on soil health, and suggest crop inputs like pesticides and fertilisers.

The convergence of IKS and AI can lead to innovative techniques for improvedagricultural management. By embedding the ethical frameworks and sustainable practices derived from IKS into AI algorithms, we will be able to increase AI-driven answers that arenot only technically sound but also culturally and environmentally touchy. Forinstance, traditional agricultural practices, which have been satisfactorily tuned over centuries, may be strengthened with AI to improve crop yields while maintaining soil fertility and biodiversity.

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