Physical parameters affecting morning glory density

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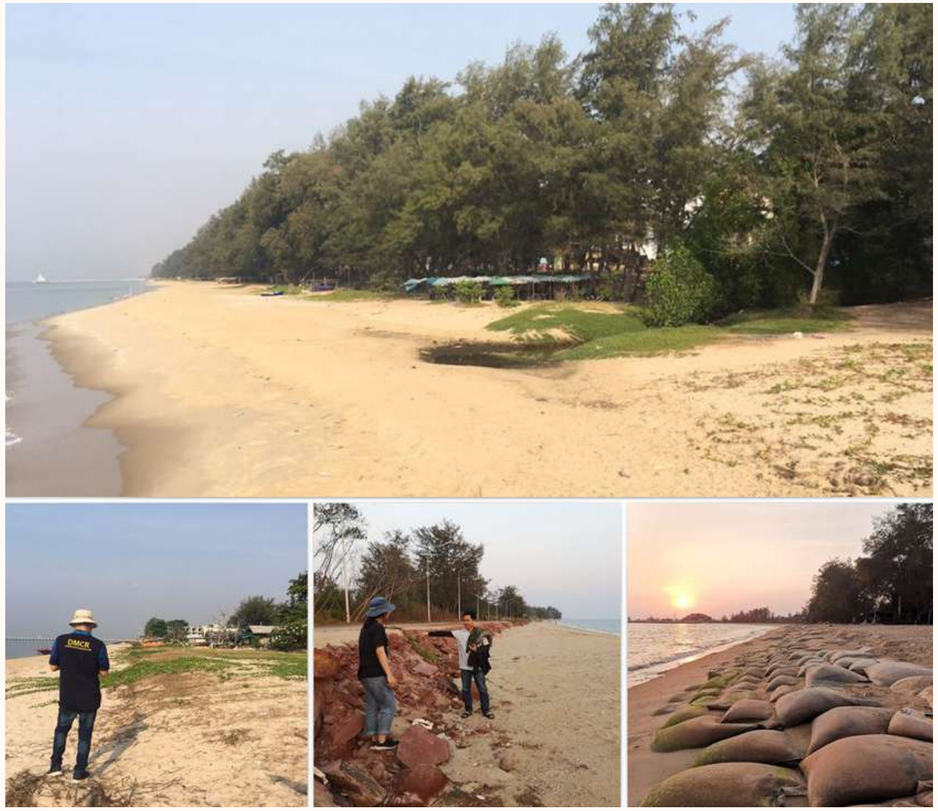
INTRODUCION

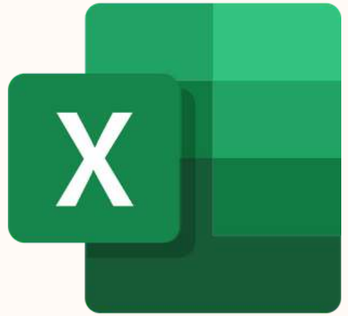


Coastal erosion image .Trang

Research Questions

1. To study the temperature difference between the air and soil in areas with varying morning glory density?
2. To investigate the soil quality in areas with varying morning glory density?
3. To study the root density of morning glory in areas with varying morning glory density?

Methods



1. Specify the study area.
2. Collect data on soil, air, and seaweed at each study point.
3. Soil quality assessment.
4. Enter data into GLOBE Observer.
5. Analyze the data.

STUDY SITES

7°31'31.5"N 99°18'27.3"E

Study Point 1

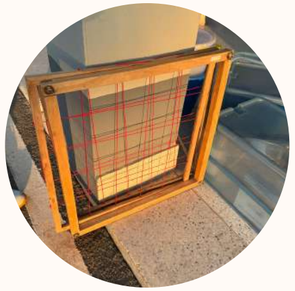
Study Point 2

Study Point 3

วิทยาลัยการโรง
การท่องเที่ยว

อาคารเรียนรวม (ตึก E)

Materials

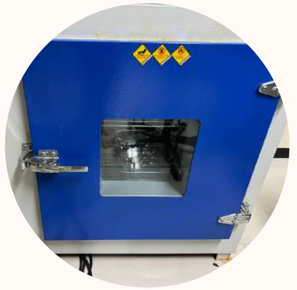


Quadrat

Sand at Ratchamongkol Beach

Weighing scale

Universal Indicator Pape.



oven

gardening trowel

Plow

Soil thermometer

Infrared thermometer

Calipers

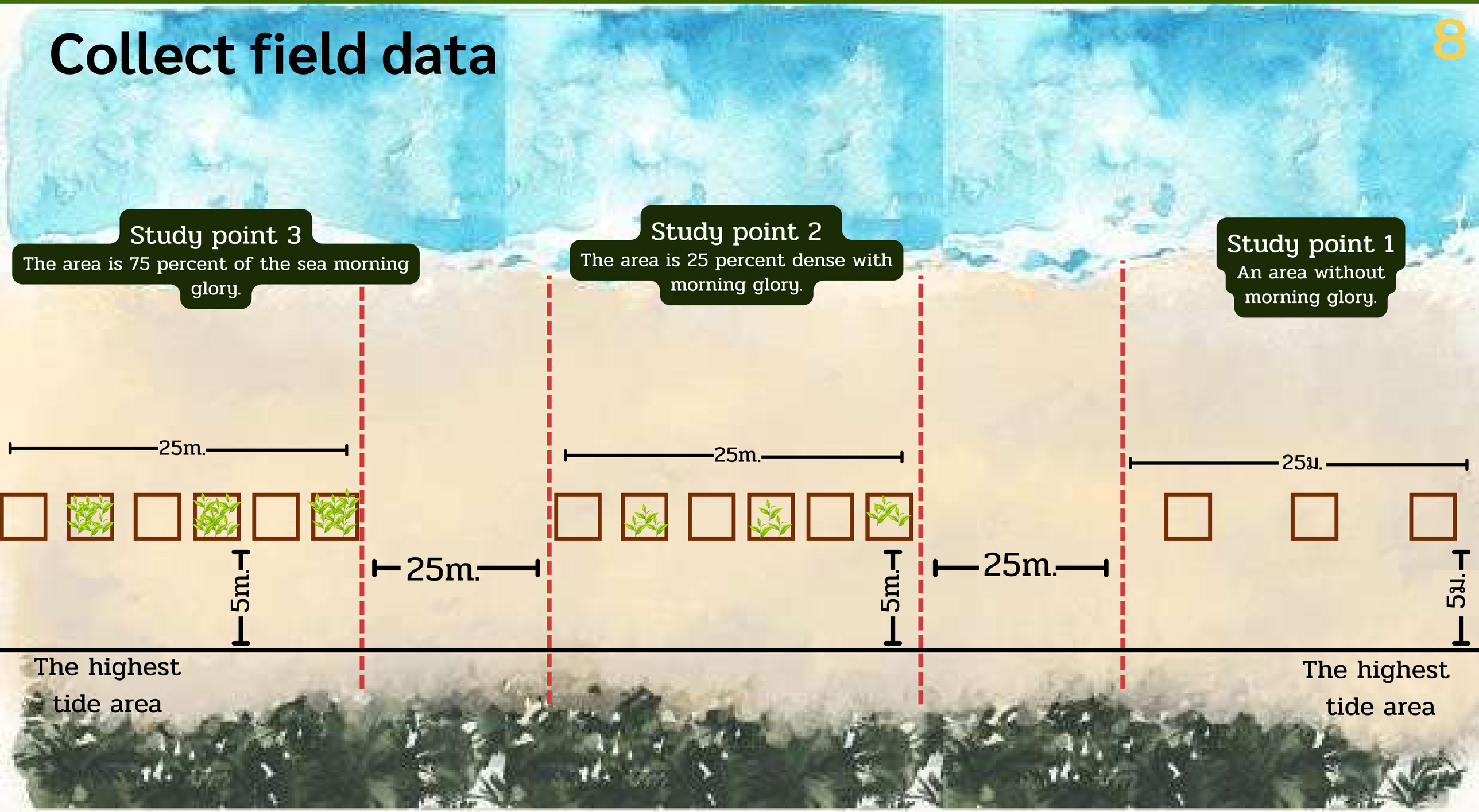
Hygrothermometer

Flag

Quick soiltest

muffle furnace

Collect field data



Data collection

Data collection of soil temperature and air temperature at each study point.

- Measure air temperature data.
- Measure the temperature of the soil surface and in the soil. By deep from the soil surface down to 15 cm.

Measure the data every 1 hour. From 9:00 a.m. to 3:00 p.m.

Data collection

Soil data collection

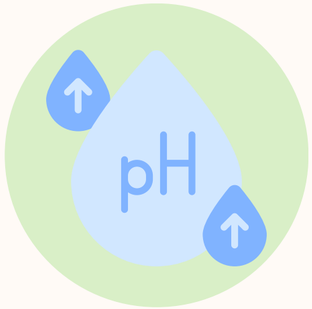
1. Excavate soil within the quadrant to a depth of approximately 5-10 cm until seaweed roots are visible.
2. Collect soil samples into bags, each sample weighing 400 grams.

Beach Morning glory data collection

1. Dig the soil inside the quadret to a depth of about 5-10 cm. Until I saw the root of the morning glory.
2. Collect all the sea morning glory roots that are in the quadrat.

Checking soil quality and determining root quantity

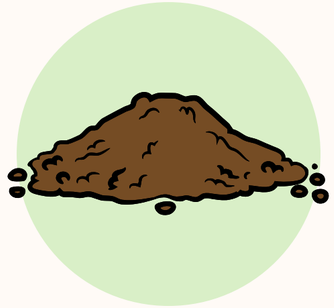
Soil sample.



pH value.

Nutrient levels.

Quantity of organic matter.



Soil texture.

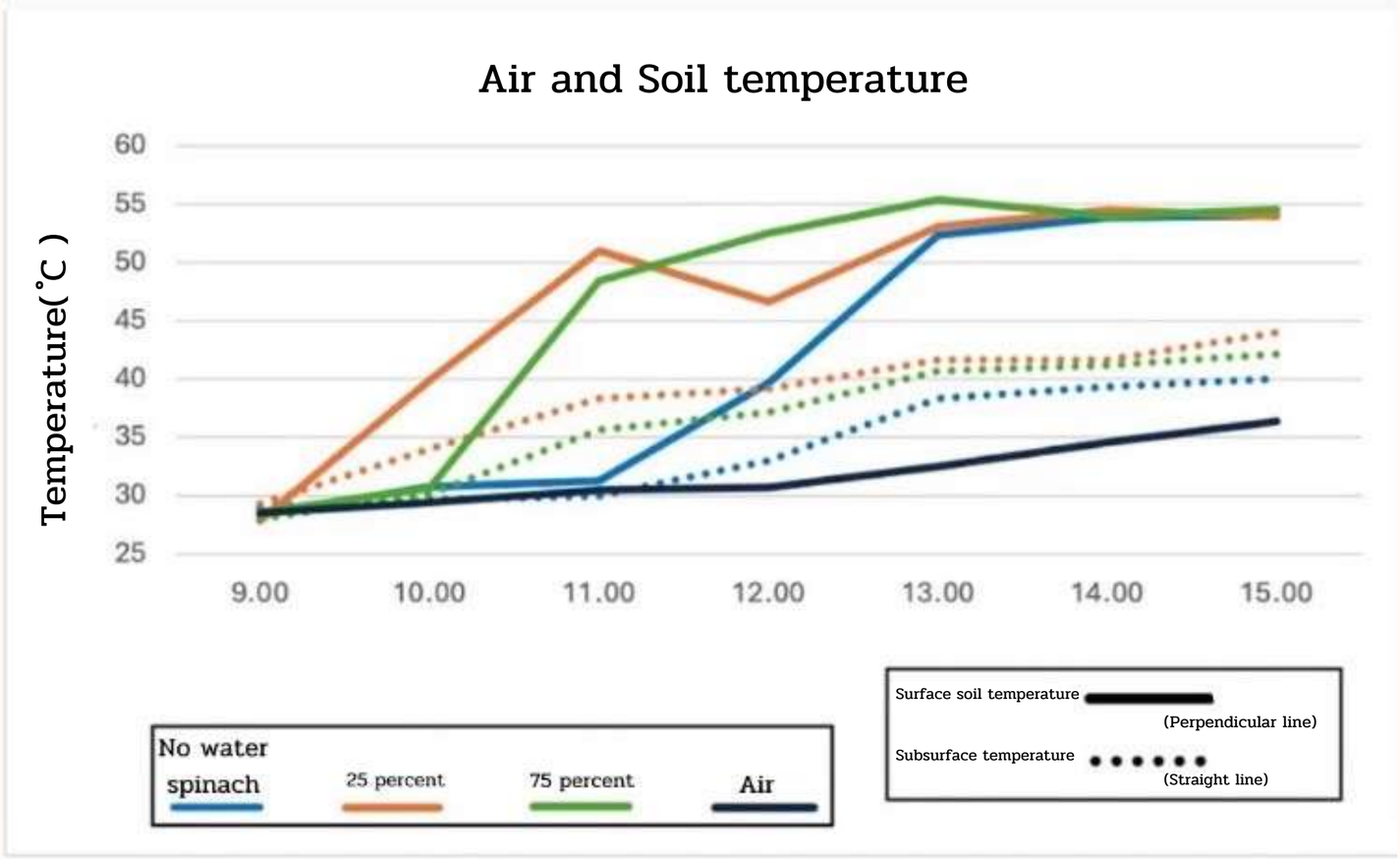
Beach Morning Glory root sample

Hydrometer.

Determine the root quantity.

Result

Part 1 Results of the study of the relationship between air and soil temperatures.



Graph 1 displays the relationship between air and soil temperatures at different time intervals in areas with varying seaweed density.

Average temperature (°C).

Areas.	On the surface.	In the soil.
No water spinach	41.48±4.43	34.19±1.85
25 percent	46.59±3.75	38.43±1.99
75 percent	46.04±4.40	36.10±2.03
Air	31.80±1.08	

- The temperature in the underground area with the morning glory varies with the air temperature.

Result

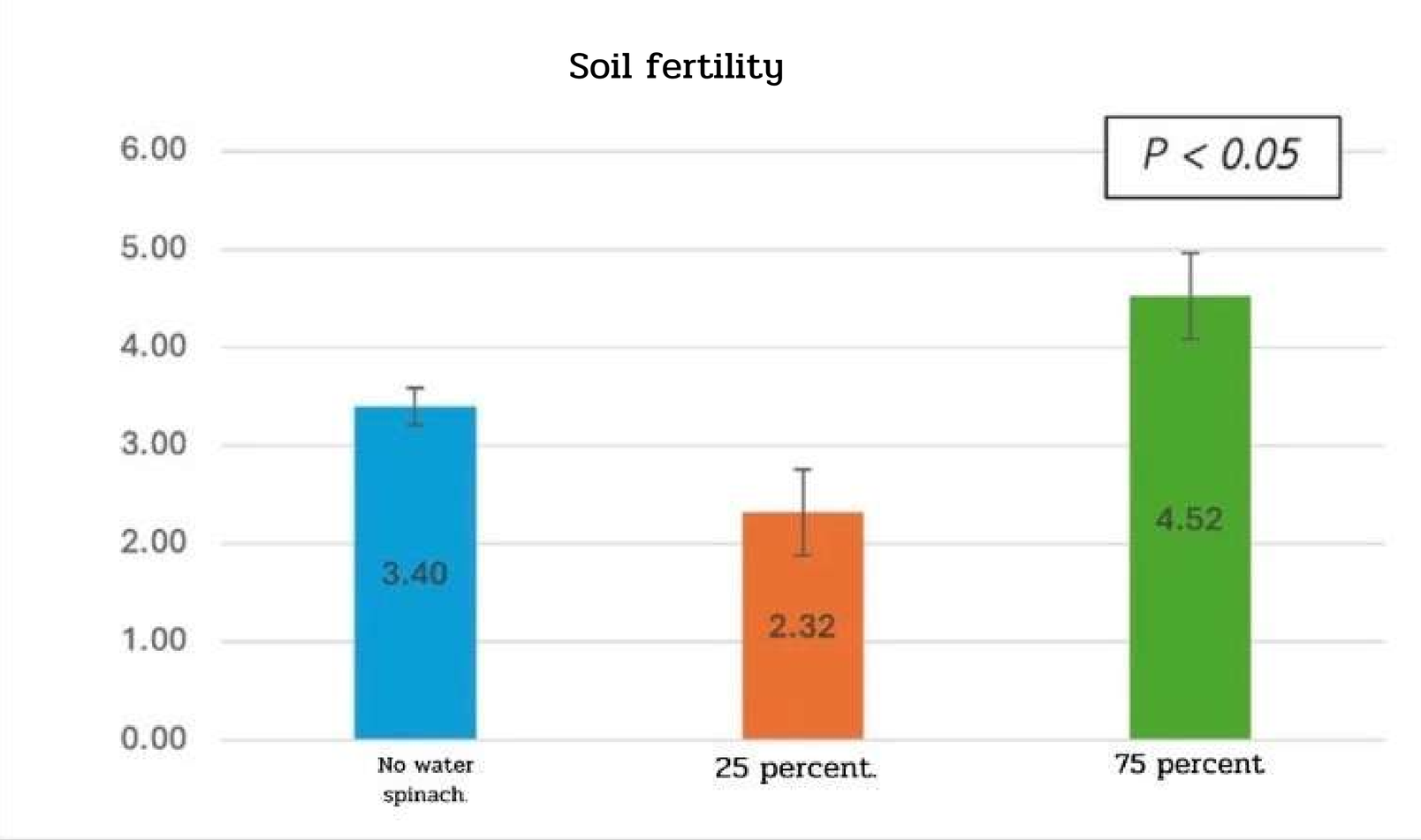
Part 2 Results of the soil quality study

Soil Texture

- There is sandy soil in all 3 areas.

Result

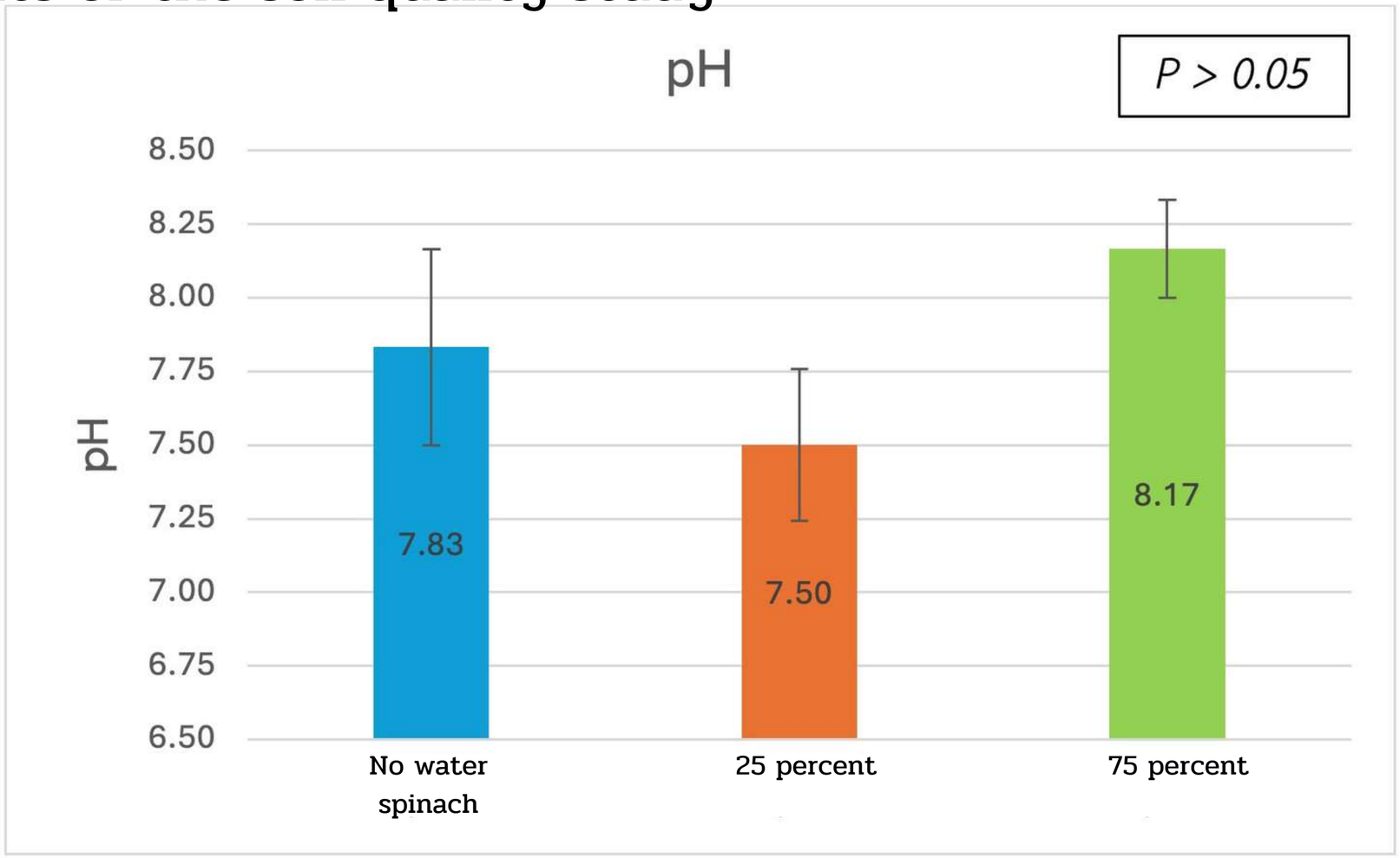
Part 2 Results of the soil quality study



Graph 2 illustrates the relationship of organic matter quantity in the soil in areas with varying seaweed density.

Result

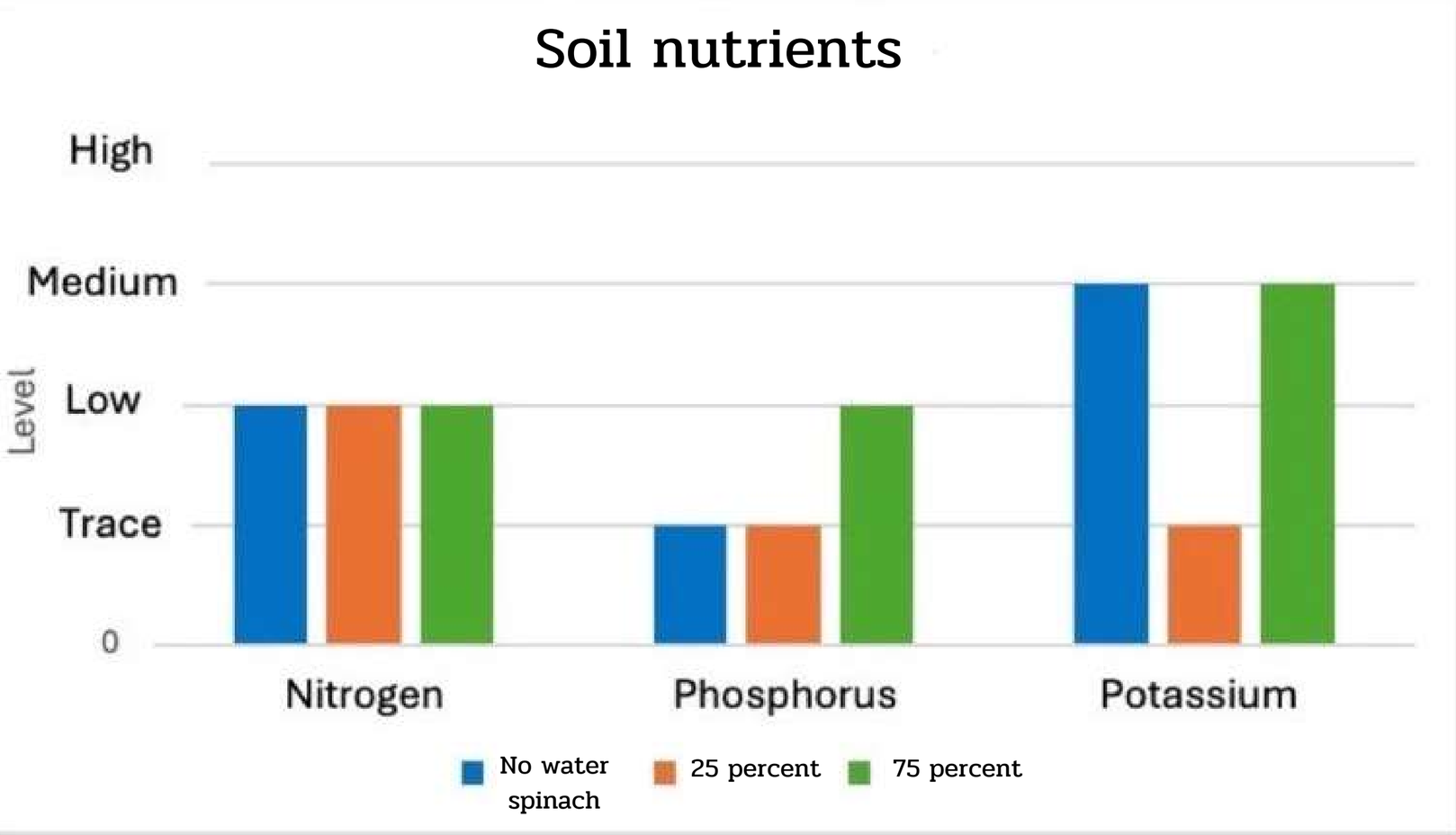
Part 2 Results of the soil quality study



Graph 3 depicts the relationship of pH values in areas with different seaweed density.

Result

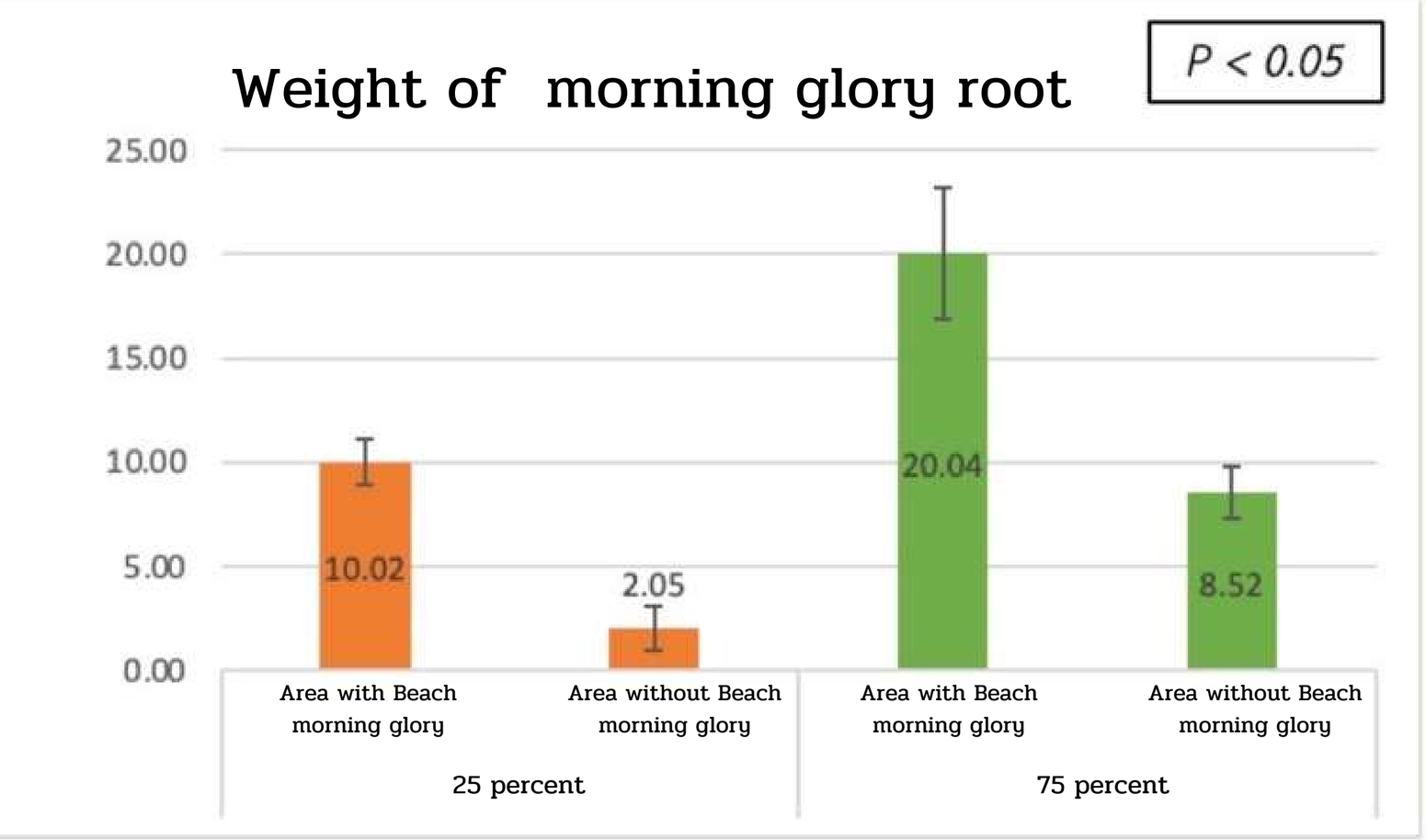
Part 2 Results of the soil quality study



Graph 4 illustrates the relationship of nutrient levels in the soil in areas with varying seaweed density.

Result

Part 3 Results of the study of morning glory root weight.



Graph 5 shows the relationship of morning glory root weight in areas with different morning glory density.

Conclusion and Discussion

1. The surface soil temperature tends to increase significantly compared to the subsoil temperature with rising air temperature. Areas with abundant seaweed often exhibit a smaller increase in temperature, suggesting that seaweed helps reduce soil temperature.

2. Areas with abundant seaweed tend to have higher levels of organic matter and mineral elements in the soil compared to areas with fewer seaweeds. This is because densely populated seaweed areas release a greater amount of organic matter into the soil.

3. The number of roots found in areas with high seaweed density will vary based on the seaweed density. In regions with low seaweed density, both areas with low and high root density will still have some seaweed roots. However, in areas without seaweed, no roots will be present.

Benefit

- Gain knowledge of application to conserve the beach area.
- Guide to the development of sea morning glory planting areas to reduce coastal erosion.
- increase green space and be a carbon reservoir on the beach.
- Raise awareness for people in the community to see the importance of morning glory.

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Thank you