



The Importance of Custom Hire Model to Improve Sugarcane Productivity

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ABSTRACT

Small farmers in India face substantial challenges in accessing mechanization due to high upfront investment costs, limited awareness of the benefits of machinery, inadequate service centers, and restricted access to credit. These difficulties are exacerbated by small landholdings, which make it financially unfeasible for many farmers to purchase their own equipment. The custom hire model has emerged as a viable solution to these issues, particularly in the context of sugarcane cultivation. This paper explores the implementation of mechanization in sugarcane farming through the involvement of local micro-entrepreneurs, aiming to enhance sugarcane yield, reduce cultivation costs, and simplify farming operations. Over the past decade, DCM Shriram has partnered with organizations such as the International Finance Corporation, Solidaridad Network and Pragmatix Research and Advisory Services to support over 325 local rural entrepreneurs. These initiatives have provided financial assistance, capacity building, and technological demonstrations, business plan, enhancing the sugarcane agronomy-based matrix modeling to equip these entrepreneurs with the necessary tools and knowledge to offer mechanized farming services to small farmers. The custom hire model involves local micro-entrepreneurs renting out farming equipment to small farmers, making mechanization accessible without the need for large capital investments. This model has proven effective in overcoming the financial and logistical barriers faced by small farmers. By leveraging the resources and expertise of partnering organizations, the model facilitates the dissemination of modern agricultural practices and machinery.

Keywords: Sugarcane, mechanization, machinery, ATSPs, capacity building.

INTRODUCTION

Agricultural mechanization in India is at 40%, significantly lower than in countries like China (59.5%), Brazil (75%), and the U.S. (95%). Sugarcane, a crucial crop for India's sugar industry, has traditionally relied on labor-intensive farming methods, resulting in lower productivity and higher labor costs (Bheemappa et al. 2003). With over 90% of farmers holding less than one hectare of land, timely agricultural operations are often compromised due to labor shortages. Recognizing the need for mechanization to address these issues, the Government of India launched the Sub Mission on Agricultural Mechanization (SMAM) in 2014-15, among other initiatives. In this context, the custom hire model by DCM Shriram aims to enhance mechanization penetration in sugarcane cultivation (Sharma, Badal et al. 2019); thereby increasing yield and reducing costs.

MATERIALS AND METHOD

The custom hire model was developed to promote scalable and sustainable mechanization among small farmers in the DCM Shriram catchment area. With the implementation partner Pragmatix, the model focuses on services such as deep ploughing, mechanized trench planting, ratoon management, and intercultural operations. This initiative ensures the availability of suitable equipment and financial support for farmers and micro-entrepreneurs, facilitating the acquisition of high-cost machinery and linkage with financial institutions for loans.

Key components of the model include:

1. Selection of suitable candidates through rigorous criteria by Pragmatix

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2. Continuous capacity building and business modeling
3. Financial support and literacy training
4. Linkage with financial institutions and leveraging government schemes
5. Demonstrations and Krishi Yantra Melas
6. Collaboration with service providers

Training programs and workshops are regularly organized to build the capacity of Agricultural Technical Service Providers (ATSPs) and enable them to offer comprehensive mechanization services.

RESULTS AND DISCUSSION

Case Studies

Case Study 1: Sh. Gurdev Singh, DCM Sugar

Gurdev Singh transitioned from a struggling farmer to a successful entrepreneur, significantly increasing his sugarcane yield from 305 quintals per hectare to 903 quintals per hectare over five years, with expectations to reach 1500 quintals per hectare in the 2022-23 season. His cultivated area expanded from 1.80 hectares to 4.00 hectares. The adoption of high-yielding varieties and mechanized planting methods played a crucial role in this transformation. His entrepreneurial venture in custom hiring agricultural machinery has also flourished, resulting in an annual income of approximately Rs 10 lakh.

Case Study 2: Sh. Adeshpal Singh, DCM Sugar

Adeshpal Singh saw his cultivated area grow from 1.27 hectares to 3.43 hectares, and his yield increased from 350 quintals per hectare to 1000 quintals per hectare over five years. The introduction of high-yielding varieties and advanced planting methods facilitated this growth. His custom hiring business generated an income of Rs 15.45 lakh per year, significantly improving his economic status (IFC-DCM et al. 2022).

Case Study 3: Sh. Naseem Khan, DCM Sugar

Naseem Khan's yield improved from 350 quintals per hectare to 1000 quintals per hectare over five years, with his cultivated area expanding from 2.27 hectares to 4.00 hectares. His custom hiring business generated Rs 7.23 lakh annually. The adoption of high-yielding

varieties and trench planting methods contributed to this success.

Case Study 4: Sh. Rajiv Singh, DCM Sugar

Rajiv Singh increased his cultivated area from 3.27 hectares to 8.25 hectares, with yields rising from 500 quintals per hectare to 1000 quintals per hectare over five years. His custom hiring business income reached Rs 18.5 lakh per year. His disciplined approach and quality service provision led to high demand for his machinery throughout the year.

The results of this approach have been promising, demonstrating significant improvement in sugarcane productivity and farmer income. The paper details how the increased adoption of mechanization through the custom hire model has led to enhanced sugarcane yields, reduced labor costs and more efficient farming operations. Additionally, the support mechanisms provided to local entrepreneurs have fostered a sustainable business environment that benefits the broader agricultural community. This paper highlights the potential of the custom hire model to address the mechanization challenges faced by small farmers, showcasing a scalable and sustainable approach to modernizing agriculture in India. The success of this model serves as an inspiration for adopting similar strategies in other regions and crops, aiming to improve economic outcomes for small farmers and contribute to the overall development of the agricultural sector. The findings underscore the importance of collaborative efforts between private companies, financial institutions, and non-governmental organizations in driving agricultural innovation and sustainability.

CONCLUSION

The implementation of mechanization in sugarcane cultivation through the custom hire model has significantly enhanced productivity, lowered costs, and promoted sustainability within the DCM Shriram catchment area. This model facilitates access to advanced farming equipment without significant capital investment, allowing small farmers to benefit from increased efficiency and effectiveness in their agricultural operations. Collaborations with partners and rural entrepreneurs have been crucial, offering targeted initiatives and support mechanisms that highlight the

model's potential for large-scale benefits (Chatterjee et al. 1992). The success of this approach not only demonstrates substantial improvements in yield and cost-efficiency but also underscores its sustainability by reducing the dependency on manual labor and promoting environmentally friendly farming practices. The model has proven to be an inspiring example of how modern agricultural practices can be adopted, resulting in better economic outcomes for small farmers. By developing economic empowerment and scalability, it presents a viable framework for broader adoption, contributing to the overall development and sustainability of rural communities.

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