Saudi Arabia

Ministry of Education / Sabya

search title

(Rainfall variation and its effect on the cultivation of Alonca in the city of Sabya)

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Date / 2025 AD

Abstract:
This study aims to know the effect of rainfall variation on the cultivation of Alonca plant in the city of Sabya. From here, we began to propose the following:

Research question and hypothesis:

· Does the variation in rainfall affect the cultivation of the Alunka plant in the city of Sabya?

· Is there a relationship between the lack of rainfall and the lack of cultivation of the Alunka plant in the city of Sabya?

Hypothesis:
· The variation in rainfall affects the cultivation of the Alunka plant in the city of Sabya
· There is a relationship between the lack of rainfall and the lack of cultivation of the Alunka plant in the city of Sabya.

Procedures
I used the descriptive survey and observation method and prepared a questionnaire about the effect of the lack of rain on the cultivation of the Alonca plant in the city of Sabya.

Results:
There is a direct relationship between rainfall variation and the cultivation of the Alonca plant. The lower the rainfall, the lower the cultivation of the Alonca plant.

Conclusions:
There is an effect of rainfall variation on the cultivation of the Alonca plant, and rain is considered one of the most important factors affecting the cultivation of the Alonca plant.

Terms:
Rain: A form of water droplets falling from clouds in the sky.
Alunca plant: It is a tropical plant that blooms throughout the year and is distinguished by the colors of its flowers.

content list :

Abstract :

Introduction to research:
The phenomenon of rain interruption and variation is one of the major problems that arid and semi-arid regions suffer from, because it has a negative impact on rain-fed agriculture. The city of Sabya suffers from this phenomenon. The study area includes most of the cultivated lands, and agriculture depends on rainwater and groundwater. This study aims to know the effect of interruption. Rainfall on the cultivation of the alonca in the city of Sabia, and from here we began to suggest the following.

Research questions and hypotheses:
· Does the variation in rainfall affect the cultivation of the Alunka plant in the city of Sabya?

· Is there a relationship between the lack of rainfall and the lack of cultivation of the Alunka plant in the city of Sabya?

Hypothesis:
· The variation in rainfall affects the cultivation of the Alunka plant in the city of Sabya
· There is a relationship between the lack of rainfall and the lack of cultivation of the Alunka plant in the city of Sabya.

Variables:
The Independent: Rain.
Agriculture : Alonca plant

Research objectives:
- Knowing the effect of rainfall interruption on the cultivation of Alonca in the city of Sabya

Importance of the research:
It contributes to knowing the effect of rainfall variation on the cultivation of Alonca and its damages.

Research limits:
Objectivity: The effect of rainfall variation on the cultivation of Alonca in the city of Sabya.
Time: 2025 AD.
Location: Sabya / Bish city.

search terms:

Rain/It is a form of water droplets falling from clouds in the sky.
Agriculture/the process of using natural resources such as fiber, wood, and tree leaves to produce food.
Alunca plant: It is a tropical plant that blooms throughout the year and is distinguished by the colors of its flowers.

Previous studies:

Abdul-Jabbar's study. Fayza. (2008) The problem of the peak and its impact - on agricultural production began at a harmful level, focusing on producers of corn and sesame, which are considered among the most important rain-fed .crops in Sudan, including their role in providing food and nourishment

The Gedaref region is also one of the rural areas subject to administrative regulation

The study aimed to identify the natural and human characteristics of the region that gave it this importance, focus on studying some aspects of progress in the field of rainfall, and analyze the applications of rain during the period (1971-2005) through compatibility between aspects of progress and agricultural production.

- A previous study dealt with the topic of climate change in rainfall amounts and their effects on agricultural development in the Asir region, as it is one of the most important water sources used in irrigation. The goal of the research also lies in understanding the climate factor and the extent of its impact on agricultural production and agricultural development. The study concluded with several Recommendations that contribute to increasing the effectiveness of rainfall and thus achieving agricultural development in the Asir region.

Materials and method (procedures):

Tools :

❖ GLOBE devices (GPS - pen - paper - Internet - computer - cloud chart - rain gauge) Globe Environmental website.

❖ The questionnaire

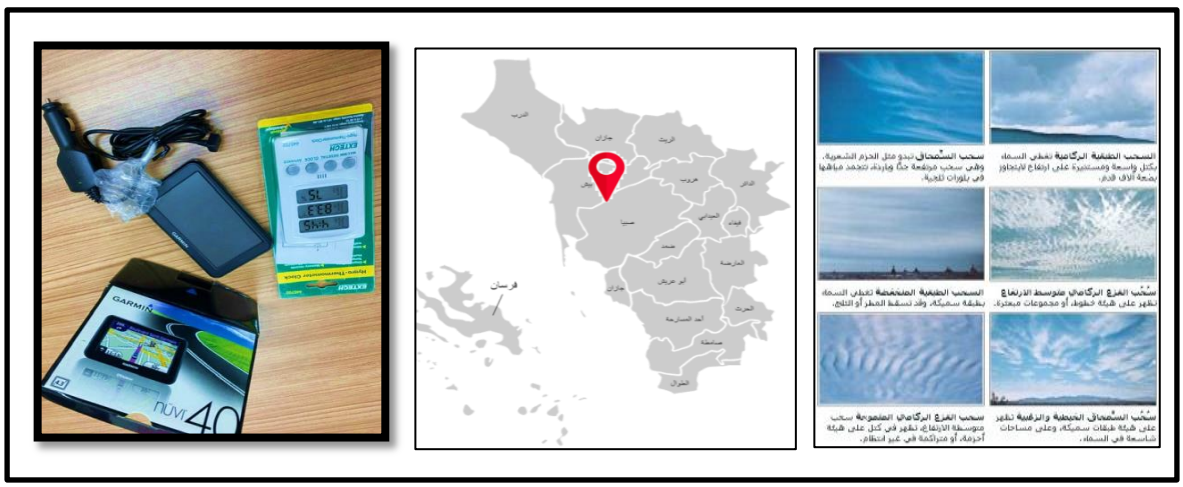
Preparation of the study tool: The research questionnaire was constructed, and in its final form it consisted of (5) paragraphs. The questionnaire was .distributed to a random sample

a. Validity of the research tool: I presented the questionnaire to a random sample to express an opinion on this test in terms of: its suitability to the research topic, its comprehensiveness, and the sufficient number of elements to enrich the research. I obtained some constructive opinions and comments, in light of which they modified and approved some paragraphs, .so it became in its original form. Final

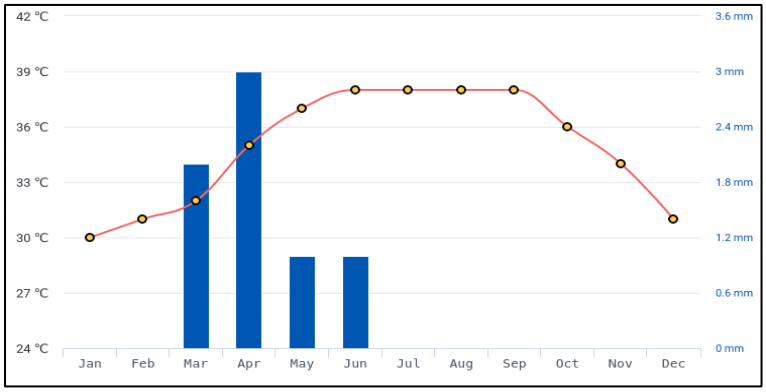
C. Stability of the research tool: The stability of the research tool (the questionnaire) was confirmed, and high stability rates were noted for all areas of the questionnaire. The research tool has stable results if it is re-applied to the research sample again, which confirms its suitability for field application.

Steps: We used observation and the descriptive survey method.

We used the GLOBE website and devices to take data and determine the · location. (Figure 1) The variation of rainfall in the region and a visualization of data for the location of Al-Mutta'b School (Figure 2).



Tools used and location (Figure 1)



Rainfall variation in the region (2)

• The graph shows the variation in rainfall in the city of Sabya. The rainfall rate is observed to increase over the months. We can notice that in June the rate was constant until September, and then the rainfall rate decreased in the remaining months.

Through observation, I noticed that agriculture increases during the rainy season in the city of Sabya, which is famous for growing seasonal crops. A number of photos were taken in two different seasons in terms of rainfall variation, and I noticed the difference between them as in (Figure 3-4).

Pictures of plants in the rainy season (Figure3)

A picture of a plant in the dry season (Figure 4)

Then the researcher used the questionnaire

Show results:

From the table and the statistical drawing, we note the percentage of the degree of approval in the questionnaire study tool

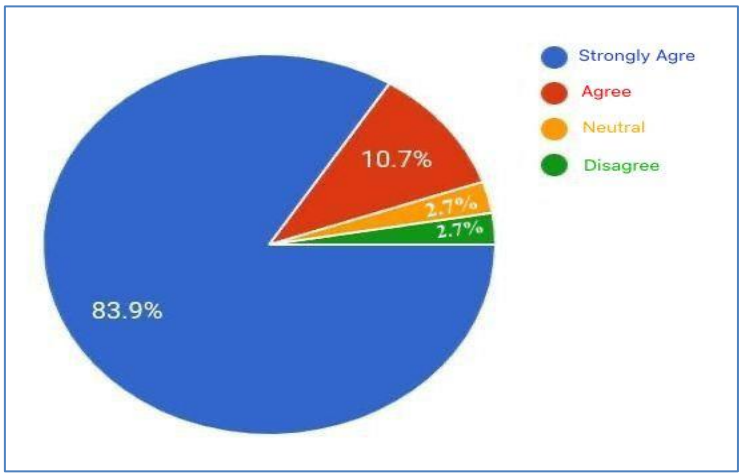
Table No. (1)

	paragraphs	descent				SMA	Total
1	Rain affects agriculture	Strongly Agree	Agree	Neutral	Disagree	80%	100%
		83.9%	10.7%	2.7%	2.7%		
		High	Weak	Weak	Weak		
2	Rain is an important factor for growing trees	88.4%	9.8%	1.8%	0%	80%	100%
		High	Weak	Weak	None		
3	There is damage due to rain interruption	83%	14.3%	2.7%	0%	80%	100%
		High	Weak	Weak	None		
4	Rain has a negative effect on the plant	68.8%	11.6%	11.6%	8%	80%	100%
		High	Weak	Weak	Weak		
5	There is a relationship between rain and plant growth	81.3%	17%	1.8%	0%	80%	100%
		High	Weak	Weak	None		

Discuss and explain the reasons/results related to the study questions and discuss them as shown through graphical forms.

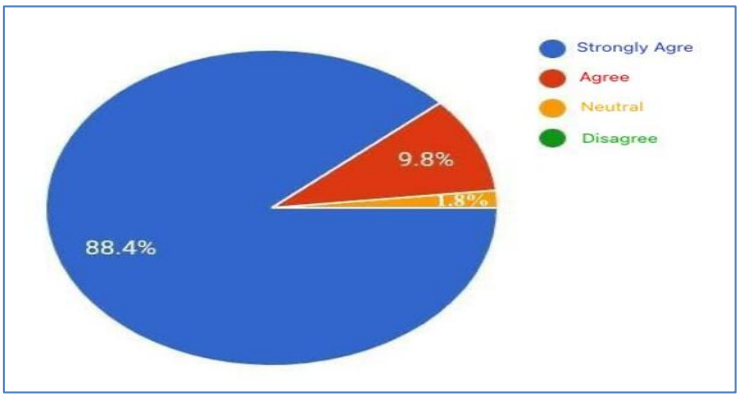
Percentage of answers and opinions for the first paragraph: Rain affects agriculture.

Diagram No. (1)



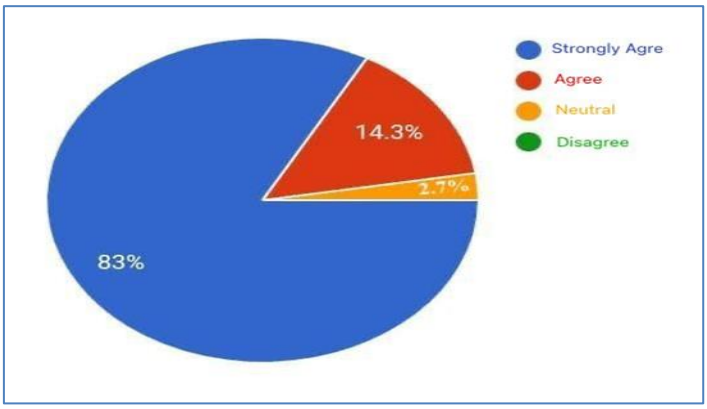
Percentage of answers and opinions for the second paragraph: Rain is an important factor for planting trees.

Diagram No. (2)



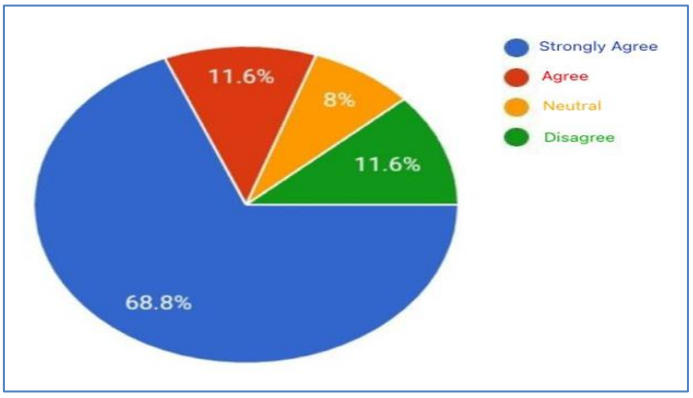
Percentage of answers and opinions for the third paragraph: There is damage due to interruption of rain.

Diagram No. (3)



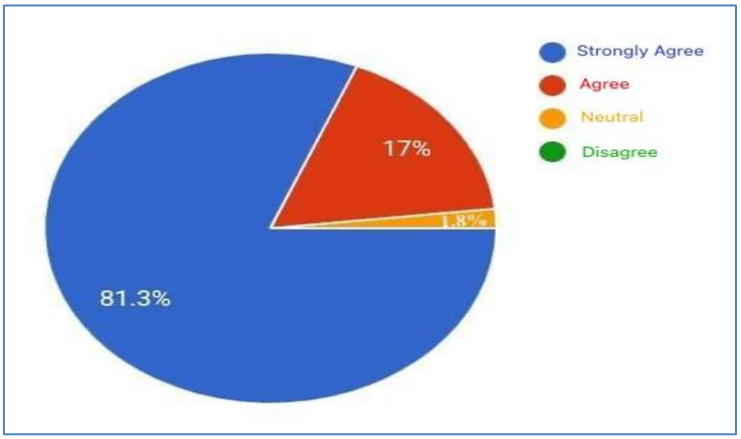
Percentage of answers and opinions for the fourth paragraph: Rain has a negative effect on plants.

Diagram No. (4)



Percentage of answers and opinions for the fifth paragraph: There is a relationship between rain and plant growth

Diagram No. (5)



The results during the statistical analysis highlighted some important matters:

We found that the percentage of support in the opinion that rain affects .agriculture was strongly estimated at 83.9%

There is a strongly agreed percentage of respondents who answered that .rain appears to be an important factor for planting trees, estimated at 88.4%

The percentage of support in the opinions that there are damages due to rain .interruption was estimated at 83%

The percentage of support in the opinion that rain has a negative effect on .plants was estimated at 68.8%

The percentage of support in opinions that there is a relationship between rain and plant growth was estimated at 81.3%.

Conclusions:

• There is an effect of rainfall variation on the cultivation of the Alonca plant, and rain is considered one of the most important factors affecting its cultivation.

• There is a direct relationship between rainfall variation and the cultivation of the Alonca plant, so the less rainfall, the less cultivation.

Discussion:

There are many studies that have proven that there is a relationship between rainfall variation and lack of agriculture, and they were in agreement with our current study, but the
purpose of this study is to find appropriate solutions that help solve this problem in the city of Sabya, reducing the risk of lack of agriculture, and in light of what we have achieved in this Current research conclusions can be provided

The following recommendations:

- Conducting more advanced studies and experiments on rainfall variation and its relation to the lack of cultivation of the Alonca plant and its damages.
- Establishing scientific research centers and monitoring environmental problems by the Ministry of Health and the Ministry of Environment.
- Studying the research on a large scale in different regions.
- Using modern irrigation methods that help it continue to grow during times of drought and lack of rain.

Difficulties:

❖ Unavailability of some data and rain measurements on the Globe website.

Acknowledgments:

Thank you to my family who pushed me forward, and to my country, and to the Globe Environmental teacher, Faiza Ibrahim Bahri, a geography major, for helping me and training me on the correct way to prepare research, and to the supervisor of the scientific field in the Sabya Education Department, Ms. Najla Khawaji, and to Jazan University, and special thanks to Dr. Abadi Muhammad Mishlawi. Assistant Professor in Entomology at Jazan University, and Dr. Osama Muhammad Hassan Abu Al-Gheit, Assistant Professor in Entomology at Jazan University, and to the science teacher, Ms. Reem Al-Otaibi, with a Master's degree in Biology, and to Baish Third Secondary School, and to my school, which gave me support, and to the Globe program, which gave us supplies.

Badges:

1-Collaborator:

This research was prepared in cooperation with Ms. Fayza Bahri, a BA in Geography, for training on how to prepare the research, Ms. Faiqa Mughni, an English major, to translate the research, and the science teacher, Ms. Reem Al-Otaibi, a MA, majoring in Biology. And cooperation with Professor Najla Khawaji, supervisor of scientific activity in the Sabya Education Department and Jazan University.

2-Solving problems:

Search for a solution to the problem of precipitation and its impact on agriculture by using new methods of water irrigation, thanks to the long rain problem of Daytona.

3-Community influence:

Researching brief studies is a real problem that the local community suffers from, and attempts to answer the questions to reach specific results that are expected to lead to actual solutions, and this is what we recommended at the end of this research and we aspire to. To be able to generalize the proposed solutions and results on a societal and then global scale to all .countries that experience the same climatic conditions

4-STEM (specializing in science, technology, engineering, and mathematics:

In this research, cooperation was carried out with the professor and trainer A. Fayza Bahri, Bachelor of Science in Geography, for training on how to prepare the research, and doctors from Jazan University to arbitrate the research: Dr. Abadi Muhammad Mishlawi, assistant professor of entomology at Jazan University, and Dr. Osama Muhammad Hassan Abu Al-Gheit, assistant professor of entomology at Jazan University.

5-STEM Storytellers:

I shared a questionnaire and published it on social media to reach the largest possible segment of society to know their opinions.

6-Data scientist:

To answer the research questions, we relied entirely on the data we collected, analyzing it, comparing it, then drawing conclusions from it, and finally coming up with results that can be generalized, as well as future development and recommendations.

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poster

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Search in Arabic

https://drive.google.com/file/d/1ZdKU0aXfU4fskxxsQ2SrV3nVijZBAgQz/view?usp=drive_link