



Analyzing Before-After Data Using Excel

How can I analyze impact data when using a before-after question measuring improvement in a skill?

A resource at your fingertips may be a software program already installed on your computer called Microsoft Excel. The program is easy to use for a descriptive analysis as demonstrated in [Tipsheet #51](#). Here is another example using a retrospective question. Below you will find:

- the steps you need to take to analyze the data
- the output you receive from Excel
- the benefits of the analyzed data.

EXAMPLE 2:

Emelie Swackhamer and her committee developed this question for a Master Gardener Training Program conducted at seven sites throughout the Southeast and Capital Regions.

This type of question, a retrospective question, could ask participants to note their knowledge, skill preparation or confidence before the program and separately, their knowledge, skill preparation or confidence after the program. For the Master Gardener Training Program, the question asked about confidence in ability to perform a skill. The question lists just three of eleven topics.

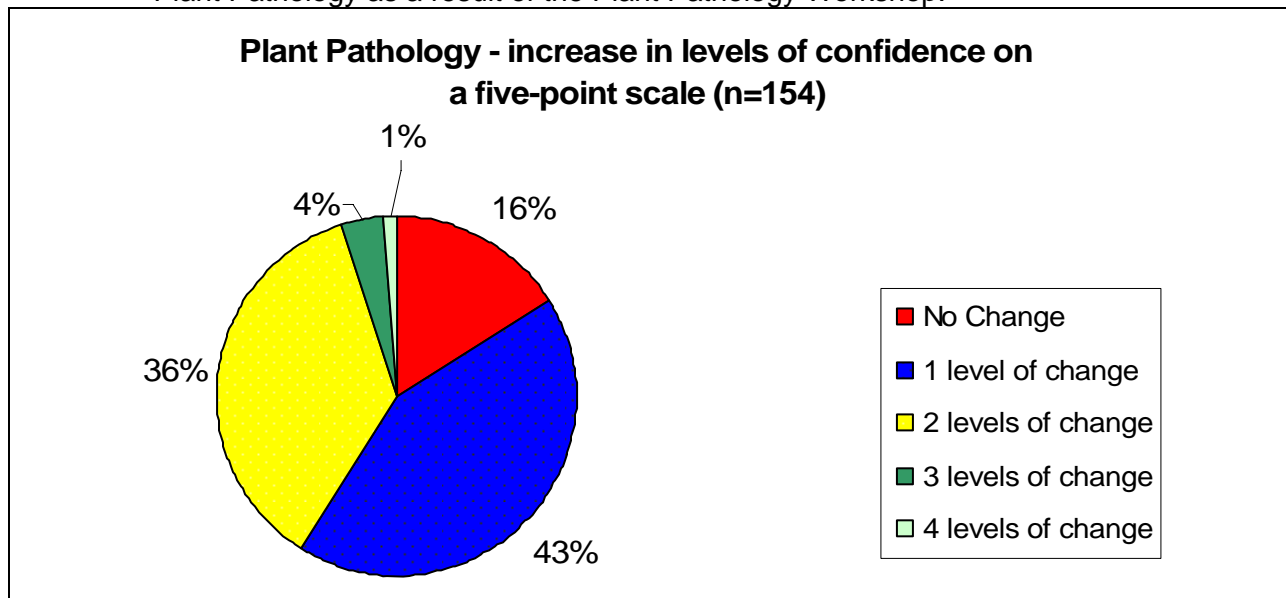
For each class you attended, please indicate how confident you felt in your ability to field questions in the topic before the class, and how confident you feel about your ability to field questions in that topic after the class. (Please circle one choice BEFORE attending the class and one choice for, NOW, AFTER the class).

CONFIDENCE IN YOUR ABILITY
TO FIELD QUESTIONS IN TOPICS BELOW

TOPIC	BEFORE attending the class					NOW, after attending the class				
	NOT TOO CONFIDENT	SOMEWHAT CONFIDENT	MODERATELY CONFIDENT	VERY CONFIDENT	EXTREMELY CONFIDENT	NOT TOO CONFIDENT	SOMEWHAT CONFIDENT	MODERATELY CONFIDENT	VERY CONFIDENT	EXTREMELY CONFIDENT
Soils										
Plant Science										
Plant Pathology										



Figure 2. Percent increase in confidence in the Master Gardeners' ability to field questions in Plant Pathology as a result of the Plant Pathology Workshop.



Emelie points to several benefits of this pie chart to the Master Gardener Training Program.

- It allows trainers to show a higher level of impact by documenting participants' status before and after the training program.
- It allows instructors to compile impact data on participants who come into the program with different levels of confidence. For example, consider two participants:
 - Participant A: came in the program as "NTC" before and feels "MC" after.
 - Participant B: came into the program as "MC" before and feels "EC" after.

Both of these participants have increased their confidence by two levels, and the instructor has made a similar amount of impact on these two individuals.

There are other ways to analyze these data and present it. For example, you could have used contingency tables (and CHI-square) or a one sample T-test.

What is important to know is that the software package Microsoft Excel gives you the opportunity to quickly and accurately analyze and then display your evaluation data.

For further information about the program delivery or the evaluation strategy of the multi-county Master Gardener Training Program, contact Emelie Swackhamer, Horticulture Agent, Lehigh and Northampton counties at exs33@psu.edu.

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