



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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Project Title Testing...Testing...Where's the MYC? A Study of the Development and Effects of Mycorrhizae on Tagetes erecta	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Farmers & florists have tried to apply chemical methods to produce desired results in plant growth & health. These man-made enhancers have largely failed to produce promised results. Today people are exploring nature in search of more promising outcomes. Mycorrhizae, a symbiotic bond between fungi & plant roots, seems to be a promising answer. Though this project uses only one plant, Tagetes erecta (marigolds), the results can be applied to an array of plant life. The goal of this project was to determine which soil mixture produces the best environment for mycorrhizae production on Tagetes erecta roots. It is predicted that soil enriched with organic fertilizer will produce the best results.</p> <p>Methods/Materials One control & 3 experimental groups of Tagetes erecta were used. Each group consisted of 15 pots/3 seeds each for a total of 180 plants. The control group consisted of the base soil, while the 3 experimental groups consisted of a blend of the base soil + a small amount of 1 of the 3 fertilizers. All 3 fertilizers had different compositions & purposes. The Tagetes erecta were planted late Dec. & controlled throughout their growth period (sunlight, distilled water, & room temp.). Daily observations & measurements were recorded. Soil tests determining composition & pH were conducted before & after mycorrhizae formation. Plants were dug up & roots were examined for mycorrhizae</p> <p>Results Tagetes erecta planted in soil 4 (base soil+peat moss) produced the best results; still, the plants in soil 3 (base soil+inorganic fertilizer) produced fairly equal results. The avg. plant height in soil 4 was 4.75½ & average leaf length was 3 cm. Soil 3 plant height avg. 4.25½ & leaf length was 3 cm. Soil groups 1 & 2 were the weakest in the project; however, soil 1 (base soil only) did produce better results than soil 2 (base soil+organic fertilizer), which produced fairly weak results. All roots were microscopically examined. Plants grown in soils 3 & 4 produced mycorrhizae, contributing to their overall success.</p> <p>Conclusions/Discussion Acquired data analysis showed the hypothesis to be false. Tagetes erecta in soil 2 did not produce the best results; this group was the weakest. The two groups least expected to produce a positive outcome, groups 3 & 4, were the most successful groups. Not only did they produce the tallest plants & most substantial roots, they gained mycorrhizae which led to stronger, healthier plants.</p>	
Summary Statement An experiment designed to uncover the ideal conditions for the development of mycorrhizae and observe the overall effect of the mycorrhizae on Tagetes erecta plants.	
Help Received No help was recieved in doing the above listed project.	