Harmonious Hydration: A Comparative Analysis of Water Conservation and Germination Efficacy in Wicking Beds vs. Nursery Pots

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This project compares the water efficiency and germination success rates of traditional nursery pots with the wicking bed - a modern, self-watering gardening technique. I investigate whether the research is true, that wicking beds conserve more water and produce better plants. If wicking beds are more efficient, the technology could make food security more accessible to people who have limited access to space and water, or those who live in arid climates. To test my hypothesis, I grew an equal amount of Spanish Black Radish seeds in both types of growing containers. With the same daily attention, and watering accordingly for 6 weeks, I aim to find out which method will yield better results. For the data analysis, I used graphs to help interpret the data visually. At the conclusion of my experiment, I discovered that 50% of the seeds in the wicking bed had germinated, while the nursery pot had a germination rate of only 27%. Despite requiring double the water, the nursery pot did not produce the quality of plants like that of the wicking bed. Therefore, my hypothesis was correct - the wicking bed saved water and produced a higher germination rate. An added benefit was the high quality of the wicking bed plants, as compared to the plants in the nursery pot. In many parts of Hawaii, both urban and rural areas, water can be scarce at times requiring officials to call out for water conservation. Climate change has produced more intense weather conditions, including more times of drought. The information from my experiment can be useful data for farmers, scientists, policymakers, and of course the citizens - people interested in saving resources, lowering their carbon footprint, and increasing their food security.

Awards Won: