



# A Comparison of Rice Paddy Soil Quality in Mueang Trang District and Nayong District

Mr.Rattasart Srisombut ,Mr.Nattamonton Pantong,Mr. Tontarin Chaiwichain  
Wichienmatu School



Digital Learning and Observations to Benefit the Environment

## Abstract

This environmental science research aimed to compare the quality of rice paddy soil in Trang Province between Mueang Trang District and Nayong District. The objectives of the study were: (1) to compare the soil structure of rice paddies in Mueang Trang and Nayong Districts, (2) to compare the soil pH levels, (3) to compare soil moisture content, and (4) to compare light intensity in rice paddy areas in both districts.

The study involved measuring soil structure, soil moisture, soil pH, and light intensity. The results showed that rice paddy soil in Mueang Trang District had higher moisture content than that in Nayong District, with an average soil moisture of 78.33% in Mueang Trang and 35% in Nayong District. The light intensity in Mueang Trang District was lower than that in Nayong District, with average values of 500 lux and 1,233 lux, respectively. In addition, the soil pH in Mueang Trang District was lower than that in Nayong District.

Keywords: Soil quality, Rice paddy soil

## Research Question

1. How do the soil structures of rice paddies in Mueang Trang District and Nayong District differ?
2. How does soil moisture content differ between rice paddies in Mueang Trang District and Nayong District?
3. How does soil pH differ between rice paddies in Mueang Trang District and Nayong District?
4. How does light intensity differ in rice paddies between Mueang Trang District and Nayong District?

## Introduction

Rice is an important economic crop and the main food source for most people in Thailand, especially in Trang Province where rice farming is widely practiced. Successful rice cultivation depends on several factors such as rice varieties, water, sunlight, and soil. Among these factors, soil plays a crucial role because it provides nutrients and supports plant roots. However, soil properties vary from place to place, including soil structure, moisture content, and soil pH, which directly affect rice growth and yield.

This research aims to study and compare the quality of rice paddy soil in Mueang Trang District and Nayong District. The study focuses on comparing soil structure, soil moisture, soil pH, and light intensity in the rice fields of both areas. The results of this study can be used as basic information for improving soil management and enhancing the efficiency of rice cultivation in Trang Province.



## Research Methods

### Planning Investigations

Describe the planning process.

Research Hypotheses

Hypothesis 1

The soil structure of rice paddies in Mueang Trang District and Nayong District is different.

- Independent Variable: Rice paddy soil in Mueang Trang District and Nayong District
- Dependent Variable: Soil structure
- Control Variable: Measuring instruments, time of measurement, measurement methods

Hypothesis 2

The soil moisture content of rice paddies in Mueang Trang District and Nayong District is different.

- Independent Variable: Rice paddy soil location
- Dependent Variable: Soil moisture content
- Control Variable: Measuring instruments, time of measurement, measurement methods

Hypothesis 3

The soil pH of rice paddies in Mueang Trang District and Nayong District is different.

- Independent Variable: Rice paddy soil location
- Dependent Variable: Soil pH
- Control Variable: Measuring instruments, time of measurement, measurement methods

Hypothesis 4

The light intensity in rice paddies in Mueang Trang District and Nayong District is different.

- Independent Variable: Rice paddy location
- Dependent Variable: Light intensity
- Control Variable: Measuring instruments, time of measurement, measurement methods

Research Data

- The study was conducted in rice paddy fields located in Nayong District and Mueang Trang District, Trang Province.
- Nayong District coordinates: Latitude: 7.573590° N, Longitude: 99.685337° E
- Mueang Trang District coordinates: Latitude: 7.55460° N, Longitude: 99.60819° E

Materials and Equipment

1. Rice paddy soil samples from Mueang Trang District
2. Rice paddy soil samples from Nayong District
3. Soil pH meter or litmus paper
4. Soil moisture meter
5. Containers for soil samples
6. Measuring cups or cylinders
7. Spoons or spoons for soil collection
8. Notebook and pen
9. Labels for soil sample containers

### Carrying Out Investigations

The results showed that rice paddy soil in Mueang Trang District had higher moisture content than that in Nayong District, with an average soil moisture of 78.33% in Mueang Trang and 35% in Nayong District. The light intensity in Mueang Trang District was lower than that in Nayong District, with average values of 500 lux and 1,233 lux, respectively. In addition, the soil pH in Mueang Trang District was lower than that in Nayong District.

The study was conducted in rice paddy fields located in Nayong District and Mueang Trang District, Trang Province.

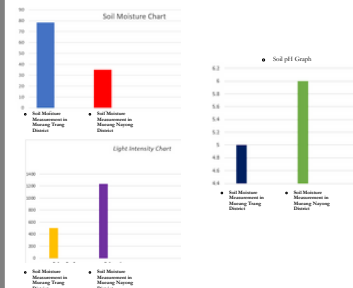
- Nayong District coordinates: Latitude 7.573590° N, Longitude 99.685337° E
- Mueang Trang District coordinates: Latitude 7.55460° N, Longitude 99.60819° E



## Results

### Analyzing Data

- Addresses the research question(s)
- Describes the procedures for data analysis including the mathematical calculations used
- Includes a detailed analysis of the data
- Tables and graphics show patterns or trends in the data
- Print screen of GLOBE visualization page



## GLOBE Badges

1. I am an Earth System Scientist

In this project, students studied the pedosphere by investigating soil quality in rice fields in Mueang Trang District and Nayong District. The study focused on soil structure, soil moisture, soil pH, and light intensity to understand how soil conditions affect rice growth.

2. I am a Problem Solver

Students identified the problem of differences in soil quality between two rice-growing areas. They designed an investigation, set research questions and hypotheses, collected soil data, and compared the results to determine which area had more suitable soil conditions for rice cultivation.

3. Be a Collaborator

According to the project, students worked together to collect soil samples, measure soil moisture, soil pH, and light intensity, and record data in tables. Team members shared responsibilities and cooperated throughout the fieldwork and data analysis process.

4. Be a Data Scientist

Students collected data by measuring soil moisture, soil pH, and light intensity three times at each location. The data were recorded systematically and analyzed using average values and standard deviation to compare soil quality between the rice fields in Mueang Trang District and Nayong District.

## Discussion

- The Light intensity in Mueang Trang District was lower than in Nayong District, with average values of 500 lux and 1,233 lux. Additionally, soil pH in Mueang Trang District was lower than that in Nayong District.

## Conclusions

The comparison of rice paddy soil quality in Mueang Trang District and Nayong District showed that soil moisture content in Mueang Trang District was higher than in Nayong District, with average values of 78.33% and 35%, respectively.

## Bibliography

- Department of Agriculture. (2018). *Calcium: An Economic Nutrient of Thailand*. Bangkok: Ministry of Agriculture and Cooperatives.
- Department of Agriculture. Agricultural Research and Development Center. (2017). *Cultivation and Care of Calcium*. Department of Agriculture.
- Compost-Turner. (2024). *Integrated Utilization of Chicken Manure: Compost Production from Chicken Manure*. Retrieved from <https://ahornjournal.com>
- Tongli. (2025). *Organic Fertilizer from Cow Manure: Benefits, Composting Production Process, and Application Techniques*. Retrieved from <https://ahornjournal.com/15334>