

ASSESSING ASSOCIATION AND CHALLENGES FACED BY FARMERS IN ACCESSING RYTHU BHAROSA KENDRA SERVICES

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ABSTRACT

The study aims to identify and prioritize the key constraints perceived by farmers in accessing services from Rythu Bharosa Kendras (RBKs) i.e. (Farmer assurance centres) in four mandals of Visakhapatnam district, Andhra Pradesh. A total of 120 farmers were selected through multi stage random sampling across 12 RBKs. Multiple linear regression analysis indicated that the independent variables studied accounted for 57.80% of the variation in farmers' awareness levels of RBK services. Among these, mass media utilization and achievement motivation emerged as significant predictors. For constraints, Data was collected using preferential ranking and analyzed through Garrett ranking and Kendall's coefficient of concordance. Results revealed that the most severe constraints included limited input provision with mean score of 73.90, restricted market access for certain crops (71.43), and lack of access to organic inputs (68.44). Kendall's W value of 0.58 indicated moderate agreement among farmers. The findings emphasize the need to enhance equitable input distribution, improve market linkages, and upgrade operational infrastructure for better service delivery through RBKs.

Keywords: regression analysis, constraints, garet ranking, rythu bharosa kendras, services

INTRODUCTION

Andhra Pradesh was one of the most prominent agricultural states and considered as rice bowl of India. The agriculture sector recorded a growth rate of 20.72%, while the horticulture sector experienced a 12.58% increase. Similarly, the livestock and fisheries sectors reported growth rates of 7.32% and 19.41%, respectively (Sarada *et al.*, 2023) Farming in Andhra Pradesh has long been a challenging journey right from preparing the land and cultivating crops to harvesting, storing and marketing the produce. Despite their relentless efforts, many farmers struggle to secure fair prices due to a range of persistent issues such as high input costs, delayed access to essential resources, lack of financial support, market inefficiencies, and the influence of intermediaries (Naidu *et al.*, 2021). These hurdles not only impact their livelihoods but also reduce the overall efficiency of the agricultural value chain. To address these gaps and empower farmers at the grassroots level, the Andhra Pradesh government introduced Rythu Bharosa Kendras (RBKs), which literally translates to "farmer facilitation or assurance centers" in Telugu, on May 30, 2020. These centres serve as one-stop hubs for all agricultural and allied sector services, offering farmers access to quality inputs such as seeds, fertilizers, pesticides, livestock feed, and veterinary medicines. RBKs are a collaborative effort jointly monitored by departments like Agriculture,

Horticulture, AP Seeds, Fisheries, Animal Husbandry, and Sericulture. With support from esteemed knowledge partners such as the Dr. M.S. Swaminathan Research Foundation, National Seed Research and Training Centre, and others, the initiative aims to bring expert-backed services to the doorstep of farmers (Anonymous, 2020).

The RBKs are digitally enabled with kiosks and mobile applications, ensuring that ordered products are delivered directly to the farmers typically within 48 hours at market prices, thereby reducing the dependence on middlemen and curbing the circulation of counterfeit products (Reddy *et al.*, 2023). Farm inputs encompass essential resources such as seeds, fertilizers, plant protection chemicals, credit facilities, crop insurance, and farm machinery (Karravula *et al.*, 2023). In addition to input distribution, RBKs offer a range of value-added services, including weather forecasting, market price updates, and real-time agricultural advisories. A dedicated integrated call center has also been established to provide immediate solutions to farmers' concerns (Yekula *et al.*, 2024). Furthermore, the state government initiated the sale of certified agricultural inputs to farmers through these centres as part of an ambitious effort (Karravula, *et al.*, 2022).

However, the success of RBKs largely hinges on the awareness and understanding among farmers about

the services they offer. Assessing the level of awareness is essential to ensure that the intended benefits of RBKs are fully realized on the ground (Saifuddin *et al.*, 2024). However, despite its innovative design, the system faces notable constraints. Farmers report challenges related to production, marketing, and financing. On the other hand, RBK staff face their own set of difficulties including administrative delays, app-related issues, limited manpower during peak seasons, and inadequate digital infrastructure (Ratnam *et al.*, 2024). Hence, there is an urgent need to assess the magnitude of various constraints affecting agriculture and allied sectors (Karravula *et al.*, 2022). This study attempts to explore and interpret the key constraints experienced by the farmers within the RBK ecosystem, aiming to offer insights for operational improvement.

OBJECTIVES

- (1) To analyze the relative contribution of individual farmer profile variables (e.g., age, education, landholding) to awareness levels using regression analysis
- (2) To identify and prioritize the constraints perceived by farmers in availing the services provided by RBKs
- (3) To categorize the constraints thematically and compare severity across groups
- (4) To analyze the level of agreement among farmers regarding the prioritization of constraints

METHODOLOGY

The present study was conducted in four mandals of Visakhapatnam district, Andhra Pradesh, India, during the latter part of 2023. From each mandal, three centres (RBKs)

were randomly selected, with a total of twelve RBKs. Subsequently, ten farmers were randomly chosen from each RBK, resulting in a sample size of 120 respondents. Data were collected through prepared interview schedule to identify the awareness level and preferential ranking to identify the key challenges faced by farmers in accessing RBK services.

Analysis tools

- (1) Multiple Linear Regression (MLR) was applied to determine the combined and individual effects of 13 selected independent variables on the overall Awareness.
- (2) Garrett ranking: This technique was employed to identify the major constraints faced by the respondents. This method offers the advantage of ranking constraints according to their perceived severity from the respondents’ perspective.
- (3) Kendall’s coefficient of concordance: This is a non-parametric statistical technique used to measure the degree of agreement among respondents when ranking a set of items.

RESULTS AND DISCUSSION

Multiple linear regression from Table.1 revealed that all the 13 variables taken for study have contributed to 57.80 per cent variation towards awareness level and the remaining was due to the extraneous effect occurred in the study. The variables like mass media utilization and achievement motivation contributed significantly to predict the variation in awareness level of farmers on RBK services. (Reddy *et al.*,2024) reported that farming experience and major occupation of the farmers have significant impact on their perception over fertilizer services offered at Rythu Bharosa Kendras. Similar findings found in (Saifuddin *et al.*, 2024), (Reddy *et al.*, 2022).

Table 1: Multiple linear regression analysis of profile of farmers with their level of awareness on RBK services

(n =120)

Sr. No.	Profile	Regression coefficient ‘b’ values	p-values
X ₁	Age	-0.161	0.149
X ₂	Level of Education	0.027	0.801
X ₃	Land holding	0.118	0.385
X ₄	Annual Income	-0.038	0.777
X ₅	Farming experience	0.066	0.504
X ₆	Frequency of visit	0.104	0.191
X ₇	Mass media exposure	0.534	0.000**
X ₈	Social participation	0.165	0.104
X ₉	Achievement motivation	0.200	0.010**
X ₁₀	Innovativeness	0.026	0.788
X ₁₁	Scientific orientation	-0.073	0.311
X ₁₂	Risk orientation	-0.040	0.586
X ₁₃	Extension agency contact	0.065	0.371
		R ² = 0.578	

** Significant at 1% level

Analysis of constraints faced by farmers in availing RBK services

The information presented from Table.2 clearly illustrates the severity of constraints based on Garrett mean scores. Darker shades of red indicate more critical issues and highlight which constraints are more severe from the

heatmap. It's clear that the primary constraint found to be limited provision of inputs to certain farmers and the restricted availability of markets for specific crop varieties, which scored 73.90 and 71.43 and ranked 1 & 2 on the Garrett scale respectively. Following closely are obstacles related to the accessibility of organic inputs and the effectiveness of RBK WhatsApp groups, scoring 68.44 and 64.23 respectively.

Table 2: Heatmap of Garrett scores for constraints faced by farmers in availing RBK services (n=120)

Sr. No	Constraint	Garrett Mean Score	Rank
1	Provision of inputs exclusively to a limited number of farmers.	73.90	I
2	Offering markets exclusively for a select few crop varieties.	71.43	II
3	Lack of access to organic inputs.	68.44	III
4	The RBK WhatsApp groups have not been established effectively and contain unreliable information.	64.23	IV
5	Issues related to infrastructure.	62.94	V
6	The necessary quantity of inputs is not accessible.	61.69	VI
7	The absence of information regarding product usage.	56.48	VII
8	The digital kiosk for ordering agricultural inputs is not operational.	52.98	VIII
9	Reduced subsidies for agricultural machinery and equipment.	51.49	IX
10	Insufficient timely training, method demonstrations, and Polambadi sessions.	49.54	X
11	The unavailability of information specific to particular crops.	47.72	XI
12	Elevated costs of agricultural inputs.	47.45	XII
13	Seed distribution being delayed.	44.61	XIII
14	Inadequate knowledge and skills related to online marketing, marketing information, and weather information.	43.31	XIV
15	Insufficient training in enhancing job performance skills among RBK staff.	42.87	XV
16	Issues pertaining to soil and seed testing.	39.11	XVI
17	Obtaining timely information from RBK staff is challenging.	37.97	XVII
18	Extension personnel irregularly visit farmers' fields.	31.22	XVIII
19	The YSR Rythu Bharosa distribution is delayed.	27.56	XIX
20	RBKs are situated at a significant distance from the village.	26.03	XX

The results also highlight significant challenges, such as issues related to infrastructure, challenges in obtaining sufficient quantities of inputs, and the lack of information on product usage, with mean scores of 62.94, 61.69, and 56.48, respectively. Furthermore, operational difficulties, including the functionality of digital kiosks for input ordering and reduced subsidies for machinery, are notable concerns, scoring mean scores of 52.98 and 51.49, respectively.

Additionally, deficiencies in training and demonstrations, insufficient information about alternative crops, high input costs, and delayed seed distribution were identified with mean scores of 49.54, 47.72, 47.45, and 44.61,

respectively. Challenges such as the absence of marketing and weather information, inadequate training for RBK staff, as well as issues related to soil and seed testing, delayed information, and irregular visits by extension personnel, further exacerbate the difficulties faced by farmers, with mean scores of 43.31, 42.87, 39.11, 37.97, and 31.22, respectively.

Furthermore, the delay in YSR Rythu Bharosa distribution and their location from villages highlight the necessity for improved efficiency and accessibility in the agricultural support system. Similar findings were noted by Anuhya *et al.*, (2022), Haritha *et al.*, (2023) and Reddy *et al.*, (2023).

Table 3: Group-wise Garrett ranking

(n=120)

Sr. No.	Constraints	Rank
(I)	Access to inputs and resources	
	Provision of inputs exclusively to a limited number of farmers	I
	Lack of access to organic inputs.	II
	The necessary quantity of inputs is not accessible.	III
	Elevated costs of agricultural inputs.	IV
	Seed distribution being delayed.	V
	Issues pertaining to soil and seed testing.	VI
	Average Garrett score of group = 55.86	
(II)	Information and communication challenges	
	The RBK WhatsApp groups have not been established effectively and contain unreliable information.	I
	The absence of information regarding product usage.	II
	The unavailability of information specific to particular crops.	III
	Inadequate knowledge and skills related to online marketing, marketing information, and weather information.	IV
	Obtaining timely information from RBK staff is challenging.	V
	Average Garrett score of group = 49.94	
(III)	Infrastructure and operational issues	
	Issues related to infrastructure.	I
	The digital kiosk for ordering agricultural inputs is not operational.	II
	RBKs are situated at a some distance from the village.	III
	Average Garrett score of group = 47.30	
(IV)	Training and skill development constraints	
	Insufficient timely training, method demonstrations, and Polambadi sessions.	I
	Insufficient training in enhancing job performance skills among RBK staff.	II
	Extension personnel irregularly visit farmers' fields.	III
	Average Garrett score of group = 41.21	
(V)	Market access and economic support	
	Offering markets exclusively for a select few crop varieties.	I
	Reduced subsidies for agricultural machinery and equipment.	II
	The YSR Rythu Bharosa distribution is delayed.	III
	Average Garrett score of group = 50.16	

Each of the 20 constraints are assigned to 5 thematic subgroups like Access to Inputs and Resources, Information and Communication Challenges, Infrastructure and Operational Issues, Training and Skill Development Constraints, Market Access and Economic Support as represented in Table 3. Constraints were ranked within each group using Garrett mean scores. Each group's mean Garrett scores were computed and then added together. The top constraint in the first group was the "Provision of inputs exclusively to a limited number of farmers" (Rank I), indicating unequal distribution of resources. The most critical issue in the second group was "The RBK WhatsApp

groups have not been established effectively (Rank I). The primary concern in the third group was "Issues related to infrastructure", showing significant challenges in physical and operational setups. The top constraint in the fourth group was "Insufficient timely training, method demonstrations, and Polambadi sessions" pointing to gaps in necessary skill development for farmers. The most pressing issue in the last group was "Offering markets exclusively for a select few crop varieties" (Rank I), indicating limited market access for diverse crops. A bar chart was created based on the total scores of each group.

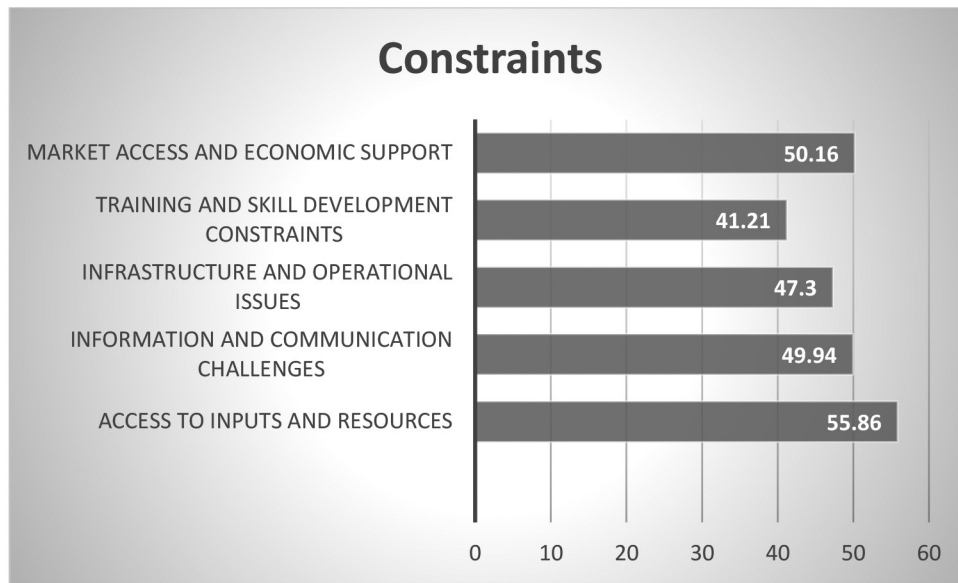


Fig 1: Bar chart showing average Garrett score by constraint subgroup

Data from the bar chart reveals that access to inputs and resources appeared to be the most problematic subgroup, followed by market access and economic support, with average mean scores of 55.86 and 50.16, respectively. In contrast, constraints related to training and skill development were perceived as the least problematic, indicating that farmers were relatively well exposed to training activities and considered this area less of a constraint compared to other subgroups.

Table 4: Kendall’s coefficient of concordance

Kendall’s W value	0.580
Chi-Square value	1312.404
df (n-1)	19
p-value	0.000

The results from Kendall’s coefficient of concordance, based on the rankings of 120 farmers, show a W value of 0.580 (as seen in Table 4). This indicates a moderate level of agreement among the respondents regarding the ranking of the constraints. The associated Chi-Square value is 1312.40 with 19 degrees of freedom and p-value of 0.000 shows that the results were highly significant at 1% level. These results concludes that the agreement among the farmers on the rankings is not due to chance and there is statistically significant concordance in how farmers perceive and rank the constraints on the RBK services.

CONCLUSION

Multiple linear regression analysis revealed that the independent variables studied explained 57.80% of the variation in farmers’ awareness levels regarding RBK services, with mass media utilization and achievement

motivation showing significant influence. While RBKs are instrumental in enhancing agricultural service delivery, their effectiveness is constrained by systemic issues such as unequal access to inputs, inadequate marketing options and poor infrastructure. A moderate yet statistically significant consensus among farmers (Kendall’s W = 0.580) reflects a shared recognition of these challenges. To strengthen the RBK framework and ensure equitable support for the farming community, targeted improvements in input access, infrastructure, and digital outreach are essential. These findings provide valuable insights for policymakers to refine and expand RBK operations toward long-term agricultural sustainability.

POLICY IMPLICATIONS

- The State Department of Agriculture should conduct more awareness campaigns to inform farmers about the full range of services available at these one-stop centres.
- Regular training sessions should be organized to RBK staff to ensure they remain updated with the latest agricultural developments and practices.
- Collaboration between government agencies, non-governmental organizations and private sector players is essential. Such partnerships can facilitate the development and dissemination of advanced agricultural technologies and services, making them more accessible and user-friendly for farmers.

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CONFLICT OF INTEREST

No conflict of interest among researchers

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