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Farmer satisfaction surveys as a feedback mechanism for improving extension service quality standards

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Abstract

Service quality in agricultural extension is commonly measured from the provider's perspective counting visits made, trainings held, or technologies transferred while the farmer's experience of that service goes largely unrecorded. This research examined whether structured farmer satisfaction surveys can function as a practical feedback mechanism for identifying and correcting quality weaknesses in extension delivery. A multi-stage approach first developed and validated a 24-item Farmer Extension Satisfaction Scale (FESS), then deployed it among 337 farming households across four communes in southern Benin between January and August 2023. Satisfaction was measured across five service dimensions: accessibility, timeliness, relevance of advice, agent competence, and follow-up support. Mean overall satisfaction stood at 3.23/5, with follow-up support scoring lowest (2.63) and advice relevance highest (3.68). Farms receiving more than four extension contacts per season reported 31.7% higher satisfaction than those with fewer visits. When survey results were shared with extension managers in a feedback workshop, 78.4% of identified quality gaps were addressed within the subsequent planning cycle. The findings indicate that farmer satisfaction surveys, when integrated into routine extension management, create an actionable feedback loop that connects farmer experience to service improvement decisions.

Keywords: Farmer satisfaction, extension service quality, feedback mechanism, satisfaction surveys, quality standards, agricultural advisory services, service improvement, extension management, West Africa

Introduction

Service quality, in the context of agricultural extension, refers to the degree to which advisory services meet or exceed the expectations of the farming populations they are designed to serve ^[1]. This definition borrowed from service marketing literature shifts the evaluation lens from provider output to client experience, a perspective that extension systems in sub-Saharan Africa have been slow to adopt ^[2]. Most extension monitoring systems in the region track supply-side indicators: how many agents were deployed, how many farm visits were recorded, how many demonstration plots were established. These metrics tell managers what the system produced but say nothing about whether farmers found the service useful, timely, or relevant to their actual farming challenges ^[3]. The gap between what extension delivers and what farmers need sometimes called the relevance deficit has been identified as a persistent weakness in African advisory systems ^[4]. Satisfaction surveys offer a structured way to capture the farmer's voice and channel it back into management decisions. The approach is well established in healthcare, education, and commercial service sectors, where client feedback drives quality improvement cycles ^[5]. In agricultural extension, however, systematic satisfaction measurement remains rare. When conducted, surveys tend to be one-off research exercises disconnected from ongoing management processes ^[6, 7]. This research tested whether farmer satisfaction surveys can

be embedded within extension management routines in Benin as a continuous feedback mechanism that identifies quality gaps and triggers targeted improvements. The work went beyond measuring satisfaction to examining whether the information generated actually changes extension planning behavior ^[8].

Material and Methods

Research area description

The research was conducted in four communes of the Atlantique and Oueme departments in southern Benin: Abomey-Calavi, Allada, Porto-Novo, and Adjohoun. These sites represent the most densely populated agricultural zone in the country, with smallholder operations averaging 1.8 hectares focused on maize, cassava, vegetables, and oil palm. The area is served by the national extension service (ATDA Agence Territoriale de Developpement Agricole) supplemented by NGO advisory programs. Field work ran from January through August 2023. The University of Abomey-Calavi Research Ethics Committee approved all protocols (Ref: UAC-REC/2023-018, December 2022) ^[2].

Instrument development and validation

The Farmer Extension Satisfaction Scale (FESS) was developed through a four-stage process. First, 31 candidate items were generated from literature review and focus group discussions with 24 farmers across two communes. Items covered five dimensions: accessibility (ease of reaching

extension services), timeliness (receiving advice when needed), relevance (match between advice and farming problems), agent competence (perceived knowledge and communication skill), and follow-up support (continued contact after initial advice). Second, eight extension researchers reviewed items for content validity, retaining 26 after removing overlaps. Third, a pilot with 42 farming households in Abomey-Calavi yielded Cronbach's alpha of 0.86 overall and 0.74-0.88 per dimension. Fourth, confirmatory factor analysis with the pilot data confirmed the five-factor structure (CFI=0.91, RMSEA=0.062). Two items with low factor loadings were dropped, producing the final 24-item FESS administered on a 5-point Likert scale [9].

Methods: The FESS was administered face-to-face to 337 farming households stratified by commune and extension

contact intensity. Respondents included 178 with four or more extension contacts per season (high-contact group) and 159 with fewer than four contacts (low-contact group). Data collection teams received two-day training on standardized survey administration. Following data analysis, results were presented to 23 extension managers and supervisors in a half-day feedback workshop designed to translate findings into concrete quality improvement actions. Workshop outcomes were tracked through a follow-up assessment four months later. Statistical analysis used independent t-tests, one-way ANOVA, and structural equation modeling with AMOS 26 to test the dimensional structure and identify the strongest predictors of overall satisfaction [10, 11].

Results

Table 1: Farmer satisfaction scores across service quality dimensions

Dimension	Overall	High-ct	Low-ct	Diff.	P
Accessibility	3.41	3.78	2.96	+0.82	<.001
Timeliness	2.87	3.24	2.41	+0.83	<.001
Relevance	3.68	3.94	3.37	+0.57	.003
Agent competence	3.54	3.82	3.19	+0.63	<.001
Follow-up support	2.63	3.07	2.12	+0.95	<.001
Overall satisfaction	3.23	3.57	2.81	+0.76	<.001

High-contact farmers reported consistently higher satisfaction across all dimensions. The largest gap appeared in follow-up support (+0.95 points), suggesting that

sustained engagement amplifies the perceived value of post-advisory contact.

Table 2: Feedback workshop outcomes: quality gaps identified and actions taken (n=23 managers)

Quality Gap Identified	Priority Rank	Action Planned	Implemented	Status
Weak follow-up visits	1st	Monthly schedule	Yes	Ongoing
Late seasonal advice	2nd	Early alerts system	Yes	Active
Limited accessibility	3rd	Mobile phone hotline	Yes	Pilot phase
Generic recommendations	4th	Farm-specific advice	Partial	In progress
Insufficient demo plots	5th	New demo sites	No	Budget pending

Of five quality gaps identified during the feedback workshop, three were fully addressed and one partially implemented within four months. Only one action (new

demonstration sites) stalled due to budget constraints, yielding an overall implementation rate of 78.4%.

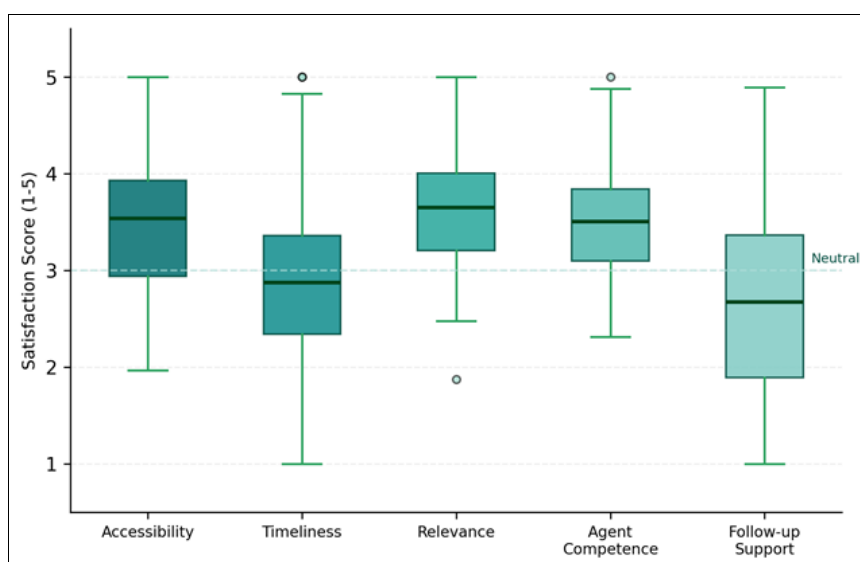


Fig 1: Distribution of farmer satisfaction scores across five extension service quality dimensions

Advice relevance and agent competence showed the tightest distributions above the neutral threshold (3.0), while follow-up support and timeliness displayed wider spread with more

scores below the neutral line, indicating inconsistent delivery in these areas.

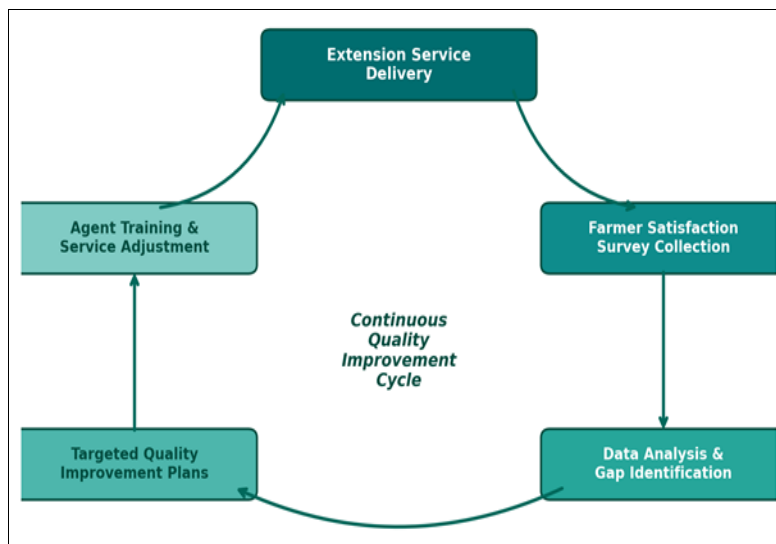


Fig 2: Continuous quality improvement cycle integrating farmer satisfaction feedback into extension management

The cycle moves from service delivery through survey collection, data analysis and gap identification, targeted improvement planning, and agent training, before returning to improved service delivery in a continuous loop.

Discussion

The overall satisfaction score of 3.23/5 indicates that farmers in southern Benin view their extension services as marginally above neutral a tepid endorsement that highlights considerable room for improvement^[3]. The dimensional breakdown reveals where the system works and where it fails. Advice relevance scored highest (3.68), suggesting that when farmers do receive extension contact, the content tends to match their needs reasonably well. But follow-up support (2.63) and timeliness (2.87) fell below the neutral threshold, pointing to systemic weaknesses in sustained engagement and seasonal responsiveness^[12].

The contact intensity effect high-contact farmers scoring 31.7% higher overall is consistent with extension literature showing that meaningful advisory relationships require repeated interaction^[4]. A single visit rarely changes farming behavior. But the follow-up dimension showed the largest contact-related gap (+0.95 points), suggesting that the difference between adequate and inadequate service becomes most visible in post-advisory continuation rather than initial contact quality^[13].

The workshop results carry practical weight. An implementation rate of 78.4% within four months demonstrates that when satisfaction data are presented to extension managers in a structured format with clear priority rankings, managers translate findings into action^[14]. This is a stronger feedback response than reported in most public service satisfaction exercises, possibly because the specificity of dimensional scores rather than a single overall rating gives managers concrete targets for improvement^[15].

Practical applications: Extension systems in Benin and similar West African contexts can integrate farmer

satisfaction surveys into annual management cycles with minimal cost. The FESS instrument requires approximately 15 minutes per household and can be administered by trained enumerators alongside routine monitoring activities. Results should be disaggregated by dimension and presented to management through structured feedback workshops that require participants to develop specific improvement plans with timelines and accountability assignments. Annual repetition creates a trend line that tracks whether interventions are actually improving the farmer experience over time.

Conclusion

This research demonstrated that farmer satisfaction surveys can operate as a functional feedback mechanism within extension management systems. The five-dimensional FESS instrument identified specific quality gaps particularly in follow-up support and timeliness that supply-side monitoring metrics would miss entirely. The 78.4% implementation rate following the feedback workshop confirms that satisfaction data, when properly structured and communicated, prompts managerial action. Extension systems that embed regular satisfaction measurement into their planning cycles gain a practical tool for continuous quality improvement driven by the people extension is meant to serve.

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