Sultanate of Oman

Governorate of AlDahira

Elayat Fida School (1-10)

Study the Reasons Behind the Intensity of Plants Growth in Fida Village in Comparison with AlDwahriya Village

(Wilayat of Dank)

Done by:

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Sultanate of Oman - Governorate of AlDahira – Wilayat of Dank

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Summary

This research aimed to study the reasons behind the intensity of plants growth in Fida village in comparison with AlDwahriya village by answering the questions below:

1- What are the reasons that lead to lack of plants growth intensity in AlDwahriya village?
2- Is there any difference in the characteristics of water and soil in the two villages? How?
3- What are the external factors that impact on the lack of plants growth in AlDwahriya village?

First, we searched for an issue to be studied through the field visits to some farms in the village. We also interviewed some farmers and agricultural specialists.

It was clear that the percentage of plants growth was too low in AlDwahriya village compared to Fida village; As a result of this, we decided to study the issue. Samples had been taken from the two

villages by taking samples from water protocol (water used in crops irrigation). Other samples had been taken from soil protocol (soil used in agriculture). Water protocol and soil protocol were applied in school laboratory to measure the properties of salinity, conductivity and acidity. They applied them to the soil and water samples in two different areas.

The research results indicate that there was diversity in the characteristics of water and soil. The characteristics of water in the two areas were as below:
The water characteristics in the two areas were different. The conductivity, salinity and acidity were higher in AlDwahriya than in Fida. Furthermore, the soil characteristics were also different. Quantity of carbon, rocks and salinity were much more in AlDwahriya than in Fida which featured in quantity of roots and moderate salinity, conductivity and acidity. Then, we visited department of agricultural development and we interviewed the engineers. Competent authorities should provide the essential needs for the farmers.

Key Terms

Field visits: visits made to preview the site and to view the environmental problems then studying them.
Plant growth intensity: plenty of plant growth in the region.
External factors: factors that are result of climate factors and affect the plant.
Agricultural specialists: people who have extensive experience in agricultural field.
Little: few

Research Questions

1-What are the reasons that lead to lack of plants growth intensity in AlDwahriya village?
2- Is there any difference in the characteristics of water and soil in the two villages? How?
3- What are the external factors that impact on the lack of plants growth in AlDwahriya village?

Through the previous questions, we will start our research. We will use all the data and discuss all the results. In addition, we are going to answer all the questions which we had asked previously.

Introduction and Literature Review

AlDwahriya villagers suffer from lack of plants growth and that not all crops types are flowered (And a sign for them is the dead earth .We have brought it to life and brought forth from it grain, and from it they eat) 32-34 Yaseen.

Quranic verses indicate that God Almighty is the only one who can greet the earth. He can remove the grains, make heavens and blow the rivers. God is absolutely the real farmer while human is just a way.

(Then let man look at his food, For that We pour forth water in abundance, And We split the earth in fragments, And produce therein corn, And Grapes and nutritious plants, And Olives and Dates, And enclosed Gardens, dense with lofty trees, And fruits and fodder, For use and convenience to you and your cattle) 24-32 Abasa

These verses indicate basic factors and mechanisms based on agricultural system which are:

Climate factors: (How We poured down water in torrents)

Here is an indication to all effects that contribute in raining which are wind, clouds, temperature and evaporation. The Quranic verses summarize all these factors in its natural result which is raining.

Soil factors: (Then We broke open the earth)

This verse refers to the soil role in agricultural system in general and tillage methods.

The plant:(splitting it with sprouts and grapes and herbage And olive and palm trees And gardens of dense shrubbery And fruit and grass As enjoyment for you and your grazing livestock)

The is the third main factor to identify the range of success in agricultural process. It also includes the circumstances of germination process and the type of the seeds used.

From these Quranic verses, we strove to search for the external factors that impact on lack of plant growth in AlDwahriya village.

In this research, we aim to recognize and study the reasons behind plant growth intensity in Fida village. We then compare it to the plant growth in AlDwahriya village. In Wilayat of Dank. Moreover, We aim to acknowledge the characteristics of soil and water by applying soil protocol and water protocol.

Research Methods

First: Research Plan

In the beginning, we got to know the new farms in the village. Then, we applied the field visits in the selected sites. In fact, we discovered that farmers suffer from lack of plant growth issue in AlDwahriya village. After that, we interviewed the village farmers to restrict the causes that lead to this issue. We also collected information from different sources about research topic.

We divided the team into two groups. Each group went to a village to take water samples that are used in crops irrigation and agricultural soil. Soil and water protocols were applied in school laboratory todiscover the reasons behind lack of plant growth in Fida compared to AlDwahriya village. First team: AlDwahriya village, second team: Fida village.

Proposed Time plan in the Research Timetable:

Month	Work Plan
September/2018	-Writing research issue -Selecting g tools and taking samples from the two areas.
October/2018	-interviewing farmers and agricultural engineers.
November/2018	-reaching the inference -start writing the research.
December/2018	-research submission

Table (1)

Roles Distribution to the research team:

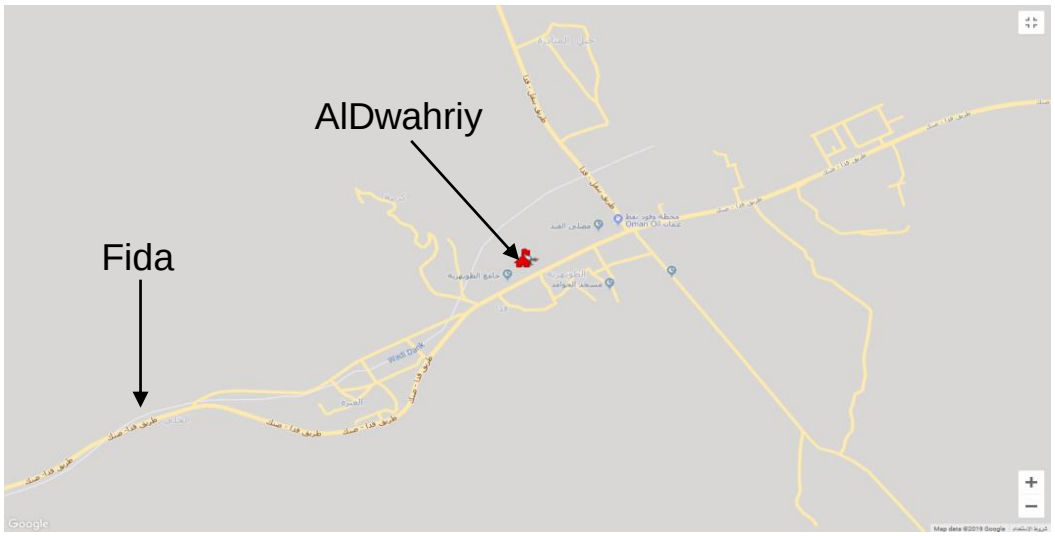
Student	Task
Sundus AlMajrafi	Writing research issue
Jinan AlMuqbali Atheer AlKalbani	Selecting g tools and taking samples from the two areas
Sundus AlMajrafi	interviewing farmers
Jinan AlMuqbali	Interviewing agricultural engineers
Atheer AlKalbani Jinan AlMuqbali Sundus AlMajrafi	reaching the inference
Jinan AlMuqbali Sundus AlMajrafi Atheer AlKalbani	start writing the research
Jinan AlMuqbali Atheer AlKalbani	Completing the research, checking it and making recommendations
Jinan AlMuqbali Sundus AlMajrafi	Formatting the cover page

Table (2)

Second: Research Site

(Sultanate of Oman – Governorate of AlDahira – Wilayat of Dank) , Fida andAlDwahriyaVillage, November and December, moderate weather, soil and water protocols were used).

(N 23, 31. 179) (E 056, 32. 644)



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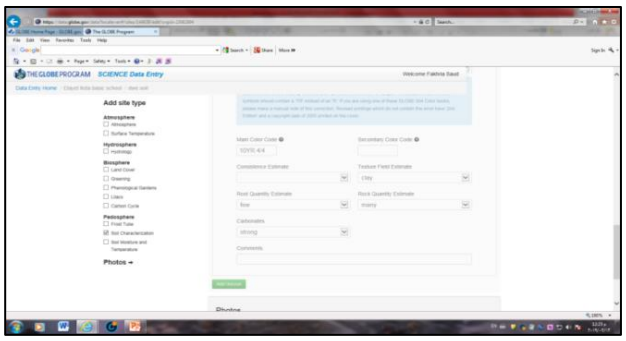

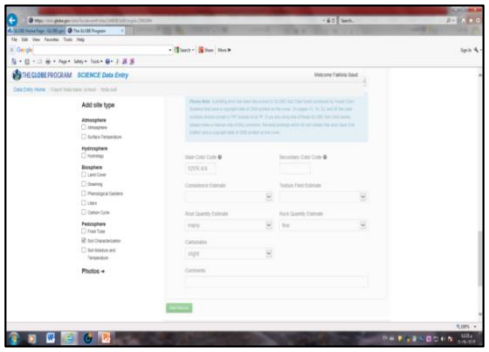

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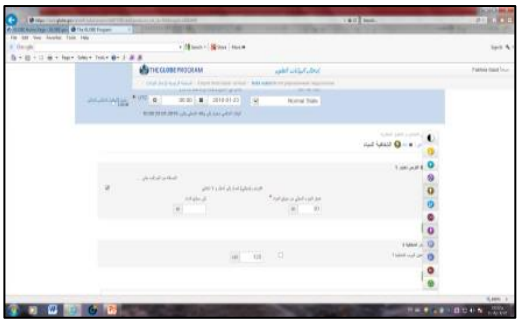

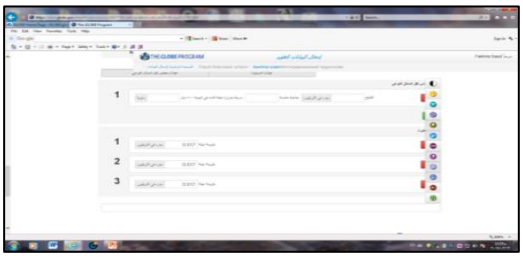

The characteristics of soil in Fida andAlDwahriya

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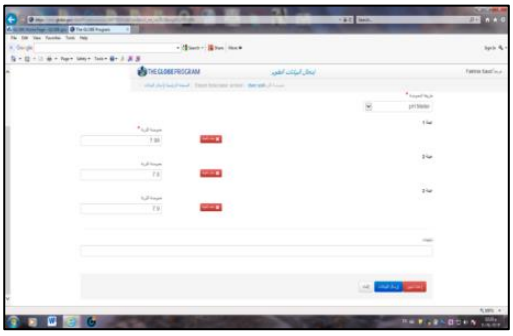
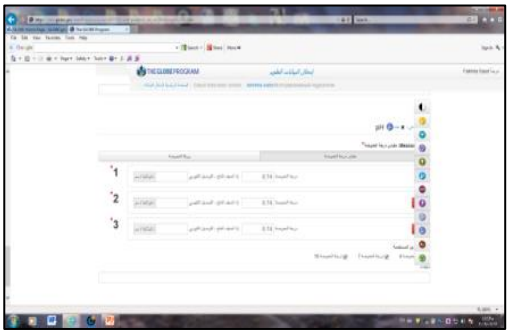
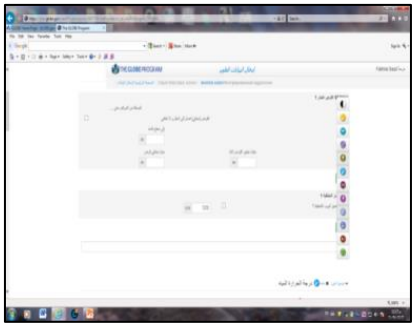
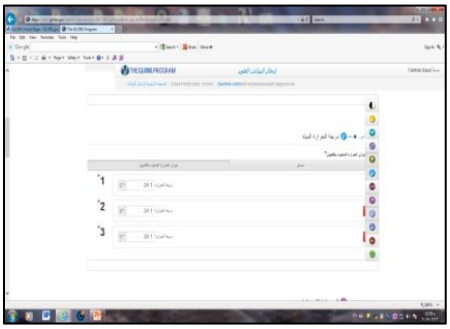








The characteristics of water in Fida andAlDwahriya

Image (6) (7) (8) (9)

Third: Data Collection and Analysis

At the beginning, each student was given a specific work and the protocols that need to be applied by a time table. Then, following steps were done:

1- Using water protocol to identify water acidity, conductivity, transparency and salinity. Soil protocol was also used in identifying soil acidity, conductivity, salinity, temperature, type, colour, quantity of roots, quantity of rocks and quantity of carbon.

2- Interviews (farmers and agricultural specialists such as agricultural engineers.

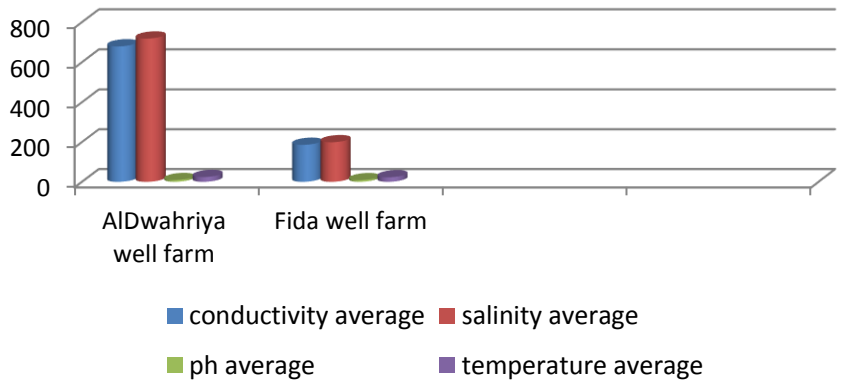

Application of water and soil protocol

3- Practical experimentation

Results

	Conductivity average	Salinity average	Ph average	Temperature average
AlDwahriya	679	718	8.74	24.1
Fida	186	199	8.29	22.8

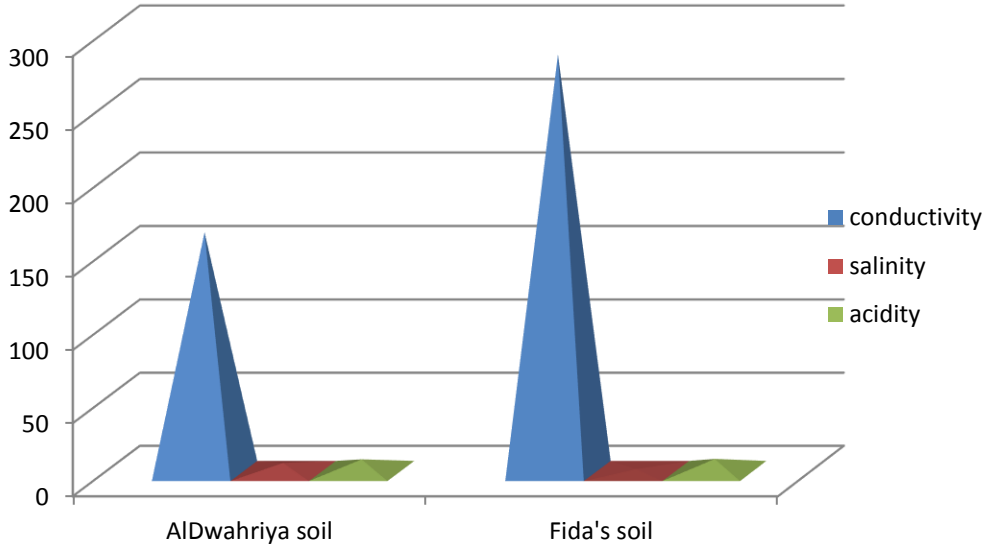
We got the following data by comparing the salinity, conductivity and acidity of AlDwahriya water and Fida water:



A timetable indicates the comparisonof soil characteristics of the soil in the two study areas:

	Conductivity	Quantity of roots	Quantity of rocks	Quantity of carbon	Acidity	Salinity
AlDwahriya	163	Few	Many	Many	7.99	5.57
Fida	284	Many	Few	Few	8.28	1.44

We got the following data by comparing the salinity, conductivity and acidity of the two study areas:



Results Discussion

It was clear for us that the answer of question 1 is:

- The causes that led to lack of intensity of plant growth in AlDwahriya village is the difference in conductivity average in the two villages. The conductivity of water in AlDwahriya village was higher than it was in Fida. There was also difference in salinity average. It was very in AlDwahriya. In addition, there was difference in temperature as well as soil types. AlDwahriya soil had few roots and plenty of rocks. The quantity of carbon and the salinity were very high in AlDwahriya soil. On the contrary, the acidity in AlDwahriya did not differ a lot from the acidity of Fida village. In fact, acidity was basic factor for plant growth intensity in the village.

To answer question 2

- Yes, there is a huge difference in the characteristics of the two soils as in the following tables:

	Conductivity average	Salinity average	Ph average	Temperature average
AlDwahriya	679	718	8.74	24.1
Fida	186	199	8.29	22.8

The Difference in the water characteristics in the two villages

	Conductivity	Quantity of roots	Quantity of rocks	Quantity of carbon	Acidity	Salinity
AlDwahriya	163	Few	Many	Many	7.99	5.57
Fida	284	Many	Few	Few	8.28	1.44

The Difference in the soil characteristics in the two villages

At the end, answering the question 3 :

There were external factors affected on lack of plant growth which are:

1- Temperature: through the diversity in temperature in the areas.
2- Humidity: diversity of humidity in the two areas.
3- Rainfalls: diversity of rainfall rate and quantity in the two areas.

Determination of water

Specify the color of the soil

Soil temperature measurement

Application of water and soil protocol

Image (13) (14) (15)

Summary

In this research, we attempted to recognize the reasons behind lack of plant growth in AlDwahriya village compared to Fida village. We, as students, experimented a process (by examining two samples of water and soil from Fida and AlDwahriya villages. Furthermore, we made field visits to the farms and agricultural development in wilayat of Yunqul.

We concluded:
Influential external factors such as quantity of water consumed in crops irrigation. It is a factor that affects a lot in intensity of plant growth in AlDwahriya village and the characteristics of water used in irrigation.
Through this, we found out that the soil and water in AlDwahriya differ from those in Fida.

The characteristics of AlDwahriya's soil: semi-sandy, plenty of rocks and carbon ,and low roots (granular and soft).
The characteristics of AlDwahriya's water: more salinity, less conductivity and more acidity.
The characteristics of Fida's soil: clay, few rocks and carbon ,and many roots (Fragile, hierarchical)
The characteristics of Fida's water: less salinity, more conductivity and low acidity.

Based on these results, we suggest that all people in the society should work hard to find solutions for plant growth intensity in AlDwahriya village. We also demand the government entities which are responsible of agricultural development to provide all farmers' needs in the village. They also should get rid of scarcity of irrigation water problem for plant diversity in quantity of water that need to grow.

Our recommendations:

- There should be guidelines to protect soil protocol and water protocol from pollution which can cause lack of plant growth.
- Paying attention to farmers' requirements and they should not be neglected.

Thanks and Acknowledgments

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1- All administrative and teaching staff
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2- Agricultural development officers
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3- Village farmers and parents
For clarifying the problem

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For her great support

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National coordinator in GLOBE program in Sultanate of Oman

6- The two admins in GLOBE program in Sultanate of Oman
Teacher: Fakhria Saud AlBalushi
Teacher: Jamila Humaid AlMamari
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