

INFLUENCE THE COMPOSITE OF THE MEDIA FOR THE GROWTH OF TIMOR-LESTE'S HYBRID COFFEE (*COFFEE SP*) WITH OTHER

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Abstract

The aim this investigation was to determine the effect of means composition about to the growth of hybrid Timorese coffee cuttings with other varieties in the prey nursery to the means application for the growth of the four varieties of coffee, thus the write takes the Title of the research with the hypothesis " multiplication to acquire new data through the means composition for growth coffee plant cuttings of on the four varieties" The investigation was conducted in date 4 June 2014 at 12 October 2014 out in the nursery " ETCI " the Village of Talimoro , Sub-district Ermera, Ermera Municipality, experience degin using by using a completely randomized design (CRD) with 2 factor treatment, there are two factors the main factor is to use a combination of medium composition ratio with a ratio of compost two (2), sand one (1) and topsoil one (1), or 2 : 1 : 1 and the second factor of four types of coffee. Coffee Hybrid Timorese, Arabica, Robusta and Mocha high observation parameter on shoots, buds diameter, number of shoots, number of leaves and leaf area. Based on the results of this investigation indicate that development through cuttings of several varieties that were tested turned out that provide significant cuttings shoots (1.8) cm, diameter of shoots (0.30) mm, the number of shoots (1:40), number of leaves (2.6) , leaf area (9.9) cm .

Key words: *Cuttings, means composition, varieties Coffee.*

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INTRODUCTION

In the past centuries coffee is a commercial material, and then said to be one of the ingredients fresh drinks. In other words. coffee makes the body fresh and clear thinking. Body feels fatigued and sleeping will be lost, after drinking coffee. It is especially for the over - consumption. Coffee is not the original plant of Timorese, but it is an African causator. It was said that the coffee plant was brought to Java in 1696, but it was still in implementation.

Good productivity circumstances for Timorese hybrid coffee in relation to resistance against *Hemileia's vastratrix* Berk disease, this was based on br and mu (1966) who began to study the coffee leaves, the result was presented in. In 1971, Fereira et al

(7) provided her knowledge of the results of a study that was detected from the same hybrid coffee leaves, fish, chemicals and technology as the coffee leaves.

In this research, four (4) types of coffee were used, the Timor hybrid coffee (Coffee sp), mocha (Coffee moa), Araba (Coffee arabica, L), and Robusta (Coffee canephora). By looking at the characteristics of growth and by looking at the Timorese hybrid coffee vehicle, most of them used the influence of the composition of the means of development, coffee plants for four types (4). This research has considered the Timorese hybrid coffee to grow and expand the history base in The attack by (*Hemileia vastatrix*) has seen the history that Timor-Leste's hybrid coffee, located in Hatulia B Sub-District, Fatubessi Village, Matanova Sub-Village, has been generated worldwide, especially by coffee plantation countries. The Timorese hybrid coffee has a resistance to rust disease.

METHODOLOGY

Place and Times

The survey was conducted at the East Timor Coffee Institute (ETCI), Tálimoro Village, Ermera sub-district, Ermera Municipality with attitude from the mouth of ± 800 m (GPS). The survey started on June 4, 2014 and ended in October 2014.

Research Design

The materials used for this research such as cutting seeds the Timorese hybrid coffee, Arabica, Robusta and mocha. The equipment used for this research was, such as, water, finer, sandy land, land (topsoil), regulator, sprayer.

Research

The research treatment used RCB design experiment in 2 (two) reduction.

Research Design

- Preparation of means and places
- Installation of the site before starting to carry out the seeds in order to reduce the speed of the sun's rays for
- Prepare and mix the organic medium /fertiliser according to treatment after the in for solid plastic with a size of 14 x 20 cm.
- Prepare white bamboo and plastic to cover the living room.
- Take the materials.
- The cutting materials were taken from a hybrid, arabica,
- Cut the material down using a hard
- The material used and taken from the plant with its good condition and good growth but cannot have a time of fruit and fruit.
- Take the material from the primary branch or the primary branch (not the fruit of the heart).
- Plant

The plant is held on the afternoon and then the material is taken at 1pm on June 4 th 2014 and is then put into the medium prepared for treatment.

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The method of planting is as follows: Solid plastic is a medium for planting raw materials. The means of solid plastic with the action of being in the middle of the road. In the plastic there is a subsisting water so that the means of friendship can be good.

Maintenance

The attention given consists of water with the initiation of the sun according to the conditions of the medium and the growth of the grass or other part of the plant. The parameters observed include living components. The parameters to be observed are as follows.

Analysis

The results of the observation data were analysed by SAS using the F (variation) test at the 5% rate, and if the F is tested significantly it will continue.

RESULTS AND DISCUSSIONS

Rerate Results

The growth observation results using the composition of the means 2: 1 for the growth of the Timorese hybrid coffee conversely show that there were analysis of the variation in the number of parameters for the comparison in the F count and F tests table 5%, which carried out the observation of the height of the The height (cm), the diameter (mm).

1. The height Growth

The means as a plant growth site and a food search site for crops, thus serving to improve the growth and development of crops. The growth that can be seen from plants is the growth of the height of the slush.

Table 1. Height for the variety of Timorese, Arabica, Mocha and Robusta coffee (cm) has 4 SMK, 6 SMK, 8 SMK, 10 SMK and 12 SMK.

Variety Treatment	Concentration				
	M 2:1:1 (cm)				
	4 WAP	6 WAP	8 WAP	10 WAP	12 WAP
Timorese hybrids.	0.8 a	1.1 a	1.4 a	1.5 a	1.8 a
Arabica	0	0.6 a	0.9 a	1.1 a	1.5 a
Robusta Coffee	0	0.8 a	0.8 a	0.8 a	0.8 a
Mocha Coffee	0	0.6 a	0.7 a	0.8 a	0.4 a
LSD (5%)	0.2	0.59	0.95	1.05	1.12

Observation: The follow-up letter in the same column and line shows that there is an intersection between the means 2: 1: 1 for the variety to be significant (P > 0.05) and the number followed by the same letter in the line or column is not significantly different for the 5%, WAP=Week After the plant

The high growth of the sullen occurs in the intercalary meristem of the hair. The hair is extended as a consequence of increasing the amount of cells and the main cause of cell expansion. Growth due to cell division occurs in a cellular (intercal) basis, not an

end meristem. The amount of hormone in the meristem intercalates the limit because the hormone is not as productive as it occurs at the end of the meristem which organizes growth must be provided from outside (Gardner et al., 1991).

Bud Diameter

The best diameter in the combination of the treatment of the compound + organic + Sand soil with its concentration of the Timorese hybrid coffee variety, Arabica, mocha and Therefore, it is a means to give it growth. If this kind of treatment is combined, the growth of the plant will be better.

Table 2. Prorate stem diameter Variety coffee hybrid Timor, Arabica, Mocha and Robusta (mm) in media SMK 4, SMK 6, SMK 8, SMK 10 no SMK 12.

Variety treatment	Concentration				
	M 2:1:1				
	4 WAP	6 WAP	8 WAP	10 WAP	12 WAP
Timorese hybrids.	0	0.13 a	0.25 a	0.25 a	0.30 a
Arabica	0	0.11 a	0.13 a	0.13 a	0.21 a
Robusta Coffee	0	0.11 a	0.21 a	0.10 a	0.14 a
Mocha Coffee	0	0.06 a	0.07 a	0.08 a	0.10 a
LSD (5%)	0	0.41	0.66	0.14	0.19

Observation: The number that follows each other with the same letters on the line or column is not significantly different for the 5%.

The planting medium is the first component of the plantation. The planting media that will be used for crops should be in accordance with different types of crops yesterday for which it is a difficulty to grow crops that pass through. Also stated by Rudianto *et al.* (2008), The utility of supply of organic materials to increase soil maturity, thereby reducing environmental volume and reducing organic nutrient damage.

3. Shoot Quantity

Based on (Yung and Werner, 1982; Dwijoseputro, 1983). The amount of fat that lives is influenced by factors such as plant age. Yesterday, plant damage, environmental conditions, plant distance, time and hormone stimuli (Zobel and Talbert, 1984; Kijkar, 1991).

Table 3. Prorate Quantities shamed in the Variety coffee hybrid Timorese, Arabica, mocha no Robusta in media SMK 4, SM 6, SMK 8, SMK 10 no SMK 12.

Variety Treatment	Concentration				
	M 2:1:1				
	4 WAP	6 WAP	8 WAP	10 WAP	12 WAP
Timorese hybrids.	0	0.66 a	1.17 a	1.11 a	1.40 a
Arabica	0	0.67 a	0.89 a	1.00 a	1.00 ba
Robusta Coffee	0	0.0	0.67 a	0.55 a	0.55 b
Mocha Coffee	0	0.55 a	0.44 a	0.44 a	0.44 b
LSD (5%)	3.32	0.31	0.79	0.77	0.85

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Observation: the letters ab that have the same column in the interaction means 2: 1: 1 and the number that follows each other with the same letter on the line or column is not significantly different for the 5%.

Number Leaf

The function of leaf as a result of photosynthesis is especially dangerous for plants as energy content to process growth and development. Producing this large amount of leaf indicates that the natural crops are growing better.

Table 4. Prorate quantity leaf the Variety coffee Timorese hybrid, Arabica, mocha dan Robusta on the means SMK 4, SMK 6, SMK 8, SMK 10 dan SMK 12.

Variety treatment	Concentration				
	M 2:1:1				
	4 WAP	6 WAP	8 WAP	10 WAP	12 WAP
Timorese hybrids.	0.66 a	0.83 a	4.33 a	1.99 a	2.67 a
Arabica	0.67 a	0.33 a	2.11 ba	2.11 ba	2.33 a
Robusta Coffee	0.00	1.00 a	1.55 ba	1.55 ba	1.56 a
Mocha Coffee	0.33 a	0.88 a	0.89 b	0.89 b	1.22 a
LSD (5%)	0.41	0.76	2.22	2.22	1.95

Observation: The number of follow-up letters on the line or column has a significant difference for the 5%.

However, there are several different influences of the means to quantity of leaf, according to Gardner et al. (year) quantity of leaf also influences genetic and environmental factors. The growth of the leaf for the better should be the supply of water in large quantities.

The best amount of leaf in this research with its combination of treatment of the means of composition + organic breastfeeding + sand and topsoil soil with its concentration of the variety of Timorese hybrid coffee, Arabica, mocha and Robusta occurs intersection in 8-10 weeks and until 12 weeks the value of the results of the MDV1 with the amount of the sum in value reached 2.33 according to the other significant value in the MDV2 with the highest value of the SMK 12, 2.3, the MDV3 value of the fall in the SMK 12 with the value of 1.56 and the other range of the fall in the SMK 12, with the value of 1.22.5.

Leaf Area

The best amount of leaf in this research with its combination of treatment of the means of composition + organic breastfeeding + sandy and topsoil soil with its concentration of the variety of Timorese hybrid coffee, Arabica, mocha and robusta occurs intersection in 8-10 weeks and until 12 weeks the value of the results of the MDV1 with the amount of the sum in value reached 2.33 according to the other significant value in the MDV2 with the highest value of the SMK 12, 2.3, the MDV3 value of the fall in the SMK 12 with the value of 1.56 and the other range of the fall in the SMK 12, with the value of 1.22.

Table 5. Promise leaf wide range of Timorese, Arab, Mocha, and, Arabica, Mocha and Robusta (cm) in media SM 4, SM 6, SM 8, SM 10 no SM 12.

Variety Treatment	Concentration				
	M 2:1:1				
	4 WAP	6 WAP	8 WAP	10 WAP	12 WAP
Timorese hybrids.	0.8 a	3.1 a	4.3 a	8.2 a	9.9 a
Arabica	0	1.4 ba	2.1 ba	4.6 a	6.2 a
Robusta Coffee	0	1.6 ba	1.6 ba	4.8 a	6.1 a
Mocha Coffee	0	0.6 b	0.9 b	2.2 a	2.3 a
LSD (5%)	0.2	3.9	2.2	4.9	6.1

Observation: The letter ab occurs the reaction between the variety and the composition of the means 2: 1: 1 and the number that follows each other with the same letters on the line or column has a significant difference in its value according to the 5%.

Leaf is generally seen as the body producing the first photosynthesis, where observation of resistance is very dangerous to see in depth the growth process that occurs in the form of plants. Durable observations can be basic because they help the function of receiving the sun as a photo-synthesis tool. The foundation for the size of the resistance becomes the first parameter, as the speed of photosynthesis is a unit of plant and many cases are safe for parts of the resistance size (Sitompul and Guritno, 1995). The extent of the volume of leaf influences the growth of other plant organs. Increasing the size of the plant as part of the plant growth as a result of the sharing and expansion of the cell that influences the presence of nutrients. Nitrogen is an important nutrient element to support plant vegetative growth, first to endure.

Discussion

According to the date of the results of the observations and the measurement of the last time of the survey (month 4), it is generally shown that there is a possibility of the spread of Timorese hybrid coffee with other varieties in the prorata showing a good life growth.

This indicates that in general the types of hybrid plants and other varieties have a subservient perspective to expand through vegetative, specifically technical, so that ultimately the development of Timorese hybrid coffee varieties has no significant difficulty. The research results show that the material from the Timorese hybrid coffee plants with other varieties shows that there are subservient results for all parameters that compare the material from the Timorese hybrid coffee with other varieties taken in Fatubessi Village in the Matanova area. This is because the case of raw materials that come from the area with their optimal environmental conditions with their maintenance and supply treatment, the technical content is not effective and efficient because it should be collected at the end of production so that it can be experienced in time and it should be prepared at the subservice cost. In this way, the material of the plant that comes from the plant of nature is relatively more varied and growing and is also spread mainly depending on the potential for the individual plant to face environmental conditions, so

that it is clearly all visible because the plant of nature is sufficient to be used as the material of the plant of the plant of the plant. This matter is in accordance with (1998) in Hidayat (2012) which states that the level of crop results comes from catting namely its influence on the age of the catting material (explan) and the weather as well as the environmental conditions when the catting material is taken.

The same means of development is an environmental factor that influences the development of the environment. According to Harman et al. (1990) in Juhardi (1995) the means by which there must be another credit between the capacity of humanity, good aeration and desegregation, lack of high salinization and release from pestilence and disease. According to the research results, the means of comparison, 2: 1: 1 are sufficient means for the first growth. This issue is seen from the value of the protruding path that results in all the parameters that the basis of observation and comparison is high in other means; 2: 2: 1, which is the result of the protruding growth of life as mentioned above. The result is the same as that of Yasman and Smits (In addition, the root form of the success rate is better by determining the means of physical characteristics compared to the chemical characteristics that depend on the means, because the physical character is related to the availability of water and the presence of air circulation in the means that are experienced in the process of forming the root.

The above results show with him that the means 2: 1: 1 are well - protruding for all parameters. The content of the assessment of the efficiency of the production phase of the glass, the utility of the soil media the research was influenced by the material and the means (Agus Sofyan and Imam Muslimin) the mass thought the soil media was a nutrient for the growth needs of the catting to be prepared for planting.

CONCLUSION

The results of the survey and discussion of the intersection of Timorese hybrid coffee with other varieties the writer raised the following conclusions:

The growth of the catting seeds coffee variety which is better for the height of the loin is the use of means 2: 1: 1 falls to the Timorese hybrid coffee variety (1.8 cm)

The diameter of the Bar for coffee connexion is the same as for the Timorese hybrid variety. (0.30 mm), The amount of the sum for the variety referred to occurs in the Timorese hybrid variety. (1.40) no variety Arabica (1.0), The amount of leaf for the variety occurs for the Timorese hybrid variety. (2.6) no variety arábika (2.3) As well as the size of the variety, the value of the coffee variety in Timor-Leste continues to fall. (9.9), Variety Arabika (6.2) no variety mocha (6.1). The intersection between the range of Timorese and other types of hybrid coffee using means 2: 1: 1 has a significant reaction and influence on two types, namely 9.9 Timorese and Arabic varieties of coffee, which have a result of being reached.

BIBLIOGRAFI

- AAK Yayasan Kanisius (1980), Cultivation of coffee plants, harvest and processing of the results.
- Aguiar, m. Cecília & Vilar, Hernanda D. 1979. Caracterização do Híbrido de Timor. Estudo comparative dos cafés Arábica e Hybrid de Timor quanta às suas características físicas, químicas e tecnológicas. Garcia de Orta-Série de Estudos Agronómicos, Lisboa.
- Aderito José Guterres Correia, Geoffrey Stephen Hull, Geogr William Saunders. Danu dan Nurhasybi. 2003. Potential of Generative and Vegetative Seeds in Forest Development
- Ferreira, L. A. B. 1969, 11, Informação Interna 164: Híbrido de Timor. Missão de Estudos Agronómicos do Ultramar, p. (manusc.).
- Hardjo H. Dan Herman Syah (1980), Tools for measuring water content and the problem of broken beans in coffee processing.
- Hidayat, I. S. 2002. The Effect of Seeding Techniques in Several Media on the Growth of Cat's Eye Resin Cuttings (*Shorea javanica* K & V).
- Sri Najjati dan Danarti. Cultivation and handling after harvest (1988).
- Juhardi, D. 1995. Study of Vegetative Propagation of Shoot Cuttings *Shorea selanica* BL with Using IBA Growth Regulators in Mixed Media
- Pratowo n. J. M. Rosthetko. 2006, Techniques for Nursery and Vegetative Propagation of Fruit Plants. World Agroforestry Centre (ICRAF) dan Windrock International. Bogor, Indonesia. P. 100.
- Rodrigues JR. C. J. 1960. Screening for Resistance to *Hemileia vastatrix* on *Coffea arabica*.
- Junta de Investigações do Ultramar e Junta de Exportação do Café, 46pp. Portugal.
- Rodríguez JR, C. J. ET AL. 1975. Races of the pathogen and resistance to coffee rust. Annual Review of Phytopathology.
- Sofyan, A., A.H. Lukman dan Bastoni. 2003. Building Plantation Forests with Smith Ferguson (1990), average rainfall mm/year.
- Yasman, I. dan W.T.M Smits. 1988. Method for Making Dipterocarpaceae Cuttings. Indonesian Wood Panel Association.
- Y. W. Purselglove (1980), Characteristics and Properties of Types of Coffee.

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