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Transforming agricultural input dealers into para-extension workers in rural India: Analysing the constraints and strategies

¹Amitava Panja, ²NS Shivalinge Gowda and ³Sangeeta Bhattacharyya

¹Dairy Extension Division, ICAR-National Dairy Research Institute, Karnal, Haryana, India

²University of Agricultural Sciences, GKVK, Bangalore, Karnataka, India

³ICAR-Central Citrus Research Institute, Nagpur, Maharashtra, India

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Corresponding Author: Sangeeta Bhattacharyya

Abstract

Agricultural input dealers play a big role as para-extension workers in rural India for providing essential extension advisory services to the farmers. The study aimed in identifying the key constraints faced by them, focussing on their role as trusted as extension sources. The study was conducted in two districts of West Bengal, namely Purba Bardhaman and Hooghly. *Ex-post facto* research design was employed. Through random sampling, 80 agricultural input dealers from these districts were selected for the study. Data collection was conducted via personal interviews and structured questionnaire. The study identified 13 major constraints faced by the input dealers including lack of training and demonstrations (76.86), delayed repayment from farmers (70.22), unavailability of timely climate and pest information (62.45) and poor market intelligence (62.47). The constraints were ranked using Garrett Ranking Methodology. Possible strategies were also outlined and prioritized by the dealers for addressing the constraints. Strategies like emphasising the need for better soil testing facilities (3.00), timely information dissemination (2.925), streamlined licensing procedures (2.85) and improved storage and transportation infrastructure (2.56) received the highest mean scores and hence top ranks using Mean Score Index Methodology. The findings highlighted input dealers' vital role in bridging the knowledge gap for small and marginal farmers as well as actionable policy recommendations to increase their capacity to provide effective agro-advisory services. The study emphasised the need of policy interventions in addressing these issues and improving the entire agricultural advisory system in rural India.

Keywords: Agricultural input dealers, extension advisory services, constraints, suggestions, para-extension workers

Introduction

Agriculture is the major sector in India's economy, employing over 69% of the population. India has set records for food grain output in 2019-20 and 2020-21, with 296.65 million tonnes and 310.74 million tonnes, respectively. According to the Economic Survey, kharif foodgrain production in 2024 is expected to reach 1647.05 lakh metric tonnes (LMT), up 89.37 LMT from the previous year. Agricultural revenue has increased at a rate of 5.23 percent each year over the last decade, according to the report (Government of India, 2025) ^[1]. In India, small and marginal producers account for about 86.08 percent of the farming population while occupying less than two hectares of land each. Farmers encounter obstacles due to restricted access to technology, resources, and advanced knowledge. Although managing only 47.30 percent of total crop area (Government of India, 2016) ^[2], it is crucial to provide timely and effective extension consulting services to these farmers. Thus, extension advisory services based on information, technology, and services should fulfil the requirements and interests of these small and marginal farmers in a timely and effective manner. However, the ratio of extension agents to farmers has fallen below the desired rate of 1:750 (Nandi & Nedumaran, 2016) ^[3], resulting in a

disparity between the ideal and the actual condition.

This significant issue can be resolved with a pluralistic extension system. The effectiveness of extension advisory services can be substantially enhanced by supporting multi-agency input and service delivery. By offering suitable technology and integrated extension services, such as marketing facilities, it shall work well in regions where farmers lack resources (Mukherjee & Maity, 2015) ^[4]. Agricultural input dealers play a crucial role in farmers' social networks, providing valuable information and knowledge on different agricultural aspects. Studies had reported delivering relevant agro-advisory services to the farmers as an important role for the agricultural input dealers and it mutually benefitted each other (Panja *et al.*, 2022) ^[5]. Entrepreneurial behaviour of the agricultural input dealers was also found to have a strong positive and significant relationship with their role performance in provision of agricultural advisory services to the farmers (Panja *et al.*, 2024) ^[6]. In rural areas, after progressive farmers, agricultural input dealers are the most trusted source of farm information (Adhiguru *et al.*, 2009) ^[7]. The National Institute of Agricultural Extension and Management (MANAGE) established the Diploma in Agricultural Extension Services for Input Dealers (DAESI)

to help input dealers improve their technical skills in agriculture and become para-extension professionals (Gunashree *et al.*, 2024) [8].

This study aimed to identify major constraints faced by agricultural input dealers in offering agricultural advice services to the farmers as well as carrying out their entrepreneurship. It shall seek to provide detailed insights into key areas of concern and the consequences posing upon role of agricultural input dealers as para-extension workers in rural India. Simultaneously, through its approach of identifying and ranking suggestions, the study aimed to identify respondents' perceived way of overcoming various challenges.

Methodology

The state of West Bengal was purposively chosen for the study. Two districts, Purba Bardhaman and Hooghly, were chosen purposively. Both Purba Bardhaman and Hooghly districts have four sub-divisions each. Each subdivision had one block selected at random for the study, for a total of eight blocks. Ten agricultural input dealers were selected at random from each block to serve as respondents. This resulted in a total sample size of eighty (80) agricultural input dealers. Respondents were chosen based on criteria such as having completed a Diploma in Agricultural Extension Services for Input Dealers (DAESI) program, having their dealership license renewed on a regular basis

and having a large number of input dealers operating in the area.

Data was collected from the respondents using structured questionnaire while doing personal interview. Garrett ranking methodology was followed for doing the constraints analysis. Thirteen problem statement faced by agricultural input dealers were identified based on the review of literature and expert consultation. Problems faced by the agricultural input dealers were analysed by enlisting the statements and then asking the respondents to rank them in order of severity. Garrett's formula for converting ranks into percent was given by:

$$\text{Percent position} = \frac{100 * (R_{ij} - 0.50)}{N_j}$$

where R_{ij} = Rank given for the i^{th} item by the j^{th} individual and N_j = Number of items ranked by the j^{th} individual.

Ranking of the strategies to address the constraints were carried out using mean score index. Strategy statements were given to the respondents to rank on a 3-point continuum *viz.* "Needs greater attention", "Needs moderate attention", "Needs least attention" with a scoring pattern of 3, 2 and 1 respectively. Mean score for each of the statement was calculated by using the following formula:

$$\text{Mean Score} = \frac{\text{Needs greater attention} \times 3 + \text{Needs moderate attention} \times 2 + \text{Needs least attention} \times 1}{\text{Number of respondents}}$$

The strategies were ranked based on the mean scores obtained by each of the statements.

Results and Discussion

Constraints perceived by agricultural input dealers

Constraints implied the problems or difficulties faced by agricultural input dealers in running their enterprises. During the pilot study, respondents were asked, using open ended questionnaire, to mention several constraints faced by them while carrying out their businesses. The mentioned

constraints were thematically merged under one head and a total of 13 constraints were hereby finalised and were ranked accordingly. Table 1 shows the ranked constraints faced by the respondents. Among the constraints, 'lack of trainings and demonstrations' were reported to be rank 1, followed by 'fluctuations in market prices' (Rank 2) and 'non-availability of timely available information on climate change and forecasting of pest and disease attack from agricultural department' (Rank 3).

Table 1: Constraints faced by agricultural input dealers

Sl. No.	Problems	Average score	Rank
1	Dealership is a seasonal activity	39.62	X
2	Lack of sufficient field experience	29.27	XII
3	Lack of market intelligence in providing market information	62.47	IV
4	Lack of networking in input dealers in providing uniform agro-advisory services to the farmers	55.91	VI
5	Difficulty in licensing procedure	19.37	XIII
6	Difficult to make credit availability	33.00	XI
7	Lack of feasibility of simple recommended technology	58.87	V
8	Non-availability of timely information on climate change and forecasting of pest and disease attack	62.45	III
9	Insufficient feedback from the farmers about the performance of agro-advisory services	47.22	VIII
10	Weak research-dealers-farmers linkage regarding agro-advisory services	51.81	VII
11	Lack of storage and transportation facilities	42.91	IX
12	Lack of trainings and demonstrations	76.86	I
13	Late repayment by the farmers	70.22	II

The ranking of 'lack of trainings and demonstrations', with an average score of 76.86 as the most significant constraint by agricultural input dealers highlighted a critical gap in the dissemination and application of agricultural knowledge.

The absence of structured training programs and demonstration opportunities limits dealers' capacity to provide informed guidance to farmers on the proper use of agricultural inputs and modern farming techniques. While

majority of respondents reported a positive opinion regarding DAESI training (Panja *et al.*, 2021) ^[9], however, they also expressed their need of further regular trainings for getting updated about new technologies and information. This deficiency not only hindered the adoption of innovative practices but also reduced the overall effectiveness of input utilization, which is crucial for improving agricultural productivity and sustainability. The lack of hands-on, practical demonstrations further exacerbates the challenge, as it impeded farmers' understanding of how to implement recommended technologies in their specific agricultural contexts. The results were similar to (Patel *et al.*, 2019) ^[10].

With an average score of 70.22, respondents identified 'lack of repayment from farmers' as second constraints faced by them. Late repayment by farmers posed a significant challenge to agricultural input dealers, disrupting cash flow and hindering the timely replenishment of inventory. It created a cycle where dealers struggle to reinvest and may become reluctant to extend credit in the future, weakening dealer-farmer relationships. The result was similar to Patel *et al.* (2019) ^[10] and Reddy *et al.* (2020) ^[11]. 'Non-availability of timely information on climate change and forecasting of pest and disease attack' was perceived by the input dealers as another significant constraint (Rank 3, average score: 62.45) to their enterprise. Farmers expressed their concern regarding unavailability of regular ground level and localized information regarding forecasting of climate change or any sort of pest and disease infestations, either from public or private institutions. In similar context, they also mentioned unavailability of market intelligence as fourth important constraint hampering their business.

Other constraints perceived by the agricultural input dealers included 'lack of feasibility of simple recommended technology' (Rank 5, average score: 58.87), 'lack of networking in input dealers in providing uniform agro-advisory services to the farmers' (Rank 6, average score: 55.91), 'weak research-dealers-farmers linkage regarding agro-advisory services' (Rank 7, average score: 51.81), 'insufficient feedback from the farmers about the performance of agro-advisory services' (Rank 8, average score: 47.22), 'lack of storage and transportation facilities' (Rank 9, average score: 42.91), 'dealership is a seasonal activity' (Rank 10, average score: 39.62), 'difficult to make credit availability' (Rank 11, average score: 33.00), 'lack of sufficient field experience' (Rank 12, average score: 29.27) and 'difficulty in licensing procedure' (Rank 13, average score: 19.37).

The constraints identified by agricultural input dealers necessitate a comprehensive policy approach to enhance the effectiveness of agro-advisory services. Addressing the seasonality of dealerships, insufficient field experience, and lack of market intelligence requires improved extension services, mandatory training, and the development of market intelligence systems. The challenges of inadequate

networking, cumbersome licensing, and limited credit availability can be mitigated by fostering dealer cooperatives, streamlining regulatory processes, and improving financial access. Policymakers must also focus on ensuring the feasibility of recommended technologies by adapting them to local conditions and promoting better collaboration between research institutions, dealers, and farmers. Additionally, improving climate change and pest forecasting, creating structured feedback mechanisms, and enhancing storage and transportation infrastructure are vital.

Strategies to overcome the constraints as perceived by agricultural input dealers

Table 2 depicts the strategies ranked by the agricultural input dealers in purview of overcoming the constraints. It could be observed that 'removal of non-licensed shops from the market' was ranked first and interestingly 100 percent of the respondents perceived this to have greater attention. Other suggestions included 'sub-standard products should be banned' (Rank 2), 'department of agriculture/ companies should provide soil testing facilities and information about soil health' (Rank 3), 'timely forecasting about insect-pest attacks should be made available' (Rank 4), 'tax processes should be made easy' (Rank 5), 'Government should provide transport facilities' (Rank 6), 'Government should provide adequate and timely information about new farm practices for updating the knowledge' (Rank 7), 'licensing and certification process should be made easy' (Rank 8) and 'marketing and godown facilities should be available at nearest place' (Rank 9).

The strategies outlined highlighted key aspects for policy interventions to enhance the efficiency and effectiveness of the agricultural input enterprises. Thereby, it is advocated for the policymakers to prioritize regular dissemination of timely information and advisory services addressing local needs and interest of the agrarian scenario. In the similar context, extension advisory services should also be strengthened and use of digital platforms for the same should be promoted and encouraged. Respondents also expressed their concern regarding enhancement of soil testing facilities for the farmers at most decentralized possible. This would provide them with correct data on soil health, thereby facilitating provision of required inputs and declining unnecessary input cost. Simultaneously, this would also improve farmer-dealers relationship, with better impact on future business. Regular monitoring of existing shops should be carried out to make an attempt towards reducing number of dealers who are not licensed. This could have serious impact on provision of correct and valid information as well as inputs to the farmers. Policy advocations should also take under considerations development of accessible storage, marketing and transportation facilities of agricultural inputs, particularly for the dealers who lacks resources.

Table 2: Prioritization of Strategies to Mitigate Perceived Constraints of Input Dealers

Sl. No.	Statements	Needs greater attention		Needs moderate attention		Needs least attention		Mean score	
		Frequency	%	Frequency	%	Frequency	%		
1	Government should provide adequate and timely information about new farm practices for updating the knowledge	14	17.50	62	77.50	4	5.00	2.125	VII
2	Timely forecasting about insect-pest attacks should be made available	53	66.25	19	23.75	8	10.00	2.5625	IV
3	Marketing and godown facilities should be available at nearest place	19	23.75	31	38.75	30	37.50	1.8625	IX
4	Licensing and certification process should be made easy	14	17.50	43	53.75	23	28.75	1.8875	VIII
5	Sub-standard products should be banned	74	92.50	6	7.50	0	0.00	2.925	II
6	Tax processes should be made easy	34	42.50	38	47.50	8	10.00	2.325	V
7	Removal of the non-licensed shops from the markets	80	100.00	0	0.00	0	0.00	3.00	I
8	Department of agriculture/ companies should provide soil testing facilities and information about soil health	68	85.00	12	15.00	0	0.00	2.85	III
9	Government should provide transport facilities	24	30.00	48	60.00	8	10.00	2.20	VI

Conclusion

Agricultural input dealers have a bigger role to play as para-extension workers in providing the farmers with updated knowledge and technology, besides providing them the right agricultural input for their farming. The study attempted to highlight the constraints faced by the agricultural input dealers in Purba Bardhaman and Hooghly districts of West Bengal. Concomitantly, the study also tried to identify and rank the suggestions as perceived by the dealers to be beneficial in carrying out their entrepreneurship. Key constraints included lack of trainings and demonstrations, lack of repayment for farmers, unavailability of timely and localized information and forecasting and unavailability of market intelligence. Key suggestions provided by the respondents included removal of unlicensed shops from the market, banning of substandard products, enhancing of soil testing facilities for the farmers to provide correct data of soil health, timely provision of information addressing local needs and interests and simplifying tax processes.

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