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| Experimental Design  My experiment is a combination of these two ideas. True, forest fires seem to be acceptable, even beneficial in most cases. The plant species have adapted to grow alongside fires and they benefit from the nutrients released after a burning. But what about the biotic factors in the soil? Organisms that are beneficial in the soil, possibly ones that are harmful to plants as well, are unable to protect themselves from fire as plants are. Wouldnít their destruction affect soil fertility and consequently plant growth? If so, will any visible changes be due to the destruction of organisms that were detrimental to growth (competitors, mold, etc.), the nutrients released from organisms such as worms, or the lack of the beneficial microorganisms? And what organisms survive the heat? Some bacteria, for example, can live in such extreme temperatures that they could not have been killed by fire.  The soil is affected differently by the large fires that occur less frequently with fire suppression policies and the more frequent, smaller fires that occur with the natural policy. The larger fires reach much higher temperatures for a longer time. This heats the soil to higher temperatures in the layers near the surface. If higher temperatures degrade soil fertility this would be another argument for the natural burn policy.  To simulate the effects of forest fires on soil fertility I took soil that I hoped would contain large amounts of organisms and heated it for varying amounts of time. I used plant growth as an indicator of soil fertility. The soil I used came from my yard. The soil was rather high in clay and so to compensate I mixed it with lighter redwood compost. In my garden I have seen a variety of insects and many, many worms. Because stores only sold sterile potting soil and there were no nearby forests to steal dirt from I decided this was the next best thing.  For plants I wanted to grow something with a taproot. Because after a forest fire the ground is exposed to air potentially containing all kinds of spores and mold, I felt it was not necessary to enclose my plants, but I wanted to grow a plant with roots that would be deep enough to reach soil that would remain sterile even though the surface would be in contact with non-sterile air. I began with radishes (*Raphanus sativus*) because they had a reasonably short growing time, but then used rye grass on my second trial because it was fast and could give me a larger sample size in less space than radishes which proved to have immense leaves.  I decided to research this topic because a project pertaining to plants could be used for my botany requirement as well as statistics if enough data could be gathered on plants to test. My father was the one who suggested forest fires as a topic and explained in the beginning about controlled burning and other practices. The experimental design appealed to me because it was simple, as you will see in the description of the procedure. Another reason why I chose this topic was the new greenhouse. I wanted to be able to take advantage of the new facility as this is my last year at the school.  ([BACK](http://docs.google.com/intro2.html))  [[Home](http://docs.google.com/home.html)][[Introduction](http://docs.google.com/introduction.html)][[Hypothesis](http://docs.google.com/hypothesis.html)][[Procedure](http://docs.google.com/procedure.html)][[Data](http://docs.google.com/data.html)][[Conclusions](http://docs.google.com/conclusions.html)][[Bilio/Links](http://docs.google.com/biblio.html)]  [[2001 Projects](http://docs.google.com/index.html)][[2000 Projects](http://docs.google.com/AP2000/index.html)][[1999 Projects](http://docs.google.com/AP99/index.html)][[1998 Projects](http://docs.google.com/AP98/index.html)] |