Kingdom of Saudi Arabia

Ministry of Education / Sabya Education Department

Al-Shugairi middle and high school for girls

Research Title/

The effect of climate on the cultivation of tropical fruits in the Shugairi Center

The names of the students/

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The date is 2025 AD

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Contents:

Summary:

This study aims to identify the phenomenon of climate influence and its relationship with tropical plants in the Shugairi Center in Damad Governorate, and from here we began to propose the following: Research questions and hypotheses:

- Is there a relationship between climate and the cultivation of tropical plants?

Hypothesis:

Hypothesis: There is a relationship between climate and the cultivation of tropical plants in the Shugairi Center

procedures:

We used observation and a descriptive survey method, and a questionnaire was distributed to a sample

GLOBE was a random sample of (11) items, and measurements were made with tools

And photographing data from the site, we took a group of pictures showing climate change in the Shugairi Center.

Results:

There is a relationship between the cultivation of tropical fruits and the climate of the Jazan region in the Shugairi center.

Conclusions:

There is a direct relationship between the cultivation of tropical fruits and climate change and it varies from one region to another

This study helps develop solutions and emphasizes the importance of studies and research to obtain solutions and results that help reduce the risk of the weather's impact on agriculture.

Terminology:

Climate: It is the natural physical state, the generated state of the atmosphere or the long-term average state of a place. The period during which the climate is determined is not less than 30 years. Weather changes refer to a specific moment in time (day or week), and can occur over a short period of time ranging from one minute to the next, or within an hour.

The climate is tropical: relative to the equator, it is located between latitudes 10 north and 10 south. It is characterized by high temperatures and heavy rain that falls throughout the year.

Agriculture or farming: It is the process of producing food, fodder, fiber and other goods through the systematic breeding of plants and animals.

Tropical fruits: They are fruits found in subtropical or tropical climate regions, where there is high temperature and heavy rain throughout the year, which gives them a suitable environment for their growth, as tropical fruits do not tolerate cold, which would expose them to damage or change when the temperature drops below 4 degrees Celsius.

Abstract:

The Jazan region is one of the most important agricultural regions in the Kingdom, as its crops are diverse. Among the most famous of these crops is mango, as well as papaya, bananas, and a number of other agricultural crops. The cultivation of tropical fruits began in 1982.

The climate of the Jazan region is affected by the movement of tropical winds and varies due to the diversity of surface features and geographical characteristics of the region. The climate of the coastal plain is mild in winter and hot and humid in summer. The temperature gradually decreases towards the mountains, resulting in rainfall, and the temperature rises during the period from June to September. The average temperature ranges between 25 degrees Celsius in January and 35 degrees Celsius in June, with the maximum temperature reaching 41 degrees, and the lowest temperature reaching 18 degrees.

- Is there a relationship between climate and the cultivation of tropical plants?
- What is the effect of climate on the cultivation of tropical fruits?

research aims:

Identifying the relationship of climate to the cultivation of tropical fruits and its impact on the city of Jazan by monitoring and following up on climate elements in terms of their movement and direction, the causes that lead to them, and reaching results.

research importance:

The importance of the research lies in knowing the cultivation of tropical fruits and their relationship to climate elements and their impact on the city of Jazan and the consequences that result from it, whether it is the occurrence of droughts or the expansion of desert areas, as well as the occurrence of agricultural disasters and the loss or lack of agricultural crop production.

Previous studies:

Benefiting from the summary of experiments and scientific research that contribute to serving farmers, improving the quality of agriculture, and improving the service of farmers in the Jazan region and beyond, and supporting the efforts of the Ministry of Environment, Water and Agriculture, represented by the Agency of Agriculture, in achieving a sustainable agricultural environment. Benefiting from what is presented by the Agricultural Research Center of the branch of the Ministry of Environment, Water and Agriculture in the Jazan region. Successful agricultural experiments and research

search limits:

Objective: The impact of climate and weather changes on the cultivation of tropical fruits in the city of Sabya

Time: 2024 AD

Location: Sabya (Al-Shuqairi Center)

Search terms:

Climate: It is the natural physical state, the generated state of the atmosphere or the long-term average state of a place. The period during which the climate is determined is not less than 30 years. Weather changes refer to a specific moment in time (day or week), and can occur over a short period of time ranging from one minute to the next, or within an hour.

The climate is tropical: relative to the equator, it is located between latitudes 10 north and 10 south. It is characterized by high temperatures and heavy rain that falls throughout the year.

Agriculture or farming: It is the process of producing food, fodder, fiber and other goods through the systematic breeding of plants and animals.

Tropical fruits: They are fruits found in subtropical or tropical climate regions, where there is high temperature and heavy rain throughout the year, which gives them a suitable environment for their growth, as tropical fruits do not tolerate cold, which would expose them to damage or change when the temperature drops below 4 degrees Celsius.

the introduction:

There are many types of tropical fruits that have been grown, as people consume them on a daily basis, and this is what drives farmers to increase their numbers, in addition to the possibility of exporting them outside the country, and this is what brings them a profitable increase, and they produce huge quantities of fruit, The most popular tropical fruits that people accept are mango, banana, and papaya

Climate effect on tropical fruits:

Tropical fruits are fruits found in subtropical or tropical climate regions, where there is high temperature and heavy rain throughout the year, which gives them a suitable environment for their growth, as tropical fruits do not tolerate cold, which would expose them to damage or change when the temperature drops below 4 degrees. Degrees Celsius.

Materials and method (procedures)

Tools:

Thermometer - - GPS - GLOBE devices - Barometric pressure gauge, cloud chart - Rain gauge,

Humidity gauge - Pen, paper - Computer Globe Environmental Website

The questionnaire

A-The questionnaire was distributed to a random sample.

B-Validity of the research tool: The researchers presented the questionnaire to a random sample to express their opinion

on this test in terms of: its suitability to the research topic, its comprehensiveness, and the sufficiency of the number

of elements to enrich the research. The researcher obtained some constructive opinions and observations that In light

of this, some paragraphs were amended and approved, and it became in its final form

Preparing the study tool: The research questionnaire was constructed, and in its final form it consisted of (11) paragraphs

C- Stability of the research tool: The stability of the research tool (the questionnaire) was confirmed, and high rates of stability were observed for all

areas of the questionnaire.

The research tool has stable results if it is re-applied to the research sample again, which confirms its validity

For field application

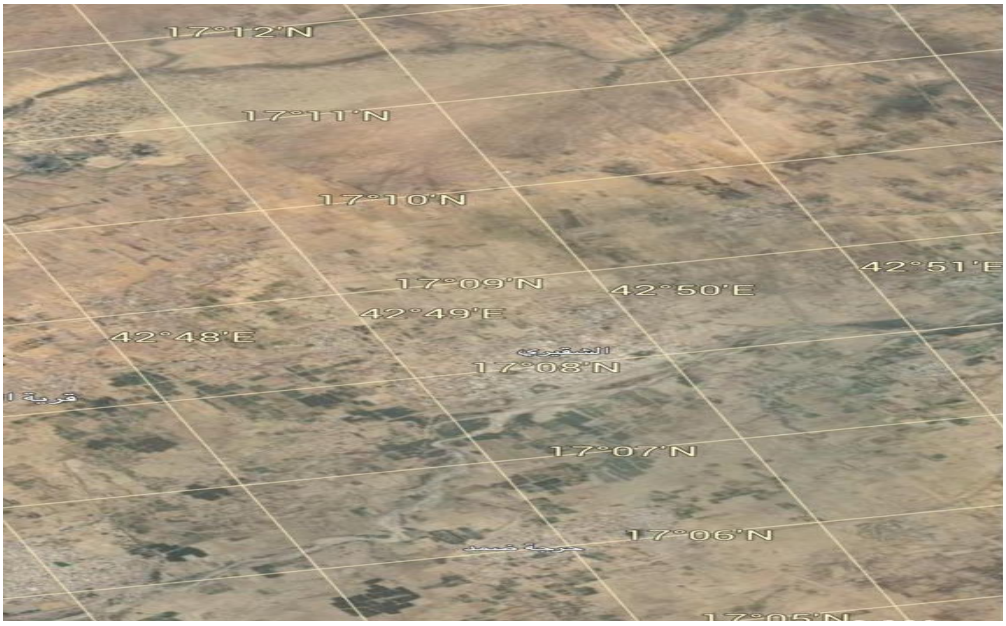
Steps:

We used observation and a descriptive survey method

We used the Globe website and devices to take temperature, humidity, and barometric pressure to take data and determine the location

How high and noticeable the clouds are

For 3D vegetation images



Pictures of farms

Banana farm

Planting: from
October to December

Mango farm

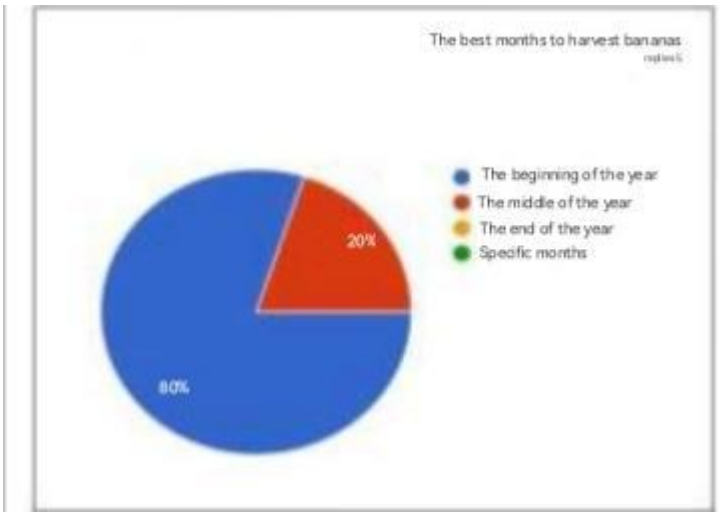
Planting: in March
until late April

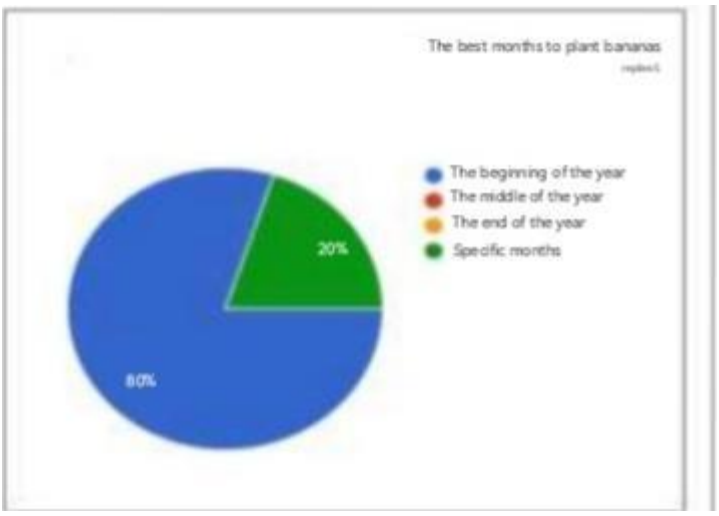
Papaya farm

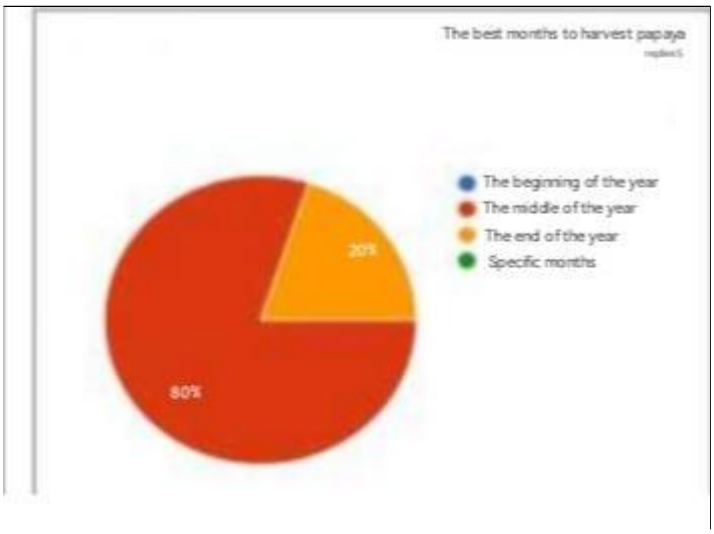
Planting: in May and
continues until August

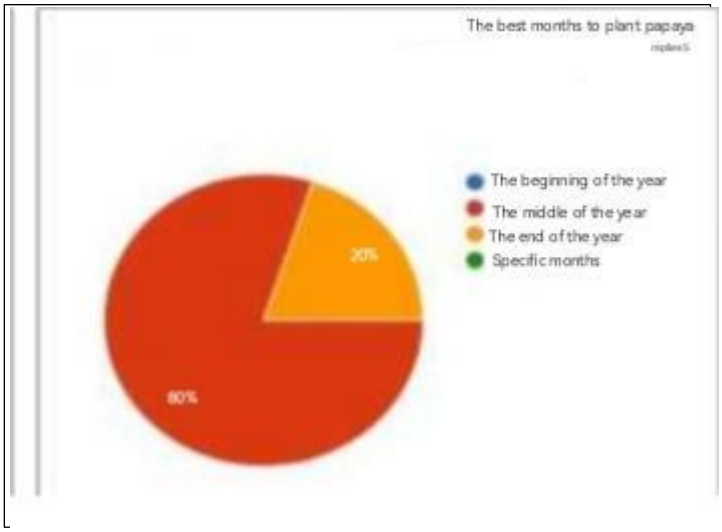
The questionnaire

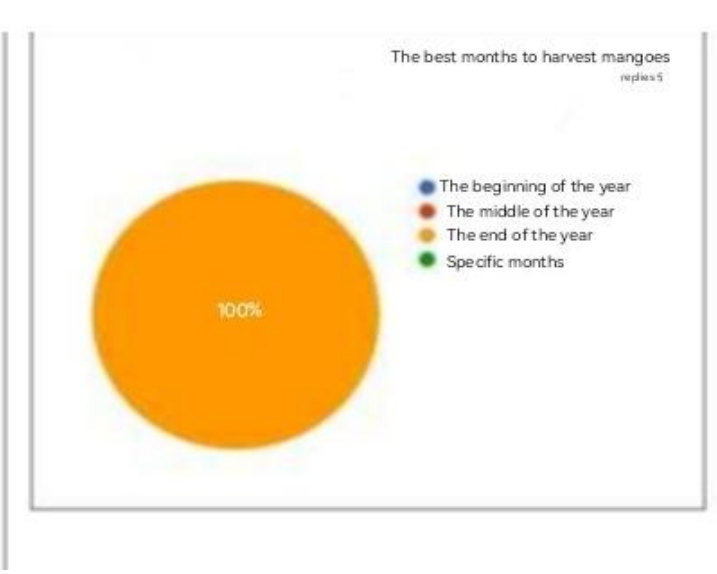
The ratio		Options				Survey questions
80%	20%	Specific months	End of year	Middle of the year	beginning of the year	The best months to plant bananas
80%	20%	Specific months	End of year	Middle of the year	beginning of the year	The best months to plant papaya
100%		Specific months	End of year	Middle of the year	beginning of the year	The best months to plant mango
80%	20%	Specific months	End of year	Middle of the year	beginning of the year	The best months to harvest bananas
80%	20%	Specific months	End of year	Middle of the year	beginning of the year	The best months to harvest papaya
100%		Specific months	End of year	Middle of the year	beginning of the year	The best months to harvest mangoes
100%		I don't know	Depending on the soil	No different	Different	Do regions in Jazan differ in their ability to grow tropical fruits?
100%		It doesn't change at all	With soil and climate together	With soil only	By climate only	Is the cultivation of tropical fruits affected by climate and soil?
100%		Depending on the dryness of the soil	Daily	three times a week	once a week	How many times do you need to water tropical fruits per week
The extent of similarity of answers is 85% to 90%		Rain and air temperature		The nature of the climate, sunlight, temperature, availability of water, and humidity levels		What are the factors affecting the cultivation of tropical fruits in terms of soil and climate?
The extent of similarity of answers is 85% to 90%		By planting seeds using field methods, grafting, ground layering, maintaining fertilizers, and regular irrigation		Use of reserves		The best ways to grow and care for fruits

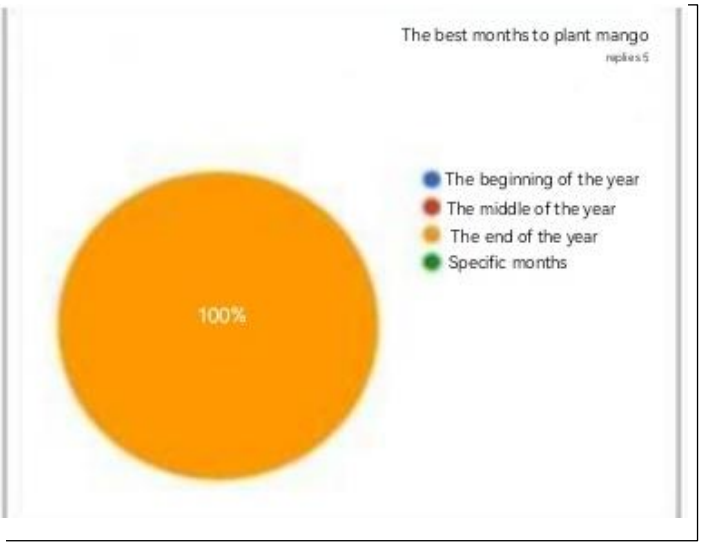

The best months to harvest bananas
20%
80%
The beginning of the year
The middle of the year
The end of the year
Specific months

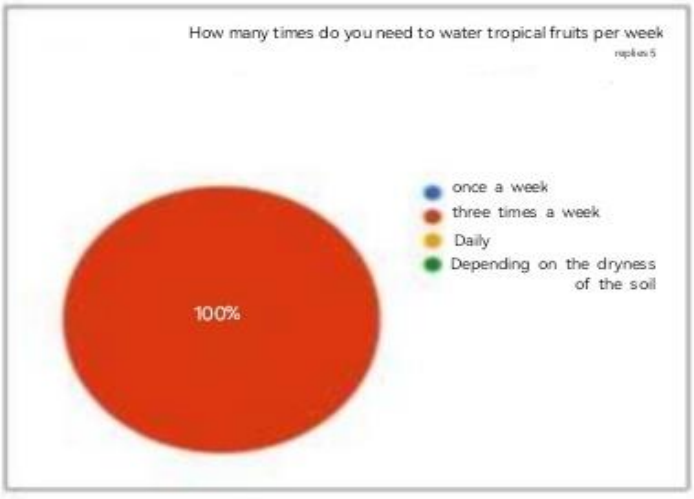

The best months to plant bananas
20%
80%
The beginning of the year
The middle of the year
The end of the year
Specific months

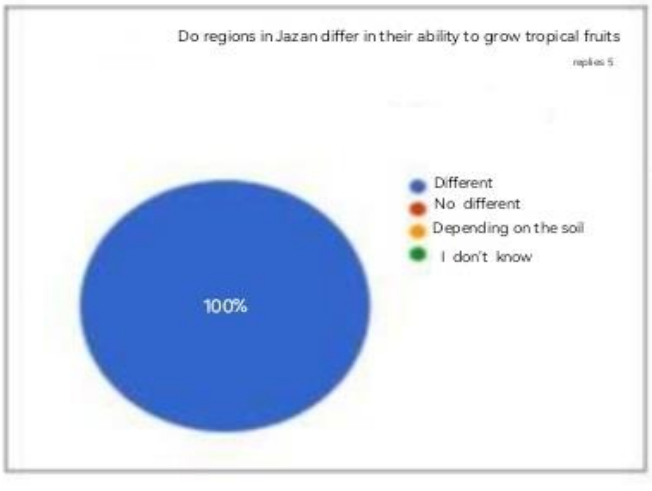

The best months to harvest papaya
20%
80%
The beginning of the year
The middle of the year
The end of the year
Specific months

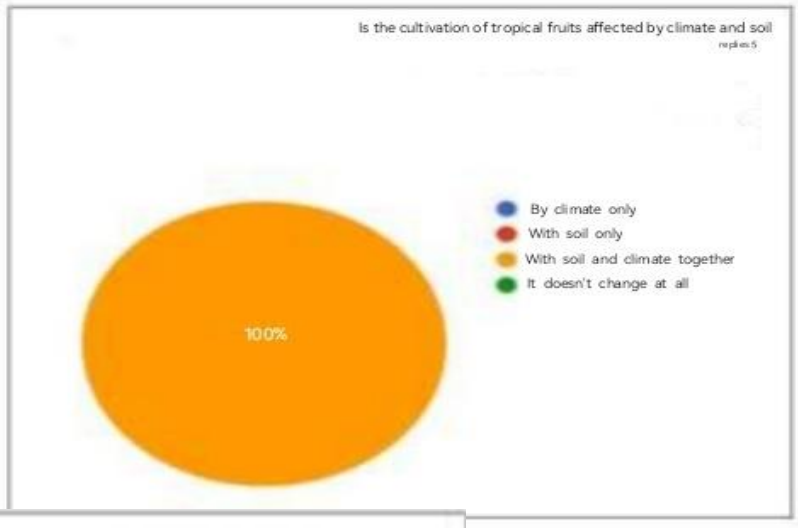

The best months to plant papaya
20%
80%
The beginning of the year
The middle of the year
The end of the year
Specific months


The best months to harvest mangoes
replies 5
100%
The beginning of the year
The middle of the year
The end of the year
Specific months


The best months to plant mango
replies 5
100%
The beginning of the year
The middle of the year
The end of the year
Specific months


How many times do you need to water tropical fruits per week
replies 5
100%
once a week
three times a week
Daily
Depending on the dryness of the soil


Do regions in Jazan differ in their ability to grow tropical fruits
replies 5
100%
Different
No different
Depending on the soil
I don't know



What are the factors affecting the cultivation of tropical fruits in terms of soil and climate

The nature of the climate, sunlight, temperature, availability of water, and humidity levels

The nature of the climate, temperature, rainfall and soil

Rain and air temperature

The nature of the climate, sunlight, temperature, availability of water, and humidity levels

Rainfall, air temperature, nature of the climate, sunlight, temperature, availability of water, and humidity percentage

The best ways to grow and care for tropical fruits

replies 5

Use of reserves

By planting seeds, cuttings, grafting, ground layering, or aerial layering to care for them, applying fertilizers, regular watering, and cleaning weeds.

By planting seeds, cuttings, grafting, ground layers, or aerial layers to care for them, using fertilizers, and regular irrigation.

Use of reserves By planting seeds, cuttings, grafting, ground layering, or aerial layering to care for them, applying fertilizers, regular watering, and cleaning weeds.

Analysis:

The percentage of agreement in the questionnaire regarding the appropriate months for planting and harvesting and the factors affecting climate was very high, from 80-100%.

The percentage of similarity in the open-ended answers regarding appropriate methods of agriculture was at a high level of agreement between regular agriculture and reserves, with a similarity rate of 85-95%.

Results

The results of the research showed the role of climate in the region's suitability for growing multiple types of tropical fruits and how the climate of the Jazan region is affected by the movement of tropical winds and varies due to the diversity of surface features and geographical characteristics of the region. The climate of the coastal plain is moderate in winter and hot and humid in summer, and the temperature gradually decreases towards the mountains, resulting in This is due to rainfall, and the temperature rises during the period from June to September. The average temperature ranges between 25 degrees Celsius in January and 35 degrees Celsius in June. The maximum temperature reached 41 degrees, and the lowest temperature reached 18 degrees, and the relative humidity increases. From the direction of the eastern part of the plains to the west, the relative humidity ranges from 61% in July to 79% in December. The maximum relative humidity reached 99% and the minimum reached 27%.

The northwesterly winds also blow over Jizan from May to September, and the monsoon winds blow in the months of June and August, carrying sandstorms, causing the phenomenon of dust. The speed of the monsoon winds in the region reaches about 26 km/hour as an annual average, but the period characterized by an increase in speed. Winds occur during the summer, rising to more than 30 km/h during the months of May, June, August and September.

Rainfall in the region occurs in the summer during the months of July, August and September.

Conclusion

In this study, we concluded that there is a relationship between the climate of the Jazan region in general and the Shugairi Center in particular and its impact on the region's ability to grow tropical fruits. This study helps give other methods and ideas for the region's suitability for growing other types of fruits and how each logic is distinguished for growing some species, which helps to Taking advantage of the region to increase vegetation cover, preserve the environment, raise the economy, and support Saudi Arabia's green vision.

Discussion:

There are many studies that have proven the relationship between climate change and its impact on the cultivation of tropical fruits in the region, in agreement with our current study. The purpose of this study is to identify the relationship between climate and its impact on the cultivation of tropical fruits in the city of Sabya, Shugairi Center, by monitoring and following up on the climate and its changes during the year and the types of fruits. Suitable for agriculture.

In light of the conclusions we have reached in this current research, the following recommendations can be made:

Supporting major centers such as the National Meteorological Center.

Expanding research operations and conducting more advanced studies on including more tropical fruits and cultivating them in the region

Seeking help from the Agriculture Center of the Ministry of Environment and Water branch in Jazan region to support student research.

Benefit from the tropical fruits exhibition at the Mango Festival in Sabya in 2024 in knowing the cultivated tropical fruits.

Promoting the use of renewable energies.

Reducing environmental pollution and supporting afforestation operations in keeping with Vision 2030

Thanks and appreciation:

Dr.. Abadi Muhammad Mishlawi

Assistant Professor of Entomology

Gazan University

Dr.. Osama Muhammad Hassan Aboul Gheit

Assistant Professor of Entomology

Sources

https://jazan.sa/ar/Pages/AboutJazan.aspx

http://www.moqatel.com/openshare/Behoth/Gograp hy11/geography/sec100.doc_cvt.htm

https://www.spa.gov.sa/2384718

الفرق بين الطقس والمناخ - موضوع (mawdoo3.com)

Virtual exhibition 2023-2024

https://www.globe.gov/news-2021

Scientific academic journals

https://www.iasj.net/iasj/article/36847

https://www.mosoah.com/health/nutrition/what-are-tropical-fruits/

https://www.wikiwand.com/ar/%D9%81%D9%88%D8%A7%D9%83%D9%87_%D8%A7%D8%B3%D8%AA%D9%88%D8%A7%D8%A6%D9%8A%D8%A9