1. Introduction

Agroforestry is a system of integrated land use that combines trees with crops and livestock (animals) that are carried out either jointly or in rotation to produce from optimal and sustainable land use. Agroforestry is a land management system offered to overcome problems that arise due to inappropriate land use and at the same time address food problems [1]. Along with the population increase, the demand increases for food, agricultural, and non-agricultural products have also increased and will continue in the future.

The existence of this agroforestry system has started to be developed and managed by the community to produce timber and food for increasing welfare. However, the ever-increasing land use and the alleged error in choosing plant species have resulted in problems in its development. Errors in the selection of plant species can cause harms because not all types of plants can grow well on land if it is not known the level of suitability of the land [2]. This needs to be supported by ensuring that the plant is planted on land that meets the growing requirements [3].

Based on this case, the application of agroforestry needs to be approached in terms of land evaluation. Land suitability evaluation is comparing requirements requested by the type of land use applied, with the properties or quality of land owned by the land used. In this way, the potential of the
land or class of land suitability/land capability will be known for certain types of land use[4]. Land evaluation is a process in estimating the potential of land for specific uses both for agriculture and non-agriculture. Utilize land appropriately and sustainably and to avoid the risk of decreasing land productivity, a land suitability evaluation approach is needed [5].

The North Toraja community has long been doing traditional agricultural practices, including *agroforestry* practices. The Toraja community, especially the community in Pangli sub-district, is one of the areas in North Toraja Regency that applies *agroforestry* systems to fulfill their needs. However, due to the lack of community information in Pangli sub-district regarding *agroforestry* practices and the suitability in selecting suitable crops planted on land, this is the background of this research to provide information on evaluating the suitability of *agroforestry* components in Pangli Sub-District, Sesean District, North Toraja Regency.

2. Material and methods

This research was conducted from March to April 2018. This research was carried out through two stages of activity, namely field activities, and laboratory analysis.

The tools used in this research were GPS, neat rope, roll meter, tape meter, guard meter, hoes, shovels, clear plastic, label paper, cameras, laboratory instruments and tables of quality and characteristics of the land. The materials used in this study were climate data, soil samples for analysis in the laboratory, and laboratory materials for soil analysis.

2.1. Preparation stage

The preparation stage involved collecting data related to research, such as literature review, completing the tools to be used in research, carrying out preliminary surveys to ascertain locations that apply agroforestry patterns and presenting climate data taken from the Meteorology and Climatology Agency.

2.2. Observation and sampling of land in the field stage

The observations made in the field were observing soil characteristics and land sampling. Placement of the planting plot was placed in a location that applies an *agroforestry* system that had quite diverse types of plants. Land Sampling was carried out in a composite manner to assess the chemical and physical properties of the soil. Soil characteristics observed in this research were slope, drainage, soil depth, surface rock, rock outcrop, texture, cation exchange capacity, pH, total N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O. The plots made on the field were 50 m x 20 m. Then the soil sample was taken at several points, 5 points. Placement of each point was in the corner of the plot, and one point was in the middle of the plot or diagonally (Figure 1). Soil samples were taken at these five points with hoes and soil drills, with a plot size of 1 m x 1 m and each depth of 0-30 cm and 30-60 cm, while for profiling the soil was made with a size of 100 cm x 100 cm x 150 cm or up to the parent material layer. Making a profile of this land was in the middle of the plot. Then the soil samples that have been taken were composited and put into clear plastic for soil analysis in the laboratory.

![Figure 1. Land Sampling Model](image-url)
2.3. Laboratory analysis stage
Laboratory analysis was done by analyzing soil samples that have been taken while in the field. The soil was then analyzed at the Silviculture and Tree Physiology Laboratory of the Faculty of Forestry and the Laboratory of Chemical and Soil Fertility, Faculty of Agriculture, Hasanuddin University to determine the chemical and physical properties of the soil.

2.4. Final stage
Based on land characteristics data obtained from the results of field observations in the field and analysis in the laboratory, a land suitability class assessment was conducted. The land suitability class was composed of various criteria observed in the field and also from the concept of land suitability criteria that had been developed. After that, a land suitability evaluation was carried out by using a matching method (Matching) between the land characteristics data that had been determined with the criteria for growing plants.

3. Results and discussion

3.1. Description of research location
The research location was Pangli Sub-district, which is geographically located at the coordinates of 02°55'22.7 "South-Latitude and 119°56'18.5" East Longitude. Pangli sub-district has an altitude of 867 mdpI with a sloping /rough topography with high rainfall, which is an average of 422.5 mm/year and an average temperature of 21.5°C. The soil characteristics have ultisol soil type with acidic pH and rather smooth texture. The location of this research applies agroforestry systems with the composition of plant species, namely robusta coffee, cacao, banana, mangosteen, waste, sugar palm, being bamboo, and Elmerilla Ovalis (Uru), with the number of plants in one plot was 54 plants. Where the planting pattern applied to the research location was random patterns.

3.2. The climate condition of research location
Rainfall in the research location was obtained from the climatology station. The data was the monthly rainfall data for the last ten years (2008 - 2017) at the nearest rainfall gauge station to the research location. From the results of the calculation, it can be seen that the average rainfall in the research location was 422.5 mm/year.

The air temperature at the research location can be determined by estimating it based on the height of the place from the sea surface. The average air temperature can be calculated using the Braak formula (1928) 26.3°C - (0.01 x elevation in meters x 0.6°C), where the height of the research location was 876 m above sea-level, so the average temperature annual average was 21.05°C.

3.3. Land characteristic of research location
The quality of land is the land characters that cannot be directly measured because it is an interaction of several characteristics of the land which has a real influence on land suitability for specific uses [4]. The characteristics of land are the nature of the land that can be measured or estimated. They are used to evaluate land for individual commodities [6]. Land characteristics data in the research locations measured for land suitability are presented in Table 1.

| Land Use Requirements / Land Characteristics | Data Number |
|---------------------------------------------|-------------|
| Temperature Regime (t)                      |             |
| 1. Year temperature (°C)                    | 21.05°C     |
| Water availability (w)                      |             |
| 1. Dry Moon (~75 mm)                        | 2,3 Month   |
| 2. Annual rainfall (mm)                     | 4222,5 mm/year |
Land Use Requirements / Land Characteristics

| Data Number |
|-------------|
| Rooting Media (r) |
| 1. Drainage Good |
| 2. Texture SCL (Sandy clay) 143 cm |
| 3. Effective Depth (cm) |

Nutrient Retention (f)

| Data Number |
|-------------|
| 1. KTK 28,63 and 26,84 (High) |
| 2. Ph 5,37 and 5,35 |

Nutrient Availability (n)

| Data Number |
|-------------|
| 1. N total 0,32% dan 0,29% (Average) 20,7ppm dan 21,7ppm (High) |
| 2. P₂O₅ is available 0,45 me/100gr dan 0,36 me/100gr (Average) |
| 3. K₂O is available |

Terrain (s)

| Data Number |
|-------------|
| 1. Land Slope (%) 13.5% |
| 2. Surface rocks 0 |
| 3. Rock Outcrop 0 |

Based on the land characteristics table of research location can be determined the characteristics/quality of land found in Pangli sub-district, both those observed in the field and analyzed in the laboratory, which was then used to assess land suitability. Land quality in the table includes temperature regimes, water availability, root media, nutrient retention, nutrient availability, and terrain or mechanization.

Temperature Regime, quality of land where annual temperatures were characteristic of the land. In the table above, it can be seen that the annual temperature in Pangli Village is 21.05°C. The annual temperature was thought to be based on the height of the place with the Braak formula with an altitude of 876 m above sea level.

The availability of water is the quality of land that has two land characteristics, namely dry month (<75 mm) and annual rainfall (mm). Dry month data was obtained from rainfall for the last ten years, which amounted to <75 mm/month. From the calculation of the dry month, the number <75 mm can be seen the number of dry months (<75 mm) in Pangli sub-district, which was 2.3 months. Bey and Las (1991) state that rainfall is a climate element that plays the most significant role in determining the productivity level of a plant. Whereas for the value of annual rainfall, in Table 1, it can be seen that the annual average rainfall in the study site was 4222.5 mm/yr.

Root media, land quality consisting of land characteristics, namely drainage in the research location as in Table 1, which was good. Soil drainage in the research location can be seen in the condition, namely the presence or absence of stagnant water or the presence or absence of gray or rusty spots on the soil layer of the research land. Soil texture shows the relative ratio of three groups of particles in a soil mass, namely sand, dust, and clay [7]. Based on the results of the soil analysis in the laboratory at the research location, the percentage value can be seen. The percentage values of the three fractions are presented in Table 2.

| Table 2. The percentage value of soil fraction |
|---|---|---|---|
| No. | Dust % | Clay % | Sand % |
| 1   | 41.45 | 54.10 | 4.44 |
| 2   | 30.05 | 53.32 | 16.63 |
The table above is the soil analysis result from the research location using the hydrometer method. Based on the table above, it is known that the values for % dust, % clay and % sand from 0-30 cm depth were 41.45%, 54.10%, and 4.44% respectively, while those in the 30-60 cm layer were 30.05%, 53.32%, and 16.63% respectively. From the results above we can find out the texture of the soil using a texture triangle, which has a Sandy Clay Loam (SCL) texture.

The sufficient depth at the research location can be determined by making a soil profile to what extent the roots penetrate the soil [4]. Based on table 1, the observation results in the field show that the sufficient depth of the research location is 143 cm. The sufficient depth of the research location according to [8] is classified as depth, namely Deep (≥ 75 cm). This depth can support plants well because the roots can grow to 143 cm depth.

The Nutrient retention is the quality of land determined by land characteristics Cation Exchange Capacity (CEC) based on the results of CEC value analysis in table 1; it is known that its value was 28.63 me/100 gr - 26.84 me/100 gr of 2 depths of 30 cm and 60 cm. Both depths had CEC values that were not much different based on the CEC class classification, according to [9]. It can be seen that the land at the research location had CEC values that belong to the high class. The value of healthy soil CEC determines the level of soil fertility. pH is one of the critical parameters of a plant that can grow or not. The soil pH content in the research location was based on table 1 of two depths of 5.37 and 5.35. Classification of the soil pH content included a sour classification [8].

Plants in large quantities need the availability of land nutrient quality with the characteristics of the land, namely N total Nitrogen, generally being a limiting factor in lands that are not fertilized. Fosfor is one of the macro elements that are very important for plant growth, but its levels in plants are lower than N and K. In general, potassium is absorbed by plants in the form of K+ and is found in various levels in the soil. Based on the analysis in the laboratory, it can be seen that the total N value in the research location were 0.32% and 0.29% based on calculations from Kjeldahl. Total N class classification according to CSR/FAO, 1983 which is N with average total P2O5 value is available based on the results of the analysis in table 10 which were 20.7 ppm and 21.1 ppm and is included in the High category. While for K2O available the results of soil analysis in the research location were 0.45 me/100 gr and 0.36 me/100 gr, where the class criteria of K2O is medium.

Terrain or mechanization potential, land quality consisting of slope characteristics, the size of the slope determines the ease of cultivation of land. Based on the results of observations at the research location, it was found that the slope was 13.5%. Surface rocks and outcrops based on observations in the field can know that there were no or few rocks or the value was 0 which means that it covered less than 0.01% - 0.1% of the surface area. The condition of rock consisting of surface rocks and outcrops is an aspect that affects management and plant growth [7].

3.4. Evaluation of land suitability
Evaluation Land suitability evaluation is carried out by using matching methods, namely comparing the characteristics/quality of land with the requirements for growing plants evaluated [8]. The types of plants evaluated include sugar palm, cacao, robusta coffee, bananas, mangosteen, mountain cypress (waste), forest Cempaka (Uru), and bamboo. Land suitability assessment was carried out through two stages, which were assessed for current conditions (actual land suitability) and after made improvements (potential land suitability) [10]. The evaluation results of actual and potential land suitability in Pangli sub-district are presented in Table 3 and Table 4.
Table 3. Results of Actual Land Suitability Assessment

| Land Suitability Parameters | Characteristics of Research Location | Growing Requirements |
|-----------------------------|--------------------------------------|-----------------------|
| Temperature Regime (t)      | 21,05 °C                             | Robusta coffee        |
| 1. Annual temperature (°C) |                                     | Caca o                |
| Water availability (w)      | 2,3 months                           | Banana                |
| 1. Dry Moon (<75 mm)       |                                     | Mango steen           |
| 2. Annual Rainfall (mm)    | 4222,5 mm/year                       | Buangin               |
| Rooting Media (r)          | Good                                 | Sugar palm            |
| 1. Drainage                | SCL                                  | Dendrocalamus asper   |
| 2. Texture                 | 143 cm                               | Elmer illa Ovalis     |
| 3. Effective Depth (cm)    |                                     |                       |
| Nutrient Retention (f)     | High                                 |                       |
| 1. CEC                     | S1                                   |                       |
| 2. pH                      | 5,37 and 5,35                        |                       |
| Nutrient Availability (n)  | Medium                               |                       |
| 1. N Total                 | S1                                   |                       |
| 2. P₂O₅ is available       | S1                                   |                       |
| 3. K₂O is available        | S1                                   |                       |
| Terrain (s)                | 13,5 %                               |                       |
| 1. Land Slope (%)          | S2                                   |                       |
| 2. Surface rocks           | S2                                   |                       |
| 3. Rock Outcrop            | S1                                   |                       |
| Actual Land Suitability    | S2wrf s                             | S2turf s              |
|                            | S3wr s                              | S3tw s                |
|                            | S3w                                 | S2w s                 |
|                            | S2w f s                             | S2tws s               |
|                            | S3ws                                |                       |
### Table 4. Results of Potential Land Suitability Assessment

| Land Suitability Parameters | Characteristics of Research Location | Growing Requirements |
|-----------------------------|--------------------------------------|---------------------|
|                             | Robusta coffee | Cacao | Banana | Mango | Buangin | Sugarpalm | Dendrocopalmus asper | Elmerilla Ovalis |
| Temperature Regime (t)      | 21.05 °C       | S1    | S2     | S3    | S1      | S1        | S2               | S1               |
| 1. Annual temperature (°C) |                       |       |        |       |         |           |                  |                  |
| Water availability (w)     | 2.3 month       | S1    | S2     | S3    | -       | S1        | -                | S1               |
| 1. Dry Moon (<75 mm)       |                       |       |        |       |         |           |                  |                  |
| 2. Annual Rainfall (mm/year)| 4222.5          | S2    | S2     | S1    | S3      | S2        | S2               | S2               |
| Rooting Media (r)          | Good             | S1    | S1     | S1    | S1      | S1        | S1               | S1               |
| 1. Drainage               | SCL               | S1    | S1     | S1    | S1      | S1        | S1               | S1               |
| 2. Texture                | 143 cm           | S2    | S2     | S1    | S1      | S1        | S1               | S1               |
| 3. Effective Depth (cm)   |                   |       |        |       |         |           |                  |                  |
| Nutrient Retention (f)     | High              | S1    | S1     | S1    | S1      | -         | -                | -                |
| 1. CEC                     | 5.37 and 5.35    | S1    | S1     | S1    | S1      | -         | -                | -                |
| 2. pH                      |                   |       |        |       |         |           |                  |                  |
| Nutrient Availability (n)  | Medium            | S1    | S1     | S1    | S1      | -         | -                | -                |
| 1. N Total                |                   |       |        |       |         |           |                  |                  |
| 2. P₂O₅ is available      | High              | S1    | S1     | S1    | S1      | -         | -                | -                |
| 3. K₂O is available       | Medium            | S1    | S1     | S1    | S1      | -         | -                | -                |
| Terrain (s)                |                   |       |        |       |         |           |                  |                  |
| 1. Land Slope (%)         | 21.25 %           | S1    | S1     | S1    | S1      | S1        | S2               | S1               |
| 2. Surface rocks          | 0                 | S1    | S1     | S1    | S1      | S1        | -                | -                |
| 3. Rock Outcrop           | 0                 | S1    | S1     | S1    | S1      | S1        | -                | -                |
| Kesesaian Lahan Potensial | S2wr              | S2tw  | S3tw   | S3w   | S2w     | S2w       | S2w              | S2w              |

#### 3.5. Evaluation of the suitability of robusta coffee (Coffea canephora)

Based on the evaluation result of the suitability of Robusta coffee plantations in the study locations such as Table 3, the actual land suitability was obtained, including quite suitable (S2). The limiting factor of the suitability of robusta coffee plants, which has a significant effect is annual rainfall, where rainfall in the research location was 4222.5 mm/year. Whereas according to Mulyana, 1982, the best rainfall is an area that has optimal rainfall between 2000 to 3000 mm/year. This can also be seen from
the number of dry months at low research locations while coffee plants themselves need time to pollinate. This was also revealed by [11] that dry periods are critical because robusta coffee requires cross-pollination so that large amounts of rainfall are not needed by robusta coffee. The next limiting factor is the adequate depth, at the research location, the soil depth is 143 cm while the appropriate depth for coffee is >150 cm. Other study about character evaluation and selection of wheat crops under two stress conditions of high temperature and drought in natural condition is essential for obtaining tolerant genotype and knowing which characters will be affected[12].

Soil pH is the next factor, in the research locations, which were 5.36 and 5.37 but for the requirements for growing coffee, the most suitable pH is around 5.5 - 6.5. Although the pH in the location was not suitable, it is still quite suitable for planting Robusta coffee. The last factor is land slope based on Table 6, the land slope value at the research location was 13.5% while according to [13] . Robusta coffee plants will grow well in the slope range <8%. In order to improve land suitability, several improvements are needed to improve land quality.

The improvements to pH by increasing pH using chalk or the addition of organic matter, for the slope of the land can be carried out the fixing in the form of soil conservation measures such as making terraces and planting contour parallel. The suitability of potential coffee land remains S2 due to an adequate depth, and rainfall is a limiting factor that improvement efforts cannot be made at the research location.

3.6. Evaluation of cocoa land suitability (Theobroma cacao)

Based on the suitability evaluation results of the cocoa plantations, it can be seen that the actual land suitability is entirely appropriate (S2). The temperature regime factor is the annual temperature where the temperature of the research location was 21.05°C. While the most suitable temperature for cocoa is around 25 - 28°C. Low temperatures can affect flowering and leaf damage. This is also in line with [14] that temperatures that are too low can inhibit the formation of flowers and the development of cocoa plants. The next limiting factor is rainfall characteristics, where rainfall in the research location was 4222.5 mm/year. While the ideal rainfall for cocoa plants, according to [15] is around 1500 - 2500 mm/year. With this rainfall, it is thought that it can affect the production of cocoa plants. This is also in line with what [16] which states that excessive rainfall can crawl badly on cocoa, such as reducing radiation irradiation, reducing flowering and increasing the occurrence of rot in fruit cocoa (BBK) which can directly reduce fruit production. In addition to rainfall, the dry month is also a limiting factor because it has a dry month of 2.3 months while the cocoa plant grows according to the dry month of 1-2 months.

The other limiting factor is the sufficient depth, in the research location, the depth was 143 cm, but the appropriate one was >150 cm. Next factor is the soil pH, for the research location the pH values obtained were 5.37 and 5.35, but according to [4] the appropriate pH for cocoa plants was 5.5 - 6.5 and the last limiting factor is the slope of the land. The slope of the land that was in the location was 13.5%, but the slope of the land was suitable, which is <8%.

To improve land suitability several improvements are needed to improve land quality. The slope of the is done by conducting a business/soil conservation action, for example reducing the rate of erosion by making terraces, contour parallel planting, contour processing of soil, planting cover, et centra. However, the cocoa land suitability class is still S2, because of the limiting factors of temperature, rainfall, dry month, and root media where the above land characteristics cannot be repaired.

3.7. Banana field suitability evaluation (Musa acuminate)

Based on the results of the banana plant field suitability evaluation, it can be seen that the actual land suitability is following Marginal (S3). Annual temperature and dry month. Based on Table 3, the annual temperature is 21.05°C, whereas according to CSR/FAO (1983) the air temperature that is suitable for banana plants is 25°C - 27°C. This can occur because the altitude at the location of the study is 876 masl so that the resulting temperature is low so that the growth of banana plants is hampered. Banana plants that grow at temperatures below 15.5°C cause the development of stunted
banana leaves and late fruit ripening [17]. Then for the next limiting factor, which is the dry month where the dry month at the study site is 2.3 months, but the optimal dry month for banana plants is less than one month.

The suitability of the potential land for the banana plant remains in the S3 land suitability class because the temperature factor is very influential and it is challenging to be able to fix it so that it remains in the S3 class. Also, for the dry month, the temperature is difficult to be able to make repairs.

3.8. Buangin land suitability evaluation (casuarina junghuniana)
Based on the suitability evaluation results of the Buangin land, it can be seen that the actual land suitability is sufficient (S2). Water availability includes S2 because the rainfall was 4222.5 mm/year while rainfall is suitable for Buangin. Buangin plants can grow in areas that have rainfall from 700 to 2000 mm/year [18], but according to Indonesia Eagle, the nature of cypress mountain is able to survive in prolonged puddles and adverse weather conditions. The next limiting factor is the slope of the land with a value of 13.5% or wavy. Whereas the corresponding one is <8%.

To improve land suitability to be a potential land suitability improvement needs. Land characteristics in the form of the land slope can be made improvements in the form of making terraces, planting contours parallel, and planting cover crops. Whereas for the rainfall it cannot be carried out repair efforts so that the class of buangin land suitability remains S2.

3.9. Sugar palm suitability evaluation (Arenga pinnata)
Based on the evaluation results of sugar palm plants land suitability, it can be seen that the actual land suitability is following Marginal (S2). Rainfall was 4222.5 mm/year, while according to [19] sugar palm plants are very suitable to be planted in rainfall between 1200 - 3500 mm/yr. Rainfall in the research location was high, so it was thought that it could inhibit the flowering and fruiting period of the sugar palm. [19] states that the formation of plant crowns requires rainfall from 1200 to 3500 mm/year so that plant humidity can be maintained so that the precipitation is thought to be able to inhibit crown formation. The mean factor is soil pH, where the soil pH at the location was 5.37 and 5.36, but the appropriate pH for sugar palm was 5.5 - 6.5. The following factors were land slope, which was 13.5%, sugar palm plants are very suitable to be planted on sloping land conditions [19]. Sugar palm plants could grow on various slope classes [20]. To improve land suitability need improvements in land quality. Improvements that can be made are liming to increase soil pH and planting parallel contours and terrace construction at the research location. Rainfall cannot make a repair effort so that the land suitability becomes S2.

3.10. Dendrocalamus asper suitability evaluation
Based on the suitability evaluation results of the Dendrocalamus asper plant, it can be seen that the actual land suitability is by the Marginal (S2). Temperature is one of the inhibiting factors for Dendrocalamus asper. Although the most optimum temperature for Dendrocalamus asper is 25 - 28°C, but these plants are still quite suitable to grow well at the site even though the temperature is 21.05 °C. The air temperature suitable for Dendrocalamus asper growth ranged from 8.8 - 36°C. The following limiting factors are the characterization of rainfall where the rainfall is 4222.5 mm/year while Betung bamboo plants can grow well with rainfall <2400 mm/year. This high rainfall for betung bamboo is less suitable because betung bamboo likes dry land. This was also revealed by [21] that Dendrocalamus asper is water-resistant so that if cultivated, it must be selected on dry land. The next inhibiting factor is the slope of the land, for the slope of the land at the location of 13.5% and for the slope of the land suitable for Dendrocalamus asper is <8%. However, based on [22] the need for the cultivation of bamboo plants, bamboo can grow in three topographic forms, from choppy, wavy, to mountainous.

To improve land suitability, improvements in land quality are needed. For the characteristics of land slope improvement efforts can be carried out, namely the application of a soil conservation system to deal with a land slope that is not suitable such as contour parallel planting. Also, there are other
limiting factors, including S2, namely annual temperature and rainfall, but both of which cannot be repaired so that the suitability of the potential land is quite suitable (S2).

3.11. Uru (Elemerillia ovalis) land suitability evaluation

Based on the suitability evaluation results of the forest Cempaka or uru land, the actual land suitability is sufficient (S2). Annual rainfall is one of the limiting factors because it has a relatively high rainfall, where uru rainfall according to land evaluation criteria has rainfall ranging from 1400 - 2600 mm/year. Rainfall is indeed considered to be inadequate, but according to [23] Uru is a plant that can live in moist soil. Next is the slope of the land, but the slope of the land for the uru to enter the S2 class is still suitable for planting.

In order to improve land suitability, improvements in land quality are needed. Improvements that can be made are the application of soil conservation systems such as adding cover crops, adding terrace reinforcement plants, and making terraces to prevent erosion. Rainfall is difficult to make an effort to repair so that the land suitability is still S2.

4. Conclusion

The types of constituent plants that make up the components of agroforestry in Pangli sub-district are coffee, cocoa, uru, banana, mangosteen, bamboo, and palm sugar. The land suitability class in Pangli sub-district is quite suitable class (S2) to suit marginal (S3). Plants that belong to the S2 class are coffee, cocoa, waste, sugar palm, bamboo and also uru, while for S3 classes are mangosteen and banana and for the suitability of their potential land are also the same, namely class S2 to S3 because there are limiting factors that cannot be fixed such as temperature, rainfall and dry months.

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