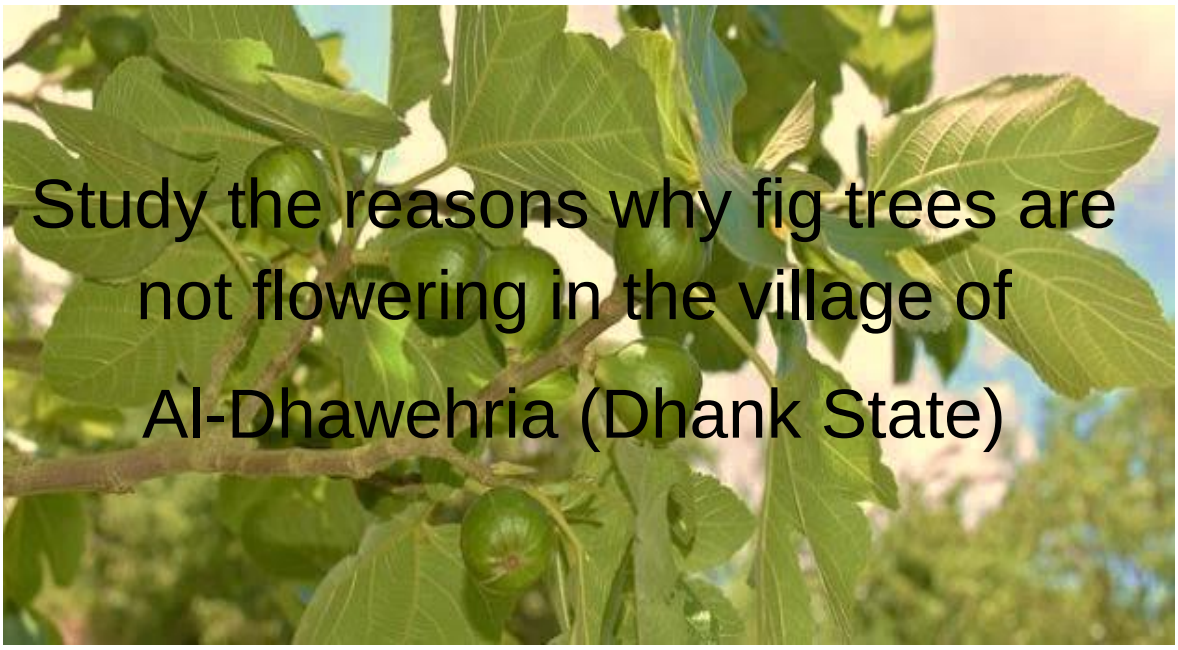
Sultanate of Oman

Ministry of Education

Al-Dhahera Governorate

Elayet Fida Basic Education School (1-10)



Study the reasons why fig trees are not flowering in the village of Al-Dhawehria (Dhank State)

The preparation of the two students:

Janan Bint Hamdan bin Ali Al-Moqbali

Umima Bint Rashid bin Saif al-Zaidi

Supervised by the two teachers:

Fakhria Bint Saud Al-Balushia

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January 2021

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Summary:

The aim of this research is to study the reasons for not flowering fig trees in the village of Al-Dhawehria, and the research questions were as follows:

1- How do the properties of water affect the flowering of figs?
2- How do soil properties affect the flowering of figs?
3- What external factors affect the flowering of fig stenus?

The research was implemented in Dhank state, where a time plan for action was initiated, and field visits to some farms in and near the village, and meeting farmers and agricultural specialists, were initiated to look for a problem to study. It became clear to us that the farmers had the problem of not flowering fig trees in the village and through that we decided to study the problem. Two areas were identified for the study where we examined the two areas and noted all the surroundings and external factors affecting them and samples were taken from the water used to irrigate the trees and the soil used to cultivate them from the two areas and track the water source for each where it was noted that groundwater is the source of both. The results indicated a difference in the properties of water and soil, and we came to: the village of al-Dhawehria (dark clay soil with large alkaline, high salinity, high alkaline water and high salinity), neighborhood of happiness (soil of medium structure warm and fertile sand clay and alkaline with moderate salinity and alkaline water and moderate salinity). We noticed that

salinity and acidity affect the two areas more, after which some interviews were conducted with farmers to come up with other reasons that may have led to this, and the farmers agreed that one of the external factors affecting is the effect of sunlight as the fig tree in the farm of The Happiness neighborhood receives bright sunlight and directly opposite the fig tree in the farm of the village of Al-Dourihriya, and the irrigation method received by the fig tree, where the fig tree in the farm of Happiness is watered in a regular irrigation way, where it shows a response to it With regular irrigation additives. Based on the results of the research, we recommend that the competent authorities carry out the guidance awareness sought by farmers about the conditions suitable for the growth of each plant and the needs that must be met for its growth and flowering.

Basic terminology:

1.Clay soils: are soils made up of very fine parts, so they are called heavy soils, because they are difficult to sour or grub[1].

2. Sandy soil: soil consisting of large granules. It is called light soil because it is easy to scrub or grub in all weather spills[2].

3.Alkaline: It is generally a description of the amount of amount of water solution to modify acid[3].

Search questions:

1- How do the properties of water affect the flowering of figs?
2- How do soil properties affect the flowering of figs?
3- What external factors affect the flowering of fig stenus?

Introduction and literature review:

Farmers in the village of Dhoheriya suffer from the lack of fig growth and flowering only in a few cases, and this plant blooms in large quantities on farms near the village, and figs (scientific name: Ficus) is a genus of plants that follows the berry species of the rank of pinks[4]. The fig swore in the Holy Qur'an in the form of the divine oath in the saying of Allah: (Figs and Olives* and The Sinin Tin), "Surat al-Teen: Verses 1-2", and in this holy verse, Allah almighty swore in the tin because of its great importance, and modern science proved it after many experiences[5]. Fig fruit contains many vitamins and minerals that work to treat many diseases and protect against infection, where a study of Dr. Oliver Albaster, responsible for the Disease Prevention Society at George

Washington University Medical Center, showed that dried figs, which is one of the most fiber-rich fruits, have a high level of phenol (phenol), which is highly available in figs, and is used as a disinfectant to kill bacteria and germs. Another study conducted by Rutgers University in New Jersey showed that dried figs contain omega-3 and omega-6 play a significant role in lowering cholesterol, and it has also been shown that the two former compounds cannot be produced by the body but are absorbed with food[6].

From this point of view, we have sought to study the reasons why fig trees are not flowering in the village of Al-Dhoheriya.

Search methods:

A- Search plan:

- Setting the timetable for the search plan.

Table (1) Search plan timeline

Month	Action Plan
January\2021	-Drafting the research problem. - Identify tools.
January\2021	-Field visits. -Interviews with farmers and parents.
February\2021	-Conclusions. - Write the search.
March\2021	- Research submission.

- Distributing the working roles to the research team, represented in the preparation of tools and field application.

Table (2) Distribution of roles to the research team

Mission	Name of the executing student
Formulating the problem of research clearly and identifying and equipping the required tools.	Janan and Umima
Collecting and analyzing data through the application of the water protocol and conducting some interviews with the parents, and entering the data on the site.	Umima
interviews with the parents, and entering the data on the site - Amima Reaching conclusions through aggregated data and interviews, including the drafting of the summary and the writing of the research.	Janan and Umima

- Identify and review some sources related to the subject of research such as the collection of information from the center of learning resources in the school such as scientific encyclopedias, and the use of the internet to obtain and document some articles, in addition to the memorandums of protocols of the program GLOBE.

- Select ing different sites for the study, and identifying them accurately, in preparation for the data collection process.

Table (3) Search plan application sites

Location	Work
School	Study the properties of soil and water.
Al-Dhawehria Village Farm	Bring water and soil samples, examine the area around the plant and track the external factors.
Happiness Neighborhood Farm	

- Determine the appropriate protocols to be applied to collect data.

Table (4) Protocols applied in the search

Work	Protocol applied
Study the properties of groundwater for the two regions (acidity, salinity, conductivity, temperature).	Water protocol
Study the soil properties of the two regions (acidity, salinity, conductivity, temperature, amount of roots, rocks and carbons).	Soil protocol

-Identify the appropriate devices and tools to carry out the work (pH-salinity meter and conductivity-GPS-thermometer-cups-paper-pen).

- Applying research to samples by applying appropriate protocol activities (water, soil).

Table (5) Mechanism for applying protocols for data collection

Search Question	Protocol	Application Mechanism
1	Water protocol	- Bring water samples from both sites, and study the characteristics of each sample.
2	Soil protocol	- Bring soil samples from both sites, and study the characteristics of each sample.
3	-	- Inspect the area around the plant and track the external factors surrounding the plant at the two sites, and interview a farmer.

- Collecting and organizing data in tables.

- Entering the data on the program site (www.GLOBE.gov) .

- Analysis and graphic representation of data.

- Interviewing a farmer.

- Reaching the results and recommendations.

B- Study site:

The research plan was implemented in Dhank state, Al-Dhahera governorate, in January and February, when the weather was mild, and water and soil protocols were used.

Location coordinates1:

Longitude: 23.2, Latitude: 56.3,

Height: 519 m

Location coordinates2:

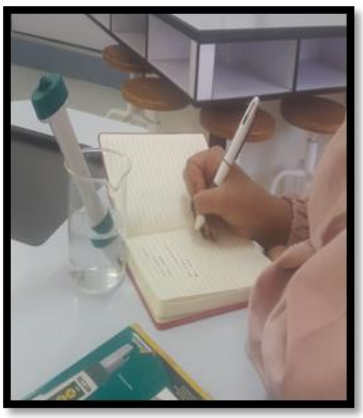
Longitude: 23.3, Latitude: 56.29,

Height: 514 m

Photos (1) and (2) Geographic area of search application site

C- Data collection and analysis:

Data for the first question were collected by collecting data on water properties from the two sites, by measuring their acidity, conductivity, salinity and temperature.



Photos (3) and (4) application of water protocol

To answer the second question of the research, data on soil characteristics were collected from the two sites (general properties, acidity, conductivity, salinity).

Photos (5) and (6) application of soil protocol

In order to answer the third question, data on external factors were collected by conducting a survey visit to the farm of the village of Al-Dhawehria and inspecting the area around the plant and tracking factors that may negatively affect the flowering and growth of the fig tree, and interviewing a farmer and asking him two questions, and his answers were as follows:

1- From your point of view, what external factors affect the flowering of the fig tree?

The amount of sunlight that reaches the tree and the irrigation method received by the tree.

2- What solutions do you propose to solve this problem?

- Educating farmers to provide and create the right conditions for the growth and flowering of the fig tree.

-Planting a fig tree in an area that does not contain trees that block sunlight.

Photo (7) Interview with a farmer

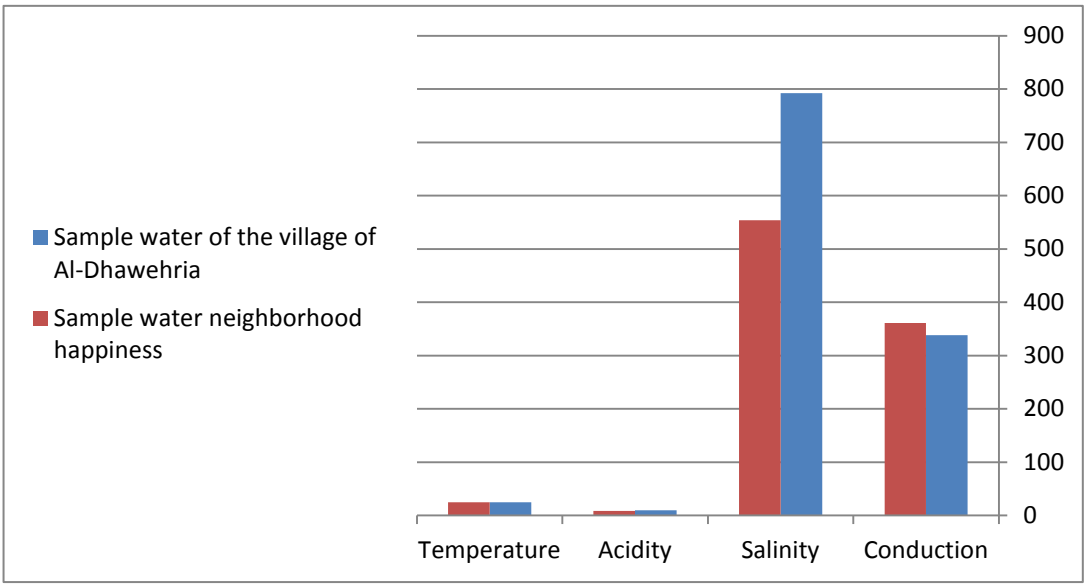
Results:

The data shown in the following table (data on the properties of the water samples of the two sites) were collected to answer the first question of the search:

Table (6) Water protocol characteristics data for the two sites

The comparison face		Sample water of the village of Al-Dhawehria	Sample water neighborhood happiness
Water Protocol	Conduction	338	361
	Salinity	792ppm	554ppm
	Acidity	9.71	8.5
	Temperature	25	25

Figure (1) Water Protocol Characteristics Data for the two sites

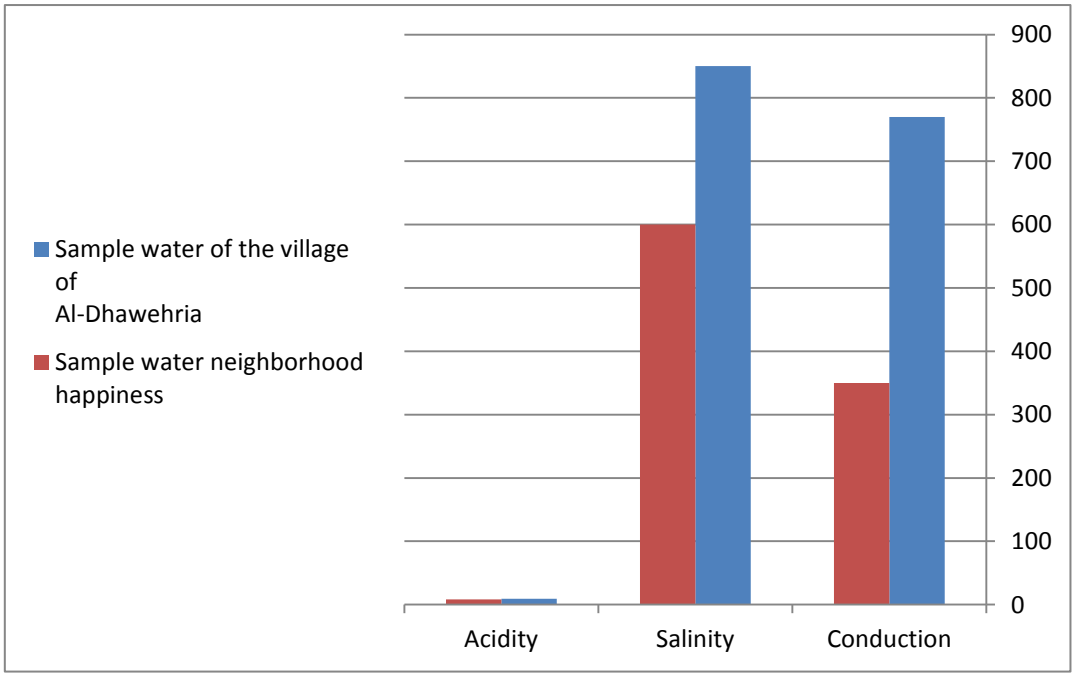


The following table also shows the soil sample characteristics data of the two sites, collected to answer the second question of the research.

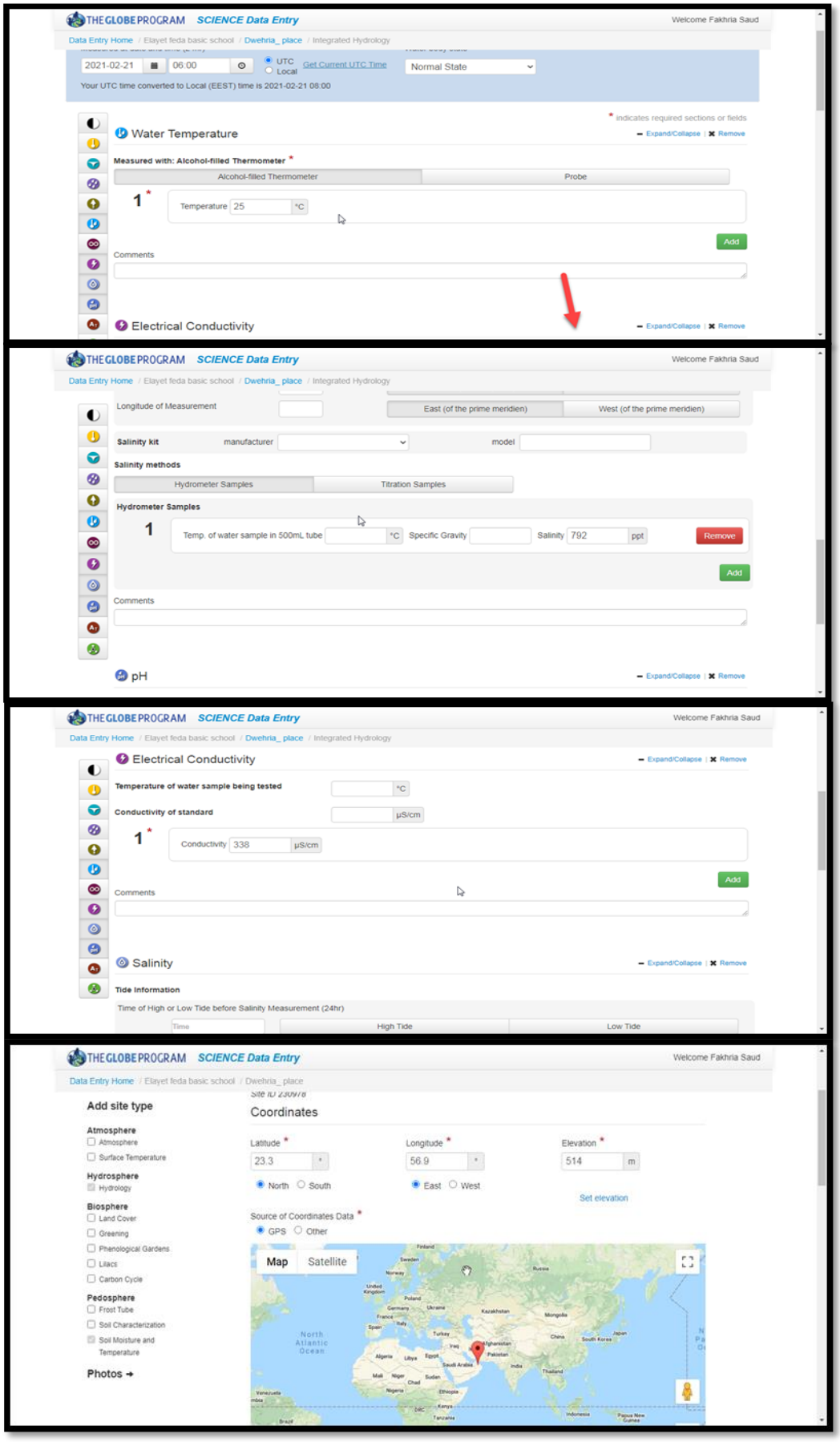
Table (6) Soil protocol characteristics data for the two sites

The comparison face		Sample soil of the village of Al-Dhawehria	Sample soil neighborhood happiness
Soil protocol	Conduction	770	350
	Salinity	850ppm	600ppm
	Acidity	9.11	8.22
	Amount of roots	A few	A lot
	Amount of rock	A lot	A few
	Amount of carbons	A few	A lot
	Soil type	Clay	Warm and fertile sand mud medium structure

Figure (2) the soil protocol data for the two sites



The data was entered and sent to the program site (www.GLOBE.gov) , where a new work site was added and the data collected entered in the search.



Discussion of results:

-To answer the first question in the research:

The results of the properties of the water samples (the water sample of al-Dhawehia farm and the water sample of the Al-Saada neighborhood farm) show higher rates of salinity, acidity and conductivity in the al-Dhaweriya farm water sample.

And the presence of the amount of salinity, acidity and conductivity less in the sample of the water farm neighborhood happiness compared to the sample of water farm al-Dhawehiya, and after research and scrutiny it became clear to us by looking at a previous study of the school um al-Hakam bint Zubair that the salinity of water negatively affects the fertility of the soil and its ability to flower, and this indicates that the rates of the flowering of the fig plant in the neighborhood of Happiness will be higher as the lower the acidity, salinity and conduction rate the higher the rate of flowering of the fig plant and its growth. And the opposite is true.

-To answer the second question in the research:

The results of the soil sample characteristics (the soil sample of al-Dhawehia farm and the soil sample of al-Saada neighborhood) indicate higher salinity, acidity and conductivity in the soil sample of the al-Dhawehia farm, and it was concluded that the quality of the soil of the mud farm is high, and this species cannot be used for agriculture because it has a high pressure and salt containment that is significantly difficult to grow[7].

The presence of salinity, acidity and conductivity in the soil sample of the Neighborhood of Happiness farm compared to the soil sample of al-Dhawehria farm, and it was concluded that the quality of the soil of the Neighborhood of Al-Saada farm is the soil of the medium, warm and fertile sand clay, which is the preferred soil for fig cultivation[8].

Although fig trees live and grow in different types of land and soil, and can withstand the harshest conditions that are not usually borne by most other fruit trees[9] the results of the research were contrary, we concluded that the rate of flowering of fig stench is higher when the type of soil is medium-sour sand warm and fertile, so we can inferr that the soil type affects the flowering of fig sand.

-To answer the third question in the research:

After examining the area around the plant, and tracking the external factors affecting it, and an interview with a farmer we found that the first factor is the irrigation method received by the tree, where the fig tree is one of the most thirsty and drought-resistant fruit trees, but it shows a positive response to the regular irrigation additives in terms of the speed of growth and early entry in the fruitand quantity and quality of the crop[10], and it has been noted that the fig tree in the happiness farm is watered in a regular irrigation manner, unlike the tree in the tree that is in the opposite of the tree that is in the Al-Dhawehria Farm.

It became clear to us that the second factor is the brightness of the sun, where figs require bright sunlight in order to produce edible fruits[11], and by visiting the site we found that the fig tree in the farm of Al-Saada receives bright and direct sunlight, and we noticed the fig tree in the farm of al-Dhaweriya receives indirect sunlight because the trees adjacent to it block the sunlight from it.

There may be other external factors that we have not addressed.

The bottom line:

This research sought to discover the reasons leading to the lack of flowering of the fig plant in the village of al-Dhawehria, and the research explored the difference in water properties between the two samples for the two sites, and lower salinity and acidity rates were discovered in the happiness farm sample, where we noticed that it is best suited for the growth and flowering of the fig plant. We also explored the difference between the soil properties of the two samples, and we found that the rates of conductivity, acidity and salinity are lower in the happiness farm soils, which are of the medium soil type, sandy clay, warm and fertile, and we concluded that they are the most suitable and best for the growth and flowering of the fig plant, as well. The research discovered the external factors affecting the flowering of the fig plant, where we dealt with two influencing factors, which are sunlight and the irrigation method, and it was concluded that the fig plant needs bright and direct sunlight, and a regular irrigation method.

These conclusions lead us to further research and investigation to examine other causes that may have led to the non-proliferation of figs that we have not addressed.

Thanks and appreciation:

We are pleased to extend our sincere thanks and appreciation to everyone who gave us the imprint of advice and assistance and helped us by answering questions and overcoming obstacles in carrying out the research. Our thanks go to teacher Nadira Al-Harithi, the national coordinator of the GLOBE program in the Sultanate of Oman, and to teacher Ahmed Al-Balushi and teacher Fatimah Al-Muqami , members of the program's central team, to follow up and encourage them to continuously prepare and produce the research in the appropriate way. We also extend our thanks and appreciation to the two teachers supervising the GLOBE program at the school, teacher Fakhria Al-Balushi and teacher Jamila Al-Maamari , for giving us the opportunity to prepare this research, and Providing advice and guidance on everything related to research. We thank all those who cooperated with us from the school's administrative and teaching staff. We thank the village farmers for clarifying the problem.

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