

Research Title : Study on Soil Quality Affecting the Growth of Leb Nok Phatthalung Rice in Mueang District, Trang Province

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Abstract

The research study focuses on the environmental factors that affect the growth of the Leeb Nok Phatthalung rice variety. The objective is to examine the soil quality that influences the growth of this rice variety by studying factors such as moisture, temperature, pH level, and soil structure in rice fields located in Mueang District, Trang Province. The findings revealed that the soil structure is spherical, with a loamy clay texture mixed with sand. The pH value was 7.9, the temperature was 25°C, and the growth of the rice plants showed a stem circumference of 0.5 cm, a height of 125 cm, and rice panicles measuring 30 cm in length.

Introduction

Plant growth is an important factor in increasing agricultural productivity, especially in rice cultivation, which is a major economic crop in Thailand. For rice plants to grow well and produce high yields, it is essential to have the right supporting factors. One of the key factors affecting rice growth is soil quality. Good quality soil can provide sufficient nutrients for the rice plants and help the roots absorb nutrients efficiently.

The Leeb Nok Phatthalung rice variety is known for its quality and taste, and it is popular in the southern region of Thailand. This variety is resilient to environmental conditions and suitable for cultivation in various soil types. The growth of this rice variety depends on several factors, particularly soil quality, which plays a crucial role in nutrient absorption and plant growth.

This research aims to study the characteristics of soil, such as pH level, moisture, soil fertility, and other factors that may affect rice plant growth. It also involves analyzing the data to find correlations between soil quality and the growth of rice plants.

Research question:

Does soil quality affect the growth of the Leab Nok Phatthalung rice variety?

Hypothesis 1:

Soil quality affects the growth of Leeb Nok Phatthalung rice plants in rice fields located in Mueang District, Trang Province.

Original variable:

Soil quality

Dependent Variable:

The growth of Leb Nok Phatthalung rice variety

Controlled Variables:

- Measurement instruments
- Amount of soil samples collected
- Sampling area

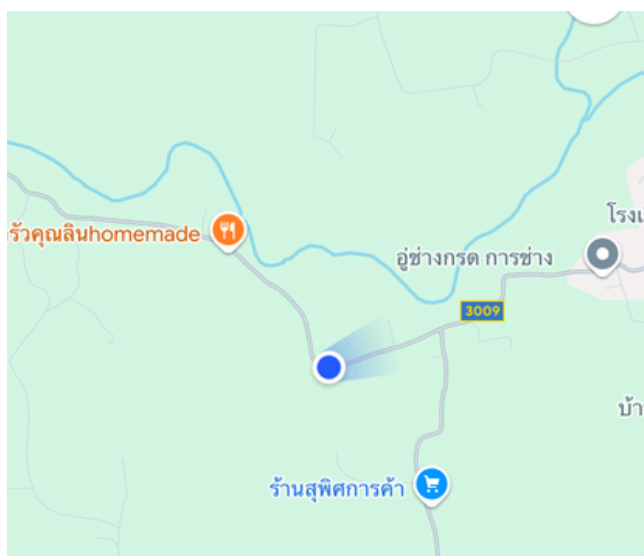
Materials and Equipment

- Shovel or hoe
- Soil sample bags
- Glass stirring rod
- Beaker
- Distilled water
- Filter paper
- pH test paper
- Thermometer
- Field guide for soil texture classification by touch
- Soil fertility test kit
- Soil stretchability comparison chart
- Measuring tape

Research Methodology

Study Site Selection

Study Site Selection: The study site is located in the rice fields of Ban Huai Ret, Nam Phut Subdistrict, Mueang Trang District, Trang Province, at coordinates 7.6920528, 99.6850696.



Chapter 1: Soil Quality Assessment

1. Select Soil Sampling Points
2. Collect Soil Samples: Collect soil samples from the designated area using a shovel and hoe to dig at those specific points.
3. Determine Soil Structure: Use a Smart Lens to examine the soil structure and classify the soil texture with the field guide for soil texture classification by touch.
4. Measure Soil pH: Use a Soil pH meter to measure the soil's pH value, performing three measurements. Wait for approximately 1 minute or until the reading stabilizes, then record the pH value and calculate the average.
5. Measure Soil Temperature: Use a thermometer to measure the soil temperature three times, calculate the average, and record the results.

Chapter 2: Study of the Growth of the Leab Nok Phatthalung Rice Variety in Mueang District, Trang Province

1. Randomly select 3 rice plants, measure the circumference of each rice plant 3 times using a measuring tape, and record the results.
2. Measure the height of each rice plant 3 times using a measuring tape, and record the results.

Experiment Results

Table 1: shows the pH value (acidity-alkalinity) of the soil.

Study Results				
Soil Sampling Points	1st measurement	2nd measurement	3rd measurement	average
rice field area	7.8	7.9	8	7.9

Table 2: shows the soil composition in the paddy field of the 'Lebnok Phatthalung' rice variety.

Study Results				
Soil Sampling Points	1st measurement	2nd measurement	3rd measurement	4th measurement
soil composition	Loamy clay soil with sandy texture	Loamy sand soil	Loamy sand soil	Loamy sand soil
soil structure	Round block shape	Round block shape	Round block shape	Round block shape

Table 3: shows the soil temperature in the paddy field planted with the 'Lebnok Phatthalung' rice variety.

Soil temperature(°C)				
Soil sampling point	1st measurement	2nd measurement	3rd measurement	average
Temperature	24	24	25	24.33

Table 4: Growth of Leb Nok Phatthalung Rice Variety

Study Results				
Rice plant	1st measurement	2nd measurement	3rd measurement	average
Circumference	0.5 cm	0.4 cm	0.4 cm	0.5 cm
Height	126 cm	117.5 cm	130.5 cm	125 cm
Length of rice panicle	30 cm	31 cm	28.5 cm	30 cm

Summary and discussion of research findings

From the study, it was found that the soil structure is granular, consisting of loamy soil mixed with sand, with a pH value of 7.9. The humidity is at 25 degrees Celsius, and the growth of the rice plant has a circumference of 0.5 centimeters. It has a height of 125 centimeters and a rice ear length of 30 centimeters.

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Reference document

https://books.irri.org/9712200299Thai_content.pdf?utm_source=chatgpt.com

https://www1.idd.go.th/WEB_PSD/pdf/expert%20work/ex22/3-3.pdf?utm_source=chatgpt.com

<https://globefamily.ipst.ac.th/student-research>

Appendix

