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Identification of Various Constraints Faced by Farmers in Adopting Government Schemes in the State of Rajasthan, India

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Authors' contributions

This work was carried out in collaboration between both authors. Authors Nikita, RS did the Conceptualization and designing of the research work. Author Nikita executed the field/lab experiments and collected the data. Authors Nikita, RS did data analysis and interpretation. Authors Nikita, RS prepared the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

Government schemes in agriculture are essential for fostering sectoral development, providing financial support, and implementing strategic initiatives to enhance the overall well-being and productivity of farmers. The current research was conducted during the fiscal year 2021-22, involving the collection of data from a sample of 480 farmers in the state of Rajasthan. The purpose of the study was to identify various constraints faced by farmers in adopting government schemes

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in the state of Rajasthan. Study was carried out in Ajmer, Alwar, Jodhpur and Udaipur districts of Rajasthan by collecting primary data through pre-tested well-structured questionnaire. Employing the Garrett ranking technique, the research identifies notable technical constraints, including low landholding (especially in the Udaipur region), lack of awareness about government schemes, and communication gaps between farmers and extension workers. Economic hurdles encompass delayed claims under schemes (PMFBY, PMKSY), insufficient financial support, and high initial investments (PMKSY). Marketing challenges are underscored by the prevalence of numerous middlemen (PMFBY). The primary administrative barrier to farmers adopting government schemes is the untimely availability of agricultural supervisors. This study provides valuable insights into the impediments affecting the successful implementation of farmer-centric initiatives in the region. The study revealed that the adoption level of government schemes can be increased by conducting regular trainings in rural areas, focusing more on method demonstration of new technologies etc.

Keywords: Constraints; government schemes; farmers; Rajasthan.

1. INTRODUCTION

Agriculture constitutes the foundational axis of a nation's economic framework, serving as the primary livelihood source for approximately 58 percent of India's populace. Despite the challenges instigated by the COVID-19 pandemic, the agricultural sector in India has exhibited robust growth, contributing 18.8 percent to the Gross Value Added (GVA) during the 2021-22 fiscal year. This resilience is underscored by a growth rate of 3.9 percent in the financial year 2021-22 and 3.6 percent in 2020-21, as reported in the Economic Survey (2021-22).

Over the years, the national-level average annual income per farm household has witnessed a substantial ascent, escalating from Rs 25,380 in 2002-03 to Rs 1,22,616 in 2018-19. However, the pace of income growth decelerated between 2012-13 and 2018-19 compared to the preceding decade, emphasizing the imperative for strategic interventions, as indicated by the Situational Assessment Survey, NSSO Report (2018-19).

Amidst the challenges of diminishing land and depleting water resources, the contemporary imperative revolves around augmenting biological yields without compromising ecological sustainability [1,2]. Rather than viewing agricultural advancements as societal demands, it is paramount to recognize them as indispensable methodologies for sustaining farmers' welfare and incomes [3].

Acknowledging the significance of agriculture and comprehending the challenges it confronts, Prime Minister Shri Narendra Modi has set the ambitious goal of doubling farmers' income by 2022-23. This objective, reiterated in the Union Budget 2016-17, underscores the government's commitment to narrowing the income disparity between farmers and non-farm professionals [4-7].

To realize this objective, the government has instituted several pivotal schemes, encompassing Pradhan Mantri Krishi Samman Nidhi (PM-KISAN), Pradhan Mantri Kisan Mann Dhan Yojana (PM-KMY), Pradhan Mantri Fasal Bima Yojana (PMFBY), Soil Health Card Scheme, Pradhan Mantri Krishi Sinchai Yojana (PKSY), Paramparagat Krishi Vikas Yojana (PKVY), e-NAM Initiative, Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA), Mission for Integrated Development of Horticulture (MIDH), and Revised Kisan Credit Card (KCC) Scheme.

Against this backdrop, the current study endeavors to scrutinize the constraints and challenges impeding farmers' adoption of various government schemes aimed at enhancing their income. The study aims to provide insightful analyses for informed policy decisions, thereby advancing the overarching goal of doubling farmers' income.

2. MATERIALS AND METHODS

2.1 Study Area

Agriculture and allied sectors play a pivotal role in Rajasthan's economic landscape, encompassing crop cultivation, animal husbandry, fisheries, and forestry. Despite the challenges posed by a predominantly rain-fed agricultural landscape with a short and erratic monsoon season, compounded by dwindling groundwater levels, these sectors remain vital for the state's sustenance. In defiance of these

hurdles, agriculture and allied activities continue to be the cornerstone of the state's economy, contributing significantly to the Gross State Domestic Product (GSDP). The Gross State Value Added (GSVA) for Agriculture and allied sectors exhibited commendable growth from ₹1.57 lakh crore in 2018-19 to ₹2.09 lakh crore in 2022-23, reflecting an annual growth rate of 7.48 percent at constant prices. At current prices, the GSVA surged from ₹2.22 lakh crore in 2018-19 to ₹3.79 lakh crore in 2022-23, indicating a substantial annual growth rate of 14.33 percent. The Agriculture Census of 2015-16 highlights a noteworthy 11.14 percent increase in total operational land holdings, reaching 76.55 lakh from 68.88 lakh in 2010-11. The distribution of classified land holdings reveals an upward trend in marginal, small, semi-medium, and medium categories, with a simultaneous decline of 11.14 percent in large land holdings from 2010-11 to 2015-16 (State Performance Report, 2022-23).

Government schemes play a paramount role in bolstering the agricultural sector in the state of Rajasthan. Given its arid conditions and water scarcity, these schemes provide vital financial support, risk mitigation, and technological advancements essential for the well-being of farmers. Initiatives such as the Pradhan Mantri Fasal Bima Yojana (PMFBY) offer critical crop insurance, shielding farmers from uncertainties. The Pradhan Mantri Krishi Sinchai Yojana (PKSY) addresses water scarcity by enhancing irrigation infrastructure, while the Paramparagat Krishi Vikas Yojana (PKVY) encourages sustainable farming practices. Market-oriented programs like the e-NAM Initiative provide farmers with broader market access, contributing to income diversification. Additionally, schemes promoting financial inclusion, such as the Revised Kisan Credit Card (KCC) Scheme, empower farmers with credit facilities. In the face of climatic challenges, these government interventions underscore the significance of ensuring the resilience, sustainability, and economic viability of agriculture in Rajasthan.

Identifying constraints in the adoption of government schemes by farmers in Rajasthan is imperative for informed policy formulation and effective implementation. Understanding the specific challenges faced by farmers allows policymakers to tailor interventions that address the unique socio-economic and environmental factors in the region. Constraints could range from financial limitations and lack of awareness to infrastructural gaps and regional disparities. Pinpointing these obstacles enables targeted strategies to enhance farmer participation, improve the impact of schemes, and ultimately contribute to the overarching goal of sustainable agricultural development in the state.

2.2 Sampling

The purpose of the study was to cover the entire state and to ensure the representation of the state, it was mandatory to cover all agro-climatic zones of the state. In order to analyse the state of farmers and farming, data and information obtained from a sample survey was employed. A multi-stage sampling design was adopted for collecting this primary information. To fulfil the objective Rajasthan has been divided into four different agro-climatic zones that have common features in moisture regimes and climate. One district from each of the four zones has been purposively selected. These were Ajmer, Alwar, Jodhpur and Udaipur. Jodhpur represented the district which falls under the “distress zone” as it is prone to drought every three years, which directly impacts crop and livestock production and related farm-based rural livelihoods. A substantial number of farmers in Alwar have access to irrigation facilities, mainly ground water, and therefore this district was selected to capture this dimension. Ajmer is close to urban centers, and farmers grow cash crops. Udaipur, on the other hand, is predominantly a tribal district with very low handholding size. On the other hand, Udaipur is predominantly a tribal district with a very low landholding size. (Doubling Farmers' Income: Issues and Strategies for Rajasthan, Rajasthan NRMC and NABARD Final Report, 2018).

The process of selecting four districts was undertaken with the aim of creating a representative sample that encompasses the diverse agro-climatic zones within the state. This selection is intended to provide a comprehensive understanding of agricultural conditions across the entire spectrum of the state's ten agro-climatic zones.

To achieve this, a random sampling method was employed to choose two tehsils from each of the four selected districts. Subsequently, within each tehsil, a simple random sampling method was applied to select two villages for inclusion in the study. This systematic approach ensures that the sampled districts, tehsils, and villages collectively offer a representative and unbiased portrayal of the agricultural landscape within the state of interest.

Table 1. Sample selection plan

S.No.	District	*Tehsil*	Name of selected villages	Number of selected households
1.	Ajmer	*Ajmer*	Ajmer	30
			Pushkar	30
		Pisangan	*Govindgarh*	30
			Pisangan	30
2.	Alwar	*Alwar*	*Akbarpur*	30
			Umren	30
		Malakheda	*Malakheda*	30
			Parsaka bas	30
3.	Jodhpur	*Osian*	*Bhakari*	30
			KhabraKhurd	30
		Teori	*Mallunga*	30
			RampuraBhatiyan	30
4.	Udaipur	*Bhinder*	*Bhinder*	30
			Kedaria	30
		Valabhnagar	*Gumanpura*	30
			Bhopalpura	30
Total				**480**

2.3 Selection of Farm Households

In order to conduct a comprehensive study, a list of farmers was acquired from various sources for each village under consideration. The farmers were then systematically categorized into small, medium, and large groups based on their operational land holdings. This classification adhered to the guidelines provided by the Department of Land Resources, Government of India.

The primary objective of this categorization was to facilitate a comparative analysis of farmers across different land-holding sizes. To ensure a balanced representation, an equal number of farmers from each category—small, medium, and large—were incorporated into the study. The selection process, as outlined by Kothari [8] Research Methodology Methods and Techniques, involved randomly choosing ten farmers from each land-holding category within each village. Consequently, a total of 30 farmers from each village were included in the study, resulting in the selection of 480 farmers from 16 villages overall. This meticulous sampling approach aims to capture a nuanced understanding of agricultural practices and outcomes across varying scales of land ownership.

2.4 Garret Ranking Technique

Garrett's Ranking Technique was employed to analyze the data in this study. Respondents were tasked with assigning ranks to various constraints, and these rankings were subsequently converted into score values using the following formula:

$$\text{Per cent position} = 100\,(R_{ij} - 0.5)/\,N_j$$

Where,

R_{ji} = Rank given for the ith variable by the jth respondent (i=1,2,3) factor by the j^{th} (j=1,2,3)
N_j = number of variables ranked by the jth respondent

Once the percentage positions were determined, these values were further converted into scores by referencing a table provided by Garrett and Woodsworth (1969). Finally, the scores for each factor were totaled across the number of sample farmers who ranked that specific factor. This comprehensive approach allowed for a quantitative assessment of the constraints identified by the respondents in the study.

3. RESULTS AND DISCUSSION

Constraints are the issues or challenges farmers encounter when implementing various agricultural government programmes. Here, five categories were used to study restrictions which were technical, economic, marketing, socioeconomic, and psychological restrictions as ranked by farmers in the research area.

3.1 Technical Constraints

The important technical constraints faced by farmers in study area are mentioned in Table 2. The data mentioned in the table represents the mean scores assigned to different production constraints faced by farmers, with the top three constraints being low land holding, lack of awareness about government schemes, and communication gaps between farmers and extension workers. These constraints are ranked based on their mean scores, with low land holding having the highest score of 78.52, followed by lack of awareness about government schemes with a score of 72.47, and communication gaps with a score of 59.60. The higher the mean score, the greater the perceived severity or impact of the constraint on agricultural production as reported by the farmers surveyed. The other two constraints ranked fourth and fifth were poor government sources of timely information (57.15) and difficulty in finding guarantor (50.15). The difficulty in acquiring adequate protection, a lack of technical motivation or advice, and the fact that the majority of farmers do not use Android mobile phones are the other minor challenges that farmers encounter while embracing various government programmes. Husain and Sundaramari [9] and Bhattacharjee and Sharma [10] both evaluated the same outcomes (2018).

3.2 Economic Constraints

The major economic constraints faced by farmers in the study are enlisted with their garret score in Table 3. The primary economic constraints identified in the study include delayed claim disbursement from government schemes, particularly evident in the Pradhan Mantri Fasal Bima Yojana (PMFBY), where insurance payouts were received approximately one year after crop loss. Moreover, inadequate disbursal amounts by the government under various schemes were noted, with a significant portion absorbed by middlemen, thus preventing farmers from receiving their full claimed amounts. High initial investments required for the construction of water harvesting structures and procurement of irrigation equipment ranked second and third, respectively, among economic constraints. Additionally, biases in official loss assessments, complexities in enrollment procedures, and a lack of precise knowledge regarding the financial assistance amount guaranteed under the scheme further compound economic challenges. These findings are consistent with prior research by Husain and Sundaramari [9] and Jamanal et al. [11] Furthermore, insurance companies play a direct role in assessing losses outlined in the PMFBY, but due to farmers' limited awareness of government schemes, significant portions of funds allocated for farmers are often retained by insurance companies, thereby covering a notable margin.

3.3 Marketing Constraints

According to Table 4 existence of too many middlemen was found as the important marketing constraint faced by farmers with 68.56 garret mean score. Lack of awareness about the government schemes related to agricultural products marketing, non- availability of market for organic products and non-availability of required agricultural inputs in market ranked second, third, and fourth, respectively. Ansari et al. [12] also noticed the same results in their study. In the study area, over 50% of farmers were identified as either illiterate or possessing only primary level literacy, rendering the utilization of technology or access to internet-based information challenging [13-15]. The predominant issue identified in the study was the lack of proximal markets in rural areas. Additionally, the high transportation costs associated with long-distance supply of agricultural products discouraged farmers from cultivating organic or horticultural crops due to their perishable nature.

3.4 Socio-economic and Psychological Constraints

The socio-economic and psychological constraints are shown in Table 5. Farmers' low literacy rate, with a Garrett mean score of 72.84, were shown to be the most socioeconomic and psychological constraint. The second and third constraints, respectively, were that farmers were not implementing the plans because other farmers were not adopting them (62.32) and the selfish intentions of agricultural supervisors (54.69). Negative attitude of old-aged farmers towards government schemes, lack of trust among farmers regarding government schemes and lack of interest on government schemes were found as other important socio-economic and psychological constraints. As above mentioned illiteracy was found as the major hinderance in adopting the government schemes.

Table 2. Technical constraints

S. No.	Constraints	Garret Mean Score	Rank
1.	Low land holding	78.52	I
2.	Lack of awareness about government schemes	72.47	II
3.	Communication gap between farmers and extension workers	59.60	III
4.	Poor government sources of timely information	57.15	IV
5.	Difficulty in finding the guarantor	50.15	V
6.	More time required to getting desired results	43.70	VI
7.	Difficulty in obtaining suitable security	38.27	VII
8.	Lack of technical guidance/motivation	27.68	VIII
9.	Most of the farmers not using android mobile phones	23.35	IX

Table 3. Economic Constraints

S. No.	Constraints	Garret Mean Score	Rank
1.	Not getting timely claim from government schemes	72.56	I
2.	Low amount disbursed to farmers by government under any scheme	65.07	II
3.	High initial investment on water harvesting construction units	56.37	III
4.	Official bias in loss assessment	43.17	IV
5.	Complexity of enrolment procedure	36.27	V
6.	Lack of knowledge about proper amount of financial assistance under the scheme	26.37	VI

Table 4. Marketing constraints

S. No.	Constraints	Garret Mean Score	Rank
1.	Existence of too many middlemen	68.56	I
2.	Lack of awareness about the government schemes related to agricultural products marketing	58.47	II
3.	Non-availability of market for organic products	41.35	III
4.	Non-availability of required agricultural inputs in market	33.48	IV

Table 5. Socio-economic and psychological constraints

S. No.	Constraints	Garret Mean Score	Rank
1.	Lack of literacy among farmers	72.84	I
2.	Less adoption because other neighbour farmers are not adopting	62.32	II
3.	Selfish motives of agricultural supervisors	54.69	III
4.	Negative attitude of old-aged farmers towards government schemes	45.84	IV
5.	Lack of trust among farmers regarding government schemes	36.37	V
6.	Lack of interest on government schemes	27.75	VI

Table 6. Administrative constraints

S. No.	Constraints	Garret Mean Score	Rank
1.	Unavailability of agricultural supervisors	70.62	I
2.	Connive behaviour of agricultural department	59.87	II
3.	Less availability of Soil Testing Laboratories at nearby areas	53.33	III
4.	Large difference in cost of cultivation of various crops under PM-AASHA	37.37	IV
5.	Uncertain forecasting of weather and rainfall cause failure in actual assessment of crop loss government	27.85	V

3.5 Administrative Constraints

The important administrative constraint faced by farmers in adopting government schemes mentioned in Table 6 has been pointed out as the unavailability of agricultural supervisors (70.62) followed by the connive behaviour of the agricultural department (59.87) and the fact that no soil testing lab facilities are available in nearby areas (53.33). The large difference in crop production cost assessment under the MSP scheme and the failure to forecast proper weather and rainfall to impede actual crop loss government assessment were found to be minor administrative constraints.

4. CONCLUSION

The government has implemented numerous schemes aimed at increasing the income and welfare of farmers; however, farmers face several challenges hindering the realization of profits and achieving government targets. The present study categorizes constraints faced by farmers in adopting government schemes into five categories: technical, economic, marketing, socio-economic or psychological, and administrative. Key constraints include low land holdings, delays in receiving timely claims from government schemes, the presence of numerous intermediaries, limited literacy among farmers, and the unavailability of agricultural supervisors. The study underscores that a lack of awareness about government schemes and policies is a significant deterrent for farmer participation. To address this, the government is urged to conduct regular training and awareness programs in rural areas. Additionally, implementing Direct Benefit Transfer (DBT) schemes to streamline monetary benefits and eliminate intermediaries is suggested to enhance farmers' share in the benefits derived from these schemes.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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