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The Potential for Cultivating Nutmeg (*Myristica fragrans* Houtt) in Rimbo Pengadang and Topos Districts of Lebong Regency

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ABSTRACT

The research, conducted from January to September 2023, aimed to map land suitability classes for nutmeg plant development. The evaluation results are presented descriptively and involve three main stages: pre-survey, field survey, and tabulation with data analysis. Primary data collected for this research include soil analysis results from the laboratory, complemented by secondary data. The determination of land suitability utilizes matching techniques for each land characteristic. The actual land suitability results for nutmeg in Rimbo Pengadang and Topos Districts are categorized as follows: S3eh (37.77%) 14,460.93 ha, with the limiting factor being erosion hazard. S3na eh (37.07%), 14,175.10 ha, with limiting factors related to nutrient availability and erosion hazards, S3na (6.77%): 2,592.64 ha, with limiting factors in nutrient availability, S2wa nr na eh (5.34%): 2,044.04 ha, facing limitations in water availability, nutrient retention, nutrient availability, and erosion hazard, S3rc eh (1.30%) 499.43 ha, with a limiting factor for rooting media and erosion hazard, S3rc (0.90%): 346.35 ha, with a limiting factor in rooting media and N (not suitable) (9.10%) 3,484.74 ha. Regarding potential land suitability, the classes are as follows: S1 (44.89%) 17,186.07 ha, S2 (43.80%) 16,767.80 ha, S3rc (2.21%) 845.79 ha, and S3 (9.10%): 3,484.74 ha. The areas with potential for developing nutmeg plants in Rimbo Pengadang and Topos Districts, Lebong Regency, include secondary forest, mixed dry land farming, open land, and bushes.

INTRODUCTION

Rimbo Pengadang and Topos District are susceptible to land degradation, particularly erosion and landslides, due to their hilly geography. The majority of residents in these areas depend on agriculture, managing hillside land. However, the utilization of land for both agricultural and non-agricultural purposes does not align with soil and water conservation principles. To address this, preventive measures are essential, such as planting Multi-Purpose Tree Species (MPTS) using an agroforestry approach. Agroforestry is a suitable management strategy to preserve the ecological functions of the forest while providing both short and long-term economic benefits, ultimately boosting farmers' income.

Among the suitable plants for agroforestry, nutmeg stands out due to its high economic value, making it a potential commodity in the national economy. Originating from the Banda Islands in Indonesia, nutmeg (Myristica fragrans Houtt) thrives in tropical regions and is cultivated in various parts of the world, including America, Asia, and Africa. In Indonesia, major nutmeg-producing areas include the Maluku Islands, North Sulawesi, West Sumatra, Nanggroe Aceh Darusalam, West Java, and Papua.

Nutmeg plants flourish at altitudes of 700-900 meters above sea level, with air temperatures ranging between 25 °C-30 °C, humidity between 60%-80%, and annual rainfall between 2,000 mm – 4,500 mm. Although nutmeg plants can adapt to various soil types, they prefer loose soil with a clay

to sandy loam texture, especially volcanic soil, and a pH of 5.5 - 7.0. Even on nutrient-poor soil, proper fertilization and care can support nutmeg growth.

The environmental conditions in Rimbo Pengadang and Topos District resemble those suitable for growing nutmeg plants. Recognizing this potential, a thorough land evaluation is crucial to understand the specific characteristics of the physical environment and determine land quality in detail.

MATERIALS AND METHODS

This research was conducted in the Rimbo Pengadang District and Topos District of Lebong Regency, Bengkulu Province, from January to September 2023. Sample collection took place in Rimbo Pengadang District, situated at coordinates 102020'50"-102030' east longitude and 3015'-3022'20" south latitude, as well as in Topos District, located at coordinates 102022'-102030' east longitude and 303'20"-3017' south latitude. Soil sample analysis was conducted at the Soil Science Laboratory, Faculty of Agriculture, Bengkulu University. The research location map is depicted in Figure 1.

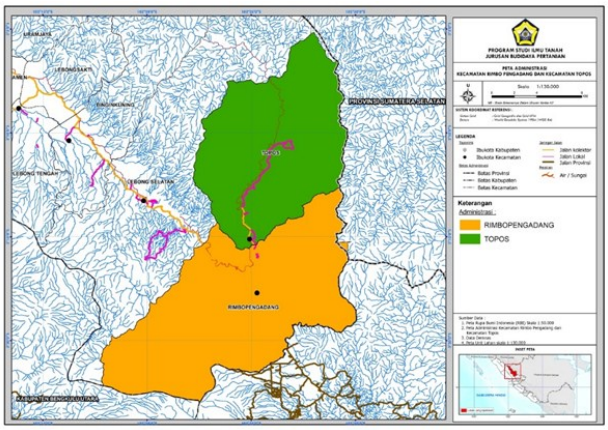

Figure 1. Research location map

The material used in this research is an administrative map at a scale of 1: 130,000 as a base map sourced from the Indonesian Earth Map (RBI) obtained from the Geospatial Information Agency (BIG). land unit scale 1: 130,000 sourced from land unit map sheet 0912 (Bengkulu) slope map scale 1: 130,000 obtained from SRTM DEM (Digital Elevation Model) analysis with a resolution of 30 meters sourced from USGS (United States Geological Survey) using ArcGIS 10.8 software. Annual rainfall data comes from BMKG (Meteorology, Climatology, and Geophysics Agency) research reports, and information on nutmeg land suitability classes comes from technical instructions for land evaluation (Lubis, 1992). The materials to be used in laboratory analysis consist of $K_2Cr_2O_7$ (1N), concentrated H_2SO_4, distilled water, ammonium acetate (pH 7.0), Whatman paper, ethanol, NaCl (10%), boiling stone, H_2BO_3 (1%), indicator PP, H_2SO_4 (0.5 N), $KMnO_4$, NH_2OH, and $HClO_4$.

The tools used in this research are grouped into three types of tools, namely GIS analysis, equipment for field surveys, and equipment for analyzing soil samples in the laboratory. Equipment for GIS analysis consists of a laptop, printer, Windows operating system, and ArcGIS 10.8 software. Field survey tools consist of a GPS (Global Positioning System) field knife, clinometer, Munsell Soil Color book, and other field tools. As well as laboratory equipment needed to analyze the physical and chemical properties of soil.

This research consists of pre-survey stages, field survey, data tabulation, land suitability classification, preparation of land suitability maps, and preparation of a final report. The first stage carried out at this stage is the pre-survey stage. Research begins by collecting the necessary tools and materials, and obtaining permits from both the university and village officials so that the research can run smoothly. As well as making land administration work maps and land units to determine sampling points which are then selected based on existing land units in the area to carry out field surveys.

The second stage is a field survey which consists of observing land characteristics at each sample point with a total of 10 sample points. At selected sample points, intact soil samples will be taken using a sample ring at a depth of 0-5 cm, while for disturbed soil samples using a mineral drill to a depth of 0-20 cm. Researchers also compiled a questionnaire to obtain additional information. This questionnaire contains questions regarding land management and socio-economics of coffee farmers in Rimbo Pengadang District and Topos District, and as a comparison, a questionnaire was also carried out on nutmeg farmers in Air Lanang Village, South Curup District, Rejang Lebong Regency.

After the field survey was carried out, the third stage was analysis carried out at the Soil Science Laboratory to measure several physical and chemical properties. The next stage is data tabulation, correlating field data, and laboratory analysis results to evaluate and assess land suitability. Data is grouped based on each land quality based on the method de-

veloped by FAO (in Saputra *et al*., 2016) using 4 order class categories, namely S1: highly suitable, S2: moderately suitable, S3: marginally suitable, and N: not suitable. Subclasses are based on limiting factors, namely land characteristics, water availability (wa), rooting media (rc), nutrient retention (nr), nutrient availability (na), and erosion hazard (eh). The final stage is that the data is presented in the form of a map based on field observations and the results of laboratory analysis, which is then carried out to prepare a map of actual and potential land suitability for nutmeg plants in Rimbo Pengadang and Topos District, Lebong Regency.

Data is presented descriptively regarding land characteristics and soil interpolation, field data and laboratory analysis are correlated so that the evaluation and land suitability assessment process can be carried out. The data is grouped based on each land quality which is guided by the FAO method (1976). The method for determining land suitability classes uses 4 order class categories and 6 subclasses. The land suitability class consists of 4 classes, namely S1: highly suitable, S2: moderately suitable, S3: marginally suitable, N: not suitable. Subclasses are based on limiting factors, namely land characteristics such as water availability (wa), rooting media (rc), nutrient retention (nr), nutrient availability (na), and erosion hazard (s).

RESULTS AND DISCUSSION

The distribution of the most dominant soil types in the research area consists of inceptisol and ultisol soils. Inceptisol soil is young soil because it forms rather quickly as a result of the weathering of the parent material. This type of soil is usually found in highland areas with land characteristics, namely having a rather thick soil solum, 1-2 meters, a dusty sand and clay texture, a loose soil structure, and a pH of 5.0-7.0 with organic material and nutrient content. quite high (Ketaren *et al*., 2014). Inceptisol soil is divided into several great groups, namely, tropaquepts, dystropepts, and dystrandepts, with the dominant percentage being dystrandepts with the antrepts suborder (Locita *et al*., 2018). Meanwhile, ultisol soil is an old soil that experiences intensive leaching, the topsoil is thin, fertility is low and the soil experiences a lot of degradation. Ultisol has problems with soil acidity, organic matter, macronutrients and low P availability (Lubis *et al*., 2023). Even though ultisol soil is identified as infertile soil, this land can be used for potential agricultural land if management is carried out that takes into account the constraints on ultisols. Ultisol soils are divided into several great groups, one of which is hapldults. Hapludults are a great group of the inceptisol soil order with the udult suborder (Locita *et al*., 2018).

The land unit in Rimbo Pengadang District is dominated by Vab.1.4.1, this land unit is a group of hills and mountains with a slope <16%, and the parent material comes from andesitic tuff. The types of soil that develop in this subdistrict are inceptisol (82.6%) and ultisol (17%). The population in this sub-district is 5,183 people. Looking at the condition of the area around the slopes and valleys, it can be seen that most of the population relies on the agricultural and plantation sectors for their livelihoods

Table 1. Distribution of soil types in Rimbo Pengadang District

Land units	Dominant Great Group	Great Group Association	Land area	
			ha	%
Vab.1.4.1	*Dystrandepts*	*Dystrandepts. Dystropepts. Humitropepts*	7263.69	33.21
Mab.2.1.2	*Dystrandepts*	*Dystrandepts. Hapludults. Haplohumults. Humitropepts*	3566.9	16.31
Mfq.2.2.3	*Dystropepts*	*Dystropepts. Hapludults*	3530.34	16.14
Hab.1.2.2	*Dystropepts*	*Dystropepts. Humitropepts. Eutropepts*	2606.48	11.92
Mab 2.2.2	*Dystropepts*	*Dystropepts. Haplohumults. Humitropepts. Hapludox*	2198.79	10.05
Mq.2.3.3	*Dystropepts*	*Dystropepts. Hapludox. Humitropepts*	1692.9	7.74
Af.4.1.1	*Tropaquepts*	*Tropaquepts. Eutropepts*	624.13	2.85
Au.2.4.2	*Dystropepts*	*Dystropepts. Humitropepts. Tropaquepts*	249.42	1.14
Ma 2.3.4	*Tropaquepts*	*Tropaquepts. Eutropepts. Tropofluvents*	141.94	0.65
	TOTAL		21874.6	100

Source : Land unit map sheet 0912 (Bengkulu) scale 1:110,000

with the main source of income coming from coffee plants. Apart from coffee, people in Rimbo Pengadang District also cultivate secondary crops, such as corn, peanuts, cassava, and sweet potatoes. However, several farmers have developed nutmeg plants, even on a small scale, and consume the results themselves.

Topos District administratively borders several areas such as the Kerinci Sebelat National Park Forest (TNKS), Rimbo Pengadang District, South Sumatra Province, and Lebong Sakti District. Topos District is dominated by forest areas amounting to 2/3 of the area. Therefore, the location of villages is generally in valleys and directly adjacent to forests. Apart from that, Topos District is also traversed by large rivers flowing every year which makes Topos District a fertile area. Geographically, Topos District is located at 1020 22' - 1020¬30' East Longitude and 3¬03'20' - 3¬017' South Latitude. The area of Topos District is 16409.78 hectares (ha) which is divided into 8 villages, namely, Talang Donok, Talang Donok I, Talang Baru I and II, Suka Negeri, Ajai Siang, and Tik Sirong. The topography of the area is hilly, undulating, and dominated by steep slopes. Topos District is dominated by land unit Ma 2.3.4 which is a mountainous physiographic group with very varied soil-forming materials, namely sedimentary rocks (fine and coarse), acid breakthrough rocks, with soil characteristics that have a fine to coarse texture, good drainage, soil fertility low, and has steep to very steep land slopes. The type of soil that develops in this district is dominated by inceptisol soil which has several great groups, one of which is dystropepts and tropaquepts, with the greater percentage being the great group dystropepts.

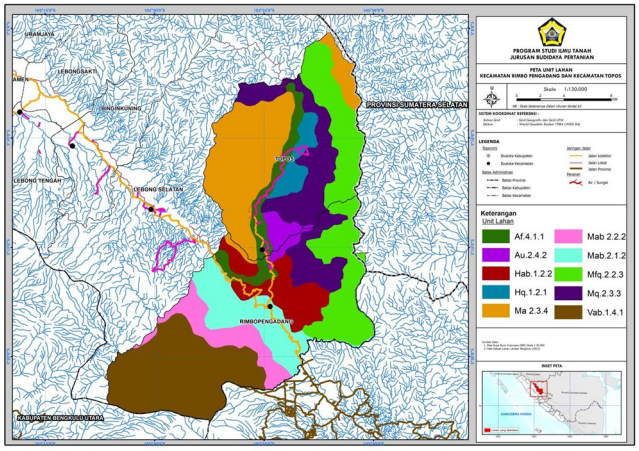

Figure 2. Land units map

The population in Topos District in 2020 was 6,435 people or 6.05 percent of the total population of Lebong Regency as a whole. The people of Topos District generally work in the agricultural sector, the main source of income for the majority of the people is farming. The main commodities found in this area are coffee and rice. The agricultural sector in the Topos District is still relatively homogeneous. Because most people tend to grow coffee and rice. However, apart from that, the people of Topos District also plant secondary crops, vegetables, and fruit such as corn, chilies, ginger, turmeric, and oranges. The agricultural sector in this area provides extensive employment opportunities for the community to be able to manage natural resources and land that is still not managed in the Topos and Rimbo Pengadang Districts.

Land characteristics are land properties that can be measured and predicted, for example slope slope, rainfall, soil texture, soil drainage, and vegetation (FAO 1976 *In* Sahetapy, 2009). Furthermore, land characteristics are also parameters that can be used to assess land suitability for certain crops. Evaluation of land suitability can be carried out by assessing the growing requirements of the plants being cultivated and the management actions required. In general, land characteristics consist of climate, rooting media, nutrient retention, land preparation, and erosion potential. Climate is the main growing condition for a plant whose characteristics tend to be irreparable. Climatic factors that influence plants and are observed in this study consis of rainfall (mm year^{-1}), temperature (°C), and humidity (%). This data is taken from climatology stations which are then added up to determine the amount of rainfall in a year. Rainfall data for the last 5 years in the two sub-districts observed shows differences, Rimbo Pengadang Sub-district has an average rainfall of 2,894.8 mm year^{-1} while Topos Sub-district has an average rainfall of 3,811.8 mm year^{-1}. The average temperature in these two sub-districts is 26.7 °C and humidity is 90 – 95%.

Fulfilled nutrient needs in plants can make plants easily absorb nutrients through the roots from the soil. Good soil as a plant rooting medium has several requirements, consisting of soil texture, soil drainage, and effective soil depth. However, in land evaluation there are limiting factors, soil texture and effective depth are among the limiting factors that cannot be improved, while soil drainage can still be improved.

Table 2. Distribution of soil types in Topos District

Land units	Dominant Great Group	Great Group Association	Land area	
			ha	%
Ma 2.3.4	*Dystropepts*	*Dystropepts. Eutrandepts. Humitropepts*	6634.16	40.43
Mq.2.3.3	*Dystropepts*	*Dystropepts. Hapludox. Humitropepts*	3405.74	20.75
Mfq.2.2.3	*Dystropepts*	*Dystropepts. Hapludults*	3266.78	19.91
Af.4.1.1	*Tropaquepts*	*Tropaquepts. Eutropepts*	1386.37	8.45
Hq.1.2.1	*Dystropepts*	*Dystropepts. Kandiudox. Humitropepts*	1120.36	6.83
Au.2.4.2	*Dystropepts*	*Dystropepts. Humitropepts. Tropaquepts*	596.37	3.63
	TOTAL		16409.78	100

Source : Land unit map sheet 0912 (Bengkulu) scale 1:110,000

The soil texture in the research area consists of fine (clay) and slightly coarse (sandy loam) which are included in classes S1 and S2. According to Hanafiah *In* Jadid, 2015), texture class will influence plant growth, especially roots, soil that has a combination of clay and sandy texture is a good texture for plant growth. Soil drainage conditions at the research location are generally classified as good, only in some SSTs which are classified as poor, drainage conditions will affect plant growth. For the effective soil depth, all SPLs have an effective depth of > 90 cm, with the deepest reaching a depth of 145 cm .

The chemical properties of the soil that were observed were the nutrient retention and nutrient availability factors, namely pH, CEC, C-organic, and N-total. This data was obtained from the results of laboratory analysis, while the data on P-available and K-interchangeable nutrient availability were obtained from land unit information. on map sheet 0912 (Bengkulu). The first nutrient retention factor is pH. The pH in Rimbo Pengadang District and Topos District ranges from 4 - 7. One of the factors that determines the ability of plants to absorb nutrients is the level of nutrient availability which is influenced by the level of soil acidity (Marschner, 2012). The next nutrient retention factor is CEC, the results of the analysis show that the CEC value in Rimbo Pengadang District and Topos District is in the S1 and S2 classes, namely (9.75 – 34.94 me 100 g^{-1}), CEC can absorb nutrients and provide nutrients for plants. Soil texture and organic matter content can influence the CEC value, soil texture with clay content and high organic matter content has a higher CEC than soil with low organic matter content or sandy soil (Soewandita, 2008b). The nutrient availability factor observed was N-total, in the land units observed the N-total value was included in classes S1 and S2. Variations in total N content in soil occur due to changes in topography, climate, and slope (Yuliani *et al*., 2017). P -available in land units is low, according to the opinion of (Prasetyo & Suriadikarta, 2006) which states that the P-available content in inceptisol and ultisol soils is low, ranging from <10 ppm. Meanwhile, the K-dd values at the research location are dominated by S1 and S2 classes, this is because the clay-textured soil can bind high levels of potassium (Ariawan *et al*., 2016)). The slope class in Rimbo Pengadang and Topos District is dominated by the slope class of 25-45% falling into the steep category with the land area in Rimbo Pengadang District covering 9,528.32 ha (43.56%) while in Topos District covering an area of 9,174.31 ha (55.90%).

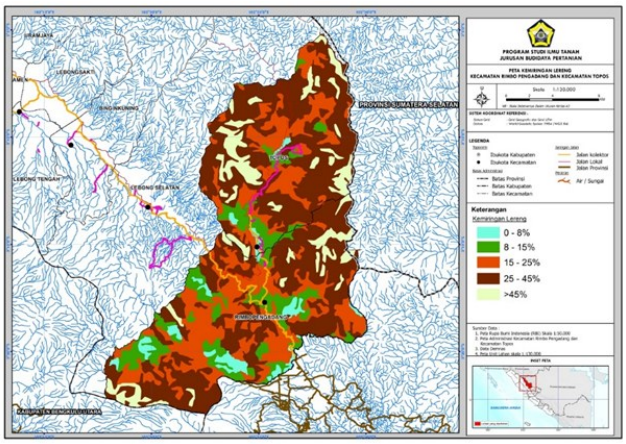

Figure 3. Slope Map of Rimbo Pengadang and Topos District

Table 3. Distribution of Slope Classes in Rimbo Pengadang District

Slope (%)	Slope class	Land form	Land area	
			ha	%
0 – 8	1	Flat	1119.76	5.12
8 – 15	2	sloping	3138.84	14.35
15 – 25	3	A bit steep	6754.14	30.88
25 – 45	4	Steep	9528.32	43.56
>45	5	Very steep	1333.02	6.09
Total			21874.08	100

Source: Land slope map of Rimbo Pengadang District, scale 1:130,000 and field survey

Table 4. Distribution of slope classes in Topos District

Slope (%)	Slope class	Land form	Land area	
			ha	%
0 – 8	1	Datar	238,09	1,45
8 – 15	2	Landai	1167,45	7,11
15 – 25	3	Agak Curam	3679,18	22,42
25 – 45	4	Curam	9174,31	55,9
>45	5	Sangat Curam	2151,73	13,11
Total			16410,76	100

Source: Topos District land slope map scale 1:130,000 and field survey

The slope of the slope is one of the factors that must be considered for developing agricultural areas because the slope of the slope will influence the level of danger of erosion and landslides. In line with this, Barus *et al*. (2011) stated that land slope class has a relationship with nutmeg productivity. The land characteristics needed for nutmeg plants to produce optimally are at an altitude of around 50-1,282 meters above sea level and the topography is heavy with an average slope of 25-45% or falls into the steep and very steep slope class (Parliansyah *et al*., 2019)..

Based on the results of data analysis, it is known that Rimbo Pengadang District and Topos District have 43 land map units (SPL). The most dominant SPL is SPL 35 with an area of 4,127.52 ha. This SPL is located in land unit Mfq.2.3.3 with a slope of 25-45% in the steep category. Meanwhile, the SPL with the smallest total area is SPL 40 with an area of 22.41 ha. This SPL is in land unit Mab.2.2.2 with a slope of >45% in the very steep category.

The actual land suitability of nutmeg plants in Rimbo Pengadang District and Topos District refers to the level of suitability of the land for nutmeg cultivation based on its biophysical properties. This assessment considers factors such as soil quality and climate conditions relevant to nutmeg cultivation. Land suitability assessment entails evaluating various limiting factors including water availability, nutrient retention, nutrient availability, and erosion

hazard. These factors help determine the suitability of the land for nutmeg cultivation and inform decisions regarding necessary inputs to address any obstacles. Observations of the actual land suitability classes reveal different categories within land map units (SPL). These categories include S3na, S3na eh, S3rc, S3eh, S3rc eh, S2wa nr na, S2wa nr na eh, and N. These categories represent varying degrees of suitability, ranging from quite suitable to unsuitable, based on factors such as nutrient availability, erosion hazard, and water availability.

The largest area within SPL is classified as S3eh, covering 14460.93 hectares (37.77%), indicating suitability with limitations related to erosion hazard. Other categories include S3na eh (14175.10 ha, 37.07%) with limitations for nutrient availability and erosion hazard, S3na (2592.64 ha, 6.77%) with limitations for nutrient availability, and S2wa nr na eh (2044.04 ha, 5.34%) with limitations for water availability, nutrient retention, nutrient availability, and erosion hazard.

Additionally, categories such as S3rc eh (499.43 ha, 1.30%) and S3rc (346.35 ha, 0.90%) have limitations related to rooting media and erosion hazard. Finally, category N (3484.74 ha, 9.10%) indicates areas deemed unsuitable for nutmeg cultivation. The actual land suitability map, depicted in Figure 2, visually represents these findings. The actual land suitability map is provided in Figure 4.

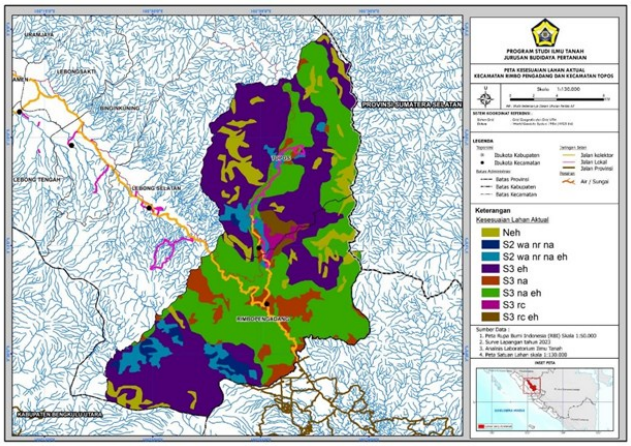

Figure 4. Actual land suitability map in Rimbo Pengadang and Topos District

The suitability of potential land for nutmeg plants in Rimbo Pengadang and Topos District refers to the suitability that can be achieved after efforts have been made to improve the land characteristics (Mubekti, 2016). The assessment of potential land suitability aims to identify areas where existing limiting factors can be addressed to enhance land suitability.

The analysis of potential land suitability indicates that improvements can be made to the existing limiting factors, thereby enhancing land suitability. In this research area, potential land suitability classes are primarily represented by class S1, covering an area of 17,186.07 hectares (44.89%), followed by class S2 with 16,767.80 hectares (43.80%), S3rc with 845.79 hectares (2.21%), and S3 with 3,484.74 hectares (9.10%).

Farmers are encouraged to implement improvement efforts to transform actual land into potential land by addressing the limiting factors specific to each land unit. This may involve activities such as liming, fertilizing, adding organic material, and establishing suitable land cover (Rahmadini, 2021). The potential land suitability map is provided in Figure 5.

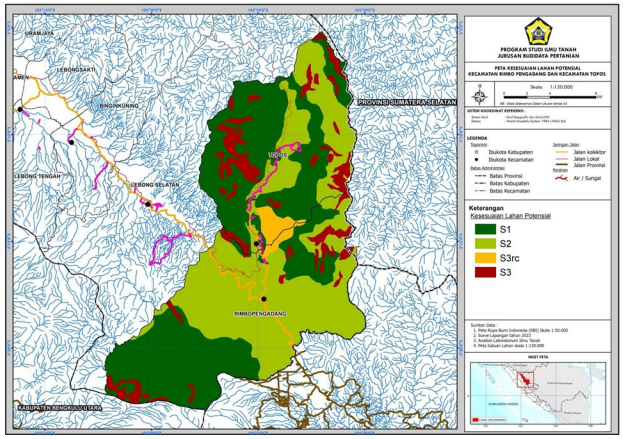

Figure 5. Potential land suitability map in Rimbo Pengadang and Topos District

The utilization of existing land in Rimbo Pengadang District and Topos District reveals two distinct areas: other use areas (APL) and protected forests (HL). The APL covers a total area of 25,797.51 hectares and encompasses secondary forests, mixed dry land agriculture, open land, settlements, rice fields, and shrubs. In contrast, the protected forest area spans 12,486.83 hectares and primarily consists of primary dryland forest. These sub-districts are predominantly characterized by plantation areas, specifically designated for coffee and seasonal crops. Additional land use categories include residential areas, open land, rice fields, and bushes.

Field observations indicate instances of land conversion within protected areas, driven by illegal logging and agricultural activities. This phenomenon contributes to land degradation within Rimbo Pengadang and Topos sub-districts, posing environmental risks with potential adverse effects on human life.

Land degradation, characterized by a decline in environmental quality, is often attributed to human activities such as land conversion and the degradation of critical land.

Critical land, defined as land unsuitable for its intended use due to physical, chemical, and biological damage, poses significant challenges, impacting hydrological, socio-economic, agricultural, and residential functions. Moreover, it can exacerbate environmental issues such as erosion, landslides, sedimentation, and flooding, affecting both upstream and downstream areas.

To mitigate the impact of land degradation, the cultivation of nutmeg plants is recommended using an agroforestry approach in Rimbo Pengadang and Topos sub-districts. This strategy aims to optimize land use while minimizing environmental degradation.

Changes in land use patterns are closely tied to population growth, directly influencing the demand for land. With improved land suitability resulting from enhancement efforts, nutmeg cultivation emerges as a viable option for development in Rimbo Pengadang and Topos Districts. Suitable land use categories for nutmeg cultivation include secondary forests, open land, mixed gardens, and shrubs.

However, it's crucial to note that land with a slope exceeding 45% within SPL should not be utilized for agricultural purposes due to its susceptibility to erosion and other risks. If nutmeg cultivation is deemed necessary in such areas, it must be managed with a conservation-minded approach. The potential land use map, depicted in Figure 6.

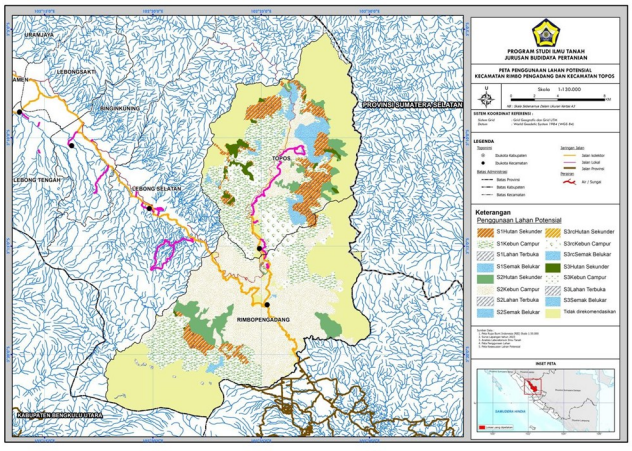

Figure 6. Potential land use map

The analysis of the financial feasibility of farming businesses in Rimbo Pengadang District and Topos District is crucial in determining the viability and potential benefits of such ventures (Putri & Sungkawa, 2021). This assessment aims to evaluate whether the nutmeg farming business is economically feasible for further expansion in these districts. Financial feasibility is determined by calculating metrics such as the Benefit-Cost (B/C) ratio, total farming revenue, production costs, and profits (Sajari, 2017).

One key determinant of farming business success is the allocation of production inputs. In nutmeg farming, these inputs include fertilizers, seeds, fungicides, herbicides, insecticides, equipment depreciation, land tax, and labor. The analysis of farming feasibility based on 10 nutmeg plants in Rimbo Pengdang and Topos sub-districts yielded a total of 10 kg of nutmeg and 2 kg of mace, generating revenues of IDR 940,000 per 10 plants, with an average production cost of IDR 69,025. This results in a profit of IDR 870,975 per 10 plants per month. Extrapolating to a yearly basis, the production reaches 120 kg of nutmeg and 24 kg of mace, generating a total revenue of IDR 11,280,000 annually. With the B/C ratio calculated at 12.6, the business appears financially viable.

Comparing these farming businesses to those in Air Lanang Village, South Curup Regency, where 5 respondents reported producing 48 kg of nutmeg and 10.5 kg of mace per month from 24 plants, the financial performance is favorable. With total revenues of IDR 4,950,000 and average production costs of IDR 193,608, the profit per 24 plants amounts to IDR 4,756,392, resulting in a B/C ratio of 24.5.

Farming activities in Rimbo Pengadang and Topos sub-districts are currently conducted on a small scale or as supplementary crops. However, with proper cultivation practices such as appropriate spacing, fertilization, and maintenance, it is believed that nutmeg plants can significantly increase production. For instance, one hectare of land with a planting distance of 10 m x 10 m can accommodate 100 nutmeg trees and yield 2000 kg of nutmeg per hectare. With potential earnings reaching IDR 110,000,000 per hectare, the scalability and profitability of this farming venture are promising for further development.

CONCLUSION

The actual land suitability class for nutmeg in Rimbo Pengadang District and Topos District with the highest class is S3eh 14460.93 ha (37.77%) with a limiting factor for erosion hazard, S3na eh with an area of 14175.10 ha (37.07%) has limiting factors in nutrient availability and erosion hazards, S3na with an area of 2592.64 ha (6.77%) has to limit factors in

nutrient availability, S2wa nr na eh with an area of 2044.04 ha (5.34%) has limiting factors in water availability, nutrient retention, nutrient availability and erosion hazard, S3rc eh with an area of 499.43 ha (1.30%) has a limiting factor for rooting media and erosion hazard, S3rc with an area of 346.35 ha (0.90%) has a media limiting factor roots, and finally N (not suitable) with an area of 3484.74 ha (9.10%). The potential land suitability results are class S1 with an area of 17,186.07 ha (44.89%), class S2 with an area of 16,767.80 ha (43.80%), S3rc with an area of 845.79 ha (2.21%) and S3 with an area of 3,484.74 ha (9.10%). As well as land that has the potential to develop nutmeg plants in Rimbo Pengadang District and Topos District, Lebong Regency, consisting of secondary forests, mixed gardens, open land, and bushes. The existing condition of Rimbo Pengadang and Topos Districts is that SPL which has a slope of more than 45% should not be used for agricultural cultivation. However, if it is necessary for the development of nutmeg plants, it must be managed in a conservation manner.

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