

Slug: Ask the Master Gardener
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Contact: WSU/Skagit County Extension: 428-4270

Most gardeners possess a natural curiosity about plants. We often ask questions and attempt to solve problems that arise in the garden. Which tomato variety will ripen the earliest in my garden? Which snap bean varieties will yield the largest harvest? Should I use Fertilizer X or Fertilizer Y on sweet corn? Which product or method will work best to control aphids on roses?

Often, problems and questions lead to experimentation. We try different varieties, methods and products, then observe what happens. However, the results we get may not be reliable or valid, if the experiments have not been designed and carried out properly.

Here are a few tips for garden experimenters:

- Repeat the experiment several times to see if you get the same results. Achieving the same or similar results over many repetitions helps to determine the validity of the experiment.
- Randomize the experiment. In each repetition, change the sequence of the treatments. Randomizing helps to eliminate bias. For example, when you perform an experiment the second, third and fourth times, change the order of the rows of plants in which you are applying the different treatments.
- Include a control group in your experiment. This is a group of plants that is left untreated, so you can compare the results of each of the experimental treatments to what happens when you apply no treatment at all.
- Keep all other elements of the experiment the same, to eliminate variability in the results. For example, in an experiment comparing the effectiveness of two fertilizers, all of the plants should receive the same levels or conditions of temperature, soil, water, light, etc.
- Use a row of buffer plants between each row or plot that receives a different treatment. Buffer rows help to isolate one treatment area from the effects of another treatment taking place in the same field. For example, a buffer row will help prevent a spray application from drifting into the next experimental row and contaminating it.
- Request assistance from an expert. Write down how you plan to perform the experiment, then ask a professional scientist or researcher to read it and discuss it with you. The expert can tell you if you're on the right track, or if you've failed to consider something important that will affect your results. An expert can also advise you on methods for taking samples and evaluating data.
- Keep good records. Take detailed notes during every phase of the experiment, including the dates and times when you made observations or performed actions. Another person should be able to read what you've written, repeat the experiment, and get the same results.
- If you use pesticides in an experiment, read the product labels completely, and carefully follow all directions and precautions for mixing and applying them. Use pesticides only on plants, animals or sites that are listed on the label. It is against the law to disregard label directions. Always store pesticides in their original containers, and keep them out of the reach of children, pets and livestock.

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This column is written by Washington State University/Skagit County certified Master Gardeners. Questions may be submitted to WSU/Skagit County Extension, 306 S. First Street, Mount Vernon, WA 98273-3805.