

# Study the effect of Temperature and Humidity on growth Frankincense tree



Prepared by, the two student

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This research aims to study the effect of temperature and humidity on the growth of the frankincense tree in the farm area of state/ (Wilayat) Qurayat.

To answer the following questions are below:

- Q1. What are the appropriate conditions for growing the frankincense tree in terms of temperature and humidity?  
Q2. For the growth of the frankincense tree, what are the characteristics of the suitable soil?

The study began by searching for suitable conditions of growing the frankincense tree in terms of temperature and humidity, students and I planted the tree in on the farm of a resident area, we applied the study by bringing a seedling from one of the Frankincense trees, then put it in the soil, watered, and took care of until it grew and began to flourish.

The Atmospheric protocol for measuring temperatures and humidity for September and October was applied, and as a result, we found that, the tree grows in an environment with different low temperatures and humidity, as well, the soil protocol we applied and found that, the frankincense tree grows in a different environment by low acidity, conductivity, and salinity. It grows in areas with stony and limestone soil, and more commonly even better grows in gravel soil than clay soil, especially, at the mountain slopes and valley bottoms.

Team required help from specialists in this field, the engineer. Zahra Abdullah Al-Hadiya, who works at the Center Agricultural Wealth and Water Resources, and Ghaida Al-Fazariyah is a volunteer in the field of agriculture were interviewed.

The most important results of the interview were, recommendations that must be done when planting a frankincense tree.

- To leave a distance of 5 meters between the frankincense trees.
- It must be fertilized, with a chemical fertilizer every 5 months, because the frankincense tree is considered fast-growing when taken care of at the beginning of its farming. It tolerates organic fertilization and drought.
- Preferable to be cultivated by establishing a strong root system that helps it to grow.

## questions

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## Introduction and Literature Review:

The frankincense tree is the ancient oil of Oman and the economy of the promising future. It is a (Dhofari) tree that provides the world with treatment and the aromatic. Oman is well known for producing the fragrant types of frankincense trees, they are spread in different areas of the (Dhofar) Governorate, because it is a suitable place for these trees to grow, due to its appropriate climate and limestone soil.

Due to the availability of suitable soil conditions in Dhofar, it is preferable to plant frankincense trees during a period of low humidity temperature from September to March, avoiding planting during the summer period.

Frankincense trees grow in some coastal environments where it is not directly affected seasonal rains and dry climate prevails or semi-arid, suitable for its growth. Al-Ghassani, 2008

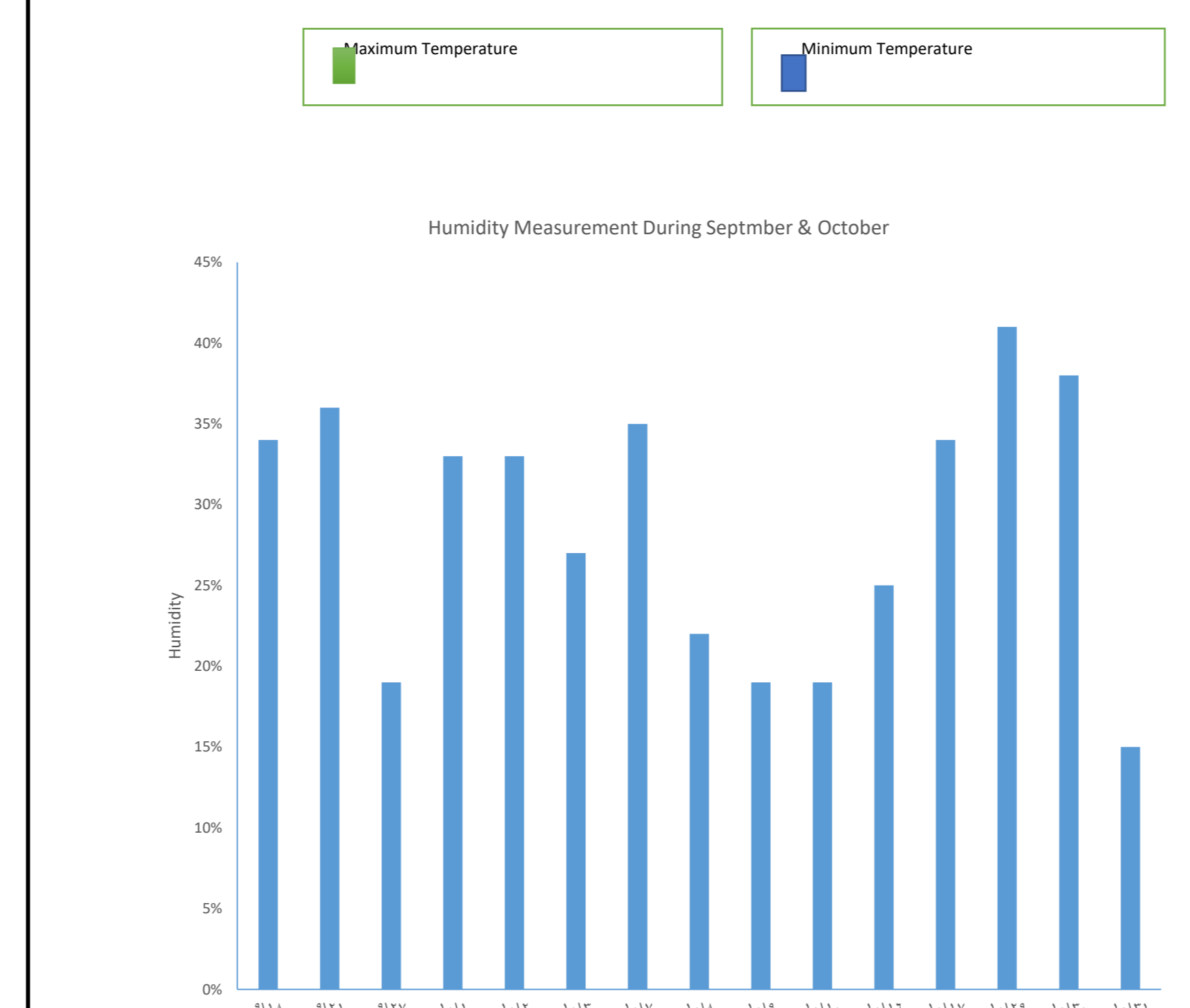
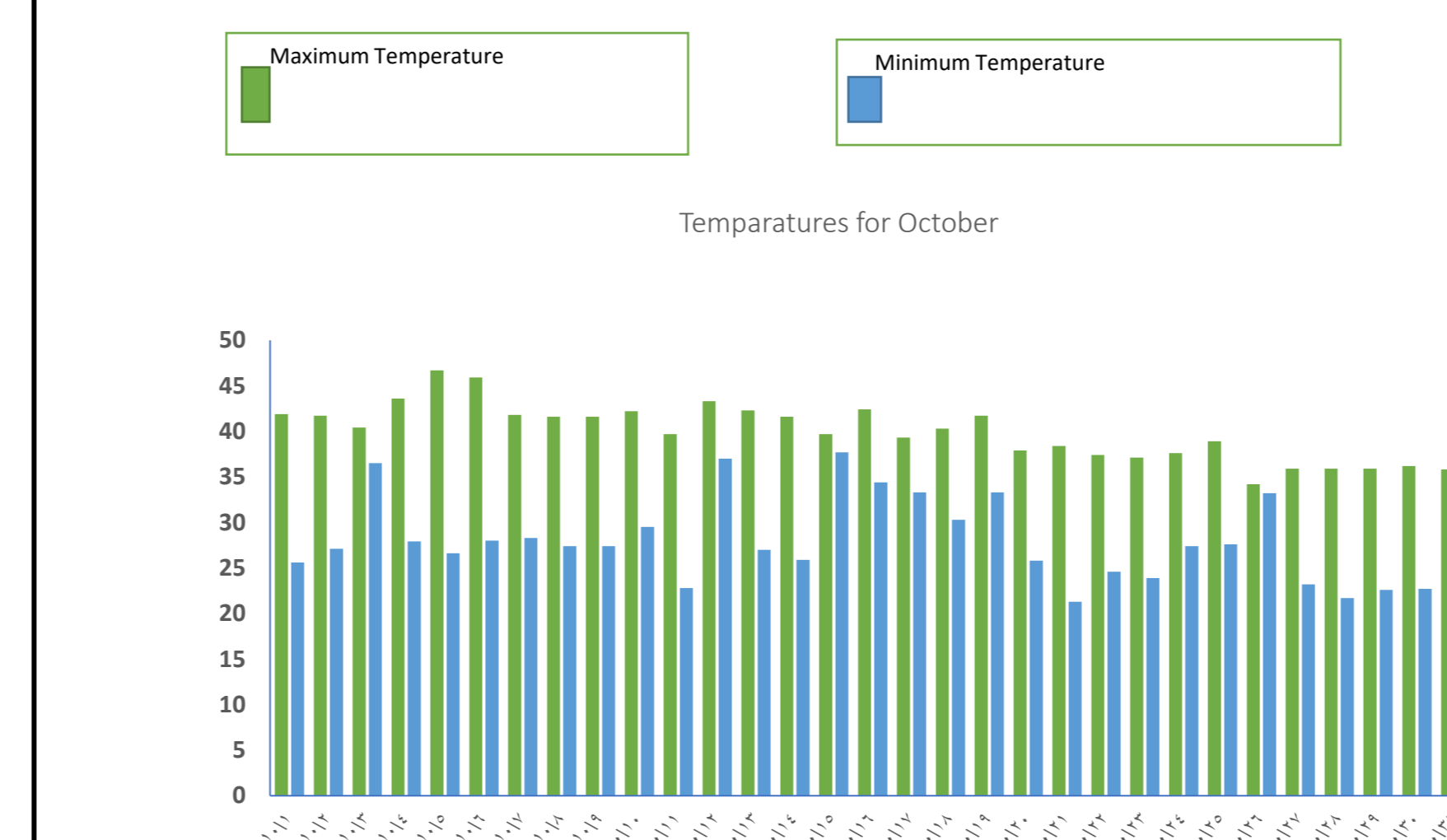
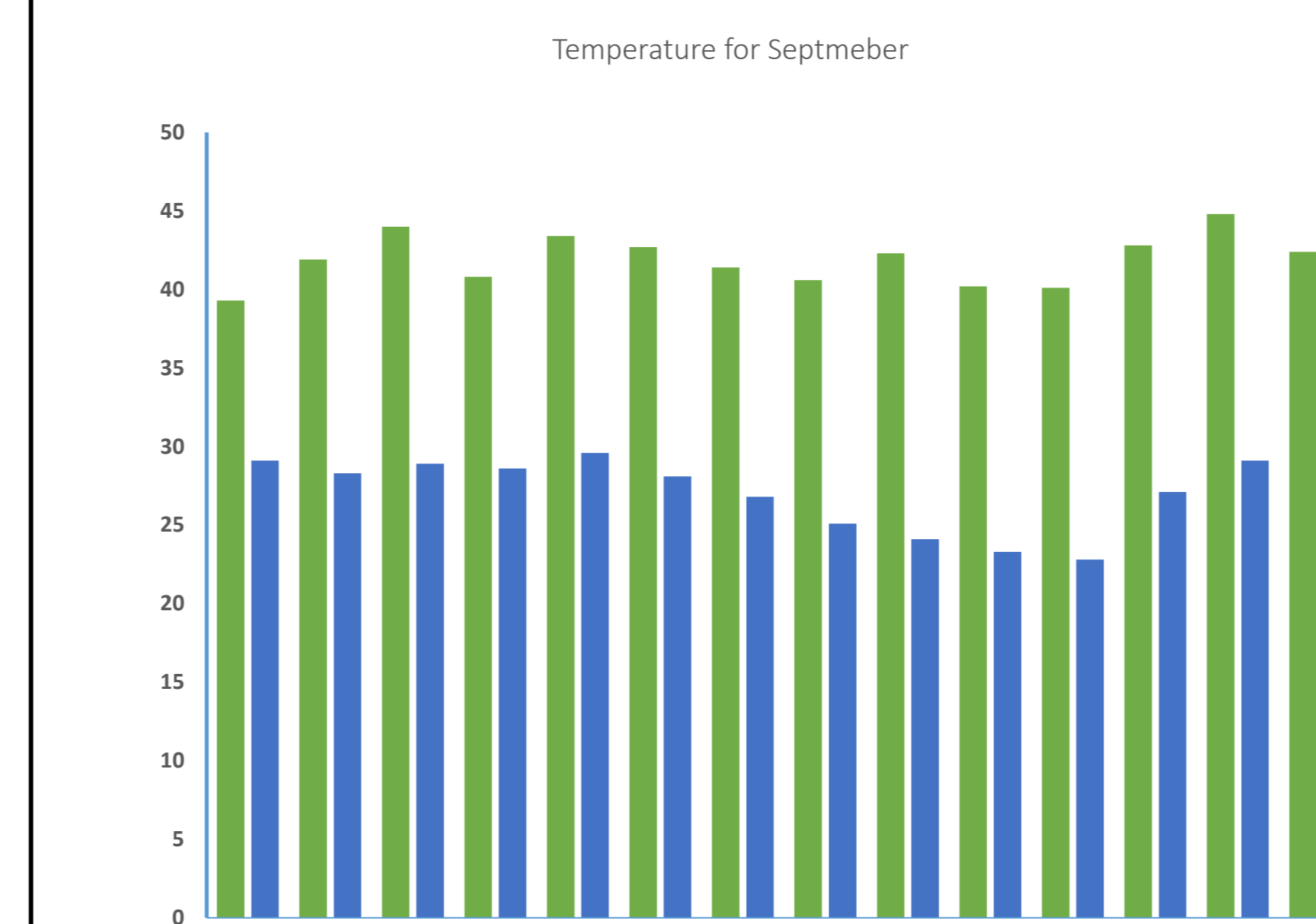
Planting Frankincense trees is one of the important themes, in terms of economic, historical, and medical. These trees are also found in the North Eastern corner of Somalia, specifically the Alula region and its surroundings.

The climatic conditions of humid climate and limestone soil played a role in the spread of frankincense trees. It started from along the way, extends parallel to the coast until the Khouria Moria Gulf and the western side. It gradually narrows until disappears, exactly, to the North of Ras Fartak, and throughout its journey.

## Research Plan:

Time/Period	Objectives to be implemented	Mechanisms	Initiators
September 03 <sup>rd</sup> - 07 <sup>th</sup> /09/2023	The choice of the research topic and the study of how to reach the results	The coordination with the school administration in Enabling study.	Program team (Hawraa). Spiritualism (Rimas Al-Nairiya)
September 14 <sup>th</sup> /09/2023	The collection information collection and references used in the research.	Previous studies viewed from the Resource Center Learning of the international network. The interviews with Some specialists (Eng. Zahra Abdullah Al-Hadiya (working). At the Center for Agricultural Wealth (Water Resources, and Ms. Ghaida Al-Fazariya (Volunteer in the field of agriculture)	"
September to October 17 <sup>th</sup> /09/2023 - 31 <sup>st</sup> /10/2023	The atmosphere and soil protocols applications	The use an Analog hygrometer device to measure Air temperature and relative humidity. A device to measure acidity, salinity, and soil conductivity at the study spot.	"
November	The result discussions and transcribe recommendation s.	Supervising teacher and team members meeting.	Supervising teacher: Sheikha Reliability Program Team: 1. Hawraa Al-Rawahiyah 2. Remas Al-Nairiya
December	Research review and final structure	Supervising teacher and team members meeting.	a.Sheikha Al Ma'awiyah
February	Prepare a research poster and submit the research.	Supervising teacher and team members meeting.	Program Team: Hawraa Al-Rawahiyah Remas Al-Nairiya Supervising teacher: a. Sheikha Al Ma'awiyah

## Results:



## Results Discussion:

Through the results reached in Tables (3 and 4) and chart (1, 2, and 3), we have answered all questions. It has been noticed that the temperatures during September and October are low and the humidity is average.

During our reviews of previous research, a study was conducted by Dr. Ahmed Al-Hadary, conducted the previous research study on the need of:

- Paying attention to Omani frankincense due to its benefits.
- The Various economic studies indicate that the stages of using frankincense evolved from incense to extracting Medical, therapeutic, and cosmetic preparations and entry into the perfume industry. Confirmed by
- He also underline the need for attention to Omani frankincense due to its economic benefits.He added that the cultivation of these trees has recently succeeded in the Al-Najd region due to the availability of suitable soil conditions.
- Preferable to plant frankincense in Dhofar, during a period of dropping temperatures from (Sept-Mar avoiding planting in the summer.
- In Dhofar Governorate, frankincense trees are growing in some coastal environment which is not directly affected by seasonal rains , dry climate or semi-arid conditions
- Due to the availability of suitable soil and climate conditions, he pointed out that approximately 15,000 frankincense trees were planted in some Najd farms, most of them now, have not reached the production stage.
- Attention needs to be paid to this tree, in terms of replanting and care, by establishing specialized projects for growing and producing frankincense in several different places, among them is the Najd region, where it is preferable to plant frankincense trees during the period mentioned above. [www.omaninfo.om](http://www.omaninfo.om)

Also, by applying the soil protocol to examine the soil sample, and the results are in Table (5), the second question was answered.

We noticed that low acidity, salinity, and conductivity, and the soil type is stony, so the frankincense tree needs shade and medium humidity in the soil. By reviewing the Global Network, we discover that apart from the humidity soil condition, these trees are growing better in more gravel, clay soil especially at mountains slopes and valley bottoms

A research study published in the Scientific Journal of King Faisal University in Saudi Arabia, conducted by Mr. Ali Salem Bait Saeed, showed Researcher in Natural Resources Management at the Environmental Conservation Office at the Diwan of Royal Court and several professors at the Science Center Desert and arid lands at the Arabian Gulf University that, Frankincense trees are so weak to extinction that average production are reduced from 10 Kgs per tree to 3.3 Kgs, while the thickness of those trees decreased in the (Jabal Samhan) reserve

## Conclusion:

We would like to Thank God for the completion of this research, In terms of the effect of temperature and humidity on the growth of the frankincense tree in the farm area in the state of (Quriyat),

We managed to implement the atmosphere protocol, to measure air temperature and humidity during September and October, field visits, and had interviews with people concerned about the project.

By applying the atmosphere and humidity protocol, we arrived at the point that, temperatures during September and October have low humidity, and this climate is suitable for planting the frankincense tree and the importance of multiplying it.

We understood that to reduce the carbon content will enable Frankincense's trees leaves and continue availability and the rank of medical and economics will boost.

During the interviews, we concluded that, Frankincense trees are available since early times and were the most important commercial products in countries.

The world studies and researches confirmed that the parts of the frankincense trees are the elements that make up frankincense treats cancer, also the tree produces oils, powders, perfumes, and candles to use.

This research can be re-applied by studying healing preparations from parts of the frankincense tree, in an additional Vegetation Protocol study.

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b. [www.alhurra.com](http://www.alhurra.com)

c. Ar.wikipedia.org