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The role of social capital as a mediator of the effectiveness of counseling on innovative behavior in increasing corn farmers' income in Bone Bolango Regency

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ABSTRACT

Introduction: Corn farming faces various challenges from economic, ecological, and institutional aspects. For effective agricultural extension, it is crucial to optimize the role of social capital, which catalyzes optimizing corn farming, particularly concerning the extent to which farmers become innovative in increasing income. **Methods:** This research employed a quantitative approach. The data were collected through primary sources via the distribution of questionnaires to 175 farmers as per sampling requirements, as well as interviews and field observations. Data analysis techniques included descriptive analysis and Partial Least Squares Structural Equation Modeling (PLS-SEM). **Results:** (1) The effectiveness of extension services significantly and positively influences corn farmers' social capital, with a coefficient value of 43.00%. (2) The effectiveness of extension services significantly and positively affects innovative behavior in increasing income among corn farmers, with a coefficient value of 22.80%. (3) Social capital significantly and positively influences innovative behavior in increasing income among corn farmers, with a coefficient value of 74.80%. (4) The effectiveness of extension services through social capital significantly and positively influences innovative behavior in increasing income among corn farmers, with a coefficient value of 32.20%, resulting in a total effect of 55.00%. **Conclusion**: Social capital serves as a significant intervening factor, as its enhancement facilitates agricultural extension workers in their tasks by encouraging farmers to become more innovative in increasing both production and income from corn farming in the Bone Bolango Regency.

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INTRODUCTION

The agricultural development approach aimed at driving economic growth can be pursued through the utilization of comparative advantages into competitive advantages by designing agriculture-oriented development focused on fulfilling domestic food needs and agribusiness systems where agriculture, upstream agricultural industries, downstream agricultural industries, as well as sectors providing necessary services, are developed simultaneously and harmoniously (Rahmadi & Santoso, 2016). One of the leading commodities in agricultural development in Bone Bolango Regency is corn. Corn farming must be carried out with innovative steps to achieve ideal production and productivity, which will consequently lead to increased income for corn farmers.

Innovative behavior is an activity conducted by individuals or groups to find solutions to a problem by discovering new ideas that are applied within a company or organization. Therefore, factors that can encourage innovation among employees are needed. De Jong & Hartog (2010) stated that innovative behavior is often associated with creativity. Both of these aspects are related but have different constructs. Innovative behavior among farmers, especially in increasing income, can be maximized by the role of agricultural extension workers in effective extension programs. The importance of agricultural extension workers should involve intensifying extension efforts through various strengthening practices and other methods so that farmers are willing and able to adopt multiple updated and innovative cropping systems, thereby increasing paddy farming productivity for higher income. This is in line with the opinion of Moonti, et al (2022) that agricultural extension remains a primary activity that consistently plays a role in educating farmers. Efforts to enhance farmers' mastery and utilization of information technology are needed to respond to and support the implementation of information technology-based agricultural extension. Additionally,

agricultural extension should be optimized by providing various examples of successful farmers who have increased their income.

The optimization of farmers' innovative behavior in increasing income through improved production and adopting appropriate technology can be achieved with the active involvement of agricultural extension workers. This aligns with the viewpoint of Faqih & Susanti (2016) that the selection of appropriate methods or approaches significantly influences the success of extension services. Therefore, extension workers must choose and determine the appropriate methods according to the situation and conditions of the farmers so that the information conveyed can be accepted and applied by the farmers. Extension should be a combination of teaching methods, as the abilities of the target audience vary in terms of receiving lessons and providing feedback or responses to the government/institution conducting the extension. Indeed, by positioning themselves accordingly, farmers will be able to fulfill their duties effectively. Enhancing innovative behavior to increase corn farmers' income through effective extension efforts can also be optimized by focusing on farmers' social capital, enabling them to collaborate for the improvement of corn farming income. Entrepreneurs are beginning to consider complementing or supporting each other's activities through mutually beneficial cooperation (Rahmadi & Santoso, 2016; Azhari dan Mawardi, 2018; Zuwandasari & Sunaryanto, 2021). The high value of social capital in a region can assist farmers in production, distribution, and innovation (Sawitri & Soepriadi, 2014). For instance, when farmers join farmer groups, and the group owns a plow, the social capital growing within a community based on shared norms can significantly reinforce the community's entity.

Several studies yielding positive conclusions regarding the influence of social capital on farmers' productivity include Widodo's (2016) research indicating that the social capital variable has a positive effect on corn field productivity. Additionally, Rahmadi & Santoso (2016) stated that with social capital, farmers with small paddy fields are able to pursue alternative sources of income outside of farming activities, thus reducing household livelihood difficulties. The novelty of this study compared to previous research lies in incorporating social capital as an intervening variable to enhance the effectiveness of extension efforts on farmers' innovative behavior, as well as novelty in data analysis used by previous studies.

The issue concerning corn farming in Bone Bolango Regency lies in the decline of corn productivity due to the Governor's instruction prohibiting corn cultivation on land with a slope exceeding 15%, which could lead to flooding in the Bolango Regency. Additionally, farmers' income is suboptimal because they tend to lack innovation and are reluctant to adopt technology in corn farming. These factors are undoubtedly influenced by inadequate agricultural extension services in developing farmers' capacities and the suboptimal aspect of farmers' social capital.

The general objective of this research is to examine the influence of extension effectiveness on innovative behavior in increasing corn farmers' income through the role of social capital in the Bone Bolango Regency. This can be divided into four specific objectives: the influence of extension effectiveness on social capital, the influence of extension effectiveness on innovative behavior in increasing corn farmers' income, the influence of social capital on innovative behavior in increasing corn farmers' income, and the indirect influence of extension effectiveness on innovative behavior in increasing corn farmers' income through the role of social capital.

METHODS

Research setting and timeframe

The research was conducted in Bone Bolango Regency for two months, from July 2023 to August 2023.

Research methodology

This research employed a quantitative approach with a correlational method that aims to determine the relationship between independent variables and dependent variables through an intervening variable.

Operational definitions of variables

The dependent variable in this research is innovative behavior in increasing corn farmers' income (Y), with indicators referring to the statements by Hidayat *et al.* (2018); Agustina (2020), namely (1) Opportunity Exploration, (2) Generativity, (3) Formative Investigation, (4) Championing, and (5) Application. Meanwhile, the intervening variable is social capital (Z), with indicators referring to the statements by (Rahmatiah (2017), including (1) social trust, (2) social norms, (3) social networks, and (4) local wisdom. The independent variable is the effectiveness of agricultural extension (X), with indicators referring to the statements by Latif *et al.* (2022); Fajar S *et al.* (2023), namely (1) preparation or planning of extension, (2) implementation of extension, and (3) evaluation, reporting, and follow-up of extension.

Data collection

The data in this research consists of primary data collected through questionnaires or surveys, interviews, and field observations.

Population and sample

The population in this study consisted of 14 Farmer Groups (Gapoktan) spread across Bone Bolango Regency, with a breakdown of 7 Farmer Groups categorized as beginners and 7 Farmer Groups categorized as advanced, totaling 310 farmers. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in a sample of 175 individuals.

Data analysis

This research employed Structural Equation Modeling (SEM) analysis with a Partial Least Squares (PLS) second-order approach. The stages of SEM-PLS analysis conducted included the evaluation of the measurement model (outer model), evaluation of the structural model (inner model), and hypothesis testing.

RESULTS AND DISCUSSION

The data utilized are primary data obtained through questionnaires distributed to respondents, totaling 175 copies under the sample size, resulting in a questionnaire return and usage rate of 100%. The presentation of the research findings can be elaborated as follows:

Pre-conditions for partial least square analysis (outer model)

The outer model comprises Confirmatory Factor Analysis, Discriminant Validity, Composite Reliability, and Cronbach's Alpha. The results can be presented in the following Table 1:

Table 1. Outer model results

No	Variables	Outer Loading Value AVE CR CA					AVE	CR	CA
		1	2	3	4	5			
1	Extension Effectiveness	0.896	0.807	0.751			0.673	0.860	0.757
2	Social Capital	0.592	0.829	0.825	0.888		0.627	0.868	0.797
3	Innovative Behavior	0.783	0.860	0.777	0.831	0.621	0.606	0.884	0.835

Source: processed SEM-PLS, 2023

The Outer Loading results indicate that there are no variable indicators with outer loading values below 0.5. Thus, all indicators are deemed suitable or valid for use in the research and can be utilized for further analysis. The AVE values for the variables of extension effectiveness, social capital, and innovative behavior in increasing corn farmers' income are > 0.6. Thus, it can be stated that each variable has good discriminant validity. The Cronbach's alpha value for each research variable is > 0.7. Therefore, these results indicate that each research variable has met the requirements of Cronbach's alpha value, thus ensuring the high reliability of the overall variables. Furthermore, the composite reliability values for all research variables are > 0.6. These results show that each variable has met Cronbach's alpha test, concluding that the overall variables possess high reliability.

The value of coefficient of influence (inner model)

The figure 1 shows the structural model of the relationship between three main variables: Effectiveness of Agricultural Extension (X), Social Capital (Z), and Innovative Behavior in Increasing Farmers' Income (Y). Each of these main variables is measured through several indicators represented by yellow boxes around the blue circle.

1. Effectiveness of Agricultural Extension (X) is measured through three indicators (X.1, X.2, X.3) which each have factor loads: X.1 = 0.896, X.2 = 0.807, and X.3 = 0.751. The results show that the effectiveness of agricultural extension is directly correlated with social capital (Z) with a coefficient of 0.430 and also has a direct effect on innovative behavior (Y) with a coefficient of 0.228.
2. Social Capital (Z) is measured through four indicators (Z.1, Z.2, Z.3, Z.4) with factor loads of 0.592, 0.829, 0.825, and 0.888, respectively. Social capital has a stronger direct influence on Innovative Behavior (Y) with a coefficient of 0.748 compared to the influence of Extension Effectiveness on innovative behavior.
3. Innovative Behavior in Increasing Farmer Income (Y) is measured through five indicators (Y.1 to Y.5) with factor loads between 0.621 and 0.860, indicating that this innovation varies in its impact. The coefficient value of 0.759 indicates that this measurement model has a good construction in explaining innovative behavior.

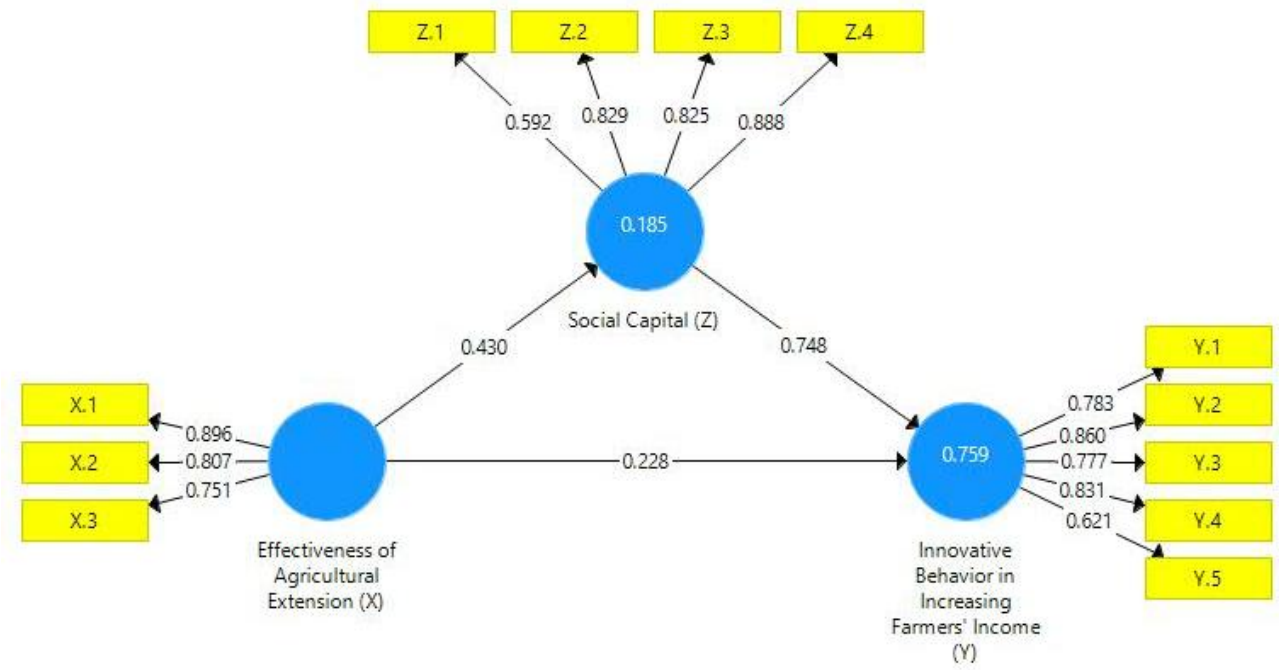

Figure 1. Partial least squares algorithm

Based on the diagram above, the overall R-Square results can be outlined as follows:

Table 2. R-Square results

No.	Variable	Variable Z	Variable Y		Total indirect influence	
			Direct (L)	Indirect (TL)	Total influence	Increase
1	Extension effectiveness	0.430	0.228	0.322	0.550	58.55%
2	Social capital		0.748			
	R Square	0.185		0.759		

Source: processed SEM-PLS, 2023

Based on the table above, the results of determination can be described as follows:

The Influence of Extension Effectiveness Implementation on Social Capital

Overall, it can be interpreted that the R Square value is 0.185, which means that 18.50% of the influence of extension effectiveness on social capital in Bone Bolango Regency. The remaining 81.50% is influenced by other variables outside the scope of this research model. The coefficient of the determination result of 18.50% indicates that the influence of extension effectiveness on social capital is included in a moderately substantial range, implying a significant effect of extension effectiveness on social capital. Further, if associated with the prerequisite analysis testing (inner model), the equation for social capital meets the goodness of fit test (Table 2).

The Influence of extension effectiveness and social capital on innovative behavior in increasing corn farmers' income

Overall, it can be interpreted that the R Square value is 0.759, which means that 75.90% of the influence of the effectiveness of extension and social capital on innovative behavior in increasing the income of corn farmers in Bone Bolango Regency. The remaining 24.10% is influenced by other variables outside the scope of this research model. The coefficient of determination result of 75.90% indicates that the influence of extension effectiveness and social capital on innovative behavior in increasing income among corn farmers is in the substantial range, implying a significant simultaneous effect of both variables on innovative behavior in increasing income among corn farmers. The results for each variable indicated that the most dominant influence on innovative behavior in increasing income among corn farmers is social capital, accounting for 74.80%. Subsequently, the extension effectiveness variable amounted to 22.80%. The coefficient of determination, when associated with the prerequisite analysis testing (inner model), the equation for innovative behavior in increasing income among corn farmers meets the goodness of fit test (Table 2).

Hypothesis testing results

Based on the data processing conducted, the results can be used to address the hypotheses in this research. Hypothesis testing in this research was performed by examining the t_{count} value and P-values. For more detailed results, it is shown in the following table:

Table 3. hypothesis testing results

Type of Influence	Influence	t Statistic	P-Value
Direct	X->Z	5.565	0.000
	X->Y	4.036	0.000
	Z->Y	15.477	0.000
Indirect	X->Z->Y	6.322	0.000

ns not significant
*. Significant at the 0.1 level (2-tailed).
** Significant at the 0.05 level (2-tailed).
***. Significant at the 0.01 level (2-tailed).

Source: Processed PLS Data, 2023

Based on the table above, the hypothesis testing results can be interpreted by classifying the effects of variables:

Direct Influence

a. The influence of extension effectiveness on social capital

The t_{count} value of the influence of extension effectiveness on social capital was 5.565 with a probability value (P-value) of 0.000. The t_{count} value of 5.565 is greater than the t_{table} value of 1.96 (5.565 > 1.96). The P-value is smaller than the probability value of 0.05 (0.000<0.05), thus Ha_1 is accepted, indicating that extension effectiveness has a positive and significant influence on the social capital of corn farmers in Bone Bolango Regency. Agricultural extension has played a substantial role in influencing the formation and utilization of social capital in the corn farming community in Bone Bolango Regency. With the successful implementation of extension programs, farmers can strengthen social networks, enhance trust among themselves, and improve cooperation in agricultural activities. This will assist farmers in addressing common challenges, adopting innovative practices, and increasing corn yields and farmers' income (Table 3).

Agricultural extension workers play a crucial role in fostering social capital among corn farmers. Social capital is a valuable asset in agriculture, as it can enhance cooperation, trust, and collaboration among farmers, which can support increased agricultural productivity and income (Pomalingo *et al.*, 2023). Extension workers can assist in forming farmer groups or cooperatives. Such groups can serve as platforms for farmers to regularly interact, share information, and collaborate in agricultural activities. Extension workers can provide guidance to help these groups function effectively.

Agricultural extension workers can facilitate the exchange of knowledge among corn farmers. For instance, farmers with specific knowledge or experience in corn cultivation can share information with others, as this can be mutually beneficial and foster trust among farmers (Falo *et al.*, 2021). Agricultural extension workers can assist in organizing joint activities such as joint procurement of agricultural tools, collaborative water resource management, or joint market development. These activities require cooperation and coordination, which can strengthen social capital (Han *et al.*, 2022; Kos *et al.*, 2023; Silvert *et al.*, 2022). Furthermore, agricultural extension workers can aid farmers in providing social support to one another in the form of emotional or practical support during challenging situations such as natural disasters or urgent agricultural issues.

These results are in line with the statement expressed by Munier *et al.* (2018) that agricultural extension aims to gradually enhance farmers' capabilities by increasing their knowledge, providing them with access to relevant information, and assisting them in adopting necessary technologies. This is intended to enable farmers to address the challenges they face and make better decisions in their farming endeavors. Additionally, the success of extension services positively impacts farmers' social capital, especially if extension workers possess strong networks and social capital when conducting agricultural extension activities.

b. The influence of extension effectiveness on innovative behavior in increasing corn farmers' income

The t_{count} value of the influence of extension effectiveness on social capital was 4.036, with a probability value (P-value) of 0.000. The t_{count} value of 4.036 is greater than the t_{table} value of 1.96 (4.036 > 1.96, and the P-value is smaller than the significance level of 0.05 (0.000 < 0.05), thus Ha_2 is accepted, indicating that extension effectiveness has a positive and significant effect on innovative behavior in increasing income among corn farmers in Bone Bolango Regency. The extension of innovative behaviors among corn farmers in the Bone Bolango Regency is not merely minor or insignificant but genuinely measurable and significant. This is because extension has played a significant role in changing farmers' behaviors, which substantially contributes to increasing farmers' income. With effective extension and the adoption of innovative behaviors, farmers' income is anticipated to increase. This improvement can occur through increased harvest yields, efficiency in resource management, and added value to agricultural products (Table 3).

Effective extension programs have successfully encouraged corn farmers in the Bone Bolango Regency to adopt innovative behaviors that support the increase in corn farmers' income. With the improvement in productivity and

efficiency in farming, the income of corn farmers can significantly rise. Thus, the extension program has brought about beneficial or positive impacts on corn farmers. These positive impacts include increased knowledge among farmers, changes in attitudes, and changes in the behavior of corn farmers that support the increase in agricultural productivity and income (Baruwadi *et al.*, 2020; Yuniarsih *et al.*, 2021). The impact of extension programs is not merely small or insignificant; rather, it has a significant influence. This means that extension programs have had a remarkable impact on changing the behavior of corn farmers.

The results of the descriptive analysis regarding the effectiveness of extension services reveal that the effectiveness of extension services scored 78.58%, which was in the good enough criteria. This indicates that farmers perceive agricultural extension workers as providing relevant information and knowledge about corn cultivation. Extension workers can communicate the latest methods, better farming techniques, or solutions to problems faced by corn farmers. The implementation of advice or information provided by agricultural extension workers yields satisfactory results for corn farmers in increasing their income.

These findings can further be interpreted to mean that agricultural extension workers have a good understanding of the local conditions and the needs of farmers in the Bone Bolango Regency. Agricultural extension workers can customize their extension efforts according to the local conditions and context, thereby ensuring that the extension activities are effective in benefiting the productivity or welfare of farmers. These results are consistent with the statement by Sugiarta *et al.*, (2017)) that the performance of agricultural extension workers in disseminating government programs and innovations will provide tangible benefits in enhancing farmer behavior, particularly in adopting innovations related to technology and technical aspects of corn cultivation, leading to higher productivity among farmers.

c. The influence of social capital on innovative behavior in increasing corn farmers' income

The t_{count} value for the influence of social capital on innovative behavior yielded a result of 15.477 with a probability value (P-value) of 0.000. The obtained t_{count} of 15.477 is greater than the critical t_{table} of 1.96 (15.477 > 1.96). Additionally, the P-value of 0.000 is less than the significance level of 0.05 (0.000 < 0.05), thus, Ha_3 is accepted, indicating that social capital has a positive and significant effect on innovative behavior in increasing income for corn farmers in the Bone Bolango Regency. The existence of strong relationships, trust, and cooperation among farmers has encouraged them to adopt innovative agriculture practices. The role of social capital in supporting innovative behavior is not insignificant but rather has a significant influence. Social capital has played a prominent role in motivating corn farmers to change their ways of thinking and acting in agriculture. Thus, by cooperation, sharing knowledge, and supporting each other, corn farmers have a greater opportunity to achieve economic success in agriculture (Table 3).

The results of the descriptive analysis regarding innovative behavior in increasing income for corn farmers revealed that the innovative behavior in enhancing the income of corn farmers scored 79.25%, which is included in the good criteria. This indicates that corn farmers in the Bone Bolango Regency are starting to adopt and implement several innovative practices that have positively impacted the income of corn farmers. Sustained efforts in developing and expanding these innovations can continue to support economic growth and the welfare of corn farmers, primarily if supported by qualified agricultural extension workers and strong networking or partnerships among corn farmers.

So far, it has been observed that corn farmers in the Bone Bolango Regency are quite willing and capable of adapting to environmental or market changes that may affect their corn farming efforts. Farmers are eager to collaborate with institutions or organizations that support innovative farming, such as agricultural research institutes, universities, or NGOs working in agricultural development (Molina *et al.*, 2021; Cano *et al.*, 2023). Therefore, with the innovative behavior among farmers, the impact extends to corn farmers who are willing and starting to utilize technology applications, such as obtaining weather information, market prices, or more efficient farming management.

These findings are in line with the assertions made by Bulu *et al.*, (2009); Kholifa (2016) & Laksono *et al.*, (2022) that social capital plays a central role in driving innovation adoption in corn farming. The stronger the social capital among farmers, the higher their level of corn innovation adoption. Collaboration through farmer groups results in joint decisions regarding the adoption of corn innovations. The same applies to the procurement of information, innovation materials, and marketing produce, all of which require cooperation based on mutual trust and adherence to cooperative regulations.

The influence of social capital on the level of corn innovation adoption indicates that innovation adoption is not solely influenced by individual cognition but also by social interactions. The decision to adopt innovations through social processes strengthens social capital in the context of innovation adoption. Social capital built through networks enables the exchange of information based on farmers' trust in innovation, thereby enhancing innovation adoption.

The indirect influence (the influence of extension effectiveness through social capital on innovative behaviors in Increasing Corn Farmers' Income)

The t_{count} value of the indirect influence of the extension effectiveness variable is 6.322 with a probability value (P-value) of 0.000. The t_{count} value of 6.322 is greater than the t_{table} value of 1.96 (6.322 > 1.96). Additionally, the P-value of 0.000 is less than the probability value of 0.05 (0.000 < 0.05). Therefore, Ha4 is accepted, indicating that the effectiveness of extension services through social capital has a positive and significant influence on innovative behaviors, leading to increased income among corn farmers in the Bone Bolango Regency. The significant influence suggests that social capital acts as a good intervening factor as it enhances the impact of extension effectiveness on innovative behaviors, thus contributing to the increase in income among corn farmers. Social capital in the corn farming community in the Bone Bolango Regency serves as a mediating factor or an effective catalyst in enhancing the effectiveness of extension services and directing innovative behaviors among farmers, which in turn has a positive and significant effect on increasing corn income. This signifies that cooperation and social support are important in achieving better agricultural goals (Table 3).

The presence of strong social capital has enhanced the efficacy of extension workers in achieving farmers' goals of improving harvest yields and income. Social capital plays a crucial role in motivating and supporting positive changes in farmers' behavior (Sudrajat & Arani, 2016). Thus, the effectiveness of extension services built upon strong social capital has succeeded in promoting innovative behaviors among corn farmers. These behavioral changes, such as the adoption of new technologies or more efficient farming practices, in turn, contribute to enhancing harvest yields and income among corn farmers in the Bone Bolango Regency.

The results of the descriptive analysis on social capital indicate a score of 78.13%, which is included in the adequate criteria. This suggests that corn farmers have a relatively solid social foundation to address agricultural challenges and improve the welfare of farmers. Maintaining and strengthening this social capital can be a valuable asset in the development of sustainable agriculture in the Bone Bolango Regency. Thus, in times of crisis or poor harvest seasons, corn farmers in the Bone Bolango Regency can rely on assistance and support from fellow farmers to overcome economic difficulties.

Basically, farmers rely on each other, whether it is borrowing agricultural tools, sharing knowledge, or providing assistance during challenging situations such as pest attacks, extreme droughts, unfavorable climate conditions, or marketing and ideal moisture content standards set by collectors. Corn farmers must also actively engage in agricultural organizations such as farmer groups or agricultural cooperatives, as this step can enhance coordination and farmers' access to resources and information. In corn cultivation, corn farmers in the Bone Bolango Regency have traditionally adhered to local wisdom such as *Mo Huyula* or cooperation, making it a social norm that supports cooperation and mutual assistance among corn farmers. This signifies that community values encourage collaboration and sharing to improve both production and income in corn farming endeavors.

These findings are in line with the statement by Syaifuddin *et al.* (2022) that the role of social capital in the personal capabilities of agricultural extension workers in terms of skills in the ability to utilize innovation technology for agricultural purposes is deemed as good criteria. From the perspective of agricultural extension workers, social capital encourages better performance in carrying out their duties, which impacts the social capital network of farmers positively. Consequently, it leads to increased activity and commitment to innovation and new technologies within farmer groups, resulting in improved farmer income. Fundamentally, social capital tends to have a positive influence on the agricultural commodity business cycle.

CONCLUSION

The conclusion of the research indicates that social capital serves as a favorable intervening variable, as it can enhance the effectiveness of agricultural extension on innovative behaviors for increasing corn farmers' income. Enhanced social capital facilitates agricultural extension agents in fulfilling their duties by fostering initiative, enthusiasm, and various commitments among corn farmers in agricultural activities, leading to increased innovation in both production and income within corn farming in the Bone Bolango Regency. Specifically, it was found that (1) The effectiveness of agricultural extension significantly and positively influences corn farmers' social capital in the Bone Bolango Regency, with a coefficient value of 43.00%. (2) The effectiveness of agricultural extension significantly and positively influences innovative behaviors aimed at increasing corn farmers' income in the Bone Bolango Regency, with a coefficient value of 22.80%. (3) Social capital significantly and positively influences innovative behaviors aimed at increasing corn farmers' income in the Bone Bolango Regency, with a coefficient value of 74.80%. (4) The effectiveness of agricultural extension through social capital significantly and positively influences innovative behaviors aimed at increasing corn farmers' income in the Bone Bolango Regency, with a coefficient value of 32.20%, resulting in a total influence of 55.00%.

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REFERENCE

Agustina, T. S. (2020). Pengaruh perilaku inovatif pada keberhasilan womenpreneur etnis madura sebagai pedagang pakaian jadi. *INOBIS: Jurnal Inovasi Bisnis dan Manajemen Indonesia*, *3*(2), 153-161. https://doi.org/10.31842/jurnalinobis.v3i2.127

Ashari, F., & Mawardi, M. K. (2018). Peran modal sosial dalam pengembangan usaha kecil dan menengah. *Jurnal Administrasi Bisnis (JAB)*, *59*(1), 153-162.

Baruwadi, M. H., Akib, F. H. Y., & Bahua, M. I. (2020). Impact of agricultural extension performance on corn farmers household economy. *J. Austrian Soc. Agric. Econ, 16*, 137-146.

Bulu, Y. G., Hariadi, S. S., & Herianto, A. S. (2009). Pengaruh modal sosial dan keterdedahan informasi inovasi terhadap tingkat adopsi inovasi jagung di Kabupaten Lombok Timur Nusa Tenggara Barat. *Jurnal Agro Ekonomi*, *27*(1), 1-21. https://doi.org/10.21082/jae.v27n1.2009.1-21

Cano, L. F. G., Zartha Sossa, J. W., Orozco Mendoza, G. L., Suarez Guzman, L. M., Quintero Saavedra, J. I., & Agudelo, D. A. (2023). Agricultural innovation system: analysis from the subsystems of R&D, training, extension, and sustainability. *Frontiers in Sustainable Food Systems*, *7*, 1176366. https://doi.org/1176366. 10.3389/fsufs.2023.1176366

Falo, M., Sukesih, K., & Yuliati, Y. (2021). The local wisdom model in change of farmer behavior and its impact on the adoption of technology special efforts (upsus) maize plants in north-central Timor district. *Turkish Journal of Computer and Mathematics Education*, *12*(6), 3074-3090.

Fajar S, A., Puspaningrum, D., & Dwi, N. (2023). Kinerja penyuluh pada tipologi komunitas petani di kabupaten Jember. *AGRIBIOS*, *21*(1), 117-131. https://doi.org/10.36841/agribios.v21i1.2974

Faqih, A., & Susanti, R. (2016). Efektivitas metode dan teknik penyuluhan pertanian dalam penerpan teknologi budidaya padi sawah (oryza sativa L.) sistem tanam jajar legowo 4: 1. *Agrijati Jurnal Ilmiah Ilmu-Ilmu Pertanian*, *28*(1), 45-67.

Han, M., Liu, R., Ma, H., Zhong, K., Wang, J., & Xu, Y. (2022). The impact of social capital on farmers' willingness to adopt new agricultural technologies: empirical evidence from China. *Agriculture*, *12*(9), 1368. https://doi.org/10.3390/agriculture12091368

Hidayat, A. S., Setiawan, Y., Alwi, M., & Nurdiana, E. (2018). Peran perilaku inovatif sebagai variabel intervening antara knowledge creation dan keunggulan bersaing. *Jurnal Ecodemica: Jurnal Ekonomi Manajemen dan Bisnis*, *2*(2). https://doi.org/10.31294/jeco.v2i2.4090

Kholifa, N. (2016). Pengaruh modal sosial terhadap produktivitas petani (studi kasus di kecamatan Cilacap Utara Kabupaten Cilacap). *Jurnal Pendidikan dan Ekonomi*, 5(2), 89-97.

Kos, D., Lensink, R., & Meuwissen, M. (2023). The role of social capital in the adoption of risky versus less risky subsidized input supplies: An empirical study of cocoa farmers in Ghana. *Journal of Rural Studies*, *97*, 140-152. ttps://doi.org/10.1016/j.jrurstud.2022.10.027

Laksono, D. R., Prayitno, G., & Sari, N. (2022). Pengaruh modal sosial terhadap produktivitas petani di Kecamatan Pandaan. *Planning for Urban Region and Environment Journal (PURE)*, *11*(2), 9-16.

Latif, U., Nuraeni, N., & Rasyid, R. (2022). Analisis kinerja penyuluh pertanian dan persepsi petani di kabupaten pinrang. *Wiratani: Jurnal Ilmiah Agribisnis*, *5*(1), 72-84. https://doi.org/10.33096/wiratani.v5i1.89

Molina, N., Brunori, G., Favilli, E., Grando, S., & Proietti, P. (2021). Farmers' participation in operational groups to foster innovation in the agricultural sector: An Italian case study. *Sustainability*, *13*(10), 5605. https://doi.org/10.3390/su13105605

Moonti, A., Bempah, I., Saleh, Y., & Adam, E. (2022). Penyuluhan pertanian berbasis teknologi informasi di kabupaten Bone Bolango. *Jurnal Ekonomi Pertanian dan Agribisnis*, *6*(1), 62-78. https://doi.org/10.21776/ub.jepa.2022.006.01.7

Munier, M. F., Ali, M. S. S., & Salman, D. (2018). Relasi antara modal sosial penyuluh dan keberhasilan penyuluhan pertanian: kasus Desa Limbung dan Desa Tubajeng, Kecamatan Bajeng, Kabupaten Gowa, Provinsi Sulawesi Selatan. *Jurnal Sosial Ekonomi Pertanian*, *14*(2), 133-142. https://doi.org/10.20956/jsep.v14i2.4221

Pomalinggo, R., Arifin, A., Lampe, M., & Hijjang, P. (2023). Participation and social solidarity of farmers in supporting corn exports in Gorontalo Regency. *International Journal of Science and Research Archive*, 2023, *08*(01), 254–259. https://doi.org/10.30574/ijsra.2023.8.1.0051

Rahmadi, P. Z. & Santoso B. (2016). Modal sosial petani sawah berlahan sempit dalam pemenuhan nafkah rumah tangga. *Jurnal Analisa Sosiologi April 2016, 5*(1), 62-73. https://doi.org/10.20961/jas.v5i1.17986

Rahmatiah. (2017). *Relasi sosial dalam pengembangan industri kecil menengah*. Ideas Publishing. ISBN: 978-602-6635-02-0.

Sawitri, D., & Soepriadi, I. F. (2014). Modal sosial petani dan perkembangan industri di desa sentra pertanian kabupaten subang dan kabupaten karawang. *Jurnal Perencanaan Wilayah dan Kota*, *25*(1), 17-36. https://doi.org/10.5614/jpwk.2014.25.1.2

Silvert, C. J., Ochieng, W., Perez Orozco, J., & Asanzi, A. (2022). Dissecting the roles of social capital in farmer-to-farmer extension: a review. *Journal of International Agricultural and Extension Education*, *29*(4), 7-26. https://doi.org/10.4148/2831-5960.1058

Sudrajat, J., & Arani, N. (2016). Institutional economic reconstruction by optimizing the role of middlemen. *Mimbar: Jurnal Sosial dan Pembangunan*, *32*(1), 65-73. https://doi.org/10.29313/mimbar.v32i1.1743

Sugiarta, P., Ambarawati, I. G. A. A., & Putra, I. G. S. (2017). Pengaruh kinerja penyuluh pertanian terhadap perilaku petani pada penerapan teknologi PTT dan produktivitas padi di Kabupaten Buleleng. *Jurnal Manajemen Agribisnis*, *5*(2), 34-42. https://doi.org/10.24843/JMA.2017.v05.i02.p06

Syaifuddin, S., Lubis, R. F., Ekasari, K., Muis, M., & Nurhayati, N. (2022). Peran modal sosial penyuluh pertanian sebagai penentu capaian produksi usahatani pangan padi. *JASc (Journal of Agribusiness Sciences)*, *6*(1), 14-23. https://doi.org/10.30596/jasc.v6i1.11613

Widodo, H. T. (2016). Peran dan manfaat modal sosial dalam peningkatan efektivitas kerja karyawan sektor usaha mikro kecil dan menengah di sentra kerajinan tas dan koper tanggulangin Sidoarjo. *JBMP (Jurnal Bisnis, Manajemen dan Perbankan), 2*(1), 1-14. https://doi.org/10.21070/jbmp.v2i1.911

Yuniarsih, E. T., Andriyani, I., Halil, W., & Anas, S. (2021, November). Relationship analysis of farmers' participation in agricultural extension with corn production levels in south Sulawesi. *In IOP Conference Series: Earth and Environmental Science* (Vol. 911, No. 1, p. 012070). IOP Publishing. https://doi.org/10.1088/1755-1315/911/1/012070

Zuwandasari, E., & Sunaryanto, L. T. (2021). Peran modal sosial terhadap produktivitas petani jambu merah di desa watuagung kabupaten Semarang. *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, *8*(3), 691-703. http://dx.doi.org/10.25157/jimag.v8i3.5599.