

How do you create an interaction plot in Excel?

Authored by
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RECOMMENDED CITATION

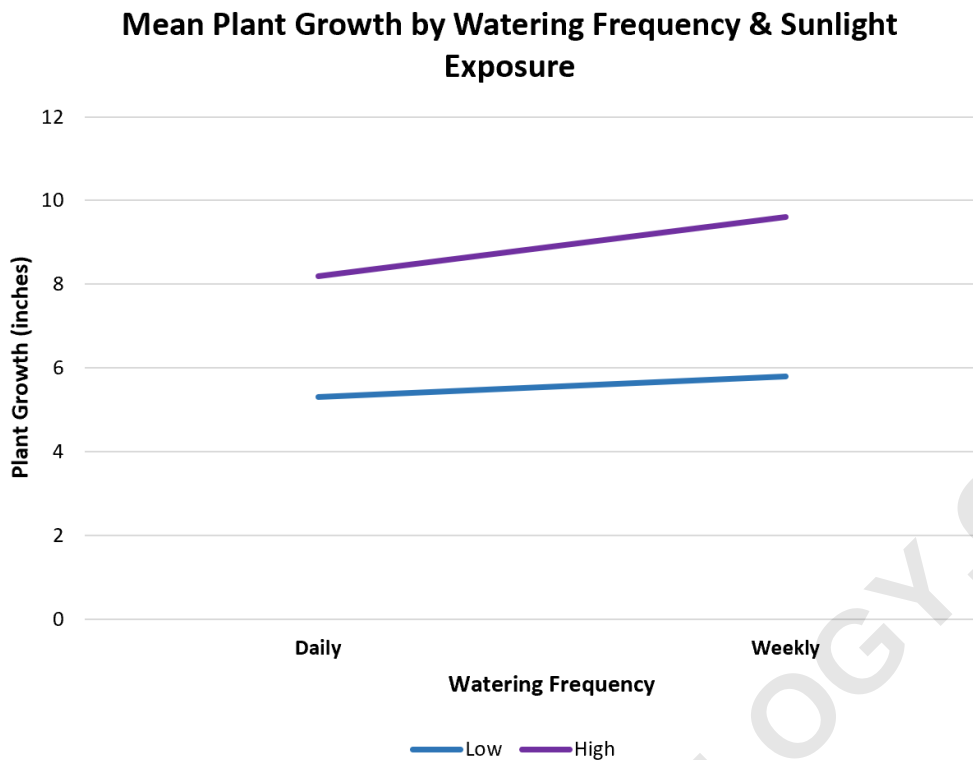
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An interaction plot in Excel is a graphical representation of the interaction between two or more independent variables on a dependent variable. To create an interaction plot in Excel, first enter your data into a spreadsheet and highlight the entire data set. Then, go to the "Insert" tab and select "Scatter" from the chart options. Next, click on the "Design" tab and choose "Select Data." In the "Select Data Source" window, click on "Add" to add a new series. Enter the data for each independent variable in the "Series X values" box and the corresponding dependent variable data in the "Series Y values" box. Finally, click "OK" to generate the interaction plot. You can customize the appearance of the plot by adding titles, labels, and adjusting the axes. This will help you analyze the relationship between the variables and interpret any potential interactions.

Create an Interaction Plot in Excel

A is used to understand how two independent variables (each with two) affect one .

A useful way to visualize the effects that the two independent variables have on the dependent variable is to create an interaction plot, which displays the mean value of the dependent variable at each level of the independent variables.



The following step-by-step example shows how to create and interpret an interaction plot in Excel.

Step 1: Enter the Data

Suppose we want to understand the effects of sunlight exposure (low vs. high) and watering frequency (daily vs. weekly) on the growth of a certain species of plant.

Suppose we collect data on 60 plants and calculate the mean plant growth at each level of sunlight exposure and watering frequency. Here's how to enter these mean values into Excel:

	A	B	C	D	E	F	G
1							
2							
3				Watering Frequency			
4				Daily	Weekly		
5		Sunlight Exposure	Low	5.3	5.8		
6			High	8.2	9.6		
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

This tell us that:

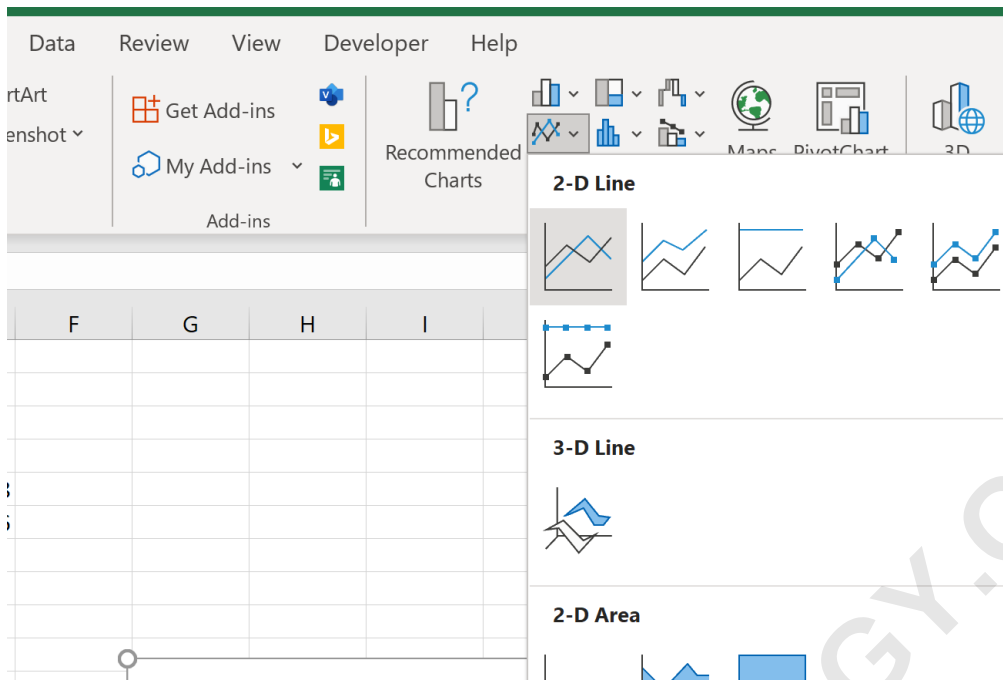
The mean growth for plants that received high sunlight and daily watering was about 8.2 inches. The mean growth for plants that received high sunlight and weekly watering was about 9.6 inches. The mean growth for plants that received low sunlight and daily watering was about 5.3 inches. The mean growth for plants that received low sunlight and weekly watering was about 5.8 inches.

Step 2: Create the Interaction Plot

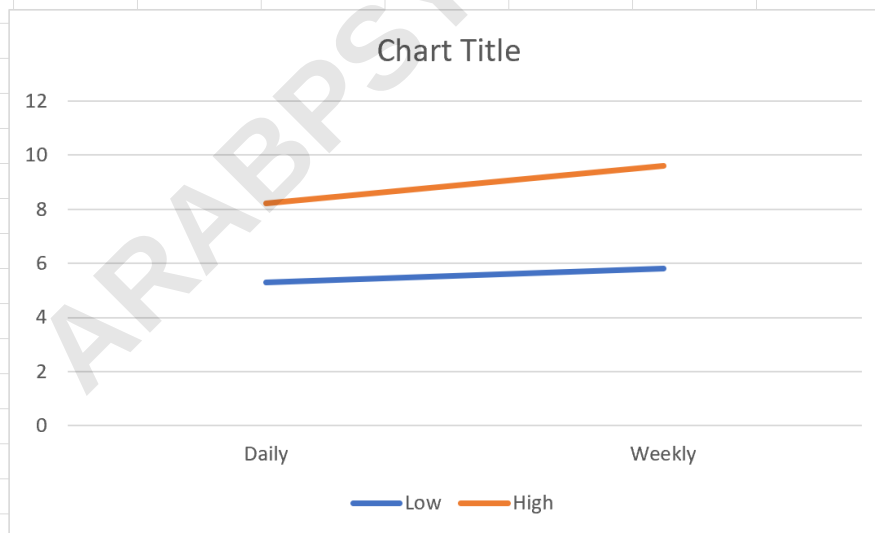
Next, we need to highlight the values in the cell range **C4:E6** as follows:

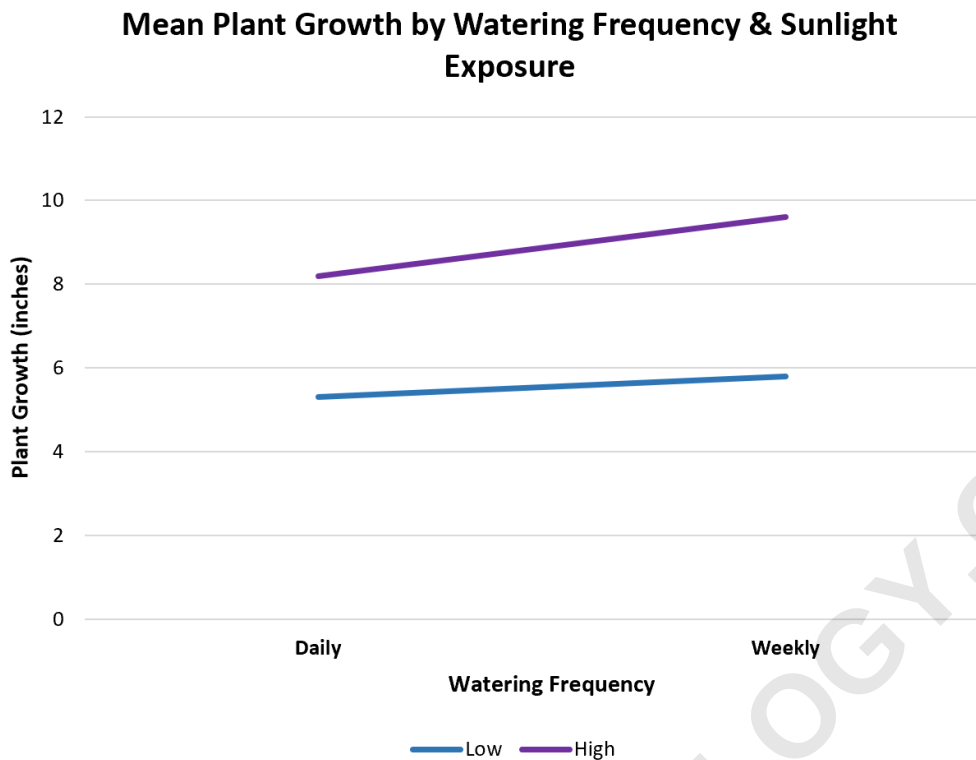
	A	B	C	D	E	F	G
1							
2							
3			Watering Frequency				
4				Daily	Weekly		
5		Sunlight Exposure	Low	5.3	5.8		
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7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							

Then click the **Insert** tab along the top ribbon in Excel, then click the first chart option within the **Line Chart** group:



This will automatically insert the following line chart:





Step 3: Interpret the Interaction Plot

Here's how to interpret the lines in the plot:

Main Effect of Watering Frequency:

Since the two lines are mostly flat, this tells us that there is very little difference in plant growth between daily and weekly watering. This tells us that watering frequency probably doesn't have a statistically significant effect on plant growth.

Main Effect of Sunlight:

Since the two lines are fairly far apart, this tells us that there is a noticeable difference between low sunlight and high sunlight.

For example, we can see that the average growth for plants that received low sunlight was around 5-6 inches. We can also see that the average growth for plants that received high sunlight was around 8-9 inches.

This tells us that sunlight probably has a statistically significant effect on plant growth.

Interaction Effect Between Watering Frequency & Sunlight

Since the two lines in the plot are mostly parallel, this tells us that there is no interaction effect between watering frequency and sunlight.

For example, the effect that sunlight exposure has on plant growth isn't dependent on watering frequency. Similarly, the effect that watering frequency has on plant growth isn't dependent on sunlight exposure.

If the two lines in the plot were not parallel (or if they

crossed each other) then this would be an indication that there is an interaction effect between watering frequency and sunlight on plant growth.

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