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The Role of Agricultural Counselors' Performance in Shaping Rice Farmers' Satisfaction and Behavior: A Regional Study in East Java, Indonesia

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Abstract: This study examines the role of agricultural counselors' performance in shaping rice farmers' satisfaction and behavior in East Java, Indonesia. Agricultural extension is central to national agricultural development, as counselors act as facilitators, motivators, and change agents who bridge knowledge and technology to farmers. Using a survey of 215 agricultural counselors and 215 rice farmers across Pacitan, Nganjuk, and Lamongan, data were collected through validated questionnaires and analyzed with SEM-PLS. The findings reveal that counselor performance is significantly influenced by job satisfaction, competence, motivation, and independence, while individual characteristics contribute less. Among these, job satisfaction shows the strongest effect, indicating that adequate facilities, supportive work environments, and fair compensation drive counselor effectiveness. Furthermore, counselor performance directly enhances farmers' behavior in adopting agricultural innovations and indirectly improves their satisfaction, particularly through improved yields and more consistent guidance. Farmers' satisfaction, in turn, fosters positive and proactive behaviors such as active participation and the application of extension recommendations. These results highlight that effective extension services depend not only on technical competence but also on psychological and organizational factors that motivate counselors and strengthen farmer trust. The study concludes that strengthening counselor performance is essential for sustainable agricultural development, farmer empowerment, and increased rice productivity.

Keywords: Agricultural extension; Counselor performance; Farmer behavior; Farmer satisfaction; Job satisfaction

Introduction

Agricultural development plays a crucial role in the national economic system, particularly in addressing the ever-increasing needs of the community. Agricultural extension workers are at the forefront of bridging agricultural knowledge and technology to farmers. Extension workers must be highly competent, independent, professional, and able to respond to the challenges of the times (Kpodo & Nejadhashemi, 2025). Extension worker competency reflects the unity of knowledge, skills, and professional attitudes that are not only technical, but also methodological, social, and personal. In practice, extension workers are not merely conveyors of information, but also facilitators, motivators, and dynamists of agricultural development. A participatory approach that demands social sensitivity and the ability to facilitate shared decision-making, as emphasized by Van den Ban & Hawkins, positions extension workers as agents of change who motivate farmers to adopt innovations (Rizzo et al., 2024). The performance of agricultural extension workers is

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strongly influenced by internal factors, such as educational background and length of service, as well as external factors such as the work environment and institutional support (Abd-El-Salam, 2023). It is emphasized that individual characteristics, including age, gender, marital status, number of dependents, and length of service, also determine work behavior, motivation, and loyalty.

Education and work experience have been shown to enhance adaptive capacity for innovation and interpersonal skills in building trust with farmers (Milardo, 2025). Furthermore, motivation is a strategic element that drives the behavior of extension workers. Bandhu et al. (2024) explain that motivation is a combination of interests, needs, and desires to achieve goals, while Lee (2024) emphasizes the intensity, direction, and persistence of individuals. Extension workers with high motivation tend to be more active in establishing communication, seeking technical solutions, and developing their own capacity, both due to intrinsic factors such as social responsibility and extrinsic factors such as organizational support. However, one of the causes of the weakness of the agricultural extension system so far is inconsistent institutional changes from the central to the regional levels. Since Presidential Decree No. 95 of 1969, the institutional structure of extension has changed several times, starting from the establishment of BPP in 1976 to BIPP in 1996. Regional autonomy based on Law No. 22 of 1999 and regional financial balance through Law No. Law No. 25 of 1999 exacerbated the situation because the costs and management of extension services were delegated to the regions, which in practice often did not prioritize the budget (Sen et al., 2025). This resulted in institutional limitations on the role and function of agricultural extension workers.

Performance in the extension context is not merely the achievement of program targets, but rather the tangible results, both quantitatively and qualitatively, of individual task execution. Yuchtman et al. (1967) view performance as an organization's ability to access limited resources through stakeholder perceptions. Gazi et al. (2024) emphasized that performance is an individual's actual behavior toward work, as seen from the results and quality of work (Bashir et al., 2020). In this regard, job satisfaction among extension workers also plays a crucial role because it reflects an individual's attitude toward work. Memon et al. (2023) and Azhar (2020) emphasized that satisfaction is determined by the extent to which work meets expectations while intrinsic factors such as responsibility and the meaning of work, as well as extrinsic factors such as superior support, the pay system, and the work environment, contribute to motivation. Ulrich et al. (2024) emphasized that performance is also an important foundation for supporting the effectiveness and development of human resources within an organization. The factors that influence performance are very complex, including individual characteristics, physical condition, motivation, and work situations. In this case, the independence of extension workers is also an important prerequisite, including emotional, intellectual, economic, and social abilities to manage tasks without relying on external parties.

Various studies have shown that indicators such as motivation, competence, and organizational support significantly influence the performance of extension workers (Marius et al., 2015). Good extension worker performance also impacts changes in farmer behavior and their level of satisfaction with extension services. For example, farmer satisfaction with the performance of extension workers in Kalipuro District, Banyuwangi, reached 82.66%, indicating a very high level of satisfaction (Mujiburrahmad et al., 2015). This means that extension workers who are able to provide relevant information and targeted assistance will be more successful in encouraging farmers to adopt better agricultural practices. Farmer behavior is the result of a complex interaction between internal and external factors that shape how farmers think, behave, and act in agricultural activities. Internal factors include age, gender, knowledge, experience, and motivation, all of which influence how farmers respond to and implement agricultural technology; age, for example, is often correlated with experience and a broader understanding of farming.

Furthermore, perceptions shaped by knowledge, experience, and social interactions determine the extent to which farmers accept innovations: changes in perception are generally followed by changes in behavior, especially for things with which farmers are already familiar. In this context, the role of extension workers as agents of change becomes increasingly crucial—they not only convey technical information but also help farmers develop independent decision-making skills (pp. 137). Empirical findings demonstrate a strong relationship between extension worker performance and farmer behavior: for example, Ikbalbahua reported a coefficient of influence of extension worker performance on farmer behavior of 0.83 (Ikbalbahua, 2018) and another study found that good farmer behavior in implementing technology is directly related to increased farm productivity. Therefore, developing progressive farmer behavior requires a holistic approach that combines technical, social, and participatory aspects.

Farmer satisfaction is an important indicator in assessing the success of extension services and is directly related to service quality. Conceptually, satisfaction arises from the comparison between farmer expectations

and the actual performance of extension workers: if performance exceeds expectations, satisfaction increases. Service quality—including reliability, empathy, and responsiveness—is a key determinant of satisfaction, and satisfied farmers tend to be more open and more active in implementing extension recommendations (Tham-Agyekum et al., 2024). However, farmer satisfaction levels still show variations between regions: some studies recorded satisfaction in the "satisfactory" category, while others found low satisfaction indices index 38.31%), indicating a large gap between expectations and service practices in the field. Farmer participation in the planning and implementation of extension services has been shown to increase positive perceptions of services and certain service dimensions have a positive correlation with satisfaction. Given this reciprocal relationship, increasing the capacity of extension workers (technical and social competencies), strengthening motivation, managing individual characteristics, and using participatory methods and appropriate extension media are key strategies to increase farmer satisfaction and ultimately accelerate technology adoption and productivity increases.

Unfortunately, in many regions, extension services are suboptimal. Extension workers often provide support to more than one village and rely solely on face-to-face meetings without adequate media support. This is due to a lack of technical training, limited regional budgets, and a lack of attention to job satisfaction and the psychological well-being of extension workers. Yet, the role of extension workers is highly strategic as initiators, facilitators, and agents of change. Since the reform era, decentralization has led to varying performance among extension workers across regions, depending on policy support, institutional arrangements, and the performance management implemented, including through identification, measurement, and management processes (Antwi-Agyei & Stringer, 2021). In this regard, the social independence of extension workers, such as the ability to establish adaptive relationships with farmer groups and other networks, is a crucial asset in driving the success of empowerment-based extension services (Cook et al., 2021).

Therefore, agricultural extension must be directed not only at increasing productivity but also at building farmer independence as agribusiness actors based on local resources. Extension services should not create dependency, but rather empower. This success depends heavily on the performance of extension workers in planning, implementing, and evaluating extension programs on an ongoing basis. Furthermore, efforts to improve competency, strengthen intrinsic and extrinsic motivation, manage individual characteristics, enhance extension worker independence, and ensure consistent policies across regions are key to improving the quality of extension workers, farmer satisfaction, achieving desired behavioral changes, and sustaining national agricultural development.

Method

This research aims to explain the causal relationships between variables that influence the performance of agricultural extension workers and their impact on farmer behavior.

Location and Region Selection

The research was conducted in three regencies in East Java: Pacitan (Lowest Rice Production: 83.37 tons); Nganjuk (Medium Rice Production: 444.10 tons). Lamongan (Highest Rice Production: 873,786 tons). This contrasting selection of regions aims to consider varying agro-production conditions in the analysis of extension worker performance.

Sampling Design and Population
Method

Survey with a questionnaire.

Population & Sample

430 rice farmers.

Measurement Instrument

Likert scale of 1–5 to measure perceptions and attitudes.

Instrument Quality Test

Construct validity and composite reliability tests were conducted. The results indicated that the instrument was valid (AVE>0.5) and reliable (CR >0.7).

Data Analysis
Data Collection Period

February to April 2022.

Analysis Method

Structural Equation Modeling (SEM) using Bootstrapping technique in SmartPLS software.

Main Hypothesis

This model examines the influence of six independent variables on Extension Worker Performance and the impact of Extension Worker Performance on Farmer Behavior, including the mediating effects:

Table 1. Main Hypothesis

Hypothesis	Tested Relationships
H1	Extension Worker Organizational Structure → Extension Worker Performance
H2	Characteristics of Extension Workers → Extension Worker Performance
H3	Extension Worker Job Satisfaction → Extension Worker Performance
H4	Extension Worker Competence → Extension Worker Performance
H5	Extension Worker Motivation → Extension Worker Performance
H6	Extension Worker Independence → Extension Worker Performance
H7	Extension Worker Performance → Farmer Behavior
H8	Extension Worker Performance → Farmer Satisfaction → Farmer Behavior (Mediation)

Figure 1. Research scheme

Schematic Description

Input (Exogenous/Independent Variables): Organizational Structure, Extension Worker Characteristics, Extension Worker Job Satisfaction, Extension Worker Competence, Extension Worker Motivation, Extension Worker Independence; Endogenous/Mediating Variables: Extension Worker Performance, Farmer Satisfaction; Output (Dependent Variable): Farmer Behavior; Arrow (→): Indicates the influence hypothesis (causal relationship) being tested.

Results and Discussion

Respondents' Perception

Characteristics of Extension Workers

Based on the average respondent responses, the individual characteristics of extension workers received an overall mean score of 4.44, indicating a very good assessment by respondents on this dimension. Of the five indicators measured, the number of assisted farmers ranked highest with a mean score of 4.56, indicating that extension workers were highly competent in managing and mentoring the farmers under their responsibility. Furthermore, the rank/functionality indicator, with a mean score of 4.54 and work experience with a mean score of 4.53, indicated that professionalism and experience significantly contribute to the effectiveness of extension work. The age indicator recorded a score of 4.30, indicating that the age of extension workers is quite relevant in supporting the implementation of field duties. While the size of the working area received the lowest mean score of 4.29, which, while still high, suggests challenges in managing large areas. Analysis of these findings indicates that, in general, the individual characteristics of extension workers are at a level that strongly supports their performance, particularly in terms of the number of assisted farmers, rank, and work experience. However, slightly lower scores for the region and age aspects indicate the importance of paying attention to the proportional division of work areas and the need for cross-generational training to maintain optimal extension effectiveness.

Extension Worker Job Satisfaction

Based on the average respondent's answers, the extension worker satisfaction variable obtained an overall mean score of 4.56, reflecting a very high level of satisfaction with various aspects of the job. The indicator with the highest score was facilities, reaching a mean score of 4.70, indicating that extension workers were very satisfied with the facilities and infrastructure available to support their duties. Furthermore, the social aspect of the job came in second with a mean score of 4.55, indicating that harmonious working relationships and social support in the work environment were important factors in their satisfaction. The working conditions indicator came in third with a mean score of 4.54, indicating that extension workers considered the physical and non-physical work environment to be adequate and conducive. Next, salary recorded a mean score of 4.52, indicating that financial compensation was considered quite satisfactory, although not the most dominant factor. Finally, opportunities for advancement achieved a mean score of 4.51, which, while being the lowest among the other indicators, remains in the very high category, indicating that extension workers still see opportunities for future career development.

Extension Worker Competence

Based on the average respondent's answers, the extension worker competency variable achieved an overall mean score of 4.58, indicating a very high level of competence in carrying out their role. The indicator

with the highest score was evaluation and reporting skills, with a mean score of 4.63, indicating that extension workers possess excellent skills in assessing activity results and compiling them in a systematic report. Next came technology dissemination skills, with a mean score of 4.59, reflecting the extension workers' ability to effectively convey agricultural technology information to farmers. Furthermore, extension workers' leadership skills achieved a mean score of 4.57, indicating that extension workers are able to optimally lead and direct farmers and farmer groups. Finally, the ability to implement extension services recorded a mean of 4.53, which, although being the lowest value among the other indicators, remains in the very high category, indicating that extension workers have adequate skills in planning and implementing extension activities in the field.

Extension Worker Motivation

Based on the average respondent responses, the extension worker motivation variable obtained an overall mean score of 4.65, indicating a very high level of motivation in carrying out their duties. The indicator with the highest score was the need for affiliation, with a mean score of 4.73, indicating that extension workers have a strong drive to build good social relationships, cooperate, and maintain harmony with farmers and colleagues. Second place was taken by the need for power, with a mean score of 4.66, reflecting a motivation to influence, direct, and lead in order to achieve extension goals. Meanwhile, the need for achievement obtained a mean score of 4.57, which, although being the lowest score among the other indicators, remains in the very high category, indicating that extension workers have a strong desire to achieve the best work results and meet established targets.

Extension Worker Independence

Based on the average respondent responses, the extension worker independence variable obtained an overall mean score of 4.60, reflecting a very high level of independence in various aspects of life and work. The indicator with the highest score was intellectual independence, with a mean of 4.70, indicating that extension workers possess the ability to think critically, make decisions, and solve problems independently. Furthermore, emotional independence and social independence both achieved a mean of 4.57, indicating that extension workers are able to control their emotions, maintain interpersonal relationships, and adapt well to their social environment. Finally, economic independence, with a mean of 4.54, although being the lowest among the other indicators, remains in the very high category, indicating that extension workers are quite capable of meeting their financial needs independently without relying on others.

Extension Worker Performance

Based on the average results of respondents' answers, the extension worker performance variable achieved an overall mean score of 4.56, reflecting excellent performance in carrying out extension duties. The indicator with the highest score was technical cultivation skills, with a mean of 4.59, indicating that extension workers possess excellent skills in implementing and teaching agricultural cultivation techniques to farmers. Technology dissemination came in second place with a mean score of 4.57, indicating the extension workers' ability to effectively convey agricultural innovations and technologies. Furthermore, agricultural extension planning and implementation both achieved a mean score of 4.55, indicating that extension activities were well-planned and executed according to plan. Finally, agricultural extension evaluation and reporting recorded a mean score of 4.52, which, although being at the lowest level, still falls into the very high category, indicating that extension workers are capable of conducting assessments and preparing activity reports quite well.

Farmer Satisfaction

Based on the average respondent responses, the farmer satisfaction variable achieved an overall mean score of 4.80, indicating a very high level of satisfaction with the role of extension workers. The indicator with the highest score was yield/production, with a mean score of 4.84, indicating that farmers were very satisfied with the increased yields they achieved as a result of extension activities. Second place was given to guidance intensity, with a mean score of 4.79, indicating that farmers received regular, consistent, and appropriate assistance. Meanwhile, technological adequacy achieved a mean score of 4.77, which, although being at the lowest level, still falls into the very high category, indicating that the technology introduced and implemented is sufficient to support increased agricultural productivity.

Farmer Behavior

Based on the average respondent responses, the farmer behavior variable obtained an overall mean score of 4.58, reflecting positive and responsive behavior toward extension activities. The indicator with the highest score was farmer participation, with a mean score of 4.61, indicating that farmers are actively involved in various extension activities and decision-making processes related to farming. Next came extension implementation, with a mean score of 4.59, indicating that farmers consistently apply the materials, technology, and recommendations obtained from

extension activities in the field. Finally, farmer competence obtained a mean score of 4.53, which, although at the lowest, remains in the very high category, indicating that farmers possess sufficient knowledge, skills, and abilities to manage their agricultural businesses effectively.

The results of the study showed that extension worker characteristics such as age, work experience, area of work, number of assisted farmers, and rank or functional position significantly influenced the performance of agricultural extension workers, although with the lowest influence strength at 2.20% (p-value 0.04). On the other hand, extension worker job satisfaction recorded the largest influence on extension worker performance, at 60.1% (p-value 0.000). This indicates that aspects such as development opportunities, income, working conditions, social relations in the workplace, and completeness of facilities play a significant role in improving extension worker performance.

Table 2. Hypothesis Test Results

Hypotheses	Original Sample (O)	P value
Extension Worker Characteristics → Extension Worker Performance	0.02	0.04
Extension Worker Job Satisfaction → Extension Worker Performance	0.60	0.00
Extension Worker Competence → Extension Worker Performance	0.29	0.00
Extension Worker Motivation → Extension Worker Performance	0.11	0.01
Extension Worker Independence → Extension Worker Performance	0.31	0.00
Extension Worker Performance →Farmer Behavior	0.71	0.00
Extension Worker Performance →Farmer Satisfaction	0.23	0.03
Farmer Satisfaction →Farmer Behavior	0.06	0.03

Furthermore, extension worker competency also contributed significantly to extension worker performance, with an influence of 29.4%, indicating that extension workers' knowledge, skills, and professional attitudes are crucial in supporting the implementation of their duties. Motivation factors also directly influenced extension worker performance, at 11.50%, primarily related to the need for achievement, affiliation, and the need for influence or power. Furthermore, the independence of extension workers accounted for a 31.50% impact on their performance, encompassing aspects of economic, intellectual, emotional, and social independence, significantly supporting the effectiveness of their work in the field.

Good extension worker performance has been shown to have a broad impact on farmer behavior, particularly in terms of the acceptance and implementation of agricultural technology to increase rice production. A significant 71.5% of extension worker performance variables influenced changes in farmer behavior in adopting technology. Furthermore, 23% of extension worker performance also influenced farmer satisfaction, primarily through indicators such as planning, implementation, evaluation, and reporting of extension activities, technology dissemination, and technical skills in cultivation. Finally, farmer satisfaction also significantly impacted farmer behavior in increasing rice productivity, contributing 6%, influenced by perceptions of technological adequacy, intensity of mentoring, and production yields.

Discussion

The Influence of Extension Worker Characteristics on Extension Worker Performance

The results of this study indicate that individual characteristics of extension workers significantly influence the performance of agricultural extension workers, although the effect size is relatively small compared to other variables, at 2.20%. This is evident in how the number of farmers assisted, rank, and work experience, which occupy the highest positions among extension worker characteristics, are able to drive the achievement of key performance indicators, such as technical cultivation skills and technology dissemination. This means that the more farmers who can be assisted and the more extensive the experience of extension workers, the better they will be at conveying agricultural innovations and teaching technical skills to farmers. However, this influence is limited because indicators with lower performance, such as the size of the extension worker's working area and age, are not optimal in strengthening performance in relatively weak areas, such as extension evaluation and reporting (Salam et al., 2024; Jamil et al., 2023). Thus, although individual characteristics are important, other variables such as motivation, competence, or job satisfaction are more dominant in improving the overall performance of extension workers.

These findings can be further analyzed using Victor Vroom's Expectancy Theory, which emphasizes that an individual's performance is strongly influenced by the expectation that their efforts will result in good performance, and that this performance will lead to outcomes that are valuable to the individual. In this

context, individual characteristics of extension workers—such as experience and rank—create the belief that their abilities can have a tangible impact on extension worker performance. However, when other characteristics, such as age or work area coverage, are not directly linked to outcomes deemed important by the extension worker, their contribution to performance is limited. This explains why the influence of individual characteristics remains significant, but not as strong as other variables that may be more clearly related to outcome expectations, such as motivation to achieve or technical competency that directly supports extension success (Jeno et al., 2023).

The Influence of Extension Worker Job Satisfaction on Extension Worker Performance

The results of the study indicate that extension worker job satisfaction has the largest influence on agricultural extension worker performance, at 60.1%, with a very strong level of significance. These findings are understandable because the indicators with the highest job satisfaction scores, such as the availability of facilities and the social aspects of the job, directly support key performance indicators, namely technical cultivation skills and technology dissemination (Angelakoglou et al., 2019; Surya et al., 2021). Adequate facilities and infrastructure enable extension workers to work more efficiently in teaching cultivation techniques to farmers, while a harmonious social environment facilitates the smooth and effective dissemination of agricultural innovations. Furthermore, other indicators, such as adequate working conditions and salaries, also contribute to a conducive work environment, ultimately enhancing optimal extension planning and implementation. Thus, job satisfaction has been shown to be a key driver in strengthening every aspect of extension worker performance (Davidescu et al., 2020; Lo et al., 2024).

These findings align with Abraham Maslow's Theory of Needs, which emphasizes that individuals perform optimally when their basic needs are met, including physiological, safety, social, esteem, and self-actualization needs. In the context of agricultural extension workers, meeting basic needs such as salary, working conditions, and facilities provides a sense of security and comfort, while social aspects and opportunities for advancement fulfill the need for esteem and self-actualization. When these needs are met, extension workers are motivated to perform at their best, both in improving technical skills, disseminating technology, and planning and reporting extension activities. This explains why job satisfaction is the variable with the most dominant influence on improving extension worker performance (Wulansari, 2025).

The Influence of Extension Worker Competence on Extension Worker Performance

The results of the study indicate that extension worker competency significantly contributes to the performance of agricultural extension workers, with an impact of 29.4%. This can be explained by the correlation between the highest-performing indicators in competency, namely evaluation and reporting skills and technology dissemination skills, which directly strengthen the highest-performing indicators in performance, namely technical cultivation skills and technology dissemination. This means that extension workers with strong evaluation and reporting skills are able to assess and improve the extension process, thereby optimizing farmer yields, while the ability to disseminate technology directly contributes to the success of agricultural innovation in the field. On the other hand, lower-performing indicators, such as extension implementation skills, still support but are not fully capable of improving the relatively weaker performance aspect, namely extension evaluation and reporting. Therefore, although the contribution of competency is not as significant as job satisfaction, this factor remains a crucial foundation for maintaining the quality of extension work (Naz et al., 2020; Cerqueira et al., 2025).

This finding can be linked to Victor Vroom's Expectancy Theory, which explains that an individual's performance is strongly influenced by the expectation that their abilities or efforts will result in good performance and valuable outcomes (Huang & Wang, 2024). In this context, high levels of extension worker competence, whether in evaluation, reporting, or leadership, increase the confidence that their efforts in preparing reports, leading farmer groups, or disseminating technology will have a tangible impact on increasing farmer productivity. This confidence drives extension workers to be more optimal in their work, as they see a direct link between their competencies and the desired performance outcomes. This reinforces the understanding that competence is not merely a form of capital of knowledge and skills, but also a motivational driver that influences the effectiveness of agricultural extension (Aregaw et al., 2023).

The Influence of Extension Worker Performance on Farmer Satisfaction

The results of the study indicate that extension worker performance significantly contributes to farmer satisfaction, with approximately one-quarter of the variation in satisfaction explained by the quality of the extension work. This finding is logical considering that the highest-scoring extension worker performance indicators, namely technical cultivation skills and technology dissemination, directly reinforce the highest-

scoring farmer satisfaction indicators, namely production yield and intensity of guidance (Jayasinghe et al., 2023; Talaviya et al., 2020). In other words, the better the extension worker's mastery of cultivation techniques and ability to convey agricultural innovations, the greater the farmer's satisfaction with their harvest and the guidance they receive. This demonstrates a close relationship between the technical competence of extension workers and farmers' actual experiences in benefiting from extension activities (Ángeles López-Cabarcos et al., 2022).

This finding can be linked to Victor Vroom's Expectancy Theory, which emphasizes that individuals will be motivated to behave in a certain way if they believe that their efforts will result in performance, and that performance will ultimately produce the desired results. In this context, extension workers who demonstrate high performance instill confidence in farmers that the guidance they receive will result in increased productivity and provide tangible satisfaction. Thus, farmer satisfaction stems not only from increased yields, but also from the psychological belief that their involvement in extension services and the implementation of new technologies are truly commensurate with the results achieved (Khan et al., 2025; Vinarski-Peretz & Kidron, 2024).

The Influence of Farmer Satisfaction on Farmer Behavior

The results of this study indicate that farmer satisfaction has a significant impact on farmer behavior in increasing rice productivity, although its contribution is relatively small. Very high levels of satisfaction, particularly with regard to yields and the intensity of guidance, encourage farmers to participate more actively in extension activities and increase the implementation of technological recommendations in the field. In other words, when farmers experience direct benefits in the form of increased production and receive consistent guidance, they are encouraged to exhibit more positive behavior, both in the form of active involvement and the implementation of extension results. However, this small effect also indicates that although satisfaction is an important driving factor, farmer productivity behavior is also influenced by factors other than satisfaction, such as internal motivation, resource availability, or institutional support (Yi et al., 2023).

This finding aligns with Victor Vroom's Expectancy Theory, which explains that a person's behavior is influenced by the expectation that their efforts will result in good performance, and that this performance will lead to desired outcomes. In this context, farmers' satisfaction with increased production yields is clear evidence that their efforts, through the implementation of extension services, are truly bearing fruit. This confidence strengthens their participation and encourages the implementation of extension training results on their respective plots. However, because this contribution is not particularly significant, it could be interpreted that some farmers are still considering other factors before deciding to continue productive behavior, such as the sustainability of technological support, market security, or the risk of crop failure (Liu et al., 2018). Thus, while satisfaction is an important foundation, the drive to improve farmers' productive behavior still requires the synergy of other external factors to achieve optimal results (Wang et al., 2024).

Conclusion

Based on the findings, the performance of agricultural extension workers is the result of a synergy of various factors, where job satisfaction is the most dominant variable because good working conditions, facilities, and a supportive social environment greatly encourage task optimization, while individual characteristics such as experience contribute relatively little, and competence, motivation, and independence serve as important technical foundations and psychological drivers. This optimal extension worker performance then directly increases farmer satisfaction and productive behavior—marked by increased crop yields and innovation adoption—although farmer behavior is also influenced by external factors such as resource availability and market guarantees. Theoretically, this dynamic is in line with Victor Vroom's Expectancy Theory, which explains that both extension workers and farmers will be motivated to behave optimally when they have a strong belief that their efforts will lead to good performance and valuable results, so that the success of agricultural programs is highly dependent on the interaction between technical factors and psychological beliefs.

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Author Contributions

Conceptualization; methodology.; F. H.; validation; formal analysis; investigation; T. S.; resources; data curation; writing—original draft preparation; M.; writing—review and editing.; visualization: N. Y. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The researchers founded this research independently.

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