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THE CROPPING PATTERN AND CAPITAL SOURCE OF FARMING IN JEMBAYAN VILLAGE, LOA KULU DISTRICT, KUTAI KARTANEGARA REGENCY

Rita Mariati[1], Nella Naomi Duakaju[2], Mariyah[3], Indra Hendriawan[4]
[1,2,3]Lecture of Department of Agribusiness, Faculty of agriculture, Mulawarman University
[4]Student of Department of Agribusiness, Faculty of agriculture, Mulawarman University

Corresponding author: *Rita Mariati
Email: rita.mariati@yahoo.com

ABSTRACT

Good farming management in regulating cropping patterns and business diversification can increase farmers' household income. JembayanDalam village is a village located near a mining company and the source of its livelihood is agriculture. The aims of this research are: (1) to identify the socio-economic characteristics of farmers; (2) to identify farming cropping patterns; and (3) analyzing the availability of capital owned by farmers. The research was carried out from April to June 2021 in JembayanDalam Village, Loa Kulusub District, KutaiKartanegara Regency. Sampling was done randomly (simple random sampling) with a number of respondents as many as 60 people. Data analysis used descriptive analysis. The results showed that the socio-economic characteristics of farmers of food crops and horticulture were having an average age of 50.42 years, formal elementary school education, the farming experience of more than 10 years, and self-owned land with an average area of 0.94 hectares. Farming cropping patterns are monoculture systems for food crops (rice-rice), monocultures for horticultural crops, and polyculture systems for food crops-horticultural crops. The availability of capital owned by food crop farmers, especially rice plants, is 37.46% of the total production cost requirement per hectare ofRp11.646.540,68.

KEYWORDS

Cropping Pattern, Capital, Farming, Farm Household, Income

I. INTRODUCTION

Farming that has good management will be able to have a positive impact on increasing household income. Farm management includes providing inputs, setting planting and planting, maintenance, harvesting, and post-harvest including marketing and processing). Planting arrangements are one of the technical aspects of cultivation that affect the input needs, capital, and income that will be obtained by farmer households. Cropping pattern is a description of the plan for planting various types of plants that will be cultivated in a land in one year. The cropping pattern aims to ensure that the cultivated plant commodities can grow and develop properly. Several previous studies have shown that farmers' household incomes can be increased through the regulation of cropping patterns and the availability of capital so as to encourage farmers to diversify their businesses. Research [1] shows that the intercropping pattern of the cabbage-spinach system in horticultural crops provides high profits. Research [2] on cassava farming in Lampung showed higher business efficiency in planting with an intercropping system than monoculture. [3]stated that the application of cropping patterns is influenced by profits and labor and there are differences in the income of farmers who apply different cropping patterns.

The ability of farmers to be able to carry out all technical aspects of farming according to the recommendations is determined by the ability of capital owned by farmers. Farmer's capital can be increased through agricultural financing [4]. Increased productivity, increased use of inputs and farm efficiency, and strategies to reduce poverty can be implemented if farmers have access to loans [5] dan [6]. Financing institutions consist of formal and informal. Informal financing is provided by individuals, lenders, traders, friends, relatives and generally without a written agreement. Farmer households are constrained by credit, both formal and informal. Various factors can affect a household's probability of being able to access credit. Credit constraints according to [7] are three groups of obstacles, namely (1) constraints on the characteristics of the head of the household, (2) characteristics of the household, and (3) constraints related to geographical factors.

JembayanDalam Village is a village in the Loa Kulusub District, KutaiKartanegara Regency. The area of the village is 4,301 ha with a population of 2,152 people and 559 families. This village has a diversity of residents who come from various ethnic groups, including the Kutai, Javanese, Bugis, Banjar, Madurese, and other tribes. The land in this village is used for the cultivation of food crops and horticulture, plantations, and forestry. However, most of the area is still in the form of shrubs that have not been utilized for productive activities. Most of the population work as farm laborers (22.00%), farmers (18.25%), company workers (20.57%) of the 480 recorded (RPJM Jembayanin Village, 2018).

The village of JembayanDalam is close to the location of the mining company. Mining activities affect water conditions and irrigation for agricultural land, so most of the rice fields are rainfed rice fields. Availability of water is a constraint to agricultural business and cropping patterns carried out by farmers. There are 14 farmer groups in JembayanDalam Village with a total of 324 farmers (UPT Agricultural and Animal Husbandry Extension Loa Kulu, 2018). 7 registered farmer groups (175 members) and 7 unregistered farmer groups (149 members). This farmer group has agricultural machinery that supports the implementation of farming in the form of hand tractors, power threshers, Rice Milling Units (RMU), harvesting machines, and water pumps.

Based on the integrated database in 2017, the number of poor households (RTM) was 250 families with a total of 653 people. The majority of the RTM are in the productive age for doing business, namely the age of 19-40 years by 38.40% and working in the agricultural business field in the broad sense of 58.80%. The proportion of land ownership of 24-200 m2 is 206 families 98.24% and does not own 6 families (2.4%). RTM with limited land is directed to the Sustainable Food House (RPL) program to fulfill some household needs.

The exploitation of agricultural land and the arrangement of cropping patterns carried out by the village community vary according to the availability of resources they have and provide different returns.

II. RESEARCH METHODS

The study was conducted from April to June 2021 in JembayanDalam Village, Loa Kulusub District, KutaiKartanegara Regency.

The data collected include: (1) primary data consisting of socio-economic characteristics of farmers, production costs, and availability of farming capital, and (2) secondary data consisting of village monographs, and related publications.

The technique for determining respondents used a simple random sampling method based on farming of food crops and horticultural crops. Determination of sample size using the Slovin formula with a precision of 10% of the total population of farmers recorded (149 farmers) obtained 60 respondents studied.

Analysis of the data used is descriptive analysis. Specifically for the availability of capital identified through: (1) the amount of capital required; (2) the amount of available capital; and (3) sources of capital. Calculation of capital availability is obtained by the following formula:

$$\%\ \boldsymbol{Capital} = \frac{\boldsymbol{Capital\ requirement}}{\boldsymbol{Amount\ of\ available\ capital}} \boldsymbol{x\ 100}$$

III. RESULTS AND DISCUSSION

3.1. Socio-Economic Characteristics of Farmers

Socio-economic characteristics are the internal factors of farming that influence farmers' decision making in managing the farm. The availability of labor in families with productive age will encourage farmers not to use labor outside the family. This will reduce direct labor costs. Level of education and experience of farming affect the adoption of agricultural technology and affect farm productivity.[8] suggest that the character of farmers and education are internal factors that affect the accessibility of farmers to sources of capital. Land area and land ownership can affect the arrangement of cropping patterns and types of plants cultivated. Own land ownership can strengthen farmers' access to external financing. Land certificates can be used as collateral for credit loans. Socio-economic characteristics of respondent farmers are presented in Table 1.

Table 1. Socio-Economic Characteristics of Farmers

No	Description	Amount	Percentage (%)
1	Age		
	Productive (15-64 years old)	52	86,67
	Un Productive (>65 years old)	8	13,33
2	Education		
	No schoolh	7	11,67
	Elementary School	32	53,33
	SLTP/junior high school	10	16,67
	SLTA/high school	11	18,33
3	Experience		
	< 5 year	3	5,00
	6-10 year	15	25,00
	>10 year	42	70,00
4	Land area		
	<1	33	55,00
	1-2	25	41,67
	>2	2	3,33
5	Land Ownership		
	One's own	42	70,00
	Rent	16	26,67
	Government own	2	3,33

Source: *Primary Data, 2021 (processed)*.

3.2. Farming Patterns

Types of plants and planting time will give different results. Food crops are the dominant crops cultivated and only a small percentage (6 people or 10% of the total respondents) grow horticultural crops. Food crops consist of lowland rice, upland rice, and corn. The majority cropping pattern for food crops is rice. Types of horticultural plants consist of beans, laos, pumpkin, chili, ginger (Table 2).

The frequency of rice planting is 2 times a year. The rice planting calendar carried out by farmers in their farming is:

1. Planting Season I: December-March
2. Planting Season II: June-September

The frequency of planting is influenced by the availability of water in the research location, where irrigation still relies on a rainfed system.

Table 2. Types of Plants Cultivated

No	Plant type	Amount (person)	Percentage (%)
1	Food Crops	54	90,00
2	Horticultural Crops	4	6,67
3	Food Crops-Horticultural Crops	2	3,33
	Amount	60	100,00

Source: *primary data, 2021 (processed*).

Horticultural crops provide household income from farming which is quite large. However, only a small number of farmers cultivate horticultural crops. The results of the research reported by [9] show that the rice-horticultural pattern is more profitable than the rice-palawija pattern. This can be a consideration for farmers in the future to regulate cropping patterns that provide higher profits.

3.3. Availability of Farming Capital

The need for farming costs that is taken into account in this study is the cost of rice farming with 2 planting times per year. Production costs needed to meet input needs include seeds, fertilizers, pesticides, labor, and land rent. The total cost of farming per hectare per year is Rp. 11,646,540.68. The average amount of available capital is Rp. 4,362,500. Farmers have the ability to provide capital which is quite high with an average of37,46%. (Table 3).

Table 3. Availability of Farming Capital

No	Description	Score
1	Amount of available capital (Rp/year)	4.362.500,00
2	Total Production Cost (Rp/ha/year)	11.646.540,68
3	Availability of Capital (%)	37,46

Source: *Primary Data, 2021 (processed).*

The financial institutions that can be accessed by farmers are banking (BRI, Bank Permata) and non-banks (middlemen of rice, traders). The average loan interest rate is 2-6% per year.

Table 4. Financing Institutions and Number of Borrowers

No	Institution	Amount (person)	Percentage (%)
1	Bank	6	42,85
2	Not Bank	8	57,14
3	Total borrowers	14	100,00

Source: *Primary Data, 2021 (processed).*

Based on Table 4, it can be seen that more farmers borrow from non-bank financial institutions. This is because the area of land that can be used as collateral for loans at formal financial institutions through banks is very low, only 0.94 hectares. The research is in line with research by [10] where research on lowland rice farmers in Banten Province only amounted to 22.58% of 155 farmers who made credit loans. As research by [11] stated that one of the inhibiting factors for access to program credit is not having land certificates for collateral and ignorance about lending procedures in banks. Researcher [8] stated that the external factors of farmers' accessibility to sources of capital are credit scheme requirements, credit policies and socialization, as well as financing facilitators..

IV. CONCLUSIONS AND RECOMMENDATIONS

4.1. Conclusion

1. Socio-economic characteristics of farmers are in productive age, primary education is dominant, have experience of more than 10 years, average land area is between 1-2 hectares with own land status.
2. The cropping pattern of the majority cultivated is the rice-paddy monoculture system.
3. Availability of capital owned by farmers of 37,46%.

4.2. Suggestion

1. Socio-economic characteristics of farmers become one of the basis for assessing external loans for farming financing, with the majority of land being owned by themselves, socialization and assistance are needed for farmers to be able to access capital from banking sources.
2. Farmers can be encouraged to diversify crop types and arrange cropping patterns other than monoculture in order to increase income.
3. The availability of farming capital still needs to be improved through increasing farm productivity and income as well as introducing facilitation of farm financing from external sources.

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