



Research Paper

Welfare Level Of Oil Palm Farmers(Case Study: In Sepaso East Village, Bengalon Sub Districtkutai Timur Regency)

Syarifah Aida¹, Firda Juita², Agung Saputra⁴

^{1,2}Lecturer of Agribusiness Study Program, Faculty of Agriculture, Mulawarman University Samarinda

³Student of Agribusiness Study Program, Faculty of Agriculture, Mulawarman University Samarinda

ABSTRACT

The purpose of this study was to determine the level of household welfare of oil palm farmers in East Sepaso Village, Bengalon sub District, East Kutai Regency. This research was conducted from June to December 2019. The research location is in Sepaso Timur Village, Bengalon sub District, East Kutai Regency. Determination of the research location was carried out by purposive sampling, while the sampling in this study used a non-probability sampling technique, 18 people were selected as respondents. The data collected is primary data through direct observation in the field and interviews; and secondary data obtained from the Sepaso Timur Village Office and institutions or agencies related to this research as well as literature study. The research method uses a qualitative approach and is descriptive qualitative. Measurement of the level of welfare of oil palm farmers by using factors that are interrelated with the Likert scale approach. The results showed that the level of welfare of oil palm farmers in Sepaso Timur Village, Bengalon sub District, East Kutai Regency was in the category of prosperous family II. With 1 farmer (5.55%) of oil palm being at the prosperous family level I, 14 farmers (77.77%) of oil palm being at the prosperous family level II and 3 farmers (16.66%) of oil palm being at the family level. prosperous III. Income is the main indicator that must be increased because it is at the prosperous family level I, with increasing income the indicators of food, clothing, housing, education, health and social will increase.

Keywords: Welfare Level, Oil Palm Farmers, Sepaso Village

Received 05 June, 2022; Revised 15 June, 2022; Accepted 20 June, 2022 © The author(s) 2022.

Published with open access at www.questjournals.org

I. INTRODUCTION

Development continues to develop in line with the development of society and science, plantation development has an important meaning to increase national economic growth as well as improve farmers' living standards. The changes brought about by development are generally the will of the people which are manifested in the decisions or policies taken by the government.

Indonesia is an agricultural country where most of the population lives in rural areas with a livelihood as farmers. The plantation sector has an important role in improving the welfare of the Indonesian people. It is stated by [1] that Indonesia's economic development can be carried out in accordance with the conditions of society and existing natural resources, with the direction of Indonesia's national economic policy aimed at sectors related to the interests of the people at large. Furthermore, this kind of thinking needs to be linked to the potential and capacity of the existing people and adapted to the natural resources that exist in Indonesia (indowment factor). If economic development in Indonesia is based on these thoughts, then the appointment of the agricultural sector and agricultural industrialization as a strategic choice in Indonesia's national economic development is a step that is considered very appropriate.

Oil palm is one of the plantation crops that has important role for the plantation sub-sector. Oil palm development, among others provide benefits in increasing farmers' income and increasing welfare of the community, as well as the community providing industrial raw materials processing that creates added value in the country and exports of oil palm oil which generates foreign exchange. The era of oil palm development in

East Kalimantan began in 1982 which was initiated through the Inti Rakyat Plantation (PIR) project managed by PTP VI.

Sepaso Timur Village is located in Bengalon District with an area of 28,000 ha, inhabited by 3084 people consisting of 1752 families. This village is a factual area as a producer of oil palm with 31 oil palm farmers consisting of 29 members of farmer groups and 2 farmers independent, planting age 2 to 12 years with a total area of 40 ha with different land area between farmers. The existence of oil palm plantations is expected to improve the welfare of oil palm farmers. Members of oil palm farmer groups basically depend on subsidized production facilities from the government in increasing the amount of oil palm production, the more production of oil palm plants, the more income of oil palm farmers, so that they can improve the standard of living of farmers.

The most important aspect of welfare is income, because some aspects of household welfare depend on the level of income. Fulfillment of needs is limited by household income, especially for those with low incomes. The higher the household income, the lower the percentage of approaches to food. In other words, if there is an increase in income and the increase does not change consumption patterns, the household is prosperous. Conversely, if an increase in household income can change consumption patterns, the household is not prosperous. Furthermore, it is stated by [3] According to Sayogyo (1991) that welfare is very important in people's lives. To calculate the level of welfare by using the poverty level approach using the criteria for the size of household income. The amount of income is measured by the value of basic commodities, the poverty level is based on per capita income per year as measured by local rice units.

II. RESEARCH METHOD

2.1. Time and place

This research was carried out from June to December 2019. The research location is in Sepaso Timur Village, Bengalon sub District, East Kutai Regency.

2.1. Data Retrieval Method

Data collection methods, namely: (1) primary data through direct observation of the object to be studied, as well as through interviews with respondents (with a questionnaire guide) for certain purposes; (2) secondary data obtained from the SepasoTimur Village office and institutions or agencies related to this research as well as literature studies.

2.3. Sampling Method

The location of the research was determined by purposive sampling, namely in Sepaso Timur Village, Bengalon sub District, East Kutai Regency because in this area oil palm farmers still need attention in welfare.

Sampling in this study used a non-probability sampling technique that was chosen, namely by saturated sampling (census), which is a sampling method when all members of the population are used as samples. [4]. In this study, the samples taken were all oil palm farmers in East Sepaso Village, namely 18 people.

2.4. Data analysis method

The research method uses a qualitative and descriptive qualitative approach, namely through interview techniques using a tool in the form of a questionnaire.

2.4.1. Welfare Level Measurement

Measurement of the level of welfare of oil palm farmers using interrelated factors. The measurement in this study uses a Likert scale, which is a scale used to measure attitudes, opinions and perceptions of individuals or groups about social conditions [5]

Table 1. Minimum and Maximum Scores of Welfare Indicators for Oil Palm Smallholders in Sepaso Timur Village

No	Indicator	Score	
		Minimum	Maximum
1	Food	5	25
2	Clothing	3	15
3	Housing	4	20
4	Education	5	25
5	Health	5	25
6	Income	5	25
7	Social	8	40
Total Score		35	175

Source: Primary Data (Processed), 2019

The level of welfare which refers to the approach used by the BKKBN is divided into five levels. Based on the calculation results, class intervals are determined for each level of welfare. The class intervals in this study are as presented in Table 2 below:

Table 2. Class Interval and Farmer Welfare Level

No	Class Interval	Prosperity level
1	35,00-63,00	Pre-Prosperous Family
2	63,01-91,00	Prosperous Family I
3	91,01-119,00	Prosperous Family II
4	119,01-147,00	Prosperous Family III
5	147,01-175,00	Prosperous Family III Plus

Source: Primary Data (Processed), 2019

Based on the class interval, it can be determined the level of welfare of oil palm farmers in East Sepaso Village, Bengalon sub District, East Kutai Regency.

2.4.2. Measurement of Welfare Level of Each Indicator

Each indicator has its own welfare level interval, so the interval for each indicator can be determined by the following equation:

$$C = \frac{Xn - Xi}{K}$$

Notes :

C = Class interval; K = Number of classes; Xn = Maximum score; Xi = Minimum score

With this equation, the level of welfare of food, clothing, housing, education, health, income and social welfare can be determined.

Table 3. Clothing Class Interval

No	Class Interval	Prosperity level
1	3,00 – 5,40	Pre-Prosperous Family
2	5,41 – 7,80	Prosperous Family I
3	7,81 – 10,20	Prosperous Family II
4	10,21 – 12,60	Prosperous Family III
5	12,61 – 15,00	Prosperous Family III Plus

Source: Primary Data (Processed), 2019

Table 4. Housing Class Interval

No	Class Interval	Prosperity level
1	4,00 – 7,20	Pre-Prosperous Family
2	7,21 – 10,40	Prosperous Family I
3	10,41 – 13,60	Prosperous Family II
4	13,61 – 16,80	Prosperous Family III
5	16,81 – 20,00	Prosperous Family III Plus

Source: Primary Data (Processed), 2019

Table 5. Food Class Interval, Education, Health and Income

No	Class Interval	Prosperity level
1	5,00 – 9,00	Pre-Prosperous Family
2	9,01 – 13,00	Prosperous Family I
3	13,01 – 17,00	Prosperous Family II
4	17,01 – 21,00	Prosperous Family III
5	21,01 – 25,00	Prosperous Family III Plus

Source: Primary Data (Processed), 2019

Table 6. Social Class Interval

No	Class Interval	Prosperity level
1	8,00 – 14,40	Pre-Prosperous Family
2	14,41 – 20,80	Prosperous Family I
3	20,81 – 27,20	Prosperous Family II
4	27,21 – 33,60	Prosperous Family III
5	33,61 – 40,00	Prosperous Family III Plus

Source: Primary Data (Processed), 2019

III. RESULTS AND DISCUSSION

3.1. General Condition of Research Site

Sepaso Timur Village is one of the oil palm fruit producing villages in the Bengalon sub District with an area of 7,930 hectares, 3 km from the sub-district, and 60 km from the district.

The total population in Sepaso Timur Village in 2018 was 3,804 consisting of 2,033 people (54%) men and 1,771 people (46%) women. The ethnic groups in Sepaso Timur Village are very diverse, namely the Kutai, Sundanese, Bugis, Banjar, Lombok, Dayak, Kaili, Toraja, Batak, Madura, Timorese, Javanese.

3.2. Characteristics of Respondents

Based on the results of the research conducted, there were 18 respondents in the village of East Sepaso, so the description of the characteristics was obtained as follows:

3.2.1. Respondent's age

The age factor will affect the work activities of oil palm farmers in managing their plantations and affect the ability of farmers to receive information and improve family welfare. Respondents aged 15 – 64 years were 16 respondents (88.8%) and respondents who were in the unproductive group, namely 65 years, were 2 respondents (11.2%).

The level of education affects the ability of farmers to make decisions and solve problems they face at work.

The education level of the respondents is 5 people (28.00%), junior high school graduates 7 (39.00%) and 6 people (33.00%).

The number of family dependents is one of the factors that affect the welfare level of oil palm farmers. Respondents who have a number of dependents 1-2 are 4 people (22.00%), the number of dependents 3-4 is 11 (61.00%), the number of dependents 5-6 is 3 (17.00%).

3.3. Indicators of Welfare of Oil Palm Farming Families in Sepaso Timur Village

The results showed that the total score of 18 respondents was 1880 with an average of 104. The level of family welfare of oil palm farmers in East Sepaso Village was at the level of prosperous family II, the following scores for each indicator can be seen in Table 7:

Table7. Maximum Score and Average Indicator

No	Indicator	Total score	Average score	Category
1	Food	295	16,30	Prosperous FamilyII
2	Clothing	152	8,40	Prosperous FamilyII
3	Housing	241	13,30	Prosperous FamilyIII
4	Education	282	15,60	Prosperous FamilyII
5	Health	294	16,30	Prosperous FamilyII
6	Income	184	10,20	Prosperous FamilyI
7	Social	432	24,00	Prosperous FamilyII
	Total	1880	104,10	Prosperous FamilyII

Source: Primary Data (Processed), 2019

3.3.1. Food

The results of the research in the field show that the percentage of indicators for the level of food welfare of oil palm farmers in Sepaso Timur Village which is measured in terms of the ability to consume a lot of food in a day, the types of side dishes consumed, and the ability to eat with family members is in the category of prosperous family II with a total score of 295 and an average of 16.30. This is because the food needs of farmers are fulfilled 3 times a day, with various types of side dishes in the form of meat, chicken, eggs, although it is still only with one side dish.

The level of consumption of oil palm farmers in consuming meat is very low because farmers can only consume meat once a year on holidays, while for consuming chicken, farmers only rely on their livestock to be consumed when there is a certain desire, while farmers usually buy eggs in the market and eat meat. from the results of the chickens or ducks they own, for vegetables, farmers have small gardens for consumption crops and are sold to the market as additional income while waiting for the oil palm harvest. This is in accordance with the prosperous family criteria II according to [6] that at least once a week all family members eat meat/fish/eggs. Farmers in the research location can consume eggs once a week, but farmers cannot consume meat once a week because for farmers there are other needs that must be met and waiting for the distribution of meat in order to reduce farmers' expenditure on food. Oil palm farmers eat at least twice a day and the opportunity to eat together in the morning and evening is used to communicate with family members.

3.3.2. Clothing

The results of research in the field show that the percentage of the level of clothing welfare of oil palm farmers as measured by differences in clothing, housing and activities outside the home and how often they buy clothes is in the category of prosperous family level II with a total score of 152 with an average of 8.40. This

can be seen from the clothes used by oil palm farmers when they are indoors by using clothes that seem relaxed, wearing neat clothes when attending events, using garden clothes that are usually used only for gardening.

The need for new clothes, 22.22% of farmers buy clothes every 6 months and 72.22% of farmers buy clothes once a year before the holidays, 5.55% of farmers only get gifts from other related people clothing, due to the age of the farmers who are already advanced and no longer think about the need for clothing. The need to buy clothes is higher than buying pants because farmers buy clothes every 6 months and buy pants once a year, this is in accordance with the prosperous family criteria II according to [6], namely each family member gets one set of clothes in one year.

3.3.3. Housing

The results of the research in the field show that the percentage of the welfare level of the housing of oil palm farmers as measured by ownership status, condition of the house, floor, walls, and area of the house owned by oil palm farmers is in the category of prosperous family level III with a total of 241 with an average of 13 ,30. This can be seen from the ownership of houses, 90% are privately owned and 10% are in family homes. The expertise of farmers in terms of making their own houses, so they can reduce costs. This causes the housing indicator to be in the prosperous family category III, while the income is in category I. Farmers emphasize the cost of wages and material costs because houses made of wood, farmers can take from the forest in the surrounding area, while houses with basic materials Cement and other farmers use the method by collecting materials one by one from the income. Another factor that makes the condition of the farmer's house in category III is the additional income from the profit from converting land owned by farmers into oil palm plantations owned by the company.

The condition of the house is an illustration of the welfare of oil palm farmers, starting from the size of the house, walls, floors, as many as 78% of oil palm farmers use wood in their house buildings, both walls and floors, 22% of oil palm farmers use cement in their house buildings, 33% of farmers build a house in the middle of an oil palm plantation to make it easier for farmers to take care of their plants with simple housing conditions, 67% of oil palm farmers build houses outside the plantation because access is good to get to the plantation. As many as 6 people (33%) of oil palm farmers living around the plantation are still at the pre-prosperous family level because the house does not have good walls, roofs and floors and 12 (67%) farmers living outside the oil palm plantation are in the category of prosperous family III because it has met the criteria for prosperous families I and II. According to [6], the house occupied by the family has a good roof, floor, walls and average floor area owned 8m²for each householder.

3.3.4. Education

The results of research in the field indicate that the percentage of the level of welfare of oil palm farmers as measured by formal education, non-formal education, ability to finance the formal education of family members, the importance of education is in the category of prosperous family level II with a total score of 282 and an average of 15 ,60. The importance of formal and non-formal education that oil palm farmers and family members must take in order to improve welfare ranging from education in schools to technical education in cultivation for farmers.

Every farmer wants their children to have a higher education in order to get a better job than them, educational assistance in the form of scholarships from the company really helps education in funding formal education. The formal education facilities in Sepaso Timur Village are SDN with C accreditation and SMPN with B accreditation. This has met the criteria for prosperous family I and is in the category of prosperous family II. According to [6], namely the awareness of farmers and family members of the importance of education. According to [7] that education is an important thing in life, being an educated and useful person for other people, Nusa, Nation, and State, not only schools are a source of education, the family is also a place to educate people who are very close to the our community.

3.3.5 Health

The results of the research in the field show that the percentage of the level of health welfare of oil palm farmers in Sepaso Timur Village can be measured from the level of frequent illness, treatment facilities, health facilities, access to treatment facilities are in the category of prosperous family level II with a total score of 294 and an average average 16.30. Oil palm farmers are generally affected by mild illnesses such as flu, cough, dizziness and aches, farmers only buy medicine at stalls around the settlement and use traditional medicine, while diseases that require special care farmers prefer to go to the puskesmas and there are some farmers are still using traditional medicine.

Health facilities that are mainly used by farmers have been primary accredited, there is special attention given by the Indonesian government to the health of the Indonesian people, through BPJS and JKN it is hoped that they can help people who need good health facilities at prices that are affordable by the

community, especially oil palm farmers, but there are still 7 farmers (38.88%) who do not have health insurance from the government.

The Minister of Health stated that the fulfillment of primary health facilities and infrastructure to physically not only build new health centers, but also in the form of renovations and efforts to reduce inequality in health services by increasing access to health services and equitable distribution of needs for health workers. The condition of the infrastructure in the form of roads leading to the puskesmas is in good condition which greatly helps farmers in accessing the puskesmas. The condition of farmers who are sick in the last 3 months are still able to carry out daily tasks, so they still meet the criteria for a prosperous family II according to [6] that the last three months the family is in good health so that they can carry out their respective duties/functions.

3.3.6. Income

The results of the research in the field indicate that the percentage of the welfare level of the income of oil palm farmers in Sepaso Timur Village can be measured from the main job, side work, number of working family members, savings, basic income, side income and income of family members at the level of prosperous family I with a total score of 184 and an average of 10.20. This can be seen from the sale of fresh fruit bunches of palm oil at a price of Rp 680kg⁻¹ with a harvest period of 15-20 days, income from side work, income of family members and there are 8 farmers (44.44%) who have savings.

Farmers do not only rely on income from oil palm FFB, but from side jobs such as selling vegetables, being wakar, or managing other people's gardens. This activity aims to meet the daily needs of farmers because the price of palm oil is very cheap, the price of fertilizer is expensive and it is rarely sold. The number of working family members affects the income of the farming family. This does not meet the criteria for a prosperous family II. According to [6] that there is someone or more family members who work to earn income. Farmers in the research location have not been able to provide additional income for their families, only 3 families (16.66%) have family members who provide additional income.

There is an effort from the government to increase farmers' income through Village-Owned Enterprises (BUMDES) where BUMDES will buy plantation products (FFB) at a price set by an oil palm company located in East Sepaso Village, the price given by the company is higher than the price provided by collectors, but this has not been able to be implemented because there is no cooperation between BUMDES and related companies that want to buy produce from people's plantations.

The low purchase price causes the farmer's income to be low, this situation has been felt by farmers since 2 years ago until now where farmers can only follow the marketing flow and the prices that collectors give to farmers. The low income causes a decrease in the quality of life of farmers where the ability to meet the necessities of life decreases and forces farmers to manage their spending properly in order to meet their daily needs, this also has an impact on the ability of farmers to save their income. According to the Indonesian Palm Oil Association (GAPKI) 2017 quoted [7] that oil palm plantations have a positive impact by bringing farmers into the middle class economic community, the biggest opportunity for oil palm is that smallholder plantations will be the key to the palm oil industry in Indonesia.

3.3.7. Social

The results in the field show that the percentage of the level of social welfare of oil palm farmers can be measured from carrying out religious activities, religious improvement, neighborly interactions, recreation, roles in organizations, information media used, infrastructure, assistance, level of welfare in the family. prosperous II with a total score of 432 and an average of 24. This is because farmers who live around the garden usually interact when they are in the garden or at work and during events because the distance from their homes is far from each other, while farmers who being in a crowded settlement, the population can interact more because the houses are close to each other, farmers can carry out religious activities properly according to their respective religions and can improve the quality of their religion by participating in religious events. This has met the criteria for prosperous families III according to [6] that prosperous families seek to increase religious knowledge, but farmers in the research location in terms of social indicators fall into the category of prosperous families II and in accordance with the criteria according to [6] that in general families carry out worship according to with their respective religions and beliefs. Farmers try to increase their knowledge only by participating in taklim activities around the location where they live.

Farmer families hold recreation together out of the house at least once a year, usually during Eid and other big days. Oil palm farmers can access information from the internet, television, mobile phones, radio with existing media making it easier for farmers to learn in cultivation and for other things. The infrastructure obtained by farmers for oil palm business activities is good for roads used in the process of farmer activities, for lighting needs, farmers use their respective lamp machines because there is no flow from PLN to farmers' houses around the plantation, lighting problems and the need for electricity is also a complaint from farmers because farmers have to spend every day to turn on the generators they have.

Farmers only received seed assistance from the company in 2007 for initial seedlings. After that, no more assistance was issued by the company. Fertilizer subsidy assistance from the government is constrained by the selling price that reaches farmers and the purchasing power of farmers with cheap FFB prices, farmers hope to get fertilizer subsidies at affordable prices according to the selling price of FFB. According to a study [8] that oil palm plantations can reduce poverty, especially in rural areas, but smallholder oil palm plantations have low productivity due to the use of illegal seeds and lack of knowledge and information on oil palm cultivation, lack of facilities and infrastructure and access to plantations to mills. palm oil processing.

In general, based on Table 7 above, it is known that the level of welfare of oil palm farmers in East Sepaso Village is in the category of prosperous family level II. With a total of 1 oil palm farmer at the prosperous family level I, 15 oil palm farmers at the prosperous family level II and 2 oil palm farmers at the prosperous family level III. The results of the study reported [9] the income of oil palm farmers in MulyoAsih Village before COVID-19 was Rp. 7,314,760 and after COVID-19 is Rp. 10,283,518. And the level of welfare of oil palm farmers in MulyoAsih Village before and after COVID-19 was classified as prosperous. Another research result reported by [10] is the analysis of the level of welfare calculated based on the presentation of food consumption expenditure, the results obtained that the average income of farmers is Rp. 101,344.806 years-1, the level of welfare based on the analysis of food consumption expenditure of oil palm farmers is included in the category of high welfare level of 57.50% and is included in the category of moderate level of welfare 42,50%.

IV. CONCLUSIONS AND SUGGESTIONS

4.1. Conclusion

The results showed that the total score of 18 respondents was 1880 with an average of 104, so it can be seen that the welfare level of oil palm farmers in Sepaso Timur Village, Bengalon sub District, East Kutai Regency is in the category of prosperous family II. With 1 farmer (5.55%) of oil palm being at the prosperous family level I, 14 farmers (77.77%) of oil palm being at the prosperous family level II and 3 farmers (16.66%) of oil palm being at the family level prosperous III. Income is the main indicator that must be increased because it is at the prosperous family level I, with increasing income the indicators of food, clothing, housing, education, health and social will increase.

4.2. Suggestion

1. Oil palm farmers should cooperate with companies or the government in plantation activities through existing farmer groups and use fertilizers with good doses so that crop productivity can increase so as to increase income.
2. The local government should pay more attention to oil palm farmers in East Sepaso Village, especially the need for subsidized fertilizers and the provision of sales facilities for farmers' palm oil products, so that farmers' income can increase and increase the ability of oil palm farmers to meet their needs and affect the level of farmers' welfare. Palm oil.
3. For readers, it is better not to use only one analytical tool so that there is an analysis that is used as a comparison

BIBLIOGRAPHY

- [1]. Andrianto, T.T. 2014. Introduction to Agricultural Science: Agriculture, Agribusiness, Agroindustry, and Agrotechnology. Global Pustaka Utama: Yogyakarta.
- [2]. Sari, K.D, H. Dwian R. Rosanti. 2014. Income and Rate Analysis Household Welfare of Corn Farmers in Natar District South Lampung Regency. (<https://scholar.google.co.id>, accessed on 28 September 2020).
- [3]. Sajogyo. 1991. In the Sariental Welfare of Farmers. Jakarta Bina Aksara.
- [4]. Supriyanto Dkk. 2010. *Research methodology*. <http://etheses.Uin-malang.ac.id/819/7/11510054%25203.pdf>ved=2ahukewiikm-2kPmahozzgGHW7oDYUQFJABegQIBRAB&usg=A0vVaw11x4uC662246SJbmrDKtu. (accessed on 31 July 2019).
- [5]. Sugiyono. 2013. Quantitative, Qualitative and R&D Research Methods. Alfabeta, Bandung.
- [6]. National Family Planning Coordinating Board. 2010. Poverty Alleviation. BKKBN Pusat, Jakarta.
- [7]. Kurniawati, D. 2008. The Importance Of Education For Everyone. Bunghatta.ac.id/artikel-259-pentingnya-pendidikan-bagi-semua-orang.html. (accessed on 6 December 2019).
- [8]. GAPKI. 2017. PASPI. Vol III. No 40. <https://gapki.id/news/3875/peran-strategis-sawit-rakyat-indonesia> 14 December 2019.
- [9]. Tantowi, D.A. 2021. Analysis of the Welfare Level of Oil Palm Farmers Before and After the Covid-19 Adanay in MulyoAsih Village, Keluang District, Musi Banyuasin Regency. Thesis of the Faculty of Agriculture, Muhammadiyah University, Palembang.
- [10]. Pratiwi, R.Y., A Hamid, A. Yusra, and D. Kurniati. 2022. Income and Welfare Level of Oil Palm Farmers in Jangkang District, Sanggau Regency. *Journal of Agricultural and Agribusiness Economics (JEPA) Volume 6 (1) : 122-129*