

THE ROLE OF ROLE MODELS IN INCREASING CAYENNE PEPPER (*capsicum frutescens*) FARMING INCOME: A CASE STUDY IN NAPI VILLAGE, KIE SUBDISTRICT, SOUTH CENTRAL TIMOR REGENCY
(Peranan Role Model dalam Meningkatkan Pendapatan Usahatani Cabai Rawit (*Capsicum frutescens*) Studi Kasus di Desa Napi, Kecamatan Kie, Kabupaten Timor Tengah Selatan)

Irma Aprilia Nomleni¹, Ernantje Hendrik², Yakobus C. W. Siubelan³, Ida Nurwiana⁴
^{1,2,3,4}Agribusiness Department, Faculty of Agriculture, University of Nusa Cendana
Corresponding Author: irmapriliamoml@gmail.com

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ABSTRACT

Cayenne pepper farming is a major source of income for rural communities, including Napi Village in South Central Timor Regency. However, farmer productivity and income remain uneven due to limited technical knowledge, weak farmer institutions, and low adoption of innovation. This study aimed to examine the role of local role models (*mnasi aleta lene*) in increasing farmers' income from cayenne pepper farming. A quantitative approach was employed with 48 farmers selected through simple random sampling. The role model variable was measured using five indicators: mentor, motivator, facilitator, organizer, and communicator. Farmers' income was calculated using farm income analysis ($I = TR - TC$) and categorized into low, medium, and high levels. The data were analyzed using descriptive statistics and ordinal logistic regression. The results show that average farmer income reached IDR 11,854,937 per planting season, indicating that cayenne pepper farming in Napi Village is profitable. The ordinal regression model was statistically significant (Chi-Square = 27.604; $p = 0.001$), with a Nagelkerke R² value of 0.538. Partially, the role model function as a mentor ($p = 0.034$) and facilitator ($p = 0.002$) significantly influenced farmers' income, while the roles as motivator, organizer, and communicator had no significant effect. These findings indicate that the economic impact of role models is mainly determined by technical guidance and facilitation of access to resources rather than symbolic or motivational functions alone.

Keywords: role model, farmers' income, cayenne pepper, farming, Napi Village

ABSTRAK

Usahatani cabai rawit merupakan salah satu sumber pendapatan utama masyarakat pedesaan, termasuk di Desa Napi, Kabupaten Timor Tengah Selatan. Namun, produktivitas dan pendapatan petani masih beragam akibat keterbatasan pengetahuan teknis, lemahnya kelembagaan kelompok tani, serta rendahnya adopsi inovasi. Penelitian ini bertujuan menganalisis peranan role model lokal (*mnasi aleta lene*) dalam meningkatkan pendapatan usahatani cabai rawit. Penelitian menggunakan pendekatan kuantitatif dengan 48 responden petani yang dipilih secara *simple random sampling*. Variabel peran role model diukur melalui lima indikator, yaitu pembimbing, motivator, fasilitator, organisator, dan komunikator. Pendapatan petani dihitung menggunakan analisis usahatani ($\pi = TR - TC$) dan diklasifikasikan ke dalam kategori rendah, sedang, dan tinggi. Analisis data dilakukan menggunakan statistik deskriptif dan regresi logistik ordinal. Hasil penelitian menunjukkan bahwa rata-rata pendapatan petani sebesar Rp11.854.937 per musim tanam, yang mengindikasikan bahwa usahatani cabai rawit di Desa Napi tergolong menguntungkan. Model regresi ordinal signifikan secara statistik (Chi-Square = 27,604; $p = 0,001$) dengan nilai Nagelkerke R² sebesar 0,538. Secara parsial, peran role model sebagai pembimbing ($p = 0,034$) dan fasilitator ($p = 0,002$) berpengaruh nyata terhadap tingkat pendapatan petani, sedangkan peran sebagai motivator, organisator, dan komunikator tidak berpengaruh signifikan. Temuan ini menegaskan bahwa tidak semua dimensi peran sosial role model berdampak langsung terhadap peningkatan pendapatan, melainkan terutama fungsi bimbingan teknis dan fasilitasi akses sumber daya.

Kata kunci: role model, pendapatan petani, cabai rawit, usahatani, Desa Napi

INTRODUCTION

The agricultural sector remains one of the important pillars in the formation of Indonesia's national economic structure, particularly for rural communities that depend most of their income on farming activities. According to Statistics Indonesia (2023), approximately 29% of Indonesia's labor force works in the agricultural sector. Its contribution to gross domestic product (GDP) in 2022 reached 12.4%, indicating that although economic transformation toward the industrial and service sectors continues, agriculture still plays a strategic role in maintaining food availability, economic stability, and the strengthening of rural household income. In addition, several agricultural commodities are important sources of foreign exchange, including horticultural, plantation, and food crop commodities. In the global context marked by climate change and the threat of food crises, strengthening the agricultural sector is not only an economic need but also a strategic requirement for national resilience.

In addition to technical issues, social aspects such as the role of role models or local exemplary figures strongly influence farmers' behavior and decisions. In the culture of the Napi Village community, the presence of *mnasi aleta lene*, or exemplary farmers, is considered important as a source of inspiration, a model of good farming practices, and a motivator for members of farmer groups. Various studies state that farming success is not determined only by technology or capital, but also by social influence that encourages farmers to adapt and adopt innovations. Astuti and Nuryanti (2018) stated that role models can increase technology adoption through social demonstration effects. Meanwhile, Dyanto, Sukoco, and Haryoto (2022) emphasized that guidance from exemplary figures can strengthen farmers' managerial capacity and positively affect income.

However, in South Central Timor Regency, particularly in Napi Village, the role of role models has not functioned optimally. Observations show that although there are five active farmer groups with a total land area of approximately 17 hectares, only a small number of farmers have successfully adopted cultivation innovations. Many farmers still practice traditional farming and do not have access to exemplary figures who can guide, motivate, and demonstrate effective agricultural practices. The limited presence of role models has reduced the interest of younger generations in agriculture, slowed the dissemination of information, and lowered the adoption of new technology. This condition indicates that social problems also exacerbate technical problems.

Previous studies have examined socioeconomic factors, farmer group dynamics, and levels of innovation adoption in increasing farmer income. However, few studies have specifically analyzed how local role models contribute to cayenne pepper farming income, particularly in village communities such as Napi Village. In the social environment of Napi Village, the figure of *mnasi aleta lene* plays an important role as a guide, motivator, and example who influences how farmers manage their farms. The absence of empirical evidence regarding the effect of role models on farmer income creates a research gap that needs to be addressed, especially in view of declining production, slow innovation adoption, and weak functioning of farmer groups in the area. Therefore, this study was conducted to fill this gap by examining the relationship between the role of role models and cayenne pepper farming income in Napi Village.

The conditions of declining production, low income, weak farmer groups, and suboptimal role model functions directed this research toward four main issues. This study aimed to describe the characteristics of cayenne pepper farming in order to understand the actual conditions of farmers, calculate the income of cayenne pepper farmers to determine the profitability of this farming activity, measure farmers' responses to the role of role models to assess whether local exemplary figures are still considered important, and analyze the effect of role models on farmer income to prove whether exemplary figures provide an economic impact.

METHODS

This research was conducted in Napi Village, Kie Subdistrict, South Central Timor Regency, from June to July 2025. The location was selected purposively because the village has active cayenne pepper farmer groups. The study population consisted of 320 cayenne pepper farmers, while the sample comprised 48 farmers (15%) selected using simple random sampling.

Primary data were collected through questionnaires, interviews, and field observation. The independent variable was the role of role models, measured through five indicators using a Likert scale of

1-3. The dependent variable was the level of farmer income, calculated using farm income analysis ($I = TR - TC$) and classified into low, medium, and high categories. Data analysis was conducted using descriptive statistics and ordinal logistic regression.

To answer the first research question, namely the characteristics of cayenne pepper farming in Napi Village, Kie Subdistrict, South Central Timor Regency, quantitative descriptive analysis was used. This method aimed to describe the characteristics of respondents and cayenne pepper farming without hypothesis testing, but by explaining the actual field conditions. The data were obtained from interviews using questionnaires and field observations.

The analysis covered several main aspects: farmer characteristics, including age, gender, education level, and farming experience; farming characteristics, including land area, input use (seed, fertilizer, pesticide, and labor), costs, and revenue; and social and institutional aspects, such as involvement in farmer groups and interaction with role models. The data were presented in frequency tables, percentages, and averages, and then described narratively to provide a general profile of cayenne pepper farmers in the research area.

The basic formula used to calculate percentages was $P = f/n \times 100\%$, where P is the percentage of respondents, f is the frequency of respondents in a particular category, and n is the total number of respondents. The results of this analysis were used to describe the profile of cayenne pepper farming in Napi Village and served as the basis for answering subsequent research questions related to income and role models.

To determine farmer revenue, farm analysis was applied. Total revenue was obtained by multiplying total production by the selling price in IDR/kg using the formula $TR = Q \times P$, where TR is total revenue, P is price (IDR/kg), and Q is quantity of production (kg) (Soekartawi, 1995). Total cost was calculated using $TC = TVC + TFC$, where TC is total cost, TVC is total variable cost, and TFC is total fixed cost. Income was calculated using the formula $I = TR - TC$, where I is farm income, TR is total revenue, and TC is total cost. Labor use was analyzed in terms of man-days (HOK).

To analyze the role of role models, each questionnaire item was scored from 1 to 3: a score of 1 indicated a less active role, 2 indicated a moderately active role, and 3 indicated a highly active role. The five role model indicators were: mentor, providing technical direction and farming experience; motivator, encouraging enthusiasm and optimism; facilitator, opening access to information or training; organizer, mobilizing farmer groups; and communicator, connecting farmers with external parties.

To answer the third research question regarding the influence of role models on farmer income levels, ordinal logistic regression analysis was used. The general model of ordinal logistic regression is $\text{Logit}(P(Y \leq j)) = \alpha_j - \beta_1 X_1 - \beta_2 X_2 - \dots - \beta_k X_k$, where Y is income level (low, medium, high), X_1 to X_k are indicators of role model functions, α_j is the threshold for category j, and beta is the regression coefficient. The dependent variable was cayenne pepper farmer income level, categorized as 1 = low, 2 = medium, and 3 = high. The independent variables were X_1 = mentor, X_2 = motivator, X_3 = facilitator, X_4 = organizer, and X_5 = communicator.

RESULT AND DISCUSSION

General Description of the Research Location

This research was conducted in Napi Village, Kie Subdistrict, South Central Timor Regency, East Nusa Tenggara Province. Administratively, Napi Village is one of the villages in Kie Subdistrict, located approximately 25 km from the subdistrict capital and around 70 km from the capital of South Central Timor Regency, SoE. Napi Village is situated at an elevation of about 600-800 meters above sea level, with hilly terrain and extensive dryland farming areas.

Geographically, Napi Village is bordered by Oebaki Village to the north, Kotbaun Village to the south, Oekam Village to the east, and Fatukopa Village to the west. These environmental conditions provide opportunities for horticultural farming, including cayenne pepper cultivation, but also require proper farm management and adaptive cultivation practices.

Respondent Characteristics

Based on the age distribution of respondents, all respondents (100%) were within the 15-64 year age range. The average age of respondents in this study was estimated at 39.5 years. This value was obtained

using the class midpoint approach for the 15-64 age range, in which all 48 respondents were included. This shows that most farmers were in productive age, thus having adequate physical ability to manage their farming land.

The majority of cayenne pepper farmers were female, with 24 respondents, while male respondents numbered 20. This indicates that women had greater economic activity in cayenne pepper farming than men. This finding is consistent with Eryah et al. (2022), who stated that the characteristics of chili farmer respondents were dominated by women, representing 59% of total respondents.

The education level of respondents was relatively low, with the highest percentage, 31%, in the no-schooling category. The average education score of respondents in this study was 1.63, indicating that, in general, respondents' education was at the basic education level, equivalent to between elementary and junior high school. This condition reflects low awareness of the importance of education and limited access to school facilities in the past, as well as economic constraints faced by families. Although education levels were relatively low, farmers were still able to run their farms because skills were acquired through experience and learning from fellow farmers, including through the role of role models.

Characteristics of Cayenne Pepper Farming

Based on the research on cayenne pepper farming in Napi Village, the land area managed by farmers varied from 0.3 hectares to 1 hectare, with an average land area of 0.62 hectares. This average indicates that most cayenne pepper farmers in Napi Village are medium-scale farmers, although some farmers operate on narrow land and some on wider land. The overall average of 0.62 hectares shows a balance between smallholders and farmers with larger plots.

The average total production cost of cayenne pepper farming in Napi Village was IDR 1,274,558 per planting season, consisting of fixed costs of IDR 212,229 (16.6%) and variable costs of IDR 1,062,329 (83.4%). The largest cost components were labor and fertilizer, indicating that cayenne pepper farming is labor-intensive and input-intensive. Fixed costs, such as tax and equipment depreciation, were relatively small because most agricultural tools were used over a long period.

Table 1. Average Cost Components of Cayenne Pepper Farming in Napi Village

No	Component	Average (IDR) per ha
1	Fixed costs	
	Land tax	134,833
	Equipment depreciation	77,396
	Total fixed costs	212,229
2	Variable costs	
	Seed	177,188
	Fertilizer	309,245
	Herbicide	45,000
	Pesticide	71,458
	Insecticide	27,563
	Labor	431,875
	Total variable costs	1,062,329

The cost structure shows that most farmer expenditures were operational and directly related to cultivation activities. This is in line with Soekartawi (2003), who stated that the efficiency of variable cost use strongly affects the increase in farmer income. Therefore, cayenne pepper farming in Napi Village can be considered efficient and profitable because the costs incurred were relatively small compared to the revenue obtained.

The average production of cayenne pepper farmers in Napi Village reached 253 kg per planting season, with an average selling price of IDR 56,667 per kilogram. Therefore, the average total farm revenue was IDR 14,385,000 per planting season. This revenue indicates that cayenne pepper is a horticultural commodity with good economic prospects, considering its relatively high and stable market price. This finding is consistent with Soekartawi (2003), who emphasized that horticultural farm revenue is generally higher than that of food crops because it is influenced by more favorable selling prices.

Firdaus (2023) also found that cayenne pepper is one of the most demanded market commodities because of its relatively short harvest cycle and high economic appeal.

The average net income of cayenne pepper farmers in Napi Village was calculated by subtracting average production costs of IDR 2,530,063 from average revenue of IDR 14,385,000, resulting in net income of IDR 11,854,937 per planting season. This shows that cayenne pepper farming is highly profitable because net income was far greater than the production costs incurred. This finding is consistent with Dyanto et al. (2022), who stated that horticultural farming, especially chili farming, has a high profit margin because fixed costs are relatively small while revenue is high. Burano and Siska (2019) also showed that farmer income is strongly influenced by land area and maintenance intensity, so the more intensive the management, the greater the income obtained.

Farmers’ Responses to the Role of Role Models

Based on the analysis, the average farmer response to the role of role models was categorized as 'moderately active'. The mentor indicator had the highest mean score (2.62), indicating that the role of providing guidance was most strongly perceived by farmers. This is consistent with the qualitative study by Rina (2021), which found that emotional support and motivation from local figures or successful farmers are prerequisites before farmers are willing to adopt innovations. This also confirms that psychosocial roles form the foundation for role models to perform other technical functions.

The motivator indicator had the lowest mean score (1.97), reflecting the weakness of role models in connecting farmers with external resources or institutions. Rangkuti et al. (2023) stated that access to capital and markets is a key determinant of farmer income. The low score in this aspect in Napi Village indicates weak external networking.

Table 2. Farmers’ Responses to the Role of Role Models in Napi Village

Indicator	Mean	Standard deviation	Category
Mentor	2.62	0.53	Moderately active
Motivator	1.97	0.25	Moderately active
Facilitator	2.58	0.50	Moderately active
Organizer	2.41	0.49	Moderately active
Communicator	2.56	0.48	Moderately active

The Role of Role Models in Farmer Income

The mean income was IDR 11,000,000, with a standard deviation of IDR 6,500,000. The classification of role model influence on farmer income shows that most cayenne pepper farmers in Napi Village were in the medium category (41.7%), indicating that the role of role models had a moderate effect on increasing income. A total of 33.3% of respondents were in the high category, meaning that they experienced tangible impacts from role model functions, such as technical guidance, work motivation, and active involvement in farmer groups. Farmers in this category obtained the highest average income, reaching IDR 10,000,000 per planting season.

Meanwhile, 25% of respondents were in the low category because they were not yet highly involved in activities with role models or had not received direct mentoring. This indicates that the intensity of interaction between farmers and role models influences the extent to which farmers benefit economically.

Table 3. Classification of the Role of Role Models in Cayenne Pepper Farmer Income in Napi Village

No	Role model category	Score	Number of respondents	Percentage (%)
1	Low	<4,500,000	12	25.0
2	Medium	4,500,000-10,000,000	20	41.7
3	High	>=10,000,000	16	33.3
	Total		48	100

Multicollinearity Test

The multicollinearity test was conducted to determine whether there were relationships among the independent variables in the ordinal regression model, namely mentor, motivator, facilitator, organizer, and communicator as indicators of the role of role models in the income of cayenne pepper farmers in Napi Village. Based on the results presented in Table 4, all independent variables had tolerance values greater than 0.10 and VIF values below 10, indicating that there was no multicollinearity problem in the model.

Table 4. Multicollinearity Test Results

Independent variable	Tolerance	VIF
Mentor	0.676	1.479
Motivator	0.702	1.424
Facilitator	0.688	1.454
Organizer	0.625	1.600
Communicator	0.713	1.402

Reliability Test of the Role Model Instrument

The reliability test results for the role model instrument are presented in Table 5. Based on the analysis, the Cronbach's Alpha value was 0.872, which is greater than the minimum reliability threshold of 0.70. Thus, the research instrument was declared reliable and trustworthy for measuring the role of role models in increasing cayenne pepper farming income.

Table 5. Reliability Test Results of the Role Model Instrument

Variable	Number of items	Cronbach's Alpha	Reliability threshold	Description
Role of role model	25	0.872	0.70	Reliable

Ordinal Regression Analysis

Overall, the results of this study confirm that role models are important in increasing cayenne pepper farming income in Napi Village. Farmers who actively imitate, learn from, and interact with exemplary figures such as Pak Andreas tend to have higher productivity and income than passive farmers. This finding is consistent with social learning theory, which states that individuals can learn through observation and imitation of the behavior of others considered successful. Therefore, the presence of positive and active role models provides a tangible impact on the performance and welfare of cayenne pepper farmers in Napi Village.

Table 6. Ordinal Regression Analysis of the Role of Role Models in Farmer Income

Variable	Estimate (B)	Std. Error	Wald	df	Sig.	Description
X1	1.623	0.768	4.473	1	0.034	Significant as mentor
X2	0.174	0.767	0.052	1	0.820	Not significant
X3	-2.667	0.851	9.831	1	0.002	Significant as facilitator
X4	-1.396	0.799	3.053	1	0.081	Not significant
X5	0.481	0.742	0.421	1	0.517	Not significant

Pseudo R-Square Value

The Nagelkerke pseudo R-square value of 0.538 indicates that approximately 53.8% of the variation in cayenne pepper farmer income can be explained by the role model variables, while the remaining 46.2% is influenced by factors outside this study, such as chili prices, capital, or weather conditions. This indicates that the regression model is sufficiently good in explaining the influence of role models on farmer income.

Table 7. Pseudo R-Square Values

Measure	Value
Cox and Snell	0.437
Nagelkerke	0.538
McFadden	0.343

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the results of the study on the role of role models in increasing cayenne pepper farming income in Napi Village, Kie Subdistrict, South Central Timor Regency, several conclusions can be drawn.

First, the income level of cayenne pepper farmers in Napi Village is profitable. The analysis shows that average farmer income reached IDR 11,854,937 per planting season. This indicates that cayenne pepper farming provides good economic benefits for farmers because revenue is greater than total production costs. Therefore, the objective of determining the amount of farmer income has been achieved.

Second, the role of role models is categorized as moderately active in cayenne pepper farming activities. The average scores of the five indicators, namely mentor, motivator, facilitator, organizer, and communicator, show that the presence of role models can influence farmer behavior, motivation, and work methods in managing farms. This proves that the objective of analyzing farmers' responses to the role of role models has been fulfilled.

Third, role models significantly influence the increase in cayenne pepper farmer income. The ordinal regression analysis shows that the mentor and facilitator indicators have significant effects on income, while the motivator, organizer, and communicator roles do not show significant effects. This indicates that the stronger the technical guidance and facilitation provided by role models, the greater the possibility of income improvement among farmers. Thus, the research objective of empirically analyzing the effect of role models on farmer income has been achieved.

Recommendation

For cayenne pepper farmers, it is expected that farmers will continue improving farming efficiency and productivity by imitating and applying the experiences and work methods demonstrated by role models. Farmers are also encouraged to be more active in participating in training, extension activities, and farmer group discussions so that their knowledge and technical capacity in farm management continue to improve.

For role models and farmer groups, role models are expected to strengthen their function as mentors, motivators, and facilitators by expanding mentoring activities, providing concrete examples of cultivation technology application, and encouraging cooperation among farmer group members. These efforts will help increase farmer confidence and enthusiasm in developing cayenne pepper farming.

For local government and agricultural extension institutions, greater support is expected for strengthening the role of role models at the village level through continuous training programs, production input assistance, and access to capital and markets. Such support will strengthen the positive impact of role models on increasing the income and welfare of cayenne pepper farmers in Napi Village.

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