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Analysis of Farmers' Perceptions in Cadaskertajaya Village, Karawang, Regarding Extension Services on Agricultural Land Optimization

Analisis Persepsi Petani di Desa Cadaskertajaya, Kabupaten Karawang, terhadap Layanan Penyuluhan dalam Optimalisasi Lahan Pertanian

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ABSTRACT

Optimal land use is a very important aspect. Extension is a strategy and a gateway to information regarding the latest agricultural techniques, the use of technology, and the dissemination of information that can support land optimization efforts. It is undeniable that extension plays a vital role in enabling farmers to be exposed to new information or innovations, become interested in such innovations, and be motivated to apply the new information or innovations they have received. Perceptions play a key role in determining the success of a program, as well as farmers' acceptance of and support for implementing the information they receive. It is important to understand the cognitive, affective, and psychomotor perceptions regarding agricultural land optimization extension so that this study can deeply explore the community's acceptance of land optimization information. The research method employed a quantitative approach, with 20 respondents who actively participated in extension activities. The research location was Cadaskertajaya Village, Karawang Regency. The analysis technique used the Likert scale and the effectiveness formula. The results of the study indicate that the farmer group's perceptions of agricultural land optimization extension fall into the "very good" category, with an average rating of 3.49. The cognitive aspect received a rating of 3.54, placing it in the "very good" category. The affective aspect received a rating of 3.39, also placing it in the "very good" category. The psychomotor aspect received a rating of 3.54, placing it in the "very good" category. The effectiveness of the extension program attended by members of the farmers'

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group, as perceived in cognitive, affective, and psychomotor terms, falls into the "fairly effective" category.

Keywords: Affective; Cognitive; Health Education; Perception; Psychomotor

ABSTRAK

Pemanfaatan lahan secara optimal merupakah sebuah aspek yang sangat penting. Penyuluhan merupakan salah satu strategi sekalus gerbang informasi terkait pemanfaatan Teknik pertanian terbaru, pemanfaatan teknologi serta persebaran informasi yang dapat mendukung dalam Upaya optimalisasi lahan, tidak dapat dielakkan bahwa penyuluhan memegang peranan penting terhadap seorang petani untuk dapat terpapar informasi atau inovasi baru, tertarik terhadap suatu inovasi dan tergerak untuk menerapkan informasi atau inovasi yang baru diterimanya. Penting untuk mengetahui persepsi secara kognitif, afektif dan psikomotrik terkait penyuluhan optimalisasi lahan pertanian sehingga secara mendalam penelitian ini dapat menggali penerimaan Masyarakat atas informasi optimalisasi lahan. Metode penelitian berupa metode kuantitatif, responden penelitian sebanyak 20 responden yang secara aktif mengukuti kegiatan penyuluhan, Lokasi penelitian di Desa Cadaskertajaya, Kabupaten karawang. Teknik analisis menggunakan skala likert dan rumus efektivitas. Hasil penelitian yakni persepsi kelompok tani terhadap penyuluhan optimalisasi lahan pertanian berada pada kategori sangat baik, dengan nilai rata-rata rating sebesar 3,49. Aspek kognitif memperoleh rating 3,54 sehingga termasuk kategori sangat baik. Aspek afektif memperoleh rating 3,39 sehingga juga termasuk kategori sangat baik. Aspek psikomotorik memperoleh rating 3,54 sehingga termasuk kategori sangat baik. efektivitas penyuluhan yang diikuti oleh anggota kelompok tani secara persepsi kognitif, afektif dan psikomotorik yakni kategori cukup efektif.

Kata Kunci: *Afektif; Kognitif; Penyuluhan; Persepsi; Psikomotorik*

1. Introduction

Agricultural land optimization is a crucial aspect of sustainable agricultural development. The challenges associated with land optimization are acutely felt, particularly by farmers. Various issues—such as land conversion, limited production tools, climate change, and the need to increase productivity based on local resources—remain persistent problems in land

management activities across various regions. In addressing the challenges of land optimization, farmers do not merely act as implementers of agricultural techniques but also as key actors in development who determine the success of agricultural innovation implementation. Recent research indicates that sustainability in agriculture is significantly influenced by support from the social environment, the role of extension workers, access to media, and farmers' ability to transform information into productive actions; for millennial farmers, for instance, the presence of peers, agricultural extension workers, and media access has been shown to have a significant impact on fostering environmentally friendly entrepreneurial behavior. Thus, land optimization must be viewed not merely as a technical issue of land use, but also as a socio-cognitive process involving farmers' knowledge, attitudes, skills, experiences, and readiness to adopt innovations (Irdiana & Kurniati, 2024).

The role of agricultural extension workers is to empower farmers, in accordance with local resources and the farmers' capabilities, to develop their farms or farming groups, manage natural resources effectively, efficiently, and rationally, and identify market opportunities so that they can become self-reliant farmers. Farmers and farmer groups are capable of making decisions based on the best alternatives, enabling them to face challenges and seize opportunities in the context of economic globalization (Noviza et al., 2024). Extension activities will only succeed if there is participation from extension partners, such as members of farmer groups. Participation is an individual's willingness to support the success of a program according to their capabilities, without sacrificing personal interests, and involves engaging both mind and heart within the group to encourage contributions toward achieving the group's objectives and taking responsibility for its success (Silaban et al., 2025). The extent to which extension activities are embraced—by actively participating in them—will significantly influence whether extension targets are achieved or not. The achievement of targets naturally depends on the participation of farmer group members and the group's response.

Farmers' groups play a vital role in enhancing farmers' capabilities; they can serve as a place for learning, sharing experiences, a medium for disseminating information, and a collective tool for accessing extension services, assistance, technology, and institutional networks. From the perspective of modern agricultural extension, the success of a farmers' group is measured not only by the existence of the organization but also by how well members understand information, benefit from innovations, and are able to apply them in their farming operations. A journal article titled "The Role of Participatory Development Communication in Tourism Development and Community Empowerment" discusses issues related to innovation communication; this study found that farmers' perceptions of extension services extend beyond mere crop cultivation techniques to include information, knowledge, and the latest innovations conveyed through communication. Indicators of satisfaction with extension services include the presentation of materials tailored to farmers' needs, clear and accessible communication, frequent and sustained extension visits, and a high level of openness. This implies that the higher the extension workers' knowledge, the easier it is for farmers to absorb and adopt

information and innovations, which in turn influences their behavior, thereby enhancing the quality of extension services, farmer participation, and farmers' skills (Jaya et al., 2025).

The study by Daryuni et al., (2024), titled "Analysis of Rice Farmers' Satisfaction with the Performance of Agricultural Extension Workers: A Case Study in Macorawalie Village, Panca Rijang Subdistrict, Sidenreng Rappang Regency explains that farmers highly anticipate the presence of extension workers, particularly to help them resolve issues such as declining rice productivity due to severe pest infestations and water scarcity that reduce crop yields. However, not all of the farmers' problems can be fully resolved, leading to variations in satisfaction levels regarding the performance of agricultural extension workers. These differences in satisfaction levels indicate that the objectives of agricultural extension have not yet been fully achieved. These findings are relevant to this study because Cadaskertajaya Village is situated within an agricultural context that requires the strengthening of group-based extension, particularly to enhance the sustainable optimization of agricultural land.

The main challenges in increasing agricultural land use at the village level are typically related not only to the amount of available land, but also to differences in farmers' views regarding the benefits of innovations, their ability to understand training materials, their confidence in the viability of farming ventures, and their skills in applying new knowledge. In studies of technology adoption behavior, there are three important interconnected dimensions: cognitive, affective, and psychomotor. The cognitive dimension reflects farmers' understanding and knowledge of innovations; the affective dimension reflects their attitudes, interests, beliefs, and motivations; and the psychomotor dimension describes the skills and actual actions in agricultural practice.

Research by Gao et al., (2024) on farmers in rural areas of China highlights that farmers' subjective and objective understandings—including personal beliefs, experiences, emotional attitudes, perceptions of economic benefits, and sources of information—have a positive influence on their willingness to adopt sustainable digital agricultural extension services. This means that the success of extension depends heavily on how farmers understand, accept, and translate that information into action in the field.

Studies on the governance of agricultural extension at the local level indicate that extension workers often face various challenges, such as limited capacity, heavy workloads, staff shortages, inadequate facilities, and insufficient budgets; meanwhile, issues such as climate change, increasing pest and plant disease outbreaks, and water crises pose serious challenges to the agricultural sector. Therefore, an analysis of cognitive, affective, and psychomotor perceptions is necessary to explain not only how well farmers receive information but also the potential barriers to translating these perceptions into better land management practices. The formation and development of farmer groups are achieved by empowering farmers to change their mindset so they are willing to improve their agricultural efforts and enhance the group's capacity to carry out its duties. Farmer empowerment can be achieved through training and extension activities using a group-based approach. Extension activities with a group-based

approach aim to encourage the formation of farmer organizations that can foster cooperation among farmers and between farmer groups to achieve efficiency in their operations (Ministry of Agriculture Regulation, 2013).

The research gap in this study lies in the limited number of studies that specifically analyze farmers' perceptions in three areas simultaneously—cognitive, affective, and psychomotor—in the context of optimizing agricultural land based on farmer groups at the village level. Although many previous studies have examined extension services, technology adoption, farmers' entrepreneurial behavior, group participation, and the effectiveness of innovation communication, few have integrated these three dimensions of perception to evaluate farmers' readiness to optimize their farmland. The Qonita et al., (2025) study emphasizes that media exposure contributes to providing knowledge and shaping the perceptions and behaviors of millennial farmers in optimizing their farming operations, in addition to the role of extension workers.

Another study related to extension workers and farming groups is related to the effectiveness of the extension method preferred by the group's members. Farmers prefer demonstration methods to lectures, which place greater emphasis on the transfer of information. Demonstrative methods are considered more effective by farmers because they provide a practical understanding of the issues they face in the field (Luthfia & Sadono, 2025).

Based on the above description, the research questions in this study focus on three main issues: what is the level of cognitive perception among farmer group members regarding agricultural land optimization extension in Cadaskertajaya Village; specifically, what are the levels of affective, cognitive, and psychomotor perception among farmer group members in Cadaskertajaya Village regarding agricultural land optimization extension; and what is the level of effectiveness of agricultural land optimization extension programs according to the perceptions of farmers' group members in Cadaskertajaya Village—cognitively, affectively, and psychomotorically—as manifested in skills, participation, and readiness to act in applying agricultural innovations. This research question is important because the success of land optimization depends not only on the provision of information but also on farmers' ability to internalize that information into positive attitudes and farming practices. In the context of modern extension, agricultural extension and advisory services are considered essential to help agricultural actors build capacity to address climate change, improve production systems, enhance livelihoods, and strengthen contributions to sustainable development.

The objective of this study is to analyze the cognitive, affective, and psychomotor perceptions of farmer groups regarding agricultural land optimization in Cadaskertajaya Village, Telagasari Subdistrict, Karawang Regency. Specifically, this study aims to measure farmers' level of understanding regarding extension services and land optimization practices, assess farmers' attitudes and interest in applying new knowledge, and identify farmers' readiness to implement agricultural innovations through farmers' group activities. The research results are expected to provide theoretical contributions to the development of agricultural

extension studies based on multidimensional perceptions, as well as practical contributions for extension workers, village governments, agricultural agencies, and farmer groups in designing extension programs that focus more on improving knowledge, fostering positive attitudes, and strengthening farmers' practical skills.

2. Research Methods

The research method used in this study is descriptive quantitative. Descriptive quantitative methods aim to focus on measuring and analyzing cause-and-effect relationships among various variables; the investigation is considered to be value-free. This study was conducted in Cadaskertajaya Village, Telagasari Subdistrict, Karawang Regency. The location was selected purposively Because Cadaskertajaya Village is a developing village and a transitional area from rural to urban, given its location about 15 km from the city center and its natural resources that support agricultural activities

A quantitative approach was used to measure the level of perception among farmer group members regarding the optimization of agricultural land in Cadaskertajaya Village, Karawang Regency. The research period was 2025. The research respondents were 20 active farmers who were members of a farmers' group and had participated in extension activities more than three times. The types of data used consisted of primary and secondary data. Primary data were obtained through in-depth interviews, questionnaires, and field observations. Meanwhile, secondary data were obtained from group documents, village data, and literature relevant to the research. Quantitative data analysis was conducted using a Likert scale to measure members' perceptions based on three main aspects: cognitive, affective, and psychomotor. The scores obtained were then categorized into specific perception levels to facilitate the interpretation of the results.

Table 1. Measurement of Perception Levels Using a Likert Scale

No.	Answer Options	Score
1.	Strongly Agree	4
2	Agree	3
3	Disagree	2
4	Strongly Disagree	1

Source: Widodo et al., (2023)

Formula for Category Intervals

In this study, before performing calculations using the Likert scale, interval calculations were first conducted. The purpose of these interval calculations is to gain a clearer understanding of the categories within each value range. According to Sugiyono (2022), the formula used to calculate intervals is as follows:

$$\text{Interval} = \frac{Highest\ Score\ -\ Lowest\ Score}{Number\ of\ categories}$$

$$\text{Interval} = \frac{4-1}{4} = 0.75$$

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The scores for each category level, based on the calculation of interval values, are presented in the following table:

Table 2. Interval Values for Perception Categories

No.	Interval	Category
1.	1.00-1.75	Poor
2	1.75-2.50	Fair
3	2.50-3.25	Good
4	3.25-4.00	Excellent

Source: Researcher's data analysis (2026)

Measuring the Effectiveness of Extension Activities

The effectiveness of agricultural land optimization extension activities in Cadaskertajaya Village was calculated using an effectiveness formula. Categories were determined based on the values in Table 3. The effectiveness categories for addressing the second research question were calculated using the following formula:

$$Effectiveness = \frac{Reazation}{Target} x\ 100\%$$

Table 3. Categories of outreach effectiveness

Percentage	Category
100%	Very Effective
90–99%	Effective
80–89%	Fairly Effective
60–79%	Less Effective
< 60%	Not Effective

Source : (Nurussyfa & Panggiarti, 2020)

3. Result

3.1 Farmers' Perceptions of Extension Programs on Agricultural Land Optimization

Extension activities on agricultural land optimization conducted in Cadaskertajaya Village indicate that farmers' groups' perceptions of these activities fall into the "very good" category, with an average rating of 3.49. This suggests that members of farmers' groups in Cadaskertajaya Village have a very positive attitude toward the extension activities, in terms of knowledge, attitude, and skills related to supporting agricultural land optimization.

Table 4. Farmers' Group Perception Categories

Perceptual Aspects	**Rating**	Category
Cognitive	3.54	Excellent
Affective	3.39	Excellent
Psychomotor	3.54	Excellent
Average	3.49	Excellent

Source: Researcher's data analysis (2026)

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The cognitive aspect received a total score of 283 and a rating of 3.54, placing it in the "very good" category. These results indicate that farmers have a strong understanding of the importance of farming, the benefits of education or extension services for the agricultural sector, the importance of interacting with extension workers, and an understanding of rice cultivation and short-term crops such as vegetables. Perception is an individual's understanding of environmental information obtained through cognitive processes. The process of forming perceptions is influenced by internal factors, namely factors originating from within oneself and external factors originating from outside the youth. Individual perceptions are influenced by functional and structural factors. Functional factors are factors that are personal. For example, individual needs, past experiences, personality, gender, and other things that are subjective (Nugroho et al., 2024).

The affective aspect received a total score of 271 and a rating of 3.39, thus also falling into the "very good" category. However, this aspect had the lowest score compared to the cognitive and psychomotor aspects. This means that although farmers have a positive attitude and interest in applying new knowledge, there are still some farmers who are not fully convinced of the economic benefits, the adequacy of infrastructure, or their own skills in reducing the risk of agricultural business losses. The agricultural extension activities went smoothly because the farmers were willing to cooperate with the agricultural extension workers, and the material presented was relevant to the farming practices they employ. When conducting extension activities, agricultural extension workers need to use extension materials, methods, and media that are easy for farmers—as the target audience—to understand and access. These extension materials, methods, and media should be adapted to keep pace with the times, enabling farmers to better understand advances in agricultural science and technology (Noviza et al., 2024).

The psychomotor aspect received a total score of 283 and a rating of 3.54, placing it in the "very good" category. These results indicate that farmers not only understand and accept the extension materials but also demonstrate a strong inclination to take action, such as participating in training, contributing to extension activities, and expressing a desire to apply agricultural innovations in their farming operations. As in the study Jannah et al., (2025) on the Effect of the ADDIE Instructional Video Model on the Perceptions of Livestock Farmers in Sumberejo Village, Ngablak Subdistrict, the psychomotor aspect reflects the farmers' skills in responding to extension programs on innovative livestock products. These skills scored 274 points from before to after the extension program. The effectiveness of behavioral change in improving farmers' skills increased by 57%. This means that the training had an impact on changing the farmers' practical skills.

3.2 Effectiveness of Agricultural Land Optimization Extension

The results of the study indicate that the effectiveness of the extension program attended by members of the farmers' group on the topic of agricultural land optimization in Cadaskertajaya Village was classified as "less effective" for the cognitive and affective indicators, while for the psychomotor indicator, it was classified as "moderately effective." Based on the three dimensions of perception, the cognitive index reached 88.4%, the affective index 84.6%, and the

psychomotor index 88.4%. Overall, these results indicate that farmers not only understand the extension information but also exhibit positive attitudes and a tendency to take action in applying agricultural innovations for land optimization. This finding aligns with the view that the effectiveness of agricultural extension is significantly influenced by the extension workers' ability to foster farmers' knowledge, attitudes, and practices toward more sustainable farming practices.

The success of land optimization programs is heavily influenced by the response of farmers as the primary actors in the field. Farmers' responses—whether positive or negative—determine the program's success, as these responses reflect their attitudes and reactions toward the program's objectives and benefits. Land optimization programs aim to increase the cropping index, agricultural production, and food security amid a continuously growing population, while farmers' responses to these programs are influenced by various social, economic, and technical factors (Perangin-Angin et al., 2025).

Table 5. Categories of extension effectiveness as perceived by farmer groups

Effectiveness of Education	Score	Score Indeks	Interpretive Category
Cognitive	283	88.4%	Fairly Effective
Affective	271	84.6%	Fairly Effective
Psychomotor	283	88.4%	Fairly Effective
Average	279	87.1%	Fairly Effective

Source: Researcher's data analysis (2026)

Methodologically, these results indicate that the extension program has shaped farmers' perceptions relatively uniformly across three main domains of learning. From the perspective of innovation adoption, cognitive perceptions serve as the foundation for understanding, affective perceptions as the basis for acceptance, and psychomotor perceptions as an indicator of readiness to act. A recent study by Gao et al., (2024) found that farmers' subjective and objective cognition positively influences their enthusiasm for adopting sustainable digital agricultural extension services, making farmers' perceptions a critical prerequisite for changes in farming behavior.

Analysis of Effectiveness Based on Farmers' Cognitive Perceptions

Cognitive perceptions relate to farmers' knowledge, understanding, and thinking skills regarding extension materials. In this dimension, farmers are assessed based on the extent to which they understand the information provided, such as cultivation techniques, fertilizer use, pest control, land utilization, or the application of agricultural innovations.

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Table 6. Cognitive perceptions among farmer groups

Cognitive Perception (Understanding & Knowledge)	SS	S	TS	STS
I understand that learning about farming-related work is important.	12	7	1	0
I understand that the education I have received helps me in the agricultural sector.	13	5	1	1
I enjoy interacting with extension workers and obtaining information about agriculture.	14	5	0	1
I understand how to cultivate rice and short-term crops such as vegetables.	12	6	2	0
Total	51	23	4	2
Total Score	204	69	8	2
ΣScore	283			
Score Index	88,4 %			

Source: Researcher's data analysis (2026)

The cognitive dimension received a total score of 283 with an index of 88.4%, indicating that the majority of farmer group members understood the importance of farming activities, the benefits of agricultural education or extension services, the importance of interacting with extension workers, as well as cultivation techniques for rice and short-term crops such as vegetables. The highest response was in the "strongly agree" category, with 51 responses, followed by "agree" with 23 responses, while "disagree" and "strongly disagree" responses were relatively low. This distribution indicates that extension services have functioned as a means of improving agricultural literacy, particularly in strengthening farmers' foundational knowledge regarding land optimization.

The high cognitive score can be interpreted as an indication of farmers' initial readiness to adopt agricultural innovations. However, the 88.4% score also suggests there is room for improvement, particularly regarding deeper technical understanding of cropping patterns, land intensification, crop diversification, balanced fertilizer use, and farm business risk management. This aligns with the findings of Puspita et al., (2024), who noted that extension services need to focus more on commodity-specific needs and equitable technical information to effectively promote the adoption of environmentally friendly cultivation techniques and enhance the sustainability of farming operations.

In the context of land optimization, cognitive aspects are a key asset because farmers who understand the benefits of innovation tend to be more willing to change their farming practices. Knowledge of rice and short-term crops such as vegetables indicates opportunities for developing more productive cropping systems, particularly through the use of fallow land, crop

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rotation, and intensification based on local needs. Research by Uy et al., (2025) on smallholder farmers in Vietnam also confirms that farmers' understanding of agricultural technology and information is a key factor in the adoption of digital technologies as well as the development of more effective extension strategies.

Analysis of Farmers' Affective Perceptions

Affective perceptions relate to farmers' attitudes, interests, feelings, beliefs, and engagement with extension materials. This dimension indicates whether farmers feel interested, confident, enthusiastic, or motivated to apply the information they receive.

Table 7. Affective perceptions among farmer groups

Affective Perception (Attitudes & Interest)	SS	S	TS	STS
I am eager to apply the new knowledge I have gained to my farming activities.	10	6	4	0
I believe that working in the agricultural sector today can provide a better income.	10	8	2	0
I am confident that current agricultural facilities and infrastructure are adequate.	12	8	0	0
I believe the skills I possess can reduce the risk of loss in the agricultural activities I undertake.	10	5	5	0
Total	42	27	11	0
Score Total	168	81	22	0
ΣScore	271			
Score Index	84,6%			

Source: Researcher's data analysis (2026)

The affective dimension received a total score of 271 with an index of 84.6%, which is lower than the cognitive and psychomotor dimensions. Affective perceptions fall into the "less effective" category. The data indicate that farmers believe the agricultural sector can still provide better income, remain convinced that agricultural facilities and infrastructure are sufficiently adequate, and believe that their skills can reduce the risk of farming losses. Furthermore, the dominance of "strongly agree" responses (42 in total) suggests that farmers have a desire to apply new knowledge.

Nevertheless, the lowest affective score among the three dimensions indicates that farmers' beliefs and motivation still need to be strengthened. In many cases, farmers can understand extension information but are not yet fully convinced to change their farming practices due to

concerns about costs, crop yields, availability of production inputs, labor, and market certainty. Research by Qonita et al., (2025) on millennial farmers in Yogyakarta shows that support from friends, extension workers, and media exposure significantly influence farmers' entrepreneurial behavior, while such entrepreneurial behavior has a positive impact on financial performance.

The affective aspect is also related to farmers' trust in extension workers and agricultural institutions. If farmers feel that extension services provide tangible benefits in terms of income and risk reduction, their acceptance of innovations will be stronger. This aligns with the study by Inanda et al., (2025), which shows that farmers tend to consider economic attributes, input support, incentives, credit, and the form of agreements when making farming decisions; in other words, farmers' positive attitudes toward agricultural programs are strongly influenced by the practical benefits and institutional support they receive.

Analysis of Farmers' Psychomotor Perceptions

Psychomotor perceptions relate to farmers' skills, actions, and abilities in applying information or innovations obtained from extension services. This dimension indicates whether farmers not only know about and like innovations but are also able to put them into practice in their current farming activities. Research conducted by Suharti et al., (2023) on training in vermiwash production using instructional videos based on the ADDIE model in Krogowanan Village showed an increase in skills: a pretest score of 140 before the training and a posttest score of 482 after the training. This indicates that extension programs remain an effective strategy for enhancing participants' knowledge.

Table 8. Psychomotor Perceptions Among Farmer Groups

Psychomotor Perception (Skills & Actions)	SS	S	TS	STS
Farmers' group activities in the village help develop farming businesses.	15	5	0	0
I participate in agricultural training or training on the use of agricultural tools and machinery held in the village.	12	6	1	1
I actively contribute directly to extension activities held in the village.	10	8	2	0
I will apply the agricultural innovations taught in the extension activities.	13	5	2	0
Number	50	24	5	1
Score	200	72	10	1

ΣScore	283
Score Index	88,4%

The psychomotor dimension received the highest index, at 88.4%, with a total score of 283. These results indicate that farmer group members not only understand and accept the extension materials but also tend to take action, participate in training, contribute to extension activities, and apply agricultural innovations. The indicator that farmer group activities help develop farming businesses received a very strong response, as all respondents gave positive answers in the "strongly agree" and "agree" categories.

The high psychomotor score indicates that the farmer group in Cadaskertajaya Village functions as a vehicle for practical learning. In the context of extension, success is measured not only by increased knowledge but also by the emergence of concrete actions in farming activities (Pratama et al., 2022). Research on agricultural extension governance shows that extension services require adequate extension worker capacity, facilities, budgetary support, and institutional frameworks so that information can be translated into field practices.

Comparison Across Perception Dimensions

A comparison across dimensions shows that psychomotor perception achieved the highest score, followed by cognitive perception, and then affective perception. This pattern is interesting because it suggests that farmers are relatively ready in terms of action, but aspects of attitude and belief remain slightly lower. In other words, farmer group members have the willingness to participate in activities and adopt innovations, but their internal motivation, belief in economic benefits, and perception of the adequacy of facilities and infrastructure still need to be strengthened. This aligns with the literature on innovation adoption, which identifies perceived benefits, information, experience, and policy support as key factors in shaping farmers' enthusiasm for extension services (Saputra et al., 2022).

These findings also indicate that land optimization in Cadaskertajaya Village has a sufficiently strong social foundation. Farmer groups have served as a bridge connecting extension workers, farmers, training programs, and agricultural practices. However, for the land optimization process to proceed more sustainably, extension efforts need to focus on strengthening the affective aspect through demonstrations of success, farm business mentoring, market information, and economic evidence of land optimization practices. Recent studies on the adoption of digital technology by smallholder farmers indicate that extension strategies must be tailored to farmers' characteristics and needs so that the information can truly be used in making farming decisions (Wang & Huang, 2025).

The results of this study indicate that land optimization extension efforts in Cadaskertajaya Village are on the right track but still require strengthening in terms of the sustainability of implementation. Perceptions play a key role in determining a program's success, public acceptance and support for the program, and the impact of its implementation. Perception is the way individuals interpret and understand information received through their five senses; thus,

perceptions reflect how a program is interpreted, accepted, and implemented (Anantanyu et al., 2025). The cognitive dimension needs to be strengthened through more practical technical materials, such as crop rotation planning, backyard land utilization, rice intensification, short-term crop cultivation, and efficient use of inputs. The affective dimension needs to be strengthened through increased motivation, confidence in agricultural prospects, and the provision of examples of successful farming ventures. The psychomotor dimension needs to be directed toward field practice, demonstration plots, training in agricultural machinery, and periodic assistance in the application of innovations. This approach is in line with the concept of extension that emphasizes behavioral transformation and the enhancement of agricultural human resource capacity.

4. Conclusion

The perception of farmer groups regarding the optimization of agricultural land in Cadaskertajaya Village falls into the "very good" category. Cognitive and psychomotor aspects are the main strengths, while affective aspects need to be further strengthened through mentoring, showcasing success stories, improving access to production facilities, and providing extension services that are more practical and tailored to farmers' needs. Thus, the role and presence of extension workers will greatly assist farmers in managing the agricultural land they own or manage. The effectiveness of extension on agricultural land optimization revealed that the effectiveness of the extension sessions attended by farmer group members on the topic of agricultural land optimization in Cadaskertajaya Village was classified as less effective in the cognitive and affective indicators, while the psychomotor indicator was considered sufficiently effective. Based on the three dimensions of perception, the cognitive index reached 88.4%, the affective index 84.6%, and the psychomotor index 88.4%. Overall, these results indicate that farmers not only understand the information provided but also exhibit positive attitudes and a tendency to apply agricultural innovations in their efforts to optimize land use.

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