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Financial Analysis and Recording Activities of Farmers on Corn Farming

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ABSTRACT: Corn farming is a corn cultivation system that utilizes biological materials and processes to obtain a decent profit for farmers. This study aims to identify the financial analysis and recording activities of farmers in corn farming, and analyze what factors influence the financial analysis and recording activities of these farmers. The research method used is survey method. A sample of 70 corn farmers was selected using a proportional sampling technique of 25% of the total number of corn farmers. Logit regression analysis was used to analyze recording activities and financial analysis of farmers in corn farming. The results showed that the recording and financial analysis activities of corn farming farmers were influenced by the income and experience of receiving training in financial analysis and recording activities on corn farming. Factors that influence the financial analysis and recording activities of farmers in corn farming, namely: age, educational background, income, farming experience, arable land area, and training experience.

KEYWORDS: Financial analysis, recording activity, maize, farmers, farming

I. INTRODUCTION

The agricultural sector is a major factor in Indonesia's economic development, especially in the management and provision of food for the population to reduce poverty, absorb employment, and generate income for the community's economy. However, the development of the agricultural sector has not shown significant results in accordance with the expectations of the Indonesian people.

Farming is a combination of nature, labor and capital to produce agricultural production. Saha et al (2023) explain farming as a collection of natural resources found in a place or part of the earth's surface where farming is carried out by farmers. Furthermore, Ma et al (2022) argued that farming is a collection of natural resources needed for agricultural production, such as land, water, sunlight and buildings on the land. This definition means that there are four resources which are important production factors for farming, namely: (1) land, including its quantity (area) and quality; (2) labor including quantity and quality; and (3) capital,

Corn is one of the main food crop commodities, which has a strategic role in Indonesia's agricultural and economic development. Nasikh et al (2021) explained that corn as a food commodity whose development is carried out using an agribusiness approach, is very possible to increase farmers' income. The demand for corn continues to increase, along with population growth and the industrial sector requires corn raw materials, including for the food industry, animal feed and the manufacture of corn oil (Sharma et al, 2022).

Corn farming is a corn cultivation system that utilizes biological materials and processes to obtain decent profits for farmers which are packaged in various subsystems, starting from pre-production, production, harvest and post-harvest sub-systems as well as distribution and marketing (Okafor et al, 2022). Subsystems in corn farming are interconnected and influence one another. Corn farming in an agribusiness system includes all production, storage, distribution and product processing activities, distribution of farming inputs, provision of extension services, research and policies on corn farming systems (Pìnheiro et al, 2022).

According to Ray et al (2021), farming that is run by farmers is not only interested in producing a lot of agricultural production output, but also hopes for an increase in income or profits that will increase welfare for farmers. This means that the main purpose of farming activities carried out by most farmers is to generate profits in order to improve welfare. Furthermore research results from Puupponen et al (2022), explained that the purpose of farming is how farmers can increase farming production to gain profits, so that the lives of farmers and their families will be better.

Financial Analysis and Recording Activities of Farmers on Corn Farming

Farmers will find it easier to manage their farming if they carry out financial analysis and record farming to determine the level of efficiency and productivity of farming. Farming analysis can be carried out if complete and well-organized data are available in the correct bookkeeping or recording system. Harshitha et al (2022) explains that, bookkeeping or recording of farming is the recording and calculation of economic data from the entire chain of farming activities in a complete and systematic manner for a certain period of time with the aim of: (a) calculating and knowing the profit and loss of farming, (b) calculating efficiency and efficiency of farming, and (c) assess the level of progress and development of farming.

Lack of awareness of farmers to keep records and bookkeeping of farming, it is very difficult to calculate how much income farmers receive and the efficiency of farming that is carried out. So far, the amount or volume of harvest of the commodities cultivated has been used as a benchmark for farmers in assessing their business without considering the inputs used. So that the awareness of farmers to carry out farming recording and analysis must be increased.

The purpose of this research is to identify the financial analysis and recording activities of farmers in corn farming, and to analyze what factors influence the financial analysis and recording activities of these farmers.

II. RESEARCH METHODS

This research was conducted in Bone Bolango Regency in three sub-districts, namely Tilongkabila, Kabila and Suwawa sub-districts in farmer groups carrying out corn farming. The choice of research sites was carried out purposively with the consideration that the three sub-districts had the highest maize productivity in Bone Bolango Regency. The research was conducted from October to December 2022.

The research method used is a quantitative descriptive method. Descriptive research was conducted to describe a symptom, event and event that occurred factually, systematically and accurately. This study describes the quantitative data obtained regarding the condition of the subject or phenomenon of a population. According to Ramirez et al (2020), quantitative descriptive research is research conducted to determine the value of an independent variable, either one variable or more (independent) without making comparisons or connecting with other variables.

The population in this study were corn farmers in three selected districts with a total of 280 people. Sampling was carried out by proportional sampling of 25% of the total number of farmers, so that the total sample of farmers who became respondents was 70 people. Memon et al (2020) explained, if there were less than 100 respondents, all the samples were taken from farmers, whereas if the number of respondents was more than 100, then the sampling was 10% - 15% or 20% - 25% or more. The number of corn farmers in the three research sub-districts is described in Table 1.

Table 1. Data on the number of farmer groups in the three research location districts

No	Population of Corn Farmers (Person)	Sample (25%)
1	32	8
2	26	7
3	42	11
4	37	9
5	40	10
6	23	5
7	45	11
8	35	9
Amount	280	70

Sources of research data come from primary data and secondary data. Primary data is the main research data that comes directly from farmers as research objects obtained through interviews with a questionnaire guide, while secondary data is the main data that supports the primary data that is already available at the relevant agencies, namely the agricultural service, sub-district BPP and sub-district offices.

Data analysis was used to see the relationship between age, educational background, income, farming experience, land ownership status, and experience in receiving training in recording and financial analysis. Analysis of financial analysis and recording activities of farmers in corn farming was analyzed by logit regression. Dumitrescu et al (2022) explained that the difference from the linear regression analysis with the logistic regression model is the form of the response variable or the random variable or the so-called random variable. The following is the logit transformation stated by Site (2021):

$g(x) = \text{Ln}((\pi(x)/(1-\pi))$ With:

$g(x) = \beta o + \beta 1\, x1 + \beta 2\, x2 + ... + \beta nxn$ (n = number of independent variables)

Independent variables (X) that have categorical properties require dummy variables. In general, if an event occurs it is given a value of 1 and if an event does not occur it is given a value of 0. The form of logistic regression used in this study is as follows:
g(x) = yi* = β1 + β2Age + β3Educational background + β4Income + β5Experience in farming + β6 Status of arable land area + β7Training in recording and financial analysis + εi. i = 1, 2,……. (Farmer)
The dependent variable yi* indicates whether farmers carry out financial analysis and farmers' recording activities in corn farming and the relationship is significant by factors of age, educational background, income, farming experience, land ownership status, and experience receiving training in recording and financial analysis.

III. RESULTS AND DISCUSSION

Characteristics of Farmers

The characteristics of the respondent farmers are explained through the categories of age, education level, farming experience, and area of arable land. The category of respondent farmer characteristics is part of the characteristics and work environment of farmers in corn farming. The characteristics of the respondent farmers help in explaining the social conditions of the farmers who work together in farming to increase corn production. Farmer characteristics are described in Table 2.

Table 2. Characteristics of respondent farmers

Category	Amount (people)	Percentage (%)
Age (Years)		
20–29	9	12,9
30 – 39	12	17,1
40 – 49	21	30
50 – 59	10	14,3
60 – 69	18	25,7
Education Level (Years)		
Elementary school (6)	31	44,3
Junior High School (9)	22	31,4
Senior High School (12)	12	17,1
Diploma / degree (4)	5	7,14
Farming Experience (Years)		
0 – 20	20	28,6
21–40	35	50
41–60	15	21,4
Corn Land Area (Hectares)		
0.50 – 0.60	15	21.5
0.61 – 0.70	13	18.5
0.71 – 0.80	20	28,6
0.81 – 0.90	12	17,1
0.91 – 1.00	10	14,3

Source: Research Data After Processing, 2022.

Individual characteristics are personal factors related to all aspects of life and the environment such as: age, education and psychological characteristics (Vecchione, 2023). Psychological characteristics are rationality, mental flexibility, orientation to farming as a business and ease of accepting innovation. Duan et al (2022) explained that individual characteristics are individual factors that are inherent in a person, such as; age, education, socioeconomic status, relationship patterns, and attitudes that affect the process of innovation diffusion.

The majority of farmers are dominated by men with a total of 65 people and women with a total of 5 people. Female farmers usually make farming activities a side job that helps their husbands manage their farming business. The age of the respondent farmers is productive, so they are easy to accept new ideas to change the old system to the new system. Most of the respondent farmers are in the 40 – 49-year (30%) category, this means that farmers generally have physical potential to support farming activities, are dynamic, creative and fast in accepting new technological innovations. The results of this study are in line

with the results of research from Kangogo et al (2021) explained that farmers of productive age will be more creative and dynamic in using new innovations in farming, so they can increase corn farming production.

Education is the basis for human resource development, this orientation emphasizes the importance of education for the purpose of increasing organizational productivity and efficiency. The corn farming production target planned by the farmer will work well, if the farmer's knowledge in managing farming is in accordance with his level of education. Table 2 explains that 44.3% of farmers only have elementary school education, this shows that education does not motivate farmers to increase their knowledge and ability to adopt agricultural technological innovations that can improve corn farming systems.

The results of this study are in line with the results of research according to Sharifzade & Gholamhossein (2021) which explains that the level of farmer education indicates knowledge and ability to make decisions in adopting agricultural technological innovations as an effort to improve farming systems. Furthermore, the results of research by Davies et al (2021) explain that the low level of farmer education indicates that the quality of farmer human resources needs to be improved through farming management training as an effort to develop technical and managerial competence of farmers for better farming.

Experience is an accumulated process of experiencing, influencing and deciding something new for one's life and can have a positive effect in improving one's performance to achieve organizational goals. The results of the study in Table 2 show that most farmers have experience in farming for 21-40 years (50%), this means that the accumulated time span of farmers' experience in farming is long enough, so that it has an impact on the performance of farmer groups in increasing the production of corn farming. The results of this study are in line with the results of research from Kandel et al (2021) which explain that work experience shows the frequency of the length of time that farmers have used to do farming, so that it can determine the abilities and skills of farmers in farming at specific locations. Furthermore, the research results of Marenya et al (2021) concluded that 10 - 20 years of farming experience is the length of time a farmer has implications for the success of farming.

Land production factors have the most important position in farming compared to other factors, because land can determine the amount of production and income of farmers in farming. Table 2 shows that the area of corn owned by farmers ranges from 0.50 – 1.00 hectares. The average farmer has a corn field area of 0.71 – 0.80 Ha (28.6%). This explains that generally farmers have a narrow land area, because farmers are only cultivators and are limited to the aspect of land expansion which is a benchmark for the number of plants to be planted. The results of this study are in line with the results of research from Akpoti et al (2020) which explain that land area is part of an agroecosystem that can affect production and productivity of farming products according to land suitability classes. Furthermore, the results of research from Xiangbei et al (2022) concluded that the area and narrowness of corn land will affect the amount of corn planted, so it can affect the amount of corn production produced.

Factors Associated with Financial Analysis and Recording Activities of Farmers in Corn Farming

The logistic regression analysis data processing model was used in this study to determine the interrelationship of the independent variables together with the response variable. In the significance test, it is known that there are two variables that are significantly or significantly related to the recording and financial analysis activities of farmers, namely the income variable and the training experience variable. Variables that are not significantly related to farmers' financial activities are age, education, farming experience, and land ownership status. Table 3 shows the results of the logistic regression analysis on the research model.

Table 3. The results of Logistic Regression Analysis On Financial Analysis and recording activities of farmers in corn farming

Variable	B	Wald's test	Sig	Exp (B)
Age (X_1)	-0.065	0.416	0.674	0.967
Education (X_2)	-1.99	1,988	0.182	0.859
Revenue (X_3)	-0.45	5,799	0.017	0.980
Farming Experience (X_4)	0.058	0.376	0.675	1,051
Arable Land Area (X_5)	0.359	0.353	0.390	1,472
Training Experience (X_6)	1,764	5,293	0.022	6,866
Constant	28,740	5,641	0.035	7.04 x 10^11

Source: Agricultural product data after processing, 2022.

The logit model of this study is as follows.

Ln (Y) = 28.740 - 0.065X1 - 1.99X2 - 0.045X3 + 0.058X4 + 0.359X5 + 1.764X6 + e

Factors related to farmer activities to carry out financial analysis and recording activities of farmers in corn farming are shown in Table 3 showing the relationship of the independent variables to the dependent variable, factors related to financial analysis and recording activities, if the significance value is < 0.05 (5%) or 0.1 (10%), if the independent variable has a significance

value of more than 0.05 or 0.1 then the independent variable is not significantly related to the activities of recording and analyzing farmers' finances in corn farming.

The results of the analysis in Table 3 show that the income variable has a significant effect on farmer activities in carrying out financial recording and analysis. The significance value of income is 0.017 <0.05, meaning that income is significant for farmers' decisions in conducting financial analysis and recording activities. Based on the results of research in the field, income is related to farmers' decisions in conducting financial analysis and recording activities in corn farming, namely farmers who have higher incomes make farmers decide to carry out financial analysis and recording activities in corn farming.

The average income of farmers who cultivate corn in Bone Bolango Regency is IDR 60,191,231.65 per planting season. Farmers who have higher income tend to adopt an innovation more quickly (Soriano and Sandoval, 2022). Farmers who have higher incomes tend to carry out financial analysis and recording activities, because they want to know the financial cash flow that occurs in the production process. The research results are in line with the results of research from Guido et al (2020) which concluded that farmers who have higher incomes will use labor to carry out financial records and analysis using information technology.

IV. CONCLUSION

Financial analysis and recording activities of farmers in corn farming have been carried out by several farmers in Bone Bolango Regency, Gorontalo Province, Indonesia. Financial analysis and recording activities are carried out using an information technology system which is influenced by age, education, income, farming experience, arable land area, and financial analysis training experience. The results of the logistic regression analysis showed two independent variables that had a significant effect on the financial analysis and recording activities of farmers in corn farming, namely income and experience in receiving training in financial analysis and recording activities in corn farming.

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