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A Study on the Performance of Krishi Yantra Dhare Scheme (Custom Hire Service Centres) in Karnataka.

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Abstract

Indian agriculture is witnessing a gradual shift from reliance on human and animal power to mechanical power, largely due to the rising cost of maintaining draught animals and the scarcity of farm labour. Mechanization has proven to reduce drudgery, improve efficiency, and enhance crop productivity through timely operations. Against this backdrop, the Krishi Yantra Dhare Scheme (Custom Hire Service Centres, CHSCs) was introduced in Karnataka to provide affordable access to farm machinery for small and marginal farmers. This study was undertaken to evaluate the performance of the scheme and its impact on both farmers and CHSC operators. The research employed simple random sampling to collect data, which were analyzed using t-tests, regression analysis, percentile methods, and descriptive statistics. The results showed that farmers benefited significantly from the scheme through increased access to farm equipment, leading to higher productivity and improved farm incomes. Nevertheless, constraints such as inadequate availability of machinery, insufficient storage facilities, and limited farmer awareness hindered the scheme's full potential. The study recommends improved management of CHSCs through stronger coordination with Raitha Samparka Kendras (RSKs), infrastructure investment for safe machinery storage, and the procurement of equipment tailored to local needs. Additional measures, including farmer awareness programs, regulatory oversight by the Department of Agriculture, and establishing CHSCs at the Gram Panchayat level, can further enhance service delivery. Overall, the scheme demonstrates considerable promise in empowering farmers and fostering sustainable agricultural growth in Karnataka.

Keywords: *Farmer Producer Organisation, Chilli, Production, Market.*

Introduction

Agriculture continues to be the backbone of India's economy, providing livelihoods to more than half of its population and contributing significantly to the country's GDP. Despite its importance, the sector faces several structural challenges, including small and fragmented landholdings, low productivity, declining availability of agricultural labour, and limited access to modern technology. In India, over 85% of farmers are small and marginal, cultivating less than two hectares of land. This structural composition poses a serious constraint to farm mechanization, as the ownership of agricultural

machinery such as tractors, harvesters, and threshers often requires substantial capital investment, which is beyond the financial capacity of most smallholders. Consequently, the lack of mechanization leads to delayed farm operations, lower yields, and increased production costs.

In response to these challenges, the Government of Karnataka introduced the **Krishi Yantra Dhare Programme** in **2014–15** under the **Public–Private Partnership (PPP)** model. The initiative was conceived as a major policy intervention to promote **farm mechanization** and ensure **equitable access to modern agricultural machinery** among farmers, particularly those belonging to small and marginal categories. The programme's central objective is to enable farmers to hire advanced farm machinery and equipment at nominal rates through **Custom Hire Service Centres (CHSCs)** established across the state. These centres operate as franchisees managed by private entrepreneurs, NGOs, FPOs, or organizations registered with the Department of Agriculture. The financial support for the scheme was derived from the **Rashtriya Krishi Vikas Yojana (RKVY)**—a centrally sponsored scheme launched in 2007 for the holistic development of agriculture and allied sectors. Initially funded entirely by the Government of India, RKVY later adopted a 60:40 funding pattern between the Centre and States from 2015–16 onward. Through RKVY assistance, the Karnataka State Department of Agriculture facilitated the establishment of Custom Hire Service Centres, providing partial financial assistance for administrative setup and procurement of machinery based on district-level requirements. The programme sought to overcome the limitations observed in earlier mechanization efforts, such as those initiated under the **National Food Security Mission (NFSM)** in 2012–13, where Custom Hire Centres failed due to limited machinery availability, high overhead costs, and poor financial sustainability.

The **Krishi Yantra Dhare** model marked a strategic shift toward a more sustainable and participatory approach to mechanization. It emphasized **PPP engagement** to ensure operational efficiency, transparency, and scalability. Under the scheme, service providers were selected through an open **Expression of Interest (EoI)** process, and agreements were signed with the Director of Agriculture outlining specific obligations and operational norms. The service providers were given financial assistance of ₹1.5 lakh per centre to meet initial administrative expenses and were responsible for conducting need assessments, procuring approved machinery, and offering rental services to farmers at regulated rates. The programme aligns with broader national objectives of agricultural modernization and sustainability. By promoting mechanization, it addresses critical issues such as labour shortages, timeliness of operations, and cost reduction. Mechanized farming not only improves operational efficiency but also contributes to **resource conservation**, **reduction in drudgery**, and **enhanced crop productivity**. Furthermore, the availability of advanced machinery facilitates the adoption of improved agricultural practices, such as precision farming, in-situ moisture conservation, and efficient residue management—supporting the government's vision of **doubling farmers' income** and achieving **sustainable agricultural growth**.

Given the significance of this intervention, it becomes imperative to evaluate the **effectiveness, implementation process, and impact** of the Krishi Yantra Dhare Programme on the farming community. Understanding how the scheme has influenced farmers' access to mechanization, productivity levels, cost efficiency, and overall socio-economic well-being provides valuable insights into policy effectiveness and future improvements. This research paper, therefore, aims to explore the conceptual framework, operational dynamics, and outcomes of the Krishi Yantra Dhare Programme in Karnataka, with a focus on its contribution to enhancing agricultural efficiency and ensuring inclusive mechanization for small and marginal farmers.

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Material and Methods

The study was conducted in Gadag and Yadgir districts of northern Karnataka, India—regions well known for their diverse agricultural activities. Both districts feature a mix of red and black soils with irrigated and rainfed farming systems, where agriculture serves as the main source of livelihood. Most of the farmers in these districts are small and marginal, owning less than five acres of land. Increasing labour scarcity and rising cultivation costs have been forcing farmers to adopt farm mechanization instead of traditional farming methods. Major crops in Gadag include maize, green gram, Bengal gram, cotton, chilli, and onion, while Yadgir primarily produces red gram, paddy, pearl millet, cotton, groundnut, and chilli. These crops require extensive mechanized operations such as tillage, weeding, spraying, and harvesting—often facilitated through Custom Hire Service Centres (CHSCs) under the Krishi Yantra Dhare Scheme. With this background, Gadag and Yadgir districts were purposively selected for the present study to assess the impact and effectiveness of the government's farm mechanization initiative.

Research Design

The present study employed a descriptive and analytical research design to evaluate the performance and effectiveness of the Krishi Yantra Dhare Programme, particularly the functioning of Custom Hire Service Centres (CHSCs) in the Yadgir and Gadag districts of Karnataka. The aim was to understand the performance of the services provided by different Krishi Yantra Dhare Programme service providers, and the perceptions of both farmers and officials regarding the efficiency of CHSCs.

a. Sampling Design

A simple random sampling method was adopted to ensure unbiased representation of respondents from the study area. The sample size consisted of 120 beneficiary farmers availing CHSC services, 04 Custom Hire Service Centres, 05 Agriculture Officers (AOs/AAOs) officers involved in scheme implementation. The sample points were selected from both Yadgir and Gadag districts, where the Krishi Yantra Dhare scheme is actively functioning.

b. Sources of Data

The study was based on both primary and secondary data sources to ensure comprehensive and accurate analysis.

Primary data were collected through Focus Group Discussions (FGDs) with beneficiary farmers, as well as structured interviews with Agriculture Officers (AOs/AAOs) and CHSC Managers. Three main data collection tools were used, a well-prepared interview schedule for officers, a discussion schedule for CHSC managers, and a structured questionnaire for farmers. The primary data included socio-economic characteristics of respondents, operational details of CHSCs, machinery utilization patterns, cost of cultivation, labour availability, and perceptions about the scheme's benefits.

Secondary data were gathered from multiple sources, including Reports and publications of the Karnataka Evaluation Authority (KEA), official records from the Department of Agriculture, Government of Karnataka, Rashtriya Krishi Vikas Yojana (RKVY) documents, Government statistical data, journals, research articles, thesis papers, and newspaper articles related to farm mechanization and CHSCs. In addition, consultations were held with the Director of the Karnataka Evaluation Authority to obtain relevant insights and published evaluation findings.

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c. Analytical Tools and Techniques

The data collected from the study were analyzed using various statistical tools and techniques such as descriptive statistics, t-test and linear regression to meet the specific objectives of the research:

Results

Table 1: Characteristics of different Custom Hiring Service Centres (CHSCs)

Sl. No.	Characteristic feature	CHSC - I	CHSC - II	CHSC - III	CHSC - IV
1	Area	Kodekal	Mulagund	Laxmeshwar	Betageri
2	Ownership	PPP	PPP	PPP	PPP
3	Service provider	Varsha Ass.	John Deer	SKDRDP	SKDRDP
4	Year of Est.	2016	2016	2014	2014
5	Funding	Subsidized by Govt.	Subsidized by Govt.	Subsidized by Govt.	Subsidized by Govt.

The number of villages and beneficiaries covered by custom hire service centres have been presented in the above table 1. CHSC III - Krishi Yantra Dhare Laxmeshwar has covered a greater number of villages (30) as well as beneficiaries (7000) among the four CHSC units, and at the same time, CHSC I - Krishi Yantra Dhare Kodekal has covered the least number of beneficiaries among the four units.

Table 2. Socio-Economic features of Farmers

Sl. No.	Particulars	Total	Krishi Yantra Dhare (CHSCs)			
			Kodekal	Mulagund	Laxmeshwar	Betageri
1	Sample (Number)	120	30	30	30	30
2	Average age of farmers (Years)	40	42	39	38	40
3	Average family size (Number)	4.75	4	5	5	5
4	Average land holding (Acres)	4	3.4	3.7	4.8	3.9
5	Education level (Percent)					
	Illiterate: Primary: Higher Secondary: College:		22 43 25 10	20 34 32 14	17 39 31 13	15 36 28 21

Table 2 provides details on the sample respondents' basic socioeconomic characteristics, including age, family size, and educational attainment. Thirty farmers from each CHSC, Kodekal in Yadgir district, Mulagund, Laxmeshwar, and Betageri in Gadag district, each of which is located in the northern region of Karnataka, provided the original data. Thus, 120 farmers from 4 CHSC units made up the entire sample. While the average family size is 4.3 members with a variance of 0.8, and the majority of the

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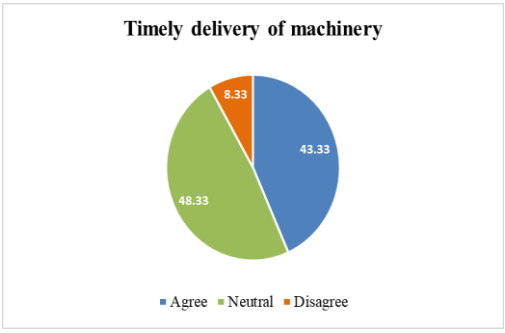
farmers' education level is from all four units at the primary level, the average land holding by all four-unit farmers is 4 acres, with a variance of 2.6 acres, ensuring that most of them are small farmers.

The impact of custom hire service centers has been analyzed from different perspectives of farm operations and farmer demand. It is categorized into three parts: utilization of farm machinery, farm production and income of farmers.

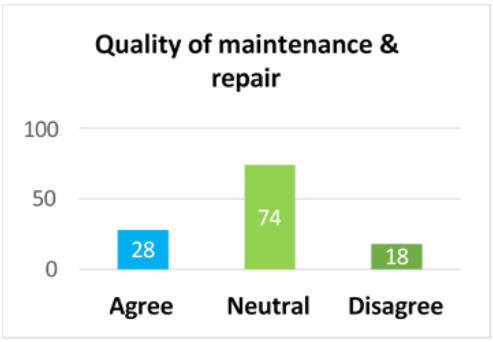
1. Utilization of farm machinery: The utilization of farm machinery by farmers has been analysed in different variables: availability, timely delivery, quality of maintenance and repair and accessibility & affordability.

Availability of farm machinery at CHSC: The farm machinery which is needed is readily available at the nearby custom hire service centre. A majority (113 of 120 that is 94.17%) of farmers agree with the statement that there is availability of all types of farm machinery at the nearby custom hiring centres, while 7 of 120 (that is 5.83% farmers) are neutral with this statement, saying sometimes it is available and sometimes not available in the CHSC unit.

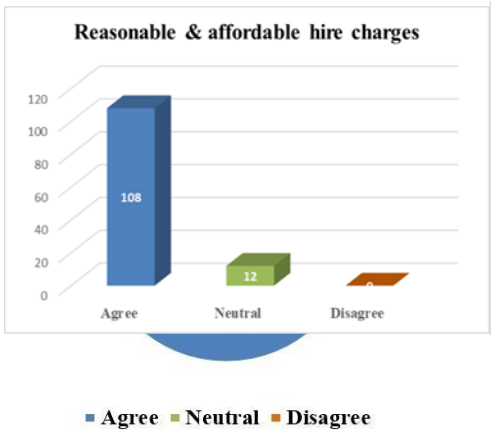
Timely delivery of machinery: The custom hire service centre ensures timely delivery of the machinery when needed. A majority (58 of 120 that is 48.33%) of farmers are neutral with the statement, saying sometimes they deliver machinery on time and sometimes they will not, while 52 of 120 (that is 43.33%) farmers agree with this statement that they deliver machinery when it is needed. At the same time, 10 of 120 (i.e., 8.33%) farmers disagree with this statement and say that CHSC will not deliver machinery on time.



Quality of maintenance & repair: The quality of maintenance and repair support offered by the CHSC is satisfactory. A majority (74 of 120 that is 61.67%) of farmers are neutral with their opinion about the statement, while 28 of 120 (that is 23.33%) farmers agree with this statement that they are satisfied with the quality of maintenance and repair support offered by the CHSC. At the same time, 18 of 120 (i.e., 15%) farmers disagree with this statement and say that they are not satisfied with the quality of maintenance and repair support offered by the centre.



Reasonable & affordable hire charges: The hire charges for the machinery at the custom hire service centre are reasonable and affordable. A majority (108 of 120 that is 90%) of farmers agree with the statement that there are reasonable and affordable hire charges for the farm machinery at custom hiring centres, while 12 of 120 (that is 10%) of farmers are neutral with their opinion about this statement.



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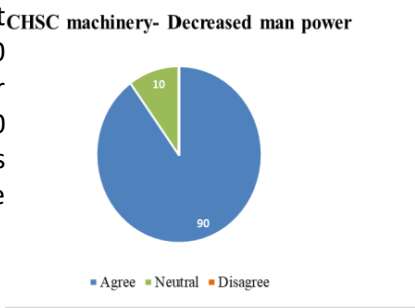
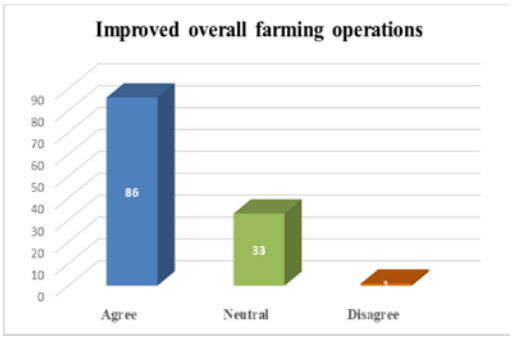
CHSC machinery - decrease in man power: The labour requirement comes down by using CHSC machinery. The majority (108 of 120 that is 90%) of farmers agree with the statement that the labour requirement comes down by using CHSC machinery, while 12 of 120 (that is 10%) of farmers are neutral with their opinion about this statement, and sometimes still depend on human labour for some farm practices.



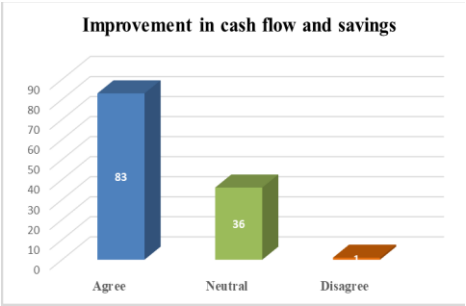
2. Productivity

Improved overall profitability of farming operations: The cost savings through the scheme have improved the overall profitability of farming operations. A majority (86 of 120 that is 71.67%) of farmers agree with the statement that overall farming operations are improved by adapting the scheme, while 33 of 120 (that is 27.5%) of farmers are neutral with this statement that they observed some improvement by this scheme. At the same time, 1 of 120 (i.e., 0.83%) of farmers disagrees with this statement, saying that there is no improvement in farming by this scheme.



3. Income of farmer

Improvement in cash flow and savings: There is a noticeable improvement in cash flow and savings due to the scheme's benefits. The cost savings through the scheme have improved the overall profitability of farming operations. A majority (83 of 120 that is 69.17%) of farmers agree with the statement that there has been improvement in cash flow and savings due to the scheme's benefits and overall farming operations by adapting the scheme, while 36 of 120 (that is 30%) of farmers are neutral with their opinion about the statement. At the same time, 1 of 120 (i.e., 0.83%) of farmers disagree with this statement and says that there is no improvement in cash flow by this scheme.



Increase in income: The increase in income from the scheme has enhanced the ability to meet the family's financial needs. A majority (81 of 120 that is 67.5%) of farmers agree with the statement that the increase in income from the scheme has enhanced the ability to meet their family's financial needs, while 39 of 120 (that is 32.5%) of farmers are neutral in their opinion about this statement.

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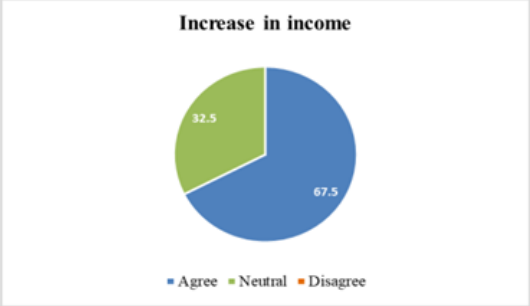
4. Expenditure on machinery for farming practices

In all the four units, prior to the scheme's adaptation, the average annual spent on machinery for 1 acre of land was Rs. 9240/- with a variance of Rs.1230/-. After the scheme adaptation, it was Rs. 6980/- with a variance of Rs. 910/-. By using the t-Test (Paired Two-Sample), both values are also compared in another method. In this case, the computed t-value (t stat) is 32.25 and the table t-value (t critical Two-Tail) is 1.98. It demonstrates a considerable difference in the amount farmers spent on machinery before and after implementing the scheme.



5. Estimation of demand for machine labour with respect to custom hiring

The linear regression model explains the relationship between the total hours of usage of custom hiring service per acre per year and the cost per hour of custom hiring service. The model had a significant R square of 0.88, reflecting that 88 per cent of the demand for custom hiring services is contributed by its cost per unit hour. The demand equation for custom hiring services obtained was Y= 19.28-0.018X

The regression coefficient for the variable cost per hour of machine labour was found to be -0.018 (significant at 1 %) indicating "A rupee increase in cost per hour of machine labour will reduce the demand for machine labour by 0.018 hours per year". If the machine labour services are provided free of cost, farmers would use more hours of machine labour per year.

Table 3: Estimation of demand equation for custom hiring services in study area

Sl. No.	Particulars	Co-efficient	t - stat
1	Dependent variable	Total hours of usage of machineries per acre per year	
2	Intercept	19.28**	27.09
3	Cost per hour	-0.018**	-16.85
4	R Square		0.88
5	Adjusted R Square		0.87

** Significant at 1 percent

6. Custom hiring charges by CHSC and local farmers

The comparison of the hiring fees charged by the CHSC and local farms, is presented in Table 4. The hiring fees charged by the CHSC and local farmers are distinct from one another. Additionally, it is examined using the t-Test (two-sample assumption of equal variance), where the computed t-value (t stat) is -1.44 and the table t-value (t critical two-tail) is 2.06, respectively. This demonstrates the large disparity between the hire rates charged by CHSC and nearby farmers. We learn from comparative analysis that there is a difference between ₹50 and ₹200.

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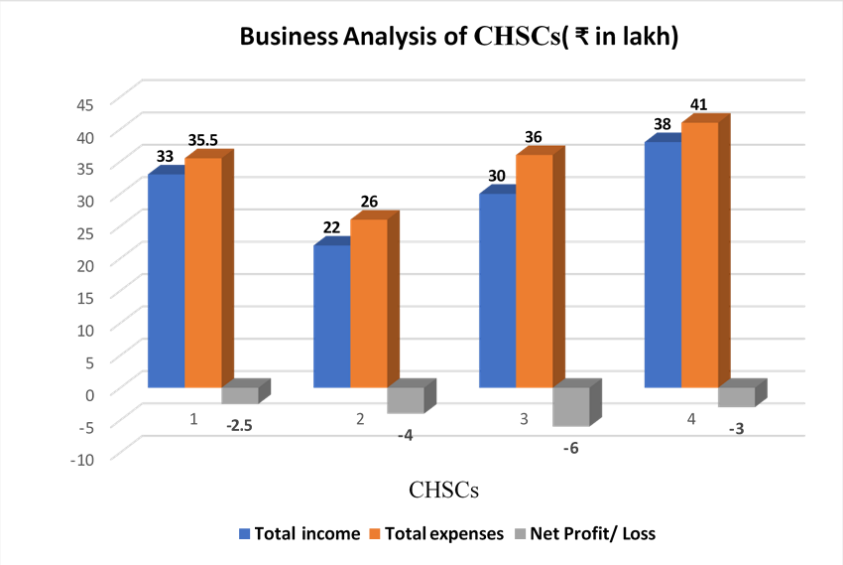
Table 4: Custom hiring charges by CHSCs and local farmers

Sl. No.	Implements	Hiring price per hour (By CHSC) ₹	Hiring price per hour (By local farmers) ₹
1	Cultivator	650	750
2	MB Plough	600	700
3	Plough (5 tyne)	700	750
4	Disc plough	650	700
5	Rotovator (42 blade)	1000	1100
6	Rotovator (36 blade)	850	NA
7	Seed drill	700	800
8	Leveller blade	650	700
9	Bund former	500	600
10	Combine harvester	1500	2000

7. Business analysis:

The graphical representation illustrates the business analyses of all four custom hire service centres. Given the financial performance of these four CHSC units over the past two years, it can be seen that none of the units has been profitable since they were founded. CHSC III, Krishi Yantra Dhare Laxmeshwar, has experienced the greatest loss of these four units, while CHSC I, Krishi Yantra Dhare Kodekal, has experienced the least loss of all of them.



Based on the results major suggestion were as below

- Integrate CHSC operations with Raitha Samparka Kendras (RSKs) for improved coordination and storage facilities.
- Services on farm machinery may be provided to address the issue of labour shortage to ensure timely operations of agricultural production.
- Expand awareness campaigns through demonstrations, posters, and SHG involvement to increase utilization.
- Conduct regular inspections and performance reviews by the Department of Agriculture.
- Establish CHSCs in every Gram Panchayat to improve accessibility.
- Farmer-friendly app can be launched to improve service delivery and information sharing and increase service efficacy.

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Conclusion

The Krishi Yantra Dhare Programme has proven instrumental in advancing farm mechanization and empowering small and marginal farmers in Karnataka. The scheme's impact is evident in reduced machinery costs, enhanced operational efficiency, and improved farmer income. However, challenges persist in terms of machinery availability, maintenance, and financial sustainability of CHSCs. Strengthening monitoring mechanisms, expanding outreach, and leveraging digital tools can further enhance the programme's effectiveness. Overall, the initiative represents a transformative step toward inclusive and sustainable mechanization in Indian agriculture.

References

Karnataka Evaluation Authority (KEA). Government of Karnataka. (2020). Evaluation of Krishi Yantra Dhare (Farm Machinery Custom Hire Service Centres) Scheme in Karnataka State.

Gali Basavaraj, Madhusudan Bhattarai, H.M. Swamy and M.A. Lagesh, 2022, An empirical analysis of custom hire centres in Karnataka, Indian Journal of Economics and Development (Journal of the Society of Economics and Development) pp. 851-859.

P Bharathi, M Anjugam, and D Suresh Kumar, 2022, Impact of Custom Hiring Centres on farm profitability: Some evidences from Tamil Nadu, Agricultural Economics Research Review.

C. R. Mehta, N. S. Chandel, T. Senthilkumar, K. Singh, 2014, Trends of Agricultural Mechanization in India, CSAM Policy Brief, June.

Dr. Rajesh Kumar Sahu, 2019, Study on status & effectiveness of custom hiring centres (Krishi Yantra Sewa Kendras) in Chhattisgarh, International Journal of Chemical Studies.

Krishi Yantra Dhare - Custom Hire Service Centres' Guidelines and Template for Success Story under RKVY.

Yantradhara – Custom Hire Service Centres' Shri Kshetra Dharmasthala Rural Development Project (SKDRDP).

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ISBN code 978-93-83302-82-6