



RESEARCH ARTICLE

Farmers' perception of the effectiveness of advisory services provided by input dealers in Andhra Pradesh

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Abstract

Agriculture is the cornerstone of the economies of many developing countries with a large proportion of the population relying on farming as their primary livelihood. Many farmers struggle to access timely and accurate agricultural information, especially regarding inputs like seeds, fertilizers and pesticides. Public extension services often fall short, making input dealers a crucial source of advice. This study examines the effectiveness of advisory services provided by input dealers in the Kurnool and Anantapur districts of Andhra Pradesh, India, focusing on farmers' perceptions and the factors influencing those perceptions. A sample of 120 farmers was selected using simple random sampling in the study area. Data were collected through a structured interview schedule and responses were analyzed using descriptive statistics and Chi-square tests. Most of the farmers perceived that input dealers advisory services were moderately effective (50 %). The results indicate that farmers' value input dealers advisory services mainly for their practical outcomes like yield maximization, pest control and enhancement in profitability. Key factors affecting farmers' perception on the effectiveness of input dealers advisory services were economic motivation, innovativeness, information seeking behavior, annual income and farm size. This study underscores the importance of input dealers offering customized, high quality advisory services that align with farmers specific needs and economic objectives, ultimately fostering better agricultural practices and stronger dealer farmer relationships.

Keywords: advisory services; effectiveness; farmers; input dealers; perception

Introduction

Agriculture is a cornerstone of the economies in many developing countries, where a significant portion of the population relies on farming as their primary source of livelihood. The productivity and long-term sustainability of farming operations are often shaped by factors such as the availability and accessibility of quality inputs. A significant number of farmers lack knowledge about the appropriate type and dosage of agrochemicals required for different crops, as well as the latest agricultural technologies (1). Public extension agents alone have not been able to meet the information needs of farmers, i.e., 60 % of farmers could not receive advisory services from any extension agency (2). Input dealers play a significant role in extension services (3) and are important for improved income and production of farmers in developing countries (4). They serve as private extension providers to farmers not reached by public extension services like agricultural departments, agricultural colleges, etc. Input dealers transfer information to farmers on crop varieties, fertilizer doses, pest management, irrigation and soil health management (5). According to research (6), nearly 39.3 % of information about pesticides was received from agri-input dealers. The agricultural department can use input dealers

for transfer of technology to farmers because of their high reachability (7). They can reach small holder farmers easily by supplying agricultural inputs and scientific updates (8).

Dealers were proactive in offering new varieties, informing potential customers and driving adoption among those most likely to benefit from technology (9). They were seen as key advisors in the agriculture supply chain due to their proximity to farmers and their role in inputs supply like seeds, fertilizers, etc (10). The advisory services provided by input dealers must be effective for building trust among farmers which improves input dealers business. The effectiveness of advisory services is assessed by farmers with their improvement in crop yield (11). Farmers feel advisory services provided by input dealer as effective if they were practical and high quality (12) and tailored according to local needs (13). Farmers trust and perception affects the effectiveness of extension service (13).

In Andhra Pradesh state, more farmers were relying on input dealers due to better accessibility and timely advice. However, input dealers advice sometimes was influenced by commercial interests affecting the quality of advisory services (14). This study examines the difference between advisory services provided by input dealers with public extension

system focusing on the scope, quality of advice and overall impact. Input dealers provide easily accessible product specific advice while public extension system provides holistic, research-based recommendations. Farmers perceived that advisory services provided by private extension agents were of higher quality than those of public extension services in terms of independence, reliability, usefulness and value for money (15). Farmers' perception on input dealers advisory services effectiveness can give us better insights into the impact it has created at ground level. This study is crucial for identifying gaps in advisory services and improving the quality and relevance of information shared, thereby delivering maximum benefits to farmers. Several studies that examined the effectiveness of advisory services also investigated the factors influencing their perception on effectiveness (16). Here an attempt was also made to study the factors influencing farmers' perception of input dealers advisory services. It is crucial to identify farmers' perception on effectiveness of advisory services provided by input dealers, as this insight can help improve these services, strengthen the relationship between farmers and dealers and ultimately boost agricultural productivity. This study helps in evaluating the role played by input dealers in enhancing agricultural practices by providing guidance on input usage, crop management and resource allocation.

Research objective

1. To measure the effectiveness of advisory services provided by input dealers.
2. To identify the factors influencing farmers' perception regarding the effectiveness of advisory services provided by input dealers.

Materials and Methods

Ex-post facto research design was used in this study. The study was conducted in Kurnool and Anantapur districts of Andhra Pradesh where large number of DAESI trained input dealers actively serves the needs of farmers in this area making these districts an ideal location to conduct this study. Four mandals with active association between farmers and agri-input dealers were selected from each district based on the highest number of DAESI trained input dealers. The study was conducted in Tadipatri, Anantapur, Guntakal and Kalyanadurgam mandals of Anantapur district and Adoni, Yemiganuru, Kurnool and Nandikotkur mandals of Kurnool district. A list of farmers associated with trained input dealer was obtained from local dealer records. A simple random sampling method was employed to select 15 farmers from each mandal, making a total sample of 120 farmers. This approach was used to avoid bias and ensure that samples contain diverse sections of farming population. By providing equal chance to all farmers to be included in sample, the study ensured representation and reliability of findings. The interview schedule was prepared based on review of literature, expert inputs and objectives of the study. The schedule was pretested with 30 farmers from non-sample areas and suitable modifications made accordingly.

Statistical analysis

Data was collected from respondents using pre-tested interview schedule using personal interview method. The interview was conducted after ensuring confidentiality of farmers to avoid any bias. Response on the effectiveness of advisory services were recorded using a 4-point scale: highly effective [4], moderately effective [3], less effective [2] and not effective [1]. Proper statistical tools and analysis were used for data analysis and interpretation. Descriptive statistics and chi-square test were used for data analysis.

Results and Discussion

Socioeconomic profile

Based on the results in Table 1, majority of the respondents were middle aged (66.66 %) from nuclear family (60 %) with higher secondary education (43.33 %), land size of 2-4 acres (43.33 %), farming experience of 10-20 years (41.67 %), annual income of 120000-400000 (50 %), medium information seeking behavior (49.17 %), medium innovativeness (53.33 %), medium economic motivation (62.50 %), medium risk bearing ability (50.83 %), linkage period of 5-10 years (50 %) and following multiple cropping system (65 %) which aligns with the findings of studies (17, 18).

Effectiveness of advisory services provided by agri-input dealer across various dimensions

The results presented in Table 2 assess the effectiveness of advisory services provided by input dealers across various dimensions, with each dimension ranked based on its total weighted score and weighted mean score (WMS). A higher WMS in a dimension indicates that agri-input dealers advisory services were more effective in improving that dimension. Farmers ranked input dealers advisory services were effective in maximizing crop yield (WMS, 2.65) and pest management (WMS, 2.38) like the research conducted in Jorhat district, Assam (19) regarding pest management. Maximizing crop yield can improve farmer profit, making a central focus of advisory services. Effective pest management is ranked second because input dealers advisory services manage these threats and play a significant role in farmers' success. Enhancement of farmers profit (WMS, 2.37) and reduction in cost of cultivation (WMS, 2.33) were ranked as third and fourth effective dimensions because they felt input dealers services were practical, tailored advice that optimizes resource usage, enhances crop productivity, quality and promotes cost efficient farming practices. Input dealers advisory services were effective in improving the quality of product (WMS, 2.23) because of their expert guidance on farming practices, pest and disease management, fertilization and post harvest handling. Easy to use (WMS, 2.17), alignment with current knowledge/skill (WMS, 2.08) and meeting customer demands (WMS, 1.98) were ranked sixth, seventh and eighth effective dimension due to their straightforward, practical advice that matches farmers existing knowledge, condition and is easy to apply on their farms. Improvement in decision making ability (WMS, 1.95) and self-confidence (WMS, 1.92) ranked ninth and tenth because input dealers services provide expert advice and personal recommendations that enhance farmers' decision-making

Table 1. Profile of farmers

S.No	Characteristics	Frequency	Percentage
1	Age		
	young	28	23.33
	middle	80	66.66
	old	12	10.00
2	Education		
	Primary education	14	11.66
	Secondary education	42	35.00
	Higher secondary education	52	43.33
	Graduate and above	12	10.00
3	Land area		
	<1 acre	8	6.66
	1-2 acre	24	20.00
	2-4 acre	52	43.33
	4-10 acre	30	25.00
	>10 acre	6	5.00
4	Farming experience		
	<5 years	22	18.33
	5-10 years	40	33.33
	10-20 years	50	41.67
	>20 years	8	6.67
5	Annual income		
	up to 120000	34	28.33
	120000-400000	60	50.00
	>400000	26	21.67
6	Family type		
	nuclear	72	60.00
	joint	48	40.00
7	Linkage period		
	below 5 years	20	16.67
	5-10 years	60	50.00
	>10 years	40	33.33
8	Crop diversification		
	Mono cropping	42	35
	Multiple crops	78	65
9	Information seeking behavior (Mean-9.64, sd-3.02)		
	Low (<7)	22	18.33
	Medium (8-13)	59	49.17
	High (>14)	30	25.00
10	Innovativeness (Mean-4.74, sd-1.31)		
	Low (<3)	26	21.67
	Medium (4-5)	64	53.33
	High (>6)	30	25.00
11	Economic motivation (Mean-20.58, sd-3.61)		
	Low (<17)	16	13.33
	Medium (18-23)	75	62.50
	High (>24)	29	24.17
12	Risk bearing ability (Mean-20.61, sd-2.14)		
	Low (<18)	26	21.67
	Medium (19-23)	61	50.83
	High (>24)	33	27.50

Table 2. Effectiveness of advisory services of input dealers according to farmers

S. No	Effectiveness dimensions	TWS	WMS	RANK
1	Maximize crop yield	318	2.65	I
2	Pest and disease control	286	2.38	II
3	Enhance farmers profit	284	2.37	III
4	Reduces cost of cultivation	280	2.33	IV
5	Increased quality of product	268	2.23	V
6	Easy to use	260	2.17	VI
7	Aligned with current knowledge and skill	250	2.08	VII
8	Meets customers demand	238	1.98	VIII
9	Improved decision-making ability	234	1.95	IX
10	Boost self-confidence	230	1.92	X
11	Enhancement of market potential	214	1.78	XI
12	Encourages adoption of new technology	198	1.65	XII
13	Raised awareness about responsible resource management	184	1.53	XIII
14	Eco-friendly	176	1.47	XIV

and build their confidence in managing firms. Farmers perceive input dealers advisory services were less effective in enhancing market potential (WMS, 1.78) and encouraging the adoption of technology (WMS, 1.65). Raising awareness about responsible resource management (WMS, 1.53) and eco-friendliness (WMS, 1.47) were the least ranked dimensions by farmers on input dealers advisory services effectiveness because they mainly focus on sale of a particular product and respond less to long term sustainability practices. Less effectiveness of input dealers advisory services on these dimensions is a concern regarding ethics and transparency of private sector advisory services. It also causes a lack of guidance on eco-friendly practices for farmers. To improve effectiveness of advisory services provided by input dealers there is need to strengthen public-private extension partnerships, build capacity of dealers through training and integrate them into knowledge network. The data in Table 3 shows that the majority (50 %) of farmers feel that input dealers advisory services were medium effective (6, 19) while 28.33 % and 21.66 % of farmers regarded these advisory services as high and low effective. The reason behind this is the guidance provided by input dealers often lacks enough customization and does not fully address the needs of customers resulting in the perception that the services were only partially relevant and effective.

Factors influencing farmers' perceptions regarding the effectiveness of advisory services provided by agri-input dealers

In Table 4, the variables like economic motivation (20), innovativeness (21), information seeking behavior (22, 23), annual income (24) and farm size (25, 26) showed significant association with their perception on effectiveness of advisory services provided by input dealers at 5 % level of significance. Economically motivated farmers value improving their practices and are more likely to respond positively to cost effective, profit oriented advisory services. Innovative farmers are open to new ideas and readily adopt recommendations, enhancing their perception of service effectiveness. Information seeking farmers engages with accurate, timely advice, strengthening their view of advisory services. Farmers with financial capacity can implement advanced technology leading to higher satisfaction. Large land holders with diverse needs benefit from personalized expert advice, making tailored solutions highly valuable.

While the variables like risk bearing ability, crop diversity, linkage period, experience, education, age and family type do not show any significant association with their perception on effectiveness of input dealers advisory services. The main reason behind this may be farmers' interest in quality and relevance of advice irrespective of their

Table 4. Association between socio-economic profile of farmers with their perception on effectiveness of advisory services of input dealers

S. No	Variables	χ^2	p-Value
1	Risk bearing ability	3.076	0.54
2	Economic motivation	16.14	0.04*
3	Innovativeness	21.38	0.00**
4	Information seeking behavior	9.49	0.04*
5	Crop diversity	0.34	0.84
6	Linkage period	4.419	0.35
7	Annual income	14.57	0.02*
8	Experience	8.33	0.21
9	Farm size	16.23	0.03*
10	Education	3.44	0.75
11	Age	1.66	0.79
12	Family type	1.60	0.44

**1 % level of significance, *5 % level of significance.

age, education, family type etc. Some of the other reasons were lack of enough customization by input dealer, uniform context in the farming conditions, market etc irrespective of personal characteristics of farmer. Ultimately farmers' views on advisory services are driven by practical applicability and effectiveness of advisory services provided. The findings align with (27) where service tangibility and reliability matter irrespective of personal characteristics like age, education and family structure.

This study differs from past literature with respect to farmers' perception on advisory services provided by trained input dealers and examining how farmers' perceptions were shaped by their social, economic and psychological characteristics. The findings show that farmers value tangible and practical outcomes while identifying gaps in guidance regarding sustainable and market issues which are overlooked by previous studies. This localized and farmers' centric approach helps in framing the training programmes for input dealers to meet the farmers' needs.

Conclusion

Farmers perceive input dealers advisory services as effective mainly based on practical outcomes like maximizing crop yield and pest control. Major factors influencing farmers' perception on the effectiveness of input dealers advisory services were economic motivation, innovativeness, information seeking behavior, annual income and farm size. These findings show farmers look for advice that works within their budget highlighting the need for input dealers to equip themselves with latest technology through training programmes to serve farmers better.

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Table 3. Distribution of farmers according to their perception on effectiveness of input dealers advisory services

S.No	Category	Range	Frequency	Percentage
1	Low	<20	26	21.66
2	Medium	21-36	60	50.00
3	High	>37	34	28.33
Mean-28.5, sd-8.83				

Authors' contributions

The research work was conceptualized and the methodology was designed by the author in collaboration with BPM. BPM contributed to the development of research methodology, data validation and manuscript refinement. AD supported the statistical analysis, interpretation of findings and visualization of results. KKS was responsible for drafting manuscript and ensuring coherence in the discussion. All authors actively participated in reviewing, editing and approving the final manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interests to declare.

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Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used OpenAIs ChatGPT in order to language refinement and clarity. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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