Not Your Average Soil: A Modern Solution to the Predicted 2050 Soil Crisis That Is Applicable to All Types of Plant and Crop Types

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Soil scientists predict that there will not be enough sustainable soil on this planet to keep up with global agriculture demands by 2050. I developed an artificial soil and tested the hypothesis that if the alternative soil system is used as soil for plants in place of natural loam, then the plant will maintain its health and maintain homeostasis. Lactuca Sativa var. crispa plants were grown in artificial soil, and in the control group composed of natural loam. For both groups, plants were spaced 0.3 meters apart. Daily, the height of each plant from both the experimental and control group was measured in centimeters for quantitative data. Every seven days, one seven-millimeter clipping was obtained from each plant for qualitative data and observed under a light microscope. Nitrogen, potash, phosphorus, and pH levels of each plant were measured. This experiment lasted for 30 days. Compared to plants grown in natural loam, plants planted within the artificial soil system showed a greater mean height of 15.1 and were 49% taller than plants in loam. Additionally, the plants within the artificial soil system, out of 10 tests, resulted in 65% out of the tests as healthy. Overall, compared to the control group, the plants in the artificial soil system resulted 23% healthier in qualitative observations of plant health than the plants grown in the natural loam. This experiment displayed that plants grown in my artificial soil system maintained homeostasis, grew 49% taller than plants in natural loam, and were 23% healthier than plants in the control group; this artificial soil system poses as a reasonable and efficient solution to the predicted 2050 soil problem. Additional experimentation will support the absence of toxic and harmful elements.

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