



Assessing Agricultural Input Dealers' Constraints and Farmers' Perception of Services Through SERVPERF Model Analysis

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ABSTRACT

Background: Agricultural input dealers being localite information sources, have utmost credibility among the farming community than cosmopolite extension agencies and thus can aid in effective transfer of technologies. To make use of this potential, National Institute of Agricultural Extension and Management is also offering a Diploma in Agricultural Extension Services for Input Dealers to turn them into para extension professionals through training and capacity building. The present study was conducted to assess the perception of farmers towards the services provided by input dealers and to study about the problems faced by the agricultural input dealers in providing agro services to the farmers.

Methods: The study was carried out in Nagar Kurnool and Wanaparthy districts of Telangana state during 2020 employing random sampling method. SERVPERF model was used to assess the farmers perception towards the services of input dealers and Henry Garrett's ranking technique was used to study the problems of input dealers.

Result: Medium level of perception was found among farmers and had an overall satisfactory perception towards the services provided by the input dealers (SQ – 3.504). Among various factors, they had highest perception towards tangibility followed by reliability and lowest perception towards empathy. Regarding problems faced by the input dealers, low education of the clientele and prevalence of duplicate/fake products were ranked first among technical and market related problems respectively. Under financial problems purchasing inputs on credit basis and under personal problems, over loaded work were the most complained problems. Imbalance between family and business life and Bribery by the inspection officers topped among family problems and risks and frauds categories respectively.

Key words: Agricultural input dealers, Farmers, Perception, Problems, SERVPERF.

INTRODUCTION

Primary sector holds a significant importance in Indian economy and its social structure. The prominence of agriculture can be understood through its contribution to various facets of the nation including the economy, employment, food security and rural development. It provides livelihood support to about 42.3 per cent of the population and contributes to 18.2 per cent of the nation's GDP (Anonymous, 2024). However, the total work force of the country being employed in agriculture over the past six decades showed a contraction in growth from 69.7 per cent to 54.6 per cent (Anonymous, 2023). Indian agriculture has gradually transformed from a traditional subsistence oriented one to a commercial, technologically dynamic one with a judicious usage of high amounts of inputs (Singh and Narain, 2016). Agricultural production systems now demand for intensive management, proper input supply, adequate market infrastructure, support and processing that help in maintaining the competitive edge for farmers. Though technology is developing at a faster pace, its integration into farming practices is what is lacking (Jiyawan *et al.*, 2009). On the other hand, considering the sky-high prices of farm inputs, quality of the same is an important concern for especially small and marginal farmers (Saifuddin *et al.*, 2022). Availability and quality of farm inputs greatly affect crop productivity (Salokhe, 2019). However, agricultural inputs such as seeds, fertilizers, plant protection chemicals can lead to better realization of crop yields only when coupled

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with timely agro advisory services (Sukhna *et al.*, 2021). Need based and timely information is proved instrumental in augmenting the farmers income by catering to the varied needs of heterogenous farming community (Padhy *et al.*, 2024). Regardless of multiple extension players like public extension system, private extension, voluntary organizations and farmer-based organizations etc., only a meagre 40 per cent of the farm households are getting the advantage of access to agricultural information (Birthal *et al.*, 2015). There are several studies supporting the limiting accessibility of agro advisory services in particular to the socially and economically marginalized farmers (Krishna

et al., 2019). One of the major possible reasons for this can be attributed to the sluggish public extension system with large scale information failure (Rasheed, 2012). Free services of public agricultural extension system to meet the farmers needs is gradually turning unrealistic and insufficient due to financial burden on those systems. An increasing favourable attitude among the farmers is also noticed regarding the need for private extension services mainly for post-harvest care, selection and use of quality seed, using farm machinery and for market information (Sahoo and Rout, 2023). This conveys that it is time to reroute our focus and studies towards private extension services. The scenario is giving a call for strengthening of local networks and their capacity building for information dissemination. One such important localised networks are the agricultural input dealers who provide the farmers with farm inputs and information at one stop (Panja et al., 2023). They are the closest contact point for the farmers for farm related information (Latha et al., 2022). Realising their information dissemination potential as para extension professionals, National Institute of Agricultural Extension and Management (MANAGE) has also initiated a Diploma in Agricultural Extension Services for Input Dealers (DAESI) program in 2003 to develop their technical competency. Having said all this, it is important to know how the farmers perceive these input dealers and how ready they are to receive the services from the dealers effects the effectiveness of delivery of their agro advisory services. Also, the input dealers as a part of their business might have to deal with several stresses from the outside world and within their families which might affect their service performance. Hence before saying, they have to be utilised to their fullest potential for transfer or technologies, it is also essential to know if they can efficiently and effectively fulfil this responsibility. Taking all these into consideration, an attempt was made to conduct a study with the following objectives:

1. To assess the perception of the farmers towards the services provided by the agricultural input dealers.
2. To study the problems faced by the agricultural input dealers in providing their services.

MATERIALS AND METHODS

Nagar Kurnool and Wanaparthy districts from Telangana state (between 15° 46' N to 19°47' N latitude and 77°16' E to 81°43' E longitude) were chosen on the basis of random sampling method for conducting the research. An *ex post facto* research design was employed for the study. Three villages from each district were further selected accounting to a total of six villages for the study. This way, the villages of Nagar Kurnool, Bijnepally and Achampet were selected from Nagar Kurnool district and Wanaparthy, Pebbair and Kothakota were selected from Wanaparthy district (Fig 1). To carry out the perception study, a total of 120 farmers were chosen at random from six selected villages taking 20 farmers from each village. For studying the problems faced by input dealers, a total of 60 input dealers were chosen from the selected villages taking 10 from each village.

To study about the various problems faced by the input dealers, a list of probable problems that input dealers might be facing was prepared by thoroughly referring to the existing literature and consulting experts in the field and the dealers were asked to rank them while interviewing. Obtained data was tabulated and computed using Henry Garrett' ranking method. To study the perception of the farmers towards services provided by the input dealers, SERVPERF model was adopted. SERVPERF was endorsed by many researchers as an excellent model to assess the quality of services (Cronin and Taylor, 1992). The survey instrument contained of 21 statements that are made based on the SERVQUAL dimensions (Parasuraman et al., 1985). These dimensions represent the farmers perception of input dealer's services in terms of tangibles, reliability, responsiveness, assurance and empathy. Statistical operations like frequency, percentage, mean, standard deviation and principal component analysis were conducted using SPSS software. Finally, the service quality as per SERVPERF is calculated using the formula:

$$SQ_i = \sum_{j=1}^K P_{ij}$$

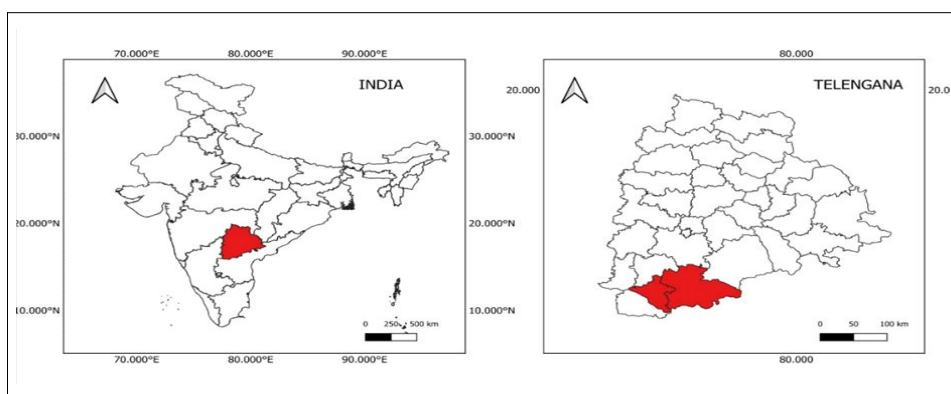


Fig 1: Location of study area in Telangana state.

Where,

SQ_i - Perceived service quality of individual "i".

k - Number of attributes / items.

P - Perception of individual "i" with respect to performance of a service firm on attribute "j".

RESULTS AND DISCUSSION

Farmers perception of service quality provided by input dealers

SERVPERF model was used to study the perception of the farmers towards the services provided by the input dealers. Important service quality factors were identified using factor analysis. Kaiser Meyer Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed before hand to find out the validity of the data for factor analysis which yielded a KMO value of 0.554 and Chi-square significant at one per cent level. Validity of the data is thus confirmed by these values. Table 1 provides a glimpse of the narrated five service quality factors explaining the service quality variables to the extent of 61.64 per cent. The most important service quality factor turned out to be tangibility which is contributing to 19.85 per cent of variation and recorded an eigen value of 4.652. The next two important factor's reliability and responsiveness were contributing to 13.95 and 11.10 per cent of variation respectively.

Perception of various service quality variables among farmers

Key results about the perception of the farmers towards the services provided by input dealers are presented variable wise in the Table 2. Under tangibility factor, highly perceived variables are several pamphlets and posters are attractively displayed for product information and usage in the input shops and convenience of location of the input shop with their respective mean scores of 4.45 and 4.38. The least perceived variable of all is that input dealers offer farm implements and machinery to the farmers on hire basis with mean score 3.10. Under reliability factor, the variable namely requested agricultural inputs are delivered to the farmers on time as promised with a mean value of 4.27 was highly perceived by the farmers and least perceived was that input dealers maintain accuracy and authenticity while providing information on various crop related aspects (Mean-2.30). Among responsiveness variables, input dealers warmly welcome the farmers into their shops was highly perceived whereas Input dealers are ready to exchange any damaged products that are purchased from them with new products was least perceived with mean values of 4.07 and 3.07 respectively. Under empathy factor, with a mean value of 3.45 input dealers consider the traditional farming practices while recommending any product to the farmers was recorded as the highly perceived variable while input dealers are interested to help the farmers rather than to increase their sales was least perceived with a mean value of 2.30. Lastly, under assurance, the variable that farmers feel free to ask the

input dealers for help at any point of time had high perception while input dealers provide a warranty or guarantee on the products purchased had low perception with mean values 3.90 and 3.00 respectively.

Perception of the farmers towards overall service quality of the input dealers

The SERVPERF values of each of these factors have been calculated using the SERVPERF formula which is nothing but the mean of service quality variables under each factor. The data from Table 3 unfolds that farmers have highest perception towards Tangibility factor which has a mean score of 3.89. Other factors that had positive perception in the order are Reliability, Responsiveness and Assurance with scores 3.72, 3.54 and 3.48 respectively. On the contrary, farmers showed slight dissatisfaction towards Empathy which is observed from its mean score *i.e.*, 2.89. The overall SERVPERF score of 3.50 implies that perceived service quality about the services provided by the agricultural input dealers among the farmers was high.

Overall perception of farmers towards the services provided/offered by input dealers

An attempt was also made to study the overall perception of the farmers regarding the services offered by the input dealers. Using mean and standard deviation, the respondents were classified under low, medium and high categories. The data presented in Table 4 makes it evident that majority (60.00%) of the farmers had a medium level of perception towards the services rendered by the input dealers followed by 28.33 per cent of the farmers having high level of perception. Lastly, a meagre 11.67 per cent of the farmers had low level of perception towards the input dealers' services.

The study concludes that the perceived service quality of the agricultural input dealers by the farmers, Tangibility factors recorded highest perception with display of pamphlets, location of the input shop as highly perceived variables. This describes that input dealers are maintaining good stock of necessary agricultural inputs needed by farmer (Manasa *et al.*, 2023). The dissatisfaction regarding input dealers not hiring them farm implements and machinery might be explained by the reason that there are custom hiring centres that were already offering these implements to the farmers on hire basis at nominal costs (Kadaraiah *et al.*, 2022). Though farmers perceived the input dealers to be reliable about various aspects, they expressed dissatisfaction about the accuracy and authenticity of information being provided by them. This situation strongly necessitates about educating and capacity building of the input dealers to turn them into more reliable agro advisory service providers (Kumar *et al.*, 2023). Regarding the dissatisfaction about dealers not ready to exchange the damaged products with new ones, the dealers expressed that they thoroughly check the products for any defects while selling and hence don't encourage exchanges later who further mentioned that this type of behaviour from

Table 1: Important service quality factors.

Factors	Variables in service quality	Factor loading	Eigen values	Per cent of variation
Tangibility	Input dealers provide inputs and up to date Agro advisories to the farmers.	0.893	4.652	19.85
	Input dealers offer farm implements and machinery to the farmers on hire basis.	0.815		
	Several pamphlets and posters are attractively displayed for product information and usage.	0.724		
	Expired inputs that are unfit for usage are carefully disposed by the input dealers.	0.642		
	Input shop is located at a convenient place for easy access of the farmers.	0.590		
Reliability	The dealers guarantee high quality agricultural inputs to the farmers.	0.843	3.266	13.95
	Input dealers have good expertise in rendering of Agro input services.	0.809		
	Input dealers maintain accuracy and authenticity while providing information on various crop related aspects.	0.793		
	Requested agricultural inputs are delivered to the farmers on time as promised.	0.711		
Responsiveness	Input dealers warmly welcome the farmers into their shops.	0.869	2.601	11.10
	Input dealers provide quick and efficient services without keeping the farmers waiting.	0.703		
	Input dealers provide satisfactory after services to the farmers related to the purchased products.	0.634		
	Input dealers are ready to exchange any damaged products that are purchased from them with new products.	0.581		
Empathy	Input dealers give equal attention to all the farmers visiting their shop.	0.809	2.379	10.15
	Input dealers are interested to help the farmers rather than to increase their sales.	0.736		
	Tailored advices and recommendations based on individual farmer requirements are offered by the input dealers.	0.641		
	Input dealers consider the traditional farming practices while recommending any product to the farmers.	0.571		
Assurance	Input dealers provide a warranty or guarantee on the products purchased.	0.821	1.548	6.606
	Transparency about product pricing is maintained by the dealers.	0.762		
	Staff working in the input shop are knowledgeable and well trained about the agricultural products and services.	0.632		
	We feel free to ask the input dealers for help at any point of time.	0.587		

farmers will be unprofitable for them. Input dealers are facing a problem of unpredictable attitude of farmers and they suggested in their feedback that farmers should have positive attitude towards input dealers and their professional services (Kumar *et al.*, 2024). It was also noticed

that farmers perceived that the input dealers were not empathetic towards them and most of them felt that that they give differential attention to the farmers based on their social status. This kind of attitude among the farmers about input dealers will not give positive results when we chose

Table 2: Perception of various service quality variables among farmers.

Variables	Mean	Standard deviation
Tangibility		
Input dealers provide inputs and up to date Agro advisories to the farmers	3.70	1.1000
Input dealers offer farm implements and machinery to the farmers on hire basis	3.10	0.9815
Several pamphlets and posters are attractively displayed for product information and usage	4.45	0.4983
Expired inputs that are unfit for usage are carefully disposed by the input dealers	3.78	0.7766
Input shop is located at a convenient place for easy access of the farmers	4.38	0.5654
Reliability		
The dealers guarantee high quality agricultural inputs to the farmers	4.20	1.0320
Input dealers have good expertise in rendering of Agro input services	4.10	0.9695
Input dealers maintain accuracy and authenticity while providing information on various crop related aspects	2.30	1.0296
Requested agricultural inputs are delivered to the farmers on time as promised	4.27	0.6320
Responsiveness		
Input dealers warmly welcome the farmers into their shops	4.07	0.7321
Input dealers provide quick and efficient services without keeping the farmers waiting	3.90	0.8000
Input dealers provide satisfactory after services to the farmers related to the purchased products	3.10	0.9950
Input dealers are ready to exchange any damaged products that are purchased from them with new products	3.07	1.0096
Empathy		
Input dealers give equal attention to all the farmers visiting their shop	2.82	1.2427
Input dealers are interested to help the farmers rather than to increase their sales	2.30	0.8426
Tailored advices and recommendations based on individual farmer requirements are offered by the input dealers	3.00	0.8944
Input dealers consider the traditional farming practices while recommending any product to the farmers	3.45	0.9987
Assurance		
Input dealers provide a warranty or guarantee on the products purchased	3.00	1.0724
Transparency about product pricing is maintained by the dealers	3.37	1.1766
Staff working in the input shop are knowledgeable and well trained about the agricultural products and services	3.65	0.9367
We feel free to ask the input dealers for help at any point of time	3.90	0.9695

input dealers to introduce new technologies or to disseminate information to the farmers.

Problems faced by the input dealers

The problems faced by the input dealers were studied under different heads like technical, market related, financial, personal, family problems and risks and frauds which were clearly presented in the Table 5. Low education of the clientele (farmer) ranked first among various technical problems faced by the input dealers. Lack of sufficient trainings, insufficient shop space, rental building and lack of business experience were ranked in the order 2nd, 3rd, 4th and 5th respectively. Under market related problems, prevalence of duplicate/fake products was the first and foremost problem faced by the input dealers. Lack of local demand during the off season and difficulties in transportation were ranked 2nd and 3rd respectively. Competition from online input markets, poor connectivity to nearby towns and lack of preservation facilities occupied 4th, 5th and 6th places in the order. Among financial problems, purchasing

Table 3: Perception of the farmers towards overall service quality of the input dealers.

Factors	Service quality
Tangibility	3.89
Reliability	3.72
Responsiveness	3.54
Empathy	2.89
Assurance	3.48
Total service quality	3.504

Table 4: Distribution of farmers according to their level of perception (N=120).

Category	Frequency	Percentage
Low (<3.23)	14	11.67
Medium (3.23 – 3.81)	72	60.00
High (>3.81)	34	28.33

(Mean = 3.522, SD = 0.292).

Table 5: Problems faced by the input dealers in providing services to the farmers.

Technical problems	Garret mean score	Rank
Low education of clientele (farmer)	68	I
Lack of sufficient training	58.75	II
Insufficient shop space	40.58	III
Rental building	40.41	IV
Lack of business experience	37.58	V
Market related problems		
Lack of local demand during the off season	53.76	II
Lack of preservation facilities	42.3	VI
Difficulties in transportation	47.73	III
Poor connectivity to nearby towns	42.86	V
Prevalence of duplicate/fake products	66.71	I
Competition from online input markets	45.16	IV
Financial problems		
Inadequate funding for business operations	47.53	III
Purchasing on the credit basis	61.7	I
Personal debts	54.88	II
Pressure from money lenders for repayment	35.88	IV
Personal problems		
Overloaded work	58.23	I
Increased responsibility due to multiple roles	54.43	II
Social pressures and taboos	37.33	III
Family problems		
Disturbances in family relationships	32.61	IV
Lack of support from family	42.73	III
Health issues of family members	54.63	II
Imbalance between family life and business	63.02	I
Risks and frauds		
Demand risk of product	45.92	IV
Bribery by inspection officers	67.75	I
Employee frauds	59.33	II
Theft in shop	46.06	III

inputs on credit basis was ranked as first problem concerning the dealers. Personal debts were ranked 2nd, inadequate funding for business operations was ranked 3rd and pressure from money lenders for repayment was ranked 4th in the list of different financial problems faced by the input dealers. A glimpse of the data of personal problems faced by the input dealers explains that overloaded work was complained to be first and foremost problems faced by the dealers followed by increased responsibility due to multiple roles (2nd) and social pressures and taboos (3rd) respectively. Among family problems, imbalance between family life and business ranked 1st and health issues of family members, lack of support from family and disturbances in family relationships ranked 2nd, 3rd and 4th respectively. Lastly under risks and frauds, bribery by inspection officers ranked first. Employee frauds, theft in shop and demand risk of product were ranked in the order of 2nd, 3rd and 4th respectively.

The findings of the study unfold that the input dealers were mainly facing the problems of low education and purchasing of inputs on credit from the farmers. They were also expressing need for sufficient trainings regarding agricultural inputs. Input dealers were also worried about the prevalence of fake products in the market which is affecting their business. Overloaded work and imbalance between family life and business as expressed by the dealers is indicating their occupational stress and that measures have to be taken for their mental wellbeing to increase their business efficiency. These problems confronted by the input dealers were supported by the outcomes of the earlier findings (Bamigboye and Adeniji, 2022; Singh *et al.*, 2021; Reddy *et al.*, 2020; Singh *et al.*, 2013).

Limitations

The limitations of this study include its relatively small sample size and geographical focus, as only two districts in Telangana state were selected, potentially limiting the generalizability of findings across broader regions with different agricultural practices and dealer networks. Additionally, the reliance on self-reported data introduces the possibility of response bias, particularly regarding perceptions of service quality. The study also does not deeply explore the regulatory and infrastructural constraints that might impact input dealers' service provision, nor does it account for seasonal variations in demand that could influence the findings. Lastly, the SERVPERF model, while effective, may not fully capture all nuanced expectations farmers have for input dealer services, particularly those unique to the evolving Indian agricultural context.

CONCLUSION

Multifaceted challenges faced by agricultural input dealers need to be addressed through targeted interventions, including enhanced training for both input dealers and farmers, improved market regulations to curb fake products and better financial support mechanisms. Farmers had

medium level of perception towards the services provided by the input dealers makes it clear that though the dealers are fulfilling their task of product selling with expertise, they are lacking in giving accurate crop related advisories to the farmers. Most importantly, the farmers feel that input dealers lack empathy towards them. Hence steps should be taken towards inculcating empathy in them towards the farmers. Dealers should be encouraged to all treat the farmers who visit them equally to create a sense of belongingness especially in the marginalised farmers. These measures can develop a favourable perception among the farmers towards the input dealers who can become an important mode of implementing agricultural change and transition in production systems.

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Disclaimers

The views and conclusions expressed in this article are solely those of the authors and do not necessarily represent the views of their affiliated institutions. The authors are responsible for the accuracy and completeness of the information provided, but do not accept any liability for any direct or indirect losses resulting from the use of this content.

Informed consent

No Animals are involved in this research study.

Conflict of interest

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