Research Title: Study on the Effects of Salt on Soil Quality in Coconut Gardens at Wichienmatu School, Mueang District, Trang Province**.**

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Abstract

Study of the effect of salt on soil quality the objective is to study the relationship between salt added to the soil and its effect on the quality of the soil in the area Wichienmatu School, Khok Lo Subdistrict, Mueang District, Trang Province by studying pH, temperature, humidity, minerals in the soil The result is The pH value of the soil before adding salt was approximately 5 and the main nutrients in the soil are an indicator of soil quality. The fertility value in the soil before adding salt had a low N (nitrogen) value, a very low P (phosphorus) value, and The K (potassium) value is very low. The humidity value is 11.3 percent. and the average temperature value was 28 degrees Celsius. The pH value of the soil after adding salt was approximately 7 and the main nutrients in the soil that are an indicator of soil quality. The fertility value in the soil after adding salt had a value of N (Nitrogen) is medium, P (phosphorus) is medium, and K (potassium) is low. Humidity is 11.6 percent. and the average temperature is 28.33 degrees Celsius.

Keywords: salt added to soil, soil quality

introduction

Soil quality is crucial for the growth of all types of plants, which are vital components of ecosystems and living organisms that provide numerous benefits for example, plants are utilized as food sources, used in constructing habitats, employed for medicinal purposes, and crafted into various textiles and blankets. In addition to being essential for human survival, plants are also crucial for other living organisms and the environment. For example, in a lush forested area, rainfall is facilitated, which helps maintain clean air.

Adding salt to the soil beneficial is When salt is added to the soil the salt will dislodge the fertilizer that is clinging to the soil. and the salt will cling tightly to the soil instead the fertilizer that comes out will be able to be used by plants.

Based on the research conducted by the research team regarding the soil quality of coconut cultivation areas within the vicinity of Wichienmatu School, it was found that the soil quality varied among individual trees. The research team thus recognized the importance of adjusting soil quality to optimize the growth of coconut trees. As a result, the researchers sought methods to improve soil conditions. By applying salt around the soil where coconut trees are planted, the research team will investigate the pH, nitrogen, phosphorus, and potassium values in the soil, which serve as indicators of soil quality.

Research objective: To investigate the effects of salt on soil quality in the area where coconut trees are planted.

Research question: How does the soil quality differ between coconut gardens where salt is applied and those where salt is not applied?

Research hypothesis: The soil quality differs between coconut gardens where salt is applied and those where salt is not applied. Therefore, the soil quality will vary accordingly.

Primary variable: Salt-added soil. and without adding salt

Dependent variable: soil quality

Control variables: salt amount, water amount

Methods and materials

1) Geographic coordinate measuring device

2) Compass

3) Hand trowel

4) Soil color comparison book

5) Soil pH measurement kit

6) Soil fertility measurement kit

7) Photography equipment

8) Notebook and writing utensils

9) Soil sample collection containers

10) Soil auger

11) Shovel

12) Pickaxe

13) Filter paper

14) Test tubes

15) Iodine supplementation salt

16) Glass filtration funnel

17) Mason jar

18) Temperature and humidity measurement device

Study Site Selection: Coconut garden area at Wichienmatu School, Kok Lo Sub-district, Mueang District, Trang Province.

Research Methodology

1) Research Preparation Phase

      1. Define the research topic and select the study subject.

      2. Conduct a literature review and gather relevant knowledge and theories related to the research.

      3. Determine the objectives of the study.

      4. Specify the sampling points for collecting samples within the study area.

2**) Implementation Phase**

      1. Plan the research operation.

      2. Conduct an area survey for the research.

      3. Collect samples for measurement, focusing on factors to be studied such as NPK values.

Soil sampling and soil quality measurement.

1. Establish soil sampling points.

2. Collect soil samples once a week by digging soil samples in the study area along a 10x10 square meter grid using a soil auger at the center of the area to a depth of approximately 15 centimeters or one full scoop of the soil auger, and place the collected soil into plastic bags, tying the bags securely.

3. Measure the soil pH by mixing one tablespoon of the collected soil with distilled water in a 20 milliliter graduated cylinder, allowing it to settle, then dipping a pH test strip into the solution for approximately 30 seconds, and comparing the color with the standard values on the test strip box.

4. 4. Measure soil moisture and soil temperature using a multipurpose instrument. Record the results.

4. Measure the nitrogen, phosphorus, and potassium values in the soil by dissolving the collected soil in water at a ratio of 1:5, filtering the solution using filter paper, and then testing it with a nitrogen, phosphorus, and potassium testing kit, comparing the results with standard values, and recording the values.

3) Analysis and summarization of research findings.

1. Analyze and compare the data, utilizing statistical methods such as average soil pH Average soil temperature soil moisture Average values of nitrogen, phosphorus, and potassium in the soil.

2. Create graphs to illustrate the comparison of average data.

3. Summarize the experimental results.

Results and data

Geographic coordinates: Studying the soil quality of coconut cultivation areas at Wichienmatu School, Mueang District, Kok Lo Sub-district, with coordinates as shown in Table 1.

Table1 Geographic coordinates

Geographic coordinates	
Latitude (N)	**Longtitude (E)**
7.504015	99.629919

Soil fertility before applying salt.

The examination of phosphorus levels in the soil around Wichienmatu School indicates low nitrogen and very low phosphorus values, as well as low potassium values, as shown in Table 2.

Table 2 Soil fertility before adding salt.

Soil quality	Soil fertility.		
	Nitrogen	**Phosphorus**	**Potassium**
Soil before adding salt	Low	Very low	Low
Soil after adding salt.	Medium	medium	Low

Soil pH

From measuring the pH values, it was found that the acidity decreased after salt application, as shown in Table 3.

Table 3 Soil pH

Soil quality	Average pH value.			
	1st time	2nd time	3rd time	average
Soil before adding salt.	4	6	5	5
Soil after adding salt.	6	7	7	6.67

Soil moisture values

From measuring soil moisture, it was found that after adding salt, the soil moisture values is higher than before adding salt, as indicated in Table 4.

Table 4 Soil moisture values

	Average soil moisture value (percent)			
Soil quality	1st time	2nd time	3rd time	average
Soil before adding salt.	12	11	11	11.3
Soil after adding salt.	12	13	10	11.6

Soil temperature

From measuring the soil temperature, it was found that the temperature of the soil before adding salt is the same as the temperature of the soil after adding salt.

Table 5 soil temperature

Soil quality	Soil temperature(Degrees Celsius)			
	1st time	2nd time	3rd time	average
Soil before adding salt	28	28	28	28
Soil after adding salt.	28	28	29	28.33

Discussion and Conclusion

Soil fertility.

From the soil study, it was found that before adding salt, the nitrogen in the soil was lower compared to after adding salt. Similarly, the phosphorus in the soil before salt application was lower than after salt application. The potassium in the soil before salt application was also lower compared to after salt application.

Soil pH

From the study, it was found that the soil before salt application had a lower pH value compared to the soil after adding salt, which is consistent with findings indicating that the pH value after adding salt is suitable for general tree planting.

Soil moisture values.

From the study, it was found that the soil before adding salt had lower moisture values compared to the soil after adding salt.

Soil temperature

From the study, it was found that the soil before and after adding salt had the same temperature.

Research Summary

From the study, it can be concluded that before salt application, the soil quality for coconut cultivation was unsuitable for optimal growth as it exhibited low pH and low levels of essential nutrients (NPK). However, after adjusting the soil by applying salt, the pH and nutrient levels became more suitable. This adjustment is expected to promote better growth and yield of coconut trees.

Acknowledgments

Citations

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