

# **BLOCKCHAIN EMPOWERED REVOLUTIONIZING AGRO BASED SUPPLY CHAIN MANAGEMENT**

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## **ABSTRACT**

Agriculture, a vital sector that provides livelihoods to 70% of rural India's population, faces supply chain challenges that cause huge losses up to 5.99% in cereals and a whopping 40% reduction in farmers' yields. The current supply chains often lack visibility, impacting only 6% of businesses. Inefficient processes and possible delays in completing orders can adversely affect customer satisfaction and lead to financial losses. Blockchain technology emerges as a powerful solution, allowing all stakeholders to smoothly access and verify the movement of goods along the supply chain. By increasing transparency and trust, blockchain improves inventory management, simplifies logistics, minimizes waste, and ultimately enhances productivity, resulting in significant cost savings. Furthermore, this innovative technology promotes cooperation among farmers, distributors, and consumers, building a resilient ecosystem that supports sustainable agriculture. Blockchain also enables data-driven decision-making, climate-resilient farming, and financial inclusion for smallholder farmers. By leveraging technologies like smart contracts, blockchain creates a secure and efficient platform for agricultural transactions, traceability, and certification. Blockchain also fosters social and environmental responsibility, empowering consumers to choose products that align with their values and preferences.

**INDEX TERMS:** Blockchain, Agriculture Supply chain management, Agro-based industries  
Traceability, Smart contracts, Food quality monitoring, Sustainability.

**GUIDE SIGNATURE**