IRJEMS International Research Journal of Economics and Management Studies
Published by Eternal Scientific Publications
ISSN: 2583 – 5238 / Volume 3 Issue 5 May 2024 / Pg. No: 183-194
Paper Id: IRJEMS-V3I5P123, Doi: 10.56472/25835238/IRJEMS-V3I5P123

Original Article

Analysis of Cooperative Behavior of the Members of Farmer Groups Existed in the Sub-District of Middle Kupang, The District of Kupang

[1]Serman Nikolaus. [2]Mustafa Abdurahman
[1,2]The Study Program of Agribusiness, Agricultural Faculty, the University of Nusa Cendana, Penfui – Kupang.

Received Date: 22 April 2024 Revised Date: 06 May 2024 Accepted Date: 12 May 2024 Published Date: 25 May 2024

Abstract*: As life-sustaining organisms, crops require water for their continued existence, growth, development, and production. In the Subdistrict of Middle Kupang, the District of Kupang, a check dam named Tilong has been constructed with the primary objective of providing water for the irrigation of crops planted by farmers in their farms, whether operated in dry land or wetland. To facilitate the success of farms operated by farmers in the area irrigated by the Tilong Check Dam, farmers have been organized into groups, with those operating predominantly dry land farming forming one group and those operating predominantly wetland farming forming another. This study aims to identify the differences in cooperative behavior between farmers who are members of farmer groups operating on different types of land. It will examine the cooperative behavior of farmers who are members of groups operating in areas with a dominant wetland and those operating in areas with a dominant dryland. The results of the data analysis and discussion indicate a significant difference in cooperation.*

Keywords: *Analysis, cooperative behavior, member, farmer group, Middle Kupang.*

I. INTRODUCTION

Agricultural products play a pivotal role in human life, growth, development, and production. As the primary function of agricultural products is the production of food, it is, therefore, unsurprising that there should be an increase in agricultural products in response to the increase in population. Kupang District is still classified as an agrarian region, as evidenced by the fact that in the year 2018, 60.1% of its population was engaged in agricultural activities (Kantor Statistik Kabupaten Kupang, 2019). In light of this evidence, it can be argued that the economic development strategy employed in this region should be focused on agricultural improvement. As Mosher (cited by Nurmala et al., 2012) notes, in order to enhance the agricultural sector, it is necessary to possess a number of specific qualifications. These include (a) The availability of markets for agricultural products, (b) The availability of better agricultural technologies, (c) The availability of the materials and tools of agriculture locally, (d) The determination of the market price of agricultural products, (e) The availability of transportation tools for agricultural products; and also 2) The existence of additional qualifications of agricultural development, which includes: (a) The availability of educational development in agriculture; (b) The availability of credits for agricultural production; (c) The existence of credits for agricultural production; (c) the existence of cooperative works among farmers; and (d) the existence of national plans for agricultural developments.

One of the strategies for enhancing agricultural production in Kupang District is the construction of a check dam, designated as the "Tilong Check Dam." However, due to the limited capacity of this check dam to provide water and the unsuitable topography of the area, not all areas around the check dam can be irrigated. Consequently, some farmers cultivate dry land crops, while others cultivate wetland crops, particularly wetland rice. To facilitate the success of farmers operating their farms, both wet and dry land farmers have been organized into farmer groups. Accordingly, two distinct farmer groups have emerged in the vicinity of the Tilong Check Dam: those engaged in dryland farming and those engaged in wetland farming. The objectives of these farmer groups are twofold: firstly, to facilitate access to non-formal education regarding agricultural innovation, and secondly, to encourage cooperative working among farmers in groups and to facilitate the receipt of subsidies from the government.

In the field of research, the challenges faced by farmers engaged in dryland farming differ from those engaged in wetland farming. This discrepancy can be attributed to a number of factors, including environmental differences and the varying personalities of farmers, as well as the availability of agricultural mechanization, which can serve as a substitute for manual labor. The greater the difficulty of agricultural work, the greater the need for cooperative behavior among farmers. In light of the above, it is evident that a research project is required to ascertain the significant difference in cooperative behavior

This is an open access article under the CC BY-NC-ND license (https://creativecommons.org/licenses/by-nc-nd/2.0/)

between members of dryland farmer groups and members of wetland farmer groups. This concept is based on the theory constructed by Kurt Lewin, as cited by Hariadi (2011), which posits that an individual's behavior is influenced by their personality and the environment in which they operate. The formulation is thus B = f (P, E). The behavior of an individual is a function of their personality and the environment in which they operate. In the context of this study, ethnicity can be conceptualized as a personality trait. The environment is defined as a range of factors, including the type of land, plant maintenance, and the availability of agricultural mechanization. This theory is supported by Thorndike's theory, as cited by Sanjaya (2013), which states that behavior is a response to a stimulus. Consequently, the environment, whether social or pertaining to agricultural resources, exerts an influence on an individual's behavior. A study conducted by Ramadhan et al. (2018) concluded that factors influencing group behavior in order to achieve the objectives of farming were, in addition to the aforementioned factors, also dependent on the kind of natural resources managed.

II. LITERATURE REVIEW

A) The Framework of Research Ideas

The farmer group is a collective of farmer-focused institutions designed to bolster the success of agricultural businesses operated by farmers. This organization serves as a learning environment, a cooperative entity, a production unit, a business unit, and a unit of facilitation, assisting farmers in accessing subsidies offered by governments or other institutions (Departemen Pertanian, 1985; Thomas, 2005; and Hariadi, 2011). This definition suggests that by becoming a member of a farmer group, farmers will be encouraged to adopt more productive agricultural technologies in order to increase their production. On the basis of the description above, it can be pointed out that one of the objectives in constructing the farmer group is the formation of cooperative works among farmers who become members of a farmer group.

Theories that seek to explain why farmers, as social creatures, should be grouped together include the following: (1) The propinquity theory posits that an individual will become a member of a group if they have a familial or residential relationship with other members; (2) The working together theory suggests that the interaction and shared experiences of individuals working together will motivate them to form a collective agreement and construct a group; (3) The equity theory posits that an individual may become a member of a group if they will gain appropriate advantages from the group; (4) The exchange theory suggests that an individual may become a member of a group if there is a mutual benefit between the group and the member of group; (5) theory practical reason refers someone who become the member of a group if the group can satisfy his or her needs; (6) agreement theory refers to people who become the member of group because they have collective agreements; and (7) social desire theory refers to people who become the member of a group because they have social needs (Rahmawati, 2022).

The farmer group will be useful to the member if the farmer group can be the source of agricultural behavior that influences the farms to be more productive. To achieve this purpose, among farmers should interact with each other. The frequencies of mutual interaction among farmers in the group are influenced by the diversity of members, the number of members, the closeness of members, and the availability of agricultural mechanizations. Ideally, the number of farmers in a farmer group is only 7 to 10. The more the number of members, then the less interaction will happen (Saleh in Abidin and Suryani, 2020). Hariadi (2011) pointed out that interactions among farmers also happen when the farmer group runs out the group meetings and other collective activities.

Farmers who utilize water irrigation from Tilong Check Dam, whether in dryland or wetland farming, have been categorized into a number of farmer groups. The dry land farms include crops such as corn, tubers, bananas, beans, and vegetables. In contrast, the wetland farm is dedicated to the cultivation of rice. Generally, the operation of dry land farms is more challenging than that of wetland farms, with the exception of the use of agricultural mechanization in the latter. It is, therefore, unsurprising that, in the absence of agricultural mechanization in the operation of dry land farms, farmers frequently require substantial assistance from their peers, whether for tillage, weeding, planting or harvesting. This suggests that dryland farmers require the support of a farmer group to a greater extent than their wetland counterparts. Membership in a farmer group enables farmers to access assistance from other members, which can be invaluable in the context of shared work. Refers to the insights pointed out above demonstrate that members of the dryland farmer group have more cooperative behavior than the members of farmer groups in the wetland. Cooperative behavior is defined as the collective action performed by persons to finish the same tasks (Rahmawati, 2011).

In Hariadi (2011), Kurt Lewin posited that an individual's behavior is influenced by both their characteristics and their environment. The formulation of this theory is that an individual's behavior (B) is a function of their personality (P), and their environment (E) is a factor that must be considered. Therefore, B is a function of P and E. The concept of personality can be

understood as the identity of an individual, encompassing factors such as ethnicity, sense of self, religion, education, and so forth. The individual's environment encompasses both social and physical contexts. The social environment encompasses the diversity of ethnic, religious, and occupational groups. The physical environment encompasses factors such as the type of land and the availability of irrigation water. The environment can create the needs of an individual, which then motivates the person to engage in a specific behavior (Winardi, 2002).

The phenomenon described above has also been observed in farmers who are members of farmer groups in the area irrigated by the Tilong Check Dam. This leads to the hypothesis that the cooperative behavior of farmers as members of farmer groups differ in dryland farming compared to that observed in wetland farming. In conclusion, the framework of this study can be outlined as follows:

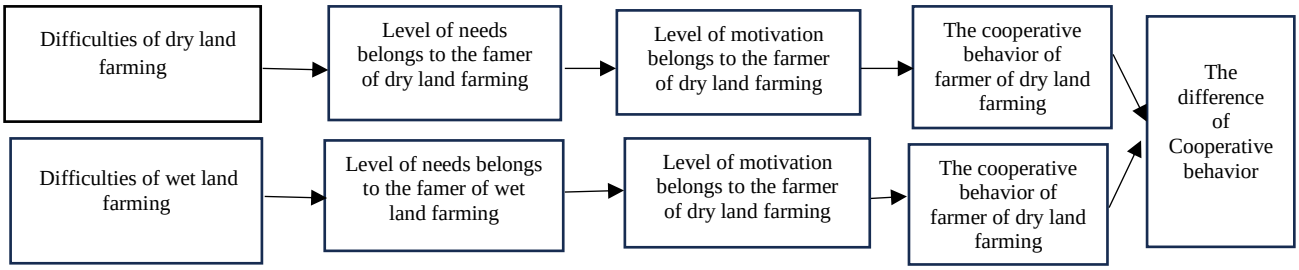

Figure 1. The Flow Chart of Cooperative Behavior Formed by the Member of Farmer Group

B) Research Hypothesis

In light of the aforementioned research framework, the following hypotheses are proposed for this study:

Null hypothesis: There is no significant difference in the cooperative behavior of members of the Kawas Tuan Famer Group (dry land farmer group) and members of the Sejahtera Farmer Group (wetland farmer group)

H1: There is a significant difference in the cooperative behavior of members of the Kawas Tuan Famer Group (dry land farmer group) and that of members of the Sejahtera Farmer Group (wetland farmer group). Location and Time of Research

The study was conducted in the Subdistrict of Middle Kupang, in the District of Kupang. The research location was selected on the basis of purposive choice.

It should be noted that farmers in this area operate both dryland and wetland farms. The study was conducted in the year 2022.

C) Research Sample

The research samples comprised three distinct groups: the village sample, the farmer group sample, and the farmer sample. The village sample was selected purposefully, with the intention of including villages where the majority of farmers operate dryland farms and villages where the majority of farmers operate wet-land farms. It is recommended that these two villages be situated in close proximity to one another. Furthermore, the farmer group samples were selected on a purposive basis, specifically from farmer groups that benefited from water irrigation of the Tilon check dam. The Kawas Tuan farmer group and the Sejahtera farmer group were selected as the representative sample of farmer groups for this study. The proportional random sampling technique was employed to select 26 farmers from the Kawas Tuan farmer group. A total of 30 farmers from the Sejahtera Farmer Group were randomly selected to participate in this study**.**

D) Technique of Data Collected

The primary data were collected through direct interviews conducted using an interview guide. Secondary data were gathered through the examination of written documents provided by the village office, the Subdistrict office, the agricultural statistics of Kupang District, and the District of Kupang in Figures.

E) The Measurement of Variable

The measurement of data related to cooperative behavior employs the use of an ordinal scale. Subsequently, the conversion of ordinal data to a score is achieved through the application of the Likert Scale (Azwar, 2000).

F) Data Analysis

Once the ordinal data had been scored, it was subjected to analysis using descriptive statistics, including the mean, percentage, frequency, and tabulation were employed as statistical tools. Furthermore, the five criteria were used as a reference point to determine the outcome of the data analysis. The aforementioned analysis is employed to elucidate the conclusions

pertaining to the motivation and cooperative behavior exhibited by farmers within the context of both dryland and wetland farming.

The objective of this study is to assess the extent to which the cooperative behavior of members of farmer groups engaged in dryland farming differs from that of their counterparts engaged in wetland farming.

The aforementioned formulation, as proposed by Sugiyono (2018), was applied U-Test in the following manner:

$$U1 = n1n2 + \frac{n1\,(n1+1)}{2} - R1$$

and

$$U2 = n1n2 + \frac{n2\,(n2+1)}{2} - R2$$

Where:
n1 = number of respondents of the sample 1
n2 = number of respondents of the sample 2
U1 = the value of U1
U2 = the value of U2
R1 = Sum of the rank of each score of the sample 1
R1 = Sum of the rank of each score of the sample 2

The two formulations stated above (U1 and U2) were employed to ascertain which U has a lower value. The value of U will be compared to that of table U. If the value of U is greater than that of table U, it can be concluded that the null hypothesis (H0) is accepted. Conversely, if the value of this U is lower than the value of table U, it can be concluded that H1 is accepted. Consequently, H0: is accepted, meaning that there is no significant difference between the cooperative behavior of members of the famer group of the dry land farming and that of members of the farming group of wetland farming; H1: is accepted, meaning that there is a significant difference between the cooperative behavior of members of the farmer group of the dry land farming than that of the cooperative behavior of members of the farmer group of the wetland farming.

III. RESULTS AND DISCUSSION

A) General Description of Sub District of Middle Kupang

This is one of the sub-districts of the District of Kupang. The boundaries of this subdistrict are as follows:

a. North: bounder with the Timor Sea;
b. South: bounder with the Subdistrict of Taebenu;
c. East: bounder with the Subdistrict of East Kupang.
d. West: bounder with the Sub District of Kelapa Lima-Kupang City.

The Subdistrict of Middle Kupang encompasses an area of 94.79 km². This area is distributed across a number of villages, as detailed in the following table.

Table 1: Distribution of Area of the Middle Kupang Sub District into Villages

No.	Name of villages	The Size (Km^2)	(%)
1.	Oelnasi	12.97	13.70
2.	Oelpuah	23.58	24.88
3.	Oebelo	9.76	10.30
4.	Noelbaki	17.70	18,67
5.	Tarus	4.23	4.46
6.	Penfui Timur	10.59	11.17
7.	Mata Air	5.96	6.29
8.	Tanah Merah	10.00	1055
The Region of Middle Kupang Subdistrict		**94.79**	**100.00**

Source: *Badan Pusat Statistik Kabupaten Kupang, 2023*

As indicated in Table 1, the Subdistrict of Middle Kupang comprises eight village areas. The largest is the Village of Oelpuah, which covers 23.58 km² (24.88%), while the smallest is the Village of Tarus, which covers 4.23 km² (4.46%).

The Subdistrict of Middle Kupang is characterized by a tropical climate with two distinct seasons: a dry season and a wet season. The period of lowest precipitation occurs between April and November, while the period of highest precipitation occurs between December and March. The following table presents the data on rainfall for this subdistrict.

Table 2: Data of Rain Fall and Number of Rain Days in Every Month of the year 2021 in the Subdistrict of Middle Kupang

No.	Name of Month	Number of Rain Fall (mm)	Number of Rain Days
1.	January	719	17
2.	February	1021,5	19
3.	March	485	13
4.	April	194	5
5.	May	0	0
6.	Juni	135	3
7.	July	0	0
8.	August	2	1
9.	September	22	1
10.	October	110	3
11.	November	473	16
12.	December	509	14

Source: *Badan Pusat Statistik Nusa Tenggara Timur, 203.*

The preceding table indicates that the distribution of rainfall in the Sub District of Middle Kupang is not uniform throughout the year. The highest precipitation levels are observed in January, February, March, November, and December, while the lowest levels are observed in April, May, June, July, August, September, and October. This climate situation undoubtedly impinges upon the availability of water, either for crop irrigation and animals or for the resident's consumption.

In 2022, the Subdistrict of Middle Kupang had a population of 44,772 individuals (Badan Pusat Statistics Nusa Tenggara Timur, 2023). The population is distributed across eight villages, as illustrated in the following table.

Table 3: Distribution of Residents of Sub District of Middle Kupang into Villages in the Year 2022

No.	Name of Village	Number of Residents (People)		Number (People)	(%)
		Male	Female		
1.	Oelnasi	1.410	1.374	2.784	6,22
2.	Oelpuah	849	801	1.650	3,69
3.	Oebelo	2.863	2.877	5.740	12,82
4.	Noelbaki	5.745	5.540	11.275	25,18
5.	Tarus	2.671	2.479	5.150	11,50
6.	Penfui Timur	4.046	4.045	8.091	18,07
7.	Mata Air	2.985	2.900	5.885	13,14
8.	Tanah Merah	2.117	2.080	4.197	9,38
The Sub District of Middle Kupang (Sum)		**22.686**	**22.086**	**44.772**	**100,0**

Source: *Badan Pusat Statistik Kabupaten Kupang, 2023*

Table 3 reveals that the majority of the population in the Subdistrict of Middle Kupang resides in Noelbaki Village, accounting for 25,18% (11.275 individuals). Conversely, the smallest proportion of the population is found in Oelpuah Village, with a mere 3.69% (1,650 individuals). The public sector comprises two distinct categories. Facilities to improve the quality of life of the residents of the Sub District of Middle Kupang, namely education and health facilities. Specifically, the availability of education facilities can be seen in the following table.

Table 4: Number of Schools according to Kind of Education that Existed in the Sub District Middle Kupang in the Year 2022

No.	Level of Education	The Status of School				Number
		Public		Private		
		2021/2022	2022/2023	2021/2022	2022/2023	
1.	Kinder Garten	-	-	15	16	16
2.	Primary School	11	11	9	9	20

3.	Junior High School	7	7	6	6	13
4.	General Senior High School	2	2	6	6	8
5.	Vocational School	-	-	4	4	4

Source: *Badan Pusat Statistik Kabupaten Kupang, 2023*

Table 4 illustrates that all types of education, with the exception of tertiary education, are available in the ub District of Middle Kupang. Furthermore, it demonstrates that the private sector plays a more significant role than the government in providing education facilities and infrastructure. This is evidenced by the fact that the private sector is responsible for the provision of the Vocational High School.

Furthermore, it is stated that the health facilities that are available in the following table illustrate the administrative divisions of the Middle Kupang Sub District.

Table 5: Number of Health Facilities Available in the Sub District of Middle Kupang, the Year 2022

No.	Name of Villages	Name Health Facilities (Number)	
		Public Health Center	Drugstore
1.	Oelnasi	1	0
2.	Oelpuah	1	0
3.	Oebelo	1	0
4.	Noelbaki	2	0
5.	Tarus	2	1
6.	Penfui Timur	1	2
7.	Mata Air	1	0
8.	Tanah Merah	0	0
Sub District of Middle Kupang (Sum)		**9**	**3**

Source: *Badan Pusat Statistik Kabupaten Kupang, 2023*

A review of the data presented in the table above reveals that there are nine health centers and three pharmacies located within the Sub District of Middle Kupang. With the exception of Tanah Merah Village, which lacks a public health center, almost every village in the area has one. Each village is served by two public health center. The available public health are classified as “non-inpatient public health center”, and pharmacies are only available in Tarus Village and the Village of East Penfui. It should be noted that other villages are not.

B) A Special Overview of Agricultural Businesses in the Middle Kupang Sub-District.

The economy of the population of the Subdistrict of Middle Kupang is largely dependent on the agricultural sector. Some farms cultivate food crops, while others grow plantations. The cultivation of food crops encompasses the cultivation of paddy rice and field rice, as well as corn, cassava, peanuts, and green beans. Those classified as horticultural farming businesses include vegetable farming and fruit farming. Furthermore, those classified as plantation farming are coconut, cashew, areca nut, nutmeg, and kapok. The following table presents the harvest area and productivity of each type of food crop farming.

Table 6. Harvested Area (Ha) and Productivity (Ton/Ha) of each Type of Food Crop Farming

No.	Kind of farming	Size (Ha)	Productivity/ (Ton/Ha)	Production (Ton/Ha)
1.	Wet Land Pady	1.436,6	5,3	7.613,98
2.	Dry Land Pady	1.436,6	4,0	5.746,40
3.	Maize	475,0	3,0	1.425,00
4.	Cassava	20,0	5,0	100,0
5.	Peanut	20,0	0,6	12,00
6.	Mung Bean	5,0	1,0	5,00

Source: *Badan Pusat Statistik Kabupaten Kupang, 2023.*

From Table 6, it can be seen that the most dominant food crops farmed by farmers in the Subdistrict of Middle Kupang are paddy rice and field rice, while the least is mung beans.

For wetland rice paddy, the distribution of land area in each village can be illustrated by the following table:

Table 7. Distribution of Land Area in the Sub District Middle Kupang by Village, 2022

No.	Villages	Kind of Irrigation (Ha)				
		Technical	1/2 Technical	Simple	Village/Non PU	Rain Fed
1.	Oelnasi	0	0	10	0	4
2.	Oelpuah	181	0	5	0	9
3.	Oebelo	100	0	50	0	0
4.	Noelbaki	150	0	0	0	0
5.	Tarus	74	0	0	0	0
6.	Penfui Timur	120	0	0	0	0
7.	Mata Air	0	0	0	0	0
8.	Tanah Merah	0	105	0	0	0
The Sub District of Middle Kupang (Sum)		625	105	65	0	13

Source: *Badan Statistik Kabupaten Kupang, 2023.*

The table above illustrates the distribution of paddy fields in the Subdistrict of Middle Kupang. It can be observed that 625 ha of the paddy fields are technically irrigated, 105 ha are half-technically irrigated, 65 ha are simply irrigated, and 13 ha are rain-fed. Rice fields with technical irrigation are located in the villages of Oelpuah, Oebelo, Noelbaki, Tarus, and East Penfui. The villages of Tanah Merah and Oebelo are the only locations in the sub-district with technical irrigation infrastructure. The sub-district is equipped with half of the necessary technical irrigation infrastructure. The villages of Noelbaki, Tarus, and East Penfui have rudimentary irrigation systems that are similar to those found in Oelnasi, Oelpuah, and Oebobo. Those with rainfed irrigation are located in the villages of Oelnasi and Oelpuah. A review of the data presented in the above table leads to the conclusion that in the Subdistrict of Middle Kupang, the village of Mata Air is the only one without paddy fields. In contrast, the other villages have paddy fields. The largest paddy field is located in the village of Oelpuah.

C) Characteristics of Respondents' Farmer Group

The sample farmer groups for this research were the Kawas Tuan Farmer Group from Oelnasi Village and the Sejahtera Farmer Group from Noelbaki Village. The Kawas Tuan Farmer Group represents the Dryland Farmer Groups, and the Sejahtera Farmer Group represents the Wetland Farmer Groups. The characteristics of each of these two farmer groups may be described as follows:

Table 8. Description of Kawas Tuan Farmer Group and Sejahtera Farmer Group

No.	Description	Kawas Tuan Farmer Group	Sejahtera Farmer Group
1.	Year Established	2003	2002
2.	Number of Members (People)	43	65
3.	Ethnicity joined	Timor Dominant	5 Ethnicities: Rote, Timor, Flores, Alor, and Java
4.	Type of land cultivated	Dryland Dominant	Dry Rice Fields
5.	Land management tools	Simple tools such as tofa, hoes, and crowbars.	Modern tools such as: Tractors for tillage, hedgehogs for weeding, and threshing machines.
6.	Member's residence	One residential area only	Different place settlements: Mata Air, Tarus, Oebelo, Oesapa, Baumata, Baubau, Oebufu, and Oepura.

Source: *Result of Data Analysis, 2023*

D) Respondent Characteristics

The respondents in this study are members of the farmer group in Oelnasi Village and members of the farmer group in Noelbaki Village. The farmer group from Oelnasi Village is designated as the "Kawas Tuan," while the farmer group from Noelbaki Village is designated as the "Sejahtera." The number of respondents from the Kawas Tuan Farmer Group was 26, while the number of respondents from the Sejahtera Farmer Group was 30. Consequently, the total number of respondents was 56 individuals.

The characteristics of the respondents include age, marital status, formal education level, length of time farming, status in the group, type of farming operated, frequency of farming entrepreneurs in a year, and farming orientation. The following section provides a detailed description of each of these characteristics.

a. Age of Respondent

The age distribution of respondents from each farmer group is presented in the following table

Table 9: Age of Respondents Based on Farmer Group

No.	Description	Farmer Group (Year)	
		Kawas Tuan	Sejahtera
1	Average Age	43.50	56.83
2	Lowest Age	24.00	30.00
3	Highest Age	60.00	77.00

Source: *Result of Data Analysis, 2023*

Table 9 above indicates that the respondents in the Kawas Tuan Farmer Group are, on average, younger than those in the Sejahtera Farmer Group. Consequently, it can be posited that members of the Kawas Tuan Farmer Group must be more enthusiastic than those of the respondents of the Sejahtera Farmer Group. Given their greater enthusiasm, it can be anticipated that the Kawas Tuan respondents will be more active in conducting sociological interactions among farmers in the group.

b. Marital Status of Respondents

A summary of the marital status of the respondents can be derived from the information provided regarding whether or not they are married. Please direct your attention to the following table:

Table 10: Distribution of Respondents Based on Marital Status

No.	Description	Farmer Group			
		Kawas Tuan		Sejahtera	
		People	%	People	%
1.	Not yet married	1	3.85	2	6.67
2.	Married	25	96.15	28	93.33
	Sum	26	100,00	30	100.00

Source: Result of Data Analysis, 2023

Table 10 above indicates that the proportion of married farmers in the Kawas Tuan Farmer Group is higher than that of married farmers in the Farmer Group of Sejahtera. This suggests that the number of **f**armers who are already burdened by life is greater in the Kawas Tuan Group than in the Tani Sejahtera Group.

c. Respondent Education

The education of the respondents can be described by the following table:

Table 11: Distribution of Respondents Based on Education Level

No.	Farmer Group	Level of Education					Sum
		Illiteracy	Elementary	Junior	Senior	University	
1.	**Kawas Tuan**						
	Number (People)	1	16	1	6	2	26
	Percentage	3.84	61.62	3.84	23.07	7.69	100.00
2.	**Sejahtera**						
	Number (People)	0	20	5	4	1	30
	Percentage	0.00	66.67	16.67	13.33	3.33	100.00

Source: *Result of Data Analysis, 2023*

Table 11 presents data indicating that the education of farmers in the Kawas Tuan farmer group and the farmers in the Sejahtera Farmer Group is, for the most part, similar to the average farmer in the region.

d. Farmer's Experience in Farming

Based on the results of the data analysis, the farming experience of respondents can be seen in the following table:

Table 12: Respondents' length of farming experience

No.	Description	Farmer Group	
		Kawas Tuan	Sejahtera
1.	Average of length (Year)	19.58	17.53
2.	Range of length (year)	5 - 45	2 - 45

Source: Result of Data Analysis, 2023

Table 12 above indicates that, in general, respondents with greater experience of respondents from the Kawas Tuan Farmer Group were 19.58 years, while that of the Sejahtera Farmer Group was 17.53 years.

The average length of farming experience of respondents in the Kawas Tuan Farmer Group is longer than that of the farmers in the Sejahtera Farmer group.

e. Age of Farmer Group

The results of interviews with each Chairperson of the farmer group were analyzed to determine the age of each farmer group. The following table presents this information.

Table 13. The Year of Farmer Group Establish

No.	Name of Farmer Group	Year of Establishment
1.	Kawas Tuan	2003
2.	Sejahtera	2022

Source: *Result of Data Analysis, 2023*

By examining the year of establishment of each farmer group, it can be demonstrated that the behavior of members towards the farmer group must be different. It can be reasonably assumed that the behavior of farmer members towards the Kawas Tuan Farmer Group is more favorable than that of the farmer members towards the Sejahtera Farmer Group.

f. Type of Farming Operated by Respondents

The specific types of farming practiced, the orientation and frequency of their operation, and their production can be seen in the following table:

Table 14. Types of Farming, Practiced Frequency, Orientation, and Production

No.	Farmer Group	Type of Farming	Frequency of Farming	Orientation of Farming	Production of Farming
1.	Kawas Tuan:	a. Maize	Once a year	Consumed and sold	0,5 – 4 Tons
		b. Dry and wet rice field	Once a year	Consumed and sold	1 - 4 Tons
		c. Vegetables	Two to Five times a year	Sold	
2.	Sejahtera:	Wet Land Rice	Two times a year	Consumed and soled	1-6 Tons

Source: *Result of Data Analysis, 2023*

Table 14 above illustrates that the Kawas Tuan Farmer Group, whose members are predominantly engaged in dryland farming, has a greater diversity of farming types, such as maize, field rice, paddy rice, and vegetables. However, the majority of the farmers in the Sejahtera farmer group specialize in paddy rice cultivation.

g. Motivation of Farmer Respondents towards the Farmer Group

The results of the data analysis indicate that the average score of the motivation of respondents towards the Kawas Tuan Farmer Group is 4.45, with a percentage value of 89% indicating that this score is capable of reaching the maximum score. Consequently, the motivation of farmer members to the Kawas Tuan Farmer Group is classified as "very high". The mean score was calculated to be 4.45, while that of the Sejahtera farmer group was 3.73. The percentage value of this score in reaching the maximum score was 74.60%, which classified it as "High Category". The distribution of farmers based on their motivational category is presented in the following table.

Table 15. Frequency Distribution of Farmer Respondents by Category of Motivation towards Farmer Group

No.	Farmer Group	Percentage in Peaching the Maximum Score	Category of Motivation Level	Number (People)	%
1.	Kawas Tuan	0-19	Very Low	0	0,00
		20-39	Low	0	0,00
		40-59	Medium	1	3,85
		60-79	High	10	38,46
		84-100	Very High	15	57,69
		Sum:		***26***	***100,0***
2.	Sejahtera	0-19	Very Low	0	0,00
		20-39	Low	0	0,00
		40-59	Medium	8	26,67
		60-79	High	14	46,67
		84-100	Very High	8	26,66
		Sum:		***30***	***100,00***

Source: *Result of Data Analysis, 2023*

Table 15 reveals that the majority of farmers in the Kawas Tuan Farmer Group are classified as belonging to the "Very High Motivation" category, representing 57.69% of the total. In contrast, the majority of farmers in the Sejahtera Farmer Group are classified as belonging to the "High Motivation" category, representing 46.67% of the total. This indicates that the motivation of members of the Kawas Tuan Farmer Group is greater than that of members of the Sejahtera Farmer Group. This discrepancy can be attributed to the fact that the types of farms cultivated by farmers in the Kawas Tuan Farmer Group are more diverse than those cultivated by farmers in the Sejahtera Farmer Group. Furthermore, the Kawas Tuan farmer group engages in dryland farming, where the use of agricultural mechanization remains limited, with the result that the majority of farm work is completed by other people's labor. It is, therefore, unsurprising that members of the Kawas Tuan Farmer Group have a higher motivation for farming groups than those of the Sejahtera farmer group, who only engage in one type of farming, namely paddy rice farming. Moreover, the agricultural mechanization available to complete the work of wet-rice farming in the Sejahtera farmers group is more modern, including the use of tractors, hedgehogs as weeding tools, and rice threshers. The availability of these tools reduces the need for external assistance, which in turn reduces the enthusiasm of potential members to become involved in farmer groups.

h. Cooperative Behavior of the Farmer Group Members

The results of the data analysis indicate that the average score for the level of cooperative behavior between farmer members of the Kawas Tuan farmer group is 4.20, with a percentage of this score reaching a maximum of 84.04%. It can therefore be concluded that the level of cooperative behavior among members of the Kawas Tuan farmer group is classified as "very high". Furthermore, the mean score of the level of cooperative behavior among members of the Sejahtera Famer Group is 3.73, and the percentage of this score reaching a maximum score is 74.60%. The distribution of farmers according to their Cooperative behavior is described in the following table:

Table 16: Frequency Distribution of Farmer Members of Kawas Tuan and Sejahtera Farmer Groups Based on the Level of Cooperation Category

No.	Farmer Group	Percentage of Maximum Score Achievement	Category of Cooperation Level	Number (People)	%
1	Kawas Tuan	20 - 35	Very Low	0	0,00
		36 - 51	Low	0	0,00
		52 - 67	Medium	2	7,70
		68 - 83	High	11	12,30
		84 - 100	Very High	13	50,00
		Sum:		***26***	***100,00***
2	Sejahtera	20 - 35	Very Low	1	3,33
		36 - 51	Low	9	30,00
		52 - 67	Medium	12	40,00
		68 - 83	High	3	10,00
		84 - 100	Very High	5	16,67
		Sum:		***30***	***100,00***

Source: Result of Data Analysis, 2023

Table 16 above indicates that the proportion of farmers in the very high and high categories in the Kawas Tuan farmer group is greater than that of the Sejahtera farmer group. These facts prove that the level of cooperation between farmer members of the Kawas Tuan farmer group is higher than that between farmer members of the Sejahtera farmer group.

i. Differences in Cooperative Behavior between Members of Kawas Tuan Farmer Group and Sejahtera Farmer Group

The Mann-Whitney U test results indicate that the mean rank value of cooperation from the Kawas Tuan farmer group is 40.65, while the mean rank of the Sejahtera farmer group is 17.97. Moreover, the Z value of this difference is -5.196. The significance level (two-tailed) of this Z value is 0.000, which is smaller than 0.05 and even 0.01. It is therefore concluded that the level of cooperation of members of the Kawas Tuan farmer group is significantly, and indeed very significantly, different from the level of cooperation of members of the Sejahtera farmer group. Given that the mean value of the cooperation level of the Kawas Tuan farmer group (84.04%) is higher than the mean value of the cooperation level of the Sejahtera farmer group members (64.17%), it can be concluded that the cooperation level of the Kawas Tuan farmer group members is higher than that of the Sejahtera farmer group members. It is presumed that this difference is caused by several factors, including the difficulties encountered in cultivating agricultural land and the availability of tools and equipment for cultivating the land, maintaining it, and harvesting crops. If the availability of agricultural tools that help facilitate farm work is adequate, the need for labor will be reduced.

Conversely, if the availability of these tools is limited or even non-existent, the need for assistance from other farmers is necessary. This is where cooperation with other farmers is needed. Thus, there is no need to be surprised by the results of this study, where the level of cooperation between farmer members in the Kawas Tuan farmer group is higher than the level of cooperation between farmer members in the Sejahtera farmer group. In the Sejahtera, the farmer group has been available farming tools, such as tractors, weeding tools, and rice threshers, so that although there is no cooperation with other farmers, all farm work can be completed independently well. Most importantly, there is money to rent these tools. On the other hand, in the Kawas Tuan farmer group, the availability of agricultural mechanization is still very limited, to complete farm work is very requires the help of other farmers to complete the work, so it is necessary to cooperate with other farmers. The results of the study are in accordance with the theory put forward by Torndike in Sanjaya (2006), which says that a person's behavior, including cooperation behavior, is highly dependent on stimuli that come from outside himself.

The results of this study are also reinforced by Kurt Lewin's theory, cited by Hariadi (2011), which says that a person's behavior is influenced by personality and environment. The personality includes the level of motivation, interaction, cohesiveness, ethnic diversity of members, and dispersion of residence, as well as blood relations between members.

The Results of the data analysis show that members of the Kawas Tuan farmer group consist of the Timorese tribe and reside in one place. In contrast, members of the Sejahtera farmer group live scattered. All of these cause the cooperative behavior of members of the Kawas Tuan farmer group to be higher than the cooperative behavior of members of the Sejahtera farmer group, in which the members live scattered. All of this causes the cooperative behavior of members of the Kawas Tuan farmer group to be higher than the cooperative behavior of members of the Sejahtera farmer group.

The environment intended in this study is the difficulty of farm work carried out in the Kawas Tuan farmer group because of the unavailability of more modern agricultural tools. Whereas in the Sejahtera farmer group, these tools are already available to help facilitate the completion of farm work for each member of the Sejahtera farmer group, even without the help of other farmers. This is one of the causes why cooperation between members of the Kawas Tuan Farmer Group is higher than the cooperation of members of the Sejahtera Farmer Group.

IV. CONCLUSION AND SUGGESTIONS

A) Conclusions

Based on the results of data analysis and discussion, then this study concludes that:

a. The level of motivation of members of the Kwas Tuan farmer group is higher than that of members of the Sejahtera farmer group;
b. The level of cooperation of members in the Kawas Tuan farmer group is higher than that of members of the Sejahtera farmer group; of members of the Sejahtera farmer group;
c. There is a significant difference between the cooperative behavior of members of the Kawas Tuan farmer group and the cooperative behavior of members of the Sejahtera farmer group;

d. The difference in the cooperative behavior level of members between the Kawas Tuan farmer group and the cooperative behavior level of members of the Sejahtera farmer group is caused by the difference in motivation level in the farmer group, the difference in the availability of agricultural mechanization in farmer group, the difference of interaction and cohesiveness level among members of farmer group, the difference of member's ethnical diversity, and the difference of resident dispersion in living.

B) Suggestions

In according with the conclusions, the suggestions are pointed out as follows:

a. It is necessary to establish a cooperative business in the Sejahtera farmer group in other to increase interaction, solidarity and cohesiveness among members of the farmer group;
b. Both farmer groups are not only focusing on crop cultivation but also together operating the marketing of agricultural products;
c. The government should give some help to provide agricultural mechanization to the Kawas Tuan farmer group to increase the utilization of natural resources.

Appendix::

Funding Statement.

This article is based on the findings of a research project conducted in 2023. The research project was conducted with the financial support of the University of Nusa Cendana. It is, therefore, clear that the authors are grateful to the management of Nusa Cendana University for their support. It is hoped that this article will make a valuable contribution to the institution's accreditation.

V. REFERENCES

[1] Azwar Saifudin (2000). Penyusunan Skala Psikologi. Pustka Pelajar Offset, Yogyakarta, Indonesia.
[2] Badan Pusat Statistik Kabupaten Kujpang. (2019). Kabupaten Kupang dalam Angka 2018**, Kupang, Indonesia**
[3] Badan Pusat Satistik Nusa Tenggara Timutr,. (2023). Kantor Pusat Statistik Propinsi Nusa Tenggara Timur, Kupang**. Indonesia**
[4] Departemen Pertanian RI. (1985). Pedoman Penyelenggaraan Penyuluhan Pertanian. Badan Pendidikan, Latihan dan Penyuluhan Pertanian, Departemen, Jakarta, Indonesia
[5] Hariadi, S. S..(2011). Dinamika Kelompok. Teori dan Aplikasinya untuk Analisis Keberhasilan Kelompok Tani sebagai Unit Belajar, Kerjasama, Produksi, dan Bisnis. Sekolah Pasca Sarjana, Universitas Gajah Mada, Yogyakarta, Indonesia..
[6] Nurmala Tati, Aisyah D Suryono, Abdul Rodjak, Tarkus Suganda, Sadeli Natasasmita, E. Hidayat Salim, Yuyun Yuwarsiah, Tuhpawana Priatna Sejaya Nur Wiyono, Sofiya Hasni. (2012. Pengantar Ilmu Pertanian. Graha Ilmu, Yogyakarta, Indonesia.
[7] Rahmadan, A.. (2018). Pengaruh Lingkungan Kerja Kelompok Tani dan Peranan Sumberdaya Kontak Tani terhadap Kinerja Petani Desa Sido Urip, Kabupaten Bedngkuli Utara. Jurnal Penelitian Pengelolaan Sumberdaya Alam dan Lingkungan, Voluma 7 Nomor 2, Agustus 2018. Accessed from: https://doi.org/10.31186/naturals.72.6006
[8] Rahmawati Intan. (2022). Pengantar Psikologi Sosial, PT Bumi Aksara, Jakarta, Indonesia
[9] Sanjaya Wina, H.. (2013). Strategi Pembelajaran Berorientasi Standar Proses Pendidikan. Kencana Prenadamedia, Jakarta, Indonesia
[10] Sugiyono. (2018). Statistik Nonpatrametris untuk Penelitian. Alfabeta, Bandung, Indonesia
[11] Thomas Soedarsono. (2005). Modul Dinamika Kelompok Tani. Buku Materi Pokok. Universitas Terbuka Jakarta, Indonesia
[12] Winardi, J.. (2001). Motivasi dan Pemotivasian dalam Managen. Devisi Buku Pertguruan. PT Raja Wali Grafindo Persada, Jakarta, Indonesia.