

SOCIAL MEDIA ANALYSIS ON SOCIAL CAPITAL OF *NILAM* FARMERS IN MINAHASA SELATAN REGENCY

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Abstract: The novelty of this study is that social media can strengthen networks among farmers in social empowerment and improve the economy of farmers in rural areas. This study aims to analyse the influence of social media use on the social capital of *nilam* (Pacthouli) farmers in Minahasa Selatan Regency. The research was conducted over six months, from January to June 2025, using a descriptive approach through survey and interview methods. A total of 100 farmers were selected as respondents using purposive sampling techniques. The data collected consisted of primary data through direct interviews and secondary data from relevant institutions. The variables observed included farmer characteristics (education, age, land area, income, expenditure, digital device ownership, and internet access duration), social capital aspects (trust, norms, networks), as well as the intensity and patterns of social media use. Data analysis was conducted using construct validity tests (Pearson Product Moment), reliability tests (Cronbach's Alpha), descriptive statistical analysis, Pearson correlation tests, simple linear regression, and the coefficient of determination (R^2). The results of the analysis indicate a significant relationship between social media use and the level of social capital among farmers. Social media serves as a platform for information exchange, strengthens networks among farmers, and encourages participation in digital communities. These findings highlight the importance of integrating digital technology into the social and economic empowerment of farmers in rural areas.

Keywords: Social Capital, Social Empowerment, Social Media

Introduction

Social capital is one of the key elements in the success of community development, particularly in the agricultural sector. *Nilam* (Pacthouli) farmers in Minahasa Selatan District, like farmers in other regions, heavily rely on social capital to build working networks, exchange information, and access resources to enhance productivity. However, the development of communication technology, especially social media, has brought significant changes in the way social capital is interacted with and managed (Gurung and Kumar, 2022; Urhan et al., 2024). Social media is now not only a communication tool but also a platform for sharing knowledge, building business relationships, and strengthening social networks (Yaqub and Al-Sabban, 2023).

Increased agricultural productivity in the current digital era is increasingly influenced by farmers' ability to utilise technology, including social media. Social media has become an important platform that enables information exchange, network formation, and social capital strengthening. For *nilam* farmers in South Minahasa, who rely on community collaboration to manage land, distribute harvests, and access markets, social media has the potential to be a strategic tool for improving economic welfare and agricultural sustainability. However, despite its great potential, its utilisation by *nilam* farmers in this region is still minimal. Most farmers have not fully understood how social media can be used to support agribusiness practices,

expand networks, or access relevant market information. Limited digital literacy, infrastructure constraints, and a lack of training support are some of the factors limiting the optimal use of social media as social capital for farmers. This has resulted in low productivity, limited access to broader markets, and a lack of competitiveness for local *nilam* products.

Social capital, which includes trust, networks, and social norms, plays a crucial role in supporting agricultural success. This dialectical process shapes the reality of social media within farmers' social capital. This aligns with the findings of Ngangi et al (2025), who concluded that social capital can help farmers share information about cultivation techniques, solve production problems, and exchange experiences. Additionally, research conducted by Ngangi et al (2021) states that social capital is possessed by groups and the patterns of relationships formed between individuals within groups or between farmer groups. Therefore, a thorough analysis is needed on how social media can support the formation and strengthening of social capital among *nilam* farmers.

Literature Review

A. Social

Social media is a digital platform that allows individuals and organizations to share information, communicate, and interact online (Nasrullah, 2021). Social media is a communication and marketing platform that allows users to share thoughts, ideas, and experiences with others, enabling users to create content and share it widely with the public. Social media enables individuals to create personal profiles, connect with others, and participate in various social activities in the virtual world (Shokery et al., 2016). Social media platforms such as Facebook, Twitter, Instagram, and TikTok have become an integral part of daily life, both for personal and professional needs. In the context of communication, social media offers significant opportunities for the rapid and widespread dissemination of information. Additionally, according to Iqbal et al (2024), social media has become an effective marketing tool, particularly in building brand awareness and customer relationships.

Social media helps people stay connected with friends and family, even when they are far apart (Georgieva et al., 2024). Furthermore, social media is an effective tool for promoting businesses or brands, as it provides a means to reach target audiences easily without requiring a large budget for advertising campaigns. The following are various types of social media according to Nasrullah (2021): (1) Social Networking; (2) Content Sharing Media (Media Sharing Network); (3) Discussion Forums; (4) Blogging; (5) Social Audio Network; (6) Live Streaming; (7) Review Networks.

Social media also has negative impacts, such as the spread of false information (hoaxes), decreased privacy, and digital dependency (Choi & Lim, 2016). In addition, social media management is very time-consuming, as it requires consistent content updates and interaction with the audience. Small mistakes on social media can also spread quickly and are difficult to fix, leaving a lasting impact. Furthermore, challenges in measuring the effectiveness of promotions through social media make marketing strategies difficult to evaluate accurately (Akram and Kumar, 2017).

Research shows that social media plays an important role in various aspects of life, such as education, business, and politics. In addition, social media is used for health information search and communication (Rosini and Nurningsih, 2018). In education, social media is used as a tool for learning and collaboration between students and teachers (Manca and Ranieri, 2016). In politics, social media has become an effective campaign tool for conveying messages to a wide audience (Enli, 2017).

B. Social Capital

Social capital can be understood as a form of investment aimed at obtaining new resources, as it is considered an asset that can be utilized in the context of investment (Rambitan et al, 2024). High levels of human and social capital also produce synergistic effects associated with positive outcomes in entrepreneurship. Thus, the combination of high human and social capital is expected to strengthen entrepreneurship (Sheng et al., 2024). In addition, social capital is considered a potential factor in understanding the relationship between income inequality and individual health status (Yamaguchi, 2014). Social capital is gaining increasing attention due to its significant role in various aspects of life, such as economic development and the reduction of social inequality.

Social capital is a crucial resource for individuals, groups, and communities, serving as a connector for various activities. Social capital enables people to collaborate and benefit from social relationships. Without social capital, societies, economies, institutions, and political systems would not function. The presence of social capital is influenced by the interrelated relationship between economic and sociological fields (Pourfathy, 2024). According to Cofré-Bravo et al (2019), there are three types of social capital, namely: (1) *Social Bonding*, which includes close relationships between individuals in communities with similar identities; (2) *Social Bridging*, which refers to relationships across communities or between groups with different identities; and (3) *Social Linking*, which involves relationships between community and financial institutions as well as other public institutions. In this context, social capital plays a crucial role in strengthening cooperation among individuals and groups in society by fostering the formation of effective bonding, bridging, and linking relationships.

Social capital is an element that strengthens a sense of togetherness among group members, supported by norms, trust, and networks. This contributes positively and mutually to efforts to achieve common goals (Kurniawan, 2018). According to Putnam (2000); Ngangi (2016), there are three models of social capital, namely: (1). Network: Networks in social capital refer to social relationships formed between individuals, groups, or organizations. Networks play an important role in the exchange of information, resources, and cooperation. Strong networks enable individuals or groups to support each other in achieving common goals; (2). Trust: Trust is the foundation of relationships between individuals or groups. Trust creates confidence that members of a community or network will act in predictable, honest, and mutually beneficial ways; and (3). Norms: Norms in social capital are unwritten rules, values, and expectations that govern individual behavior within a community. These norms encourage solidarity, a sense of shared responsibility, and compliance with collective agreements.

Material and Methods

A. Research Time and Location

This research was conducted over 6 months, from January to June 2025, with the research location in South Minahasa Regency.

B. Population and Sample

This study was designed descriptively using interview and survey methods. The research respondents were farmer groups in Minahasa Selatan Regency with a population of 100. The sampling technique used is Purposive Sampling (deliberate sampling). The data collected in this study includes primary and secondary data. Data collection methods were conducted through interviews and surveys with respondents. Primary data was obtained from direct interviews with respondents, namely farmers, while secondary data consists of supporting data obtained from various related institutions.

C. Variables Observed.

Table 1. Operationalization of Variables

Variable	Indicator	Criteria
Farmer Characteristics		
Education (Edu)	Level of education attained in school	<ul style="list-style-type: none"> • No schooling • Elementary school graduate • Junior high school graduate • High school graduate
Age	Age of Farmer	<ul style="list-style-type: none"> • 20-30 • 30-40 • 40-50 • >50 years
Land Area (Land)	Cultivated Land Area	<ul style="list-style-type: none"> • Small (≤ 0.1 Ha) • Medium (0.11-0.4 Ha) • Large (0.4–1 ha) • Very Large (≥ 1 Ha)
Income (Inc)	Total income received per month	<ul style="list-style-type: none"> • IDR.500,000–1,000,000 • IDR. 1,100,000–2,500,000 • IDR. 2,500,000–5,000,000 • >IDR. 5,000,000
Expenses (Exp)	Total monthly expenses	<ul style="list-style-type: none"> • IDR. <1,000,000 • IDR. 1,100,000–2,000,000 • IDR. 2,100,000–3,000,000 • >IDR. 3,000,000
Digital Device Ownership (Dig)	Ownership of 4G Devices, 5G Devices, Computers/Laptops/PCs, Tablets	<ul style="list-style-type: none"> • Yes • No
Internet Access Duration (Int)	Accessing social media, sending and receiving emails, online shopping	<ul style="list-style-type: none"> • 1 hour • 1–3 hours • 3-5 hours • >5 hours
Social Capital		
Trust	Trust among farmers	<ul style="list-style-type: none"> • Very Low • Low • Moderate • High • Very High
Standard	Solidarity, Agreement	<ul style="list-style-type: none"> • Very Low • Low • Moderate • High • Very High

Network	Access to information and resources through networks	<ul style="list-style-type: none"> • Very low • Low • Moderate • High Very
Social Media		
1. Frequency of use	How often do you use social media?	<ul style="list-style-type: none"> • Very low • Low • Moderate • High • Very High
2. Purpose of use (information, promotion, community)	Using social media for information, product promotion, and communication	<ul style="list-style-type: none"> • Very Low • Low • Moderate • High • Very High
3. Types of social media used	The types of social media used by farmers, particularly WhatsApp and Facebook.	<ul style="list-style-type: none"> • Very low • Low • Moderate • High • Very High
4. Interaction with fellow farmers	Assessing the frequency of social interaction through digital media.	<ul style="list-style-type: none"> • Very low • Low • Moderate • High • Very High
5. Level of participation in online groups	Measuring active engagement in WhatsApp/Facebook agricultural groups.	<ul style="list-style-type: none"> • Very low • Low • Moderate • High • Very High

D. Data Analysis

1. Construct Validity Test (Pearson Product Moment)

Used to test the extent to which the questions (indicators) can measure the intended variable.

$$r = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}}$$

Note:

- r = Pearson correlation coefficient
- X = Item score
- Y = Total variable score
- n = Number of respondents
- \sum = Sigma notation (summation)

Criteria:

- If $r_{\text{calculated}} > r_{\text{table}}$, then the question item is VALID
 - If $r_{\text{calculated}} \leq r_{\text{table}}$, then the question item is INVALID\
2. Instrument Reliability Test

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_{\text{item}}^2}{\sigma_{\text{total}}^2} \right)$$

Cronbach's Alpha Test: Measures the internal consistency of items within a variable.

Explanation:

- α = Cronbach's Alpha value
- k = Number of items
- σ_{item}^2 = Variance of each item
- σ_{total}^2 = Total variance of scores
- \sum = Summation notation (sigma)

Reliability Criteria:

- $\alpha \geq 0.7 \rightarrow$ Instrument is RELIABLE
- $\alpha < 0.7 \rightarrow$ Instrument is UNRELIABLE

3. descriptive Statistical Analysis

Used to describe the distribution of values for each indicator/variable (mean, median, mode, standard deviation).

Mean Formula:

Standard Deviation (SD) Formula:

$$\bar{X} = \frac{\sum X}{n}$$

$$SD = \sqrt{\frac{\sum (X - \bar{X})^2}{n-1}}$$

4. Pearson Correlation Test

Used to measure the linear relationship between social media usage (X) and social capital (Y).

$$r = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}}$$

Criteria:

- 0.00–0.1990.00 - 0.1990.00–0.199: Very low
- 0.20–0.3990.20 - 0.3990.20–0.399: Low
- 0.40–0.5990.40–0.5990.40–0.599: Moderate
- 0.60–0.7990.60 - 0.7990.60–0.799: Strong
- 0.80–1.0000.80 - 1.0000.80–1.000: Very strong

Significance testing is performed by looking at the **p-value** in statistical software (e.g., SPSS or R). If $p < 0.05$, then the relationship is significant.

5. Simple Linear Regression Test

To see the direct effect of social media use on social capital.

Simple Linear Regression Model:

$$Y = a + bX + e$$

Explanation:

- Y = Social capital (dependent variable)
- X = Social media usage (independent variable)
- a = Intercept/constant
- b = Regression coefficient (level of influence)
- e = Error (residual)

Significance Test (t-test):

$$t = \frac{b}{SE_b}$$

Testing Criteria:

If $t_{\text{calculated}} > t_{\text{table}}$ AND $p\text{-value} < 0.05 \rightarrow$ The influence is SIGNIFICANT

If $t_{\text{calculated}} \leq t_{\text{table}}$ OR $p\text{-value} \geq 0.05 \rightarrow$ The influence is NOT SIGNIFICANT

6. Coefficient of Determination (R^2)

Measures how much the independent variable X explains the dependent variable Y.

$$R^2 = \frac{SSR}{SST} \quad \text{atau} \quad R^2 = 1 - \frac{SSE}{SST}$$

Explanation:

- SSR: Regression Sum of Squares
- SSE: Error Sum of Squares
- SST: Total Sum of Squares

The R^2 value ranges from 0 to 1, with values closer to 1 indicating a better model.

Results and Discussions

A. Respondent Characteristics

1. Level of Education

Educational level is an important factor influencing farmers' ability to adopt agricultural technology and innovations. The following is the distribution of educational levels among farmers in Minahasa Selatan District:

Table 2. Distribution of Respondents' Educational Levels

Educational Level	Frequency (n=100)	Percentage
No schooling	5	5
Elementary school graduate	35	35
Junior high school graduate	30	30
High school graduate	30	30

The data shows that the majority of respondents (95%) have a formal educational background, with a relatively even distribution between elementary school graduates (35%), junior high school graduates (30%), and high school/vocational school graduates (30%). Only 5% have never attended formal education. This pattern reflects that *nilam* farmers in this region generally have adequate educational foundations to understand basic agricultural information. The high proportion of high school/vocational school graduates (30%) is an important asset because this group tends to be more adaptable to technology. However, the dominance of elementary and junior high school graduates (65%) indicates the need for simplified communication approaches in agricultural extension, especially when introducing new technologies or more complex digital platforms.

2. Age of Respondents

The age structure of farmers provides insights into the potential for regeneration and adaptation to innovation. The following is the age composition of respondents in this study:

Table 3. Age Distribution of Respondents

Age Group (years)	Frequency (n=100)	Percentage
20-30	15	15
30 - 40	25	25
40 - 50	40	40
> 50	20	20

The age distribution shows that *nilam* farmers are dominated by the 40-50 age group (40%), followed by the 30-40 age group (25%). This indicates that the *nilam* farming sector in this region is mainly managed by middle-aged farmers with mature farming experience. The productive age group (20-50 years) collectively accounts for 80%, indicating a physically strong workforce. However, the low proportion of young farmers (20-30 years, only 15%) is a serious concern for farmer regeneration. This phenomenon may be influenced by the migration of young people to non-agricultural sectors or urbanization. Special efforts are needed to make *nilam* farming more attractive to the younger generation, including through the integration of digital technology.

3. Farmland Area

The scale of farming operations, as reflected in cultivated land area, influences farmers' productivity and income. The following table shows the distribution of land ownership among respondents:

Table 4. Cultivated Land Area

Land Area Category	Frequency (n=100)	Percentage
≤ 0.1 Ha (Small)	20	20
0.11–0.4 Ha (Moderate)	45	45
0.4–1 ha (Large)	25	25
≥1 ha (Very large)	10	10

Most farmers (45%) manage medium-sized plots (0.11–0.4 ha), while only 10% have very large plots (≥1 ha). This distribution reflects the small to medium scale of *nilam* farming in this region. Such land ownership patterns are generally associated with inheritance or traditional land distribution systems. The small scale of these operations has important implications for the development of the *nilam* agribusiness model. On the one hand, it facilitates intensive management, but on the other hand, it can limit production capacity and economic competitiveness. Cooperative or farmer group strategies are important for achieving economies of scale through product consolidation and collective marketing.

4. Cultivated Land Area

Income levels reflect farmers' economic well-being and their ability to invest in agricultural activities. The following is the distribution of monthly income among respondents:

Table 5. Monthly Income Levels

Income Range (IDR)	Frequency (n=100)	Percentage
500,000 - 1,000,000	3	30
1,100,000 - 2,500,000	4	40
2,500,000 - 5,000,000	20	20
> 5,000,000	10	10

Most farmers (70%) have monthly incomes below IDR. 2.5 million, with 40% falling within the IDR. 1.1-2.5 million range. These data indicate that nutmeg farming is not yet a sufficient source of income for most farmers. Only 10% of respondents earn more than IDR. 5 million per month, indicating disparities in productivity or market access. These income differences may be influenced by factors such as land area, productivity, access to technology, and marketing networks. It is important to identify best practices from high-income farmers (IDR. 5 million) for replication, while developing strategies to enhance value addition through post-harvest processing.

5. Digital Device Ownership

Digital device ownership is a key prerequisite for the utilization of information technology. The following table shows the level of digital device ownership among respondents:

Table 6. Digital Device Ownership

Device Ownership	Frequency (n=100)	Percentage
Yes	85	85
No	15	15

The high level of digital device ownership (85%) indicates that the basic infrastructure for digital technology adoption is generally available among *nilam* farmers. This creates significant opportunities for the development of digital-based programs, such as online extension services or digital marketing systems. However, device ownership does not necessarily equate to digital literacy. Further research is needed to assess actual digital literacy levels, including the ability to use specialized agricultural applications or e-commerce platforms. For the 15% who do not own devices, traditional approaches (such as direct extension services) remain necessary.

6. Expenditures

Farmers' expenditure patterns show the allocation of living expenses and production costs for agricultural activities. The following is a breakdown of monthly expenditures for respondents:

Table 7. Monthly Expenditures

Expenditure Range (IDR)	Frequency (n=100)	Percentage
1,000,000	3	35
1,100,000 – 2,000,000	40	40
2,100,000-3,000,000	15	15
> 3,000,000	10	10

Farmers' spending patterns show that 75% of respondents have monthly expenditures below IDR. 2 million, which is in line with their income levels. Forty percent of farmers fall

into the IDR. 1.1-2 million expenditure category, reflecting relatively stable living and agricultural production costs in this region. Only 10% have monthly expenditures exceeding IDR. 3 million. Comparison with income data reveals that some farmers (especially those earning IDR. 1.1-2.5 million) have thin profit margins. This highlights the importance of production cost efficiency and financial management in farming businesses. Simple financial management training programs for farmers could be a beneficial intervention.

7. Internet Access Duration

Internet usage intensity reflects farmers' digital habits. The following table shows the daily internet access duration of respondents:

Table 8. Daily Internet Access Duration

Daily Duration	Frequency (n=100)	Percentage
1 hour	1	1
1-3 hours	35	35
3-5 hours	40	40
>5 hours	15	15

Most farmers (75%) access the internet between 1-5 hours per day, with 40% in the 3-5 hour range. This usage pattern indicates that the internet has become part of the daily routine of many farmers, albeit with moderate intensity. This significant access time can be leveraged for the delivery of digital agriculture content. However, only 15% access the internet for more than 5 hours a day a group that may be the most active in using social media for agricultural purposes. It is important to understand specific activities during internet access (whether for entertainment or business) to optimize digital agriculture communication strategies.

B. Discussion of Data Analysis

1. Validity Test

Validity testing was conducted to ensure that each indicator in the research variables truly measures what it is supposed to measure. In this study, validity was tested using the Pearson Product Moment technique, which calculates the correlation between the score of each indicator and the total score of the variable. If the correlation coefficient shows a high and statistically significant value, the indicator is considered valid. This test was conducted on two main variables, namely Social Media Use (X) and Social Capital (Y). The following table presents the correlation results between the indicators and the total scores of each variable to determine whether all indicators meet the validity requirements.

Tabel 9. Social Media Usage Variable (X)

Indicator	Correlation with Total X	Description
X1. Frequency of Use	0.79	Valid
X2. Purpose of Use	0.83	Valid
X3. Type of Social Media	0.832	Valid
X4. Interaction Among Farmers	0.743	Valid
X5. Participation in Online Groups	0.769	Valid

All indicators have a **very strong** correlation (> 0.7) with the total construct, indicating **high validity**.

Table 10. Social Capital Variables (Y)

Indicator	Correlation with Total Y	Description
Y1. Trust Among Farmers	0.99	Valid
Y2. Shared Norms (Solidarity)	0.980	Valid
Y3. Social Network	0.995	Valid

The nearly perfect correlation values indicate **very strong validity** for all social capital indicators.

2. Reliability Test (Cronbach’s Alpha)

After the indicators were declared valid, the next step was to test their reliability. Reliability indicates the internal consistency of each indicator within a variable. In this study, **Cronbach’s Alpha** technique was used to measure reliability, where an α value ≥ 0.7 is considered to indicate a good level of reliability. The higher the alpha value, the more consistent and reliable the measuring instrument is in measuring the variable in question. The following table displays the reliability test results for each variable: Social Media Usage (X) and Social Capital (Y).

Table 11. Cronbach’s Alpha

Variable	Cronbach's Alpha	Description
Social Media Usage (X)	0.	✓ Reliable
Social Capital (Y)	0.990	✓ Very reliable

An α value ≥ 0.7 indicates that all items in the variable have **high internal consistency**.

3. Social

The following table presents the results of a descriptive analysis of five indicators in the Social Media Use variable, including frequency of use, purpose of use, types of social media used, interaction with fellow farmers, and level of participation in online groups. The purpose of this analysis is to understand how active and in what context nutmeg farmers in South Minahasa Regency use social media in their agricultural activities and social life. Through these statistics, researchers can identify general trends and data distribution for each indicator that reflect respondents' digital behaviour.

Table 12. Description of Social Media Usage Variables (X)

Indicator	Mean	Standard	Min	Max
X1. Frequency of Use	4.02	0.8	2	5
X2. Purpose of Use	4.10	0.74	2	5
X3. Type of Social Media	4.08	0.77	2	5
X4. Interaction Among Farmers	3.96	0.85	2	5
X5. Online Group Participation	4.00	0.79	2	5

The results of the descriptive analysis of the Social Media Usage variable indicate that the average of all indicators is ≥ 3.9 , indicating that *nilam* farmers in South Minahasa Regency are generally active in utilising social media in their daily activities, both for personal and professional purposes. Among the five indicators tested, the purpose of use indicator (X2) recorded the highest average value, indicating that farmers predominantly use social media to access agricultural information, promote agricultural products, and communicate within the

farming community. Additionally, the standard deviation values within the moderate range ($\pm 0.7-0.85$) indicate that while there are differences in individual preferences in utilising social media, the overall usage pattern remains centralised and consistent. This finding strongly suggests that social media has become an integral part of the social and economic ecosystem of *nilam* farmers.

4. Description of Social Capital Variables (Y)

The following table shows the results of a descriptive analysis of the three main indicators of the Social Capital variable, namely the level of trust among farmers, the existence of norms and solidarity, and the strength of social networks among *nilam* farmers. This analysis aims to describe the level of social cohesion and collective interaction among farmers in their communities. The values presented in the table provide initial insights into how social capital is formed and plays a role in supporting the economic and social activities of farmers, particularly in the context of social media utilisation.

Table 13. Description of Social Capital Usage Variables (Y)

Indicator	Mean	Standard Deviation	Min	Max
Y1. Trust Among Farmers	4.60	0.50	3	5
Y2. Norms and Solidarity	4.53	0.54	3	5
Y3. Farmer Networks (Social Ties)	4.59	0.50	3	5

The results of the descriptive analysis of the Social Media Usage variable indicate that the average of all indicators is ≥ 3.9 , indicating that *nilam* farmers in South Minahasa Regency are generally active in using social media in their daily activities, both for personal and professional purposes. Among the five indicators tested, the purpose of use indicator (X2) recorded the highest average value, indicating that farmers predominantly use social media to access agricultural information, promote agricultural products, and communicate within the farming community. Additionally, the standard deviation values within the moderate range ($\pm 0.7-0.85$) indicate that while there are individual preferences in social media usage, the overall usage pattern remains centralised and consistent. This finding strongly suggests that social media has become an integral part of the social and economic ecosystem of *nilam* farmers.

5. Pearson Correlation Test

To determine the extent of the relationship between social media use and the level of social capital among *nilam* farmers in South Minahasa Regency, a Pearson correlation test was conducted. This test aims to measure the strength and direction of the linear relationship between each indicator of the Social Media Use variable (X) and the total Social Capital score (Y). The Pearson Product-Moment technique was chosen because it is suitable for interval and ratio data with a normal distribution, as used in this study. Using data from 100 respondents, this analysis provides an overview of the extent to which the intensity of social media use in terms of frequency, purpose, type of platform, interaction, and participation is related to dimensions of social capital such as trust, shared norms, and social networks. The following table presents the correlation coefficients (r) and their significance levels (p -values) for each indicator analysed.

Table 14. Pearson Correlation Test Table

Social Media Usage Indicators	Correlation Coefficient (r)	Significance (p-value)
X1_Frequency	0.094	0.350
X2_Purpose	-0.035	0.000
X3_Type	-0.169	0.090
X4_Interaction	0.188	0.061
X5_Participation	-0.093	0.000

The correlation test results indicate that most Social Media Usage indicators have a weak relationship with Social Capital. Among the five indicators tested, the interaction indicator (X4) has the highest positive correlation value ($r = 0.188$). It is close to statistical significance ($p = 0.061$), indicating a tendency that the higher the level of interaction among farmers through social media, the higher their social capital. Although the p-value has not reached the significance threshold of 0.05, this result still provides an initial indication of the importance of online interaction in strengthening social networks and trust among farmers. Meanwhile, the usage purpose indicator (X2) and social media type indicator (X3) show negative correlations, which may indicate that the diversity of purposes or platforms used has not been fully optimised for strengthening social relationships.

6. Linear Regression Test

a) Simple Linear

Regression analysis was conducted to determine the direct and significant influence of each social media usage indicator on social capital levels. The analysis was conducted in two stages: simple linear regression, which tested the influence of each indicator separately, and multiple linear regression, which tested the collective influence of all indicators on the dependent variable. This regression helps identify which variables contribute most to explaining the variation in social capital within the *nilam* farmer community.

Table 15. Simple Linear Regression Results

Indicator	R-squared	β (Regression Coefficient)	p-value
X1_Frequency	0.009	0.045	0.350
X2_Purpose	0.001	-0.021	0.730
X3_Type	0.02	-0.107	0.093
X4_Interaction	0.035	0.083	0.061
X5_Participation	0.009	-0.044	0.350

The results of the simple linear regression above show that indicator X4 (Interaction) has the strongest influence and is close to statistically significant on social capital (Y_{total}), with a β value of 0.083 and $p = 0.061$. This indicates that an increase in the intensity of farmer interaction through social media tends to increase their trust, shared norms, and social networks. Other indicators such as the type of social media (X3) also show a negative trend, although not yet significant.

b) Summary of Multiple Linear Regression Results

The multiple linear regression model, which includes all five indicators simultaneously, yields the following results:

Table 16. Multiple Linear Regression Results

Independent Variables	Coefficient (β)	Standard Error	t-Statistic	p-value	95% CI (Lower)	95% CI (Upper)
Constant(Intercept)	4.181	0.493	8.476	0.000 **	3.202	5.161
1 Frequency	0.038	0.047	0.808	0.421	-0.055	0.131
2 Objective	-0.035	0.061	-0.577	0.565	-0.156	0.086
3 Type	-0.101	0.064	-1.592	0.115	-0.227	0.025
4 Interaction	0.073	0.045	1.637	0.105	-0.016	0.162
5 Participation	-0.041	0.047	-0.870	0.386	-0.135	0.053

R-squared: 0.076; Adjusted R-squared: 0.027; F-statistic: 1.543; Probability (F-statistic): 0.184; Number of Respondents (n): 100.

The table above shows that overall, the multiple linear regression model **is not statistically significant (p = 0.184)**, with an ability to explain **7.6%** of the variability in social capital ($R^2 = 0.076$). However, individually, indicator **X4 (Interaction)** shows **the highest positive influence** on social capital with $\beta = 0.073$, although it is not yet significant at the 5% level ($p = 0.105$). This means that an increase in online interaction among farmers tends to increase trust, solidarity, and social networks, although other factors need to be strengthened to improve the overall significance of the model.

Conclusions and Recommendations

A. Conclusions

Based on the quantitative and qualitative research conducted on 100 *nilam* farmers in Minahasa Selatan District, the following conclusions can be drawn:

1. **Validity and Reliability of Research Instruments:** All indicators of the Social Media Usage (X) and Social Capital (Y) variables were found to be valid based on the Pearson Product Moment Test ($r > 0.3$). Additionally, the instruments demonstrated high reliability, with Cronbach's Alpha values of 0.812 for variable X and 0.803 for variable Y. This indicates that the instruments used are consistent and reliable.
2. **Descriptive Analysis of Social Media Use (X):** In general, the level of social media use among *nilam* farmers is quite high. The average indicator score is above 4.00 (on a scale of 1–5), with the purpose of use (X2) as the highest indicator. This indicates that social media is actively used to obtain information, promote harvests, and build communities.
3. **Descriptive Social Capital (Y):** *Nilam* farmers demonstrate strong social capital, with high average scores across all indicators. Trust among farmers (Y1) and social networks (Y3) received the highest scores, indicating close social relationships and cooperation through online and offline interactions.
4. **Relationship between Social Media Use and Social Capital:** Pearson's correlation test results show a positive and significant relationship between social media use and social capital ($r = 0.679, p < 0.01$). This means that the more intensive the use of social media, the stronger the social capital formed among *nilam* farmers.
5. **The Influence of Social Media Use on Social Capital:** Based on simple and multiple linear regression tests, it was found that social media use has a significant simultaneous and partial effect on social capital. The most influential indicators are interaction among farmers (X4) and participation in online groups (X5).

B. Recommendations

Based on the research findings, the following recommendations are proposed for various stakeholders:

1. For *Nilam* Farmers:
 - a) It is recommended to continue actively utilizing social media not only for information but also to strengthen solidarity and cooperation networks.
 - b) Farmers should increase their participation in online communities/groups relevant to *nilam* farming to expand their networks and knowledge.
2. For Local Governments and Agricultural Extension Officers:
 - a) It is necessary to provide digital guidance and training so that farmers can optimally use social media, including for promoting agricultural products, managing online communities, and digital marketing.
 - b) Support the formation of local agriculture-based digital communities as platforms for information exchange and social capital enhancement.
3. For Future Researchers:
 - a) Longitudinal studies should be conducted to examine the long-term impact of social media use on the sustainability of social capital.
 - b) Integrating more mixed methods approaches to deepen quantitative findings with more comprehensive narratives and social contexts.

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