

Custom Hiring Center - Empowering Agrifarming through Mechanisation

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SUMMARY

The Indian agriculture sector is gradually shifting towards mechanical power due to the increasing cost of animal upkeep and the scarcity of human labor. Mechanization is essential to meet the demands of the growing population and to enhance production and productivity on existing land. Custom hiring centers (CHCs) play a crucial role in this process, as they provide affordable hiring services for farm implements to farmers, especially small and marginal ones who might struggle to acquire the necessary equipment themselves. CHCs have the potential to bring about a significant positive change in the farming situation across the country by making mechanization more accessible and beneficial to farmers.

INTRODUCTION

In India, agriculture is the backbone of the economy, providing livelihoods to a significant portion of the population. However, a major challenge faced by the agricultural sector is the reliance on small and medium-sized farmers who constitute around 80% of the farming community. These farmers predominantly depend on agriculture for their sustenance, making it essential to optimize their productivity and output to ensure food security and economic stability. One of the pressing issues in the Indian agricultural landscape is the scarcity of a reliable workforce to perform various crucial agricultural operations. The traditional practice of using draft animals for farm work is declining, and there is a significant labor shortage as rural workers migrate to urban areas in search of non-agricultural employment opportunities. This shift has resulted in labor scarcity during peak times of demand, leading to an increase in labor wages, further burdening small and marginal farmers who are already struggling with limited resources. To address this challenge and boost agricultural productivity, there is an urgent need for farm mechanization. Mechanization involves using machines and implements to increase food production while reducing the physical toil associated with farming. Mechanical power also contributes to improved crop yields and timeliness in agricultural operations.

However, the small and marginal farmers in India face a financial constraint when it comes to investing in expensive agricultural machinery. As a result, they often have to rely on hiring machinery and implements to carry out essential farming tasks, from plowing to harvesting. The concept of Custom Hiring Centers (CHCs) has emerged as a solution to cater to the needs of these farmers. Custom Hiring Service Centers are units that provide agricultural machinery and tools to farmers on a rental basis at fair and affordable rates. This unit allows farmers to access modern technology and equipment that they would not otherwise be able to afford. By using machinery at its maximum capacity, farmers can increase their productivity, efficiency, and overall output. The availability of reasonable financing options is crucial for making agricultural equipment and machinery accessible to farmers at affordable prices. This would significantly contribute to the improvement of farm mechanization, empowering farmers to enhance their agricultural practices, reduce physical labor, and increase their income. The introduction of CHCs has the potential to revolutionize the agricultural landscape in India. Most of the farmers small and marginal farmers, there is a vast scope for CHCs to meet the demand for farm machinery across the country. These centers play a vital role in providing timely and precise farm operations, reducing physical labor, ensuring labor safety, minimizing crop loss, and increasing food grain productivity. Ultimately, this leads to better economic returns for the farmers, enhancing their overall livelihood and contributing to the growth and development of the agricultural sector in India.

Need of Custom Hiring Centres

The introduction of Custom Hiring Service Centers (CHSC) is a significant step to address the challenges faced by farmers in traditional agriculture methods. By offering a variety of farm machinery and implements for rent, these centers help reduce the cost of farming, increase efficiency, and improve crop yields. Small and marginal farmers, who cannot afford expensive machinery, can benefit from this service, leading to an

increase in their net income. The availability of crop-specific machinery for various farming operations, from sowing to harvesting, makes it a valuable resource for the farming community and has the potential to revolutionize agricultural mechanization in India.

Objectives of Custom Hiring Centres

- To provide small and marginal farmers with various farm implements, machinery, and equipment.
- To increase mechanization in areas where availability of farm power is low.
- To provide hiring services for various agricultural machinery/implements applied for different operations.
- To increase the use of machinery throughout agricultural seasons in large areas, particularly in small and marginal farms.
- To provide hiring services for various high value crop specific machines applied for different operations.
- Meet timeliness of operational needs through appropriate machinery

Farm Machinery Availability at Custom Hiring Centres

The Custom Hiring Centres aims to provide farmers with a unit consisting of a variety of farm machinery for custom hiring. By including commonly used machinery for tillage operations and multi-crop equipment, it can help farmers efficiently carry the agricultural operations across different crops. The identified implements for rice cultivation are essential for seed production and can be used on a custom hiring basis. Choosing the appropriate tillage implement based on factors like soil type, crop requirements and energy efficiency can indeed lead to better seedbed preparation and promote sustainable agriculture with improved crop yields. It provides all farm machinery /implements right from sowing to harvesting of crop. Operation wise implements/machines used in agriculture are as under:

Tillage : Optimum tillage is essential for maximizing crop yield while minimizing energy consumption during seedbed preparation. Farmers have a variety of implements for tillage operations like indigenous ploughs, cultivators, disc harrows, and rotavators, each serving specific purposes in the tillage process.

Tractor-drawn Rotavator: It is a versatile implement that performs both primary and secondary tillage. It breaks the soil into a fine tilth, mixes residues, and prepares an ideal seedbed, contributing to efficient seed germination and crop growth.

Precision Levelling: Precision levelling plays a crucial role in precision and conservation agriculture. Research has indicated that using laser-guided land levellers can achieve highly accurate levelling and grading, with a levelling index of less than 1 cm, ensuring better agricultural practices and optimal land utilization.

Sowing and Planting Equipments: The primary goal of sowing operations is to ensure proper placement of seeds and fertilizers in rows at the desired depth and spacing, followed by covering the seeds with soil and providing adequate compaction. For rice cultivation, there are several methods of sowing, including direct seeding (broadcasting or drilling in dry soil), sowing in wet soil, or transplanting seedlings. Each method has its advantages and is chosen based on factors like soil conditions, water availability, and local agricultural practices.

Weeding: Mechanical weeding is beneficial as it keeps the soil surface loose, improving aeration and soil moisture conservation. To control weeds effectively, three rounds of mechanical weeding are typically done at around 20 days, 35 days, and 50 days after planting. The process incorporates the weed into the soil, suppressing further weed growth. Manual weeding, though effective, is time-consuming and labor-intensive. To address this, NRRI, Cuttack has designed the finger weeder for both upland and lowland rice cultivation. Additionally, the star-cono-weeder is suitable for cutting, churning, and mulching weeds in wetland conditions. For efficient weed control, power weeders are also used.

Plant protection equipment: Timely application of herbicides, pesticides, and fungicides is crucial for crop protection and achieving better yields. The shortage of labor during peak periods can pose a challenge, making mechanized plant protection equipment essential.

Mechanical harvesting equipment: Mechanical harvesting equipment, such as reapers, is utilized for harvesting crops, particularly at ground level. A typical reaper includes components like a crop-row-divider, cutter bar assembly, and feeding and conveying devices. The use of mechanical harvesters offers several advantages, including the ability to harvest crops at the optimal stage of maturity, reducing manual labor and operational time. For paddy harvesting, there are various options available in the market. These include the self-propelled walk-behind type vertical conveyor reaper, power tiller operated vertical conveyor windrower, and tractor front or rear-mounted PTO operated reaper. These machines provide efficient solutions for mechanized paddy harvesting, easing the burden on farmers and improving overall harvesting productivity.

Straw baler: Straw baler is an agricultural machine designed to efficiently gather, compress, and bundle straw into compact bales. Farmers use it to streamline the process of handling and storing straw, making it more manageable for feeding livestock or as a raw material for various applications.

Advantages of CHSC's

- Provides access to small and marginal farmers to costly farm machinery.
- Facilitates timeliness in farm operations and efficient use of inputs.
- Promotes adoption of climate resilient practices and technologies by farmers because of availability of appropriate machines at reasonable hiring charges.
- Reduces drudgery.
- Promotes increase in cropping intensity wherever feasible.
- Facilitates crop residue recycling and prevents burning of residues
- Reduction in cost of cultivation.

CONCLUSION

Farm mechanization is essential in India, especially since a large portion of farmers still rely on agriculture for their livelihoods. With a significant scarcity of workforce and a decrease in the population of draft animals, adopting agricultural machinery can increase food production and reduce the burden on farmers. The introduction of mechanical power can enhance crop productivity, streamline agricultural operations, and alleviate the labor shortage issue. The CHC (Custom Hiring Center) initiative aims to address these challenges by promoting and supporting farm mechanization in the country."

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