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Mycorrhizal Symbiosis - Unlocking the Potential of Soil

Life depends on Healthy soil. Over-tillage, soil compaction, nutrient deficiency, over fertilization, high salinity and drought are having devastating effects on global agriculture. Solutions may be found in unlikely places. Below the surface of healthy soil lies a powerful helper; mycorrhizal fungi. This project was designed to determine if mycorrhizal fungi could assist the growth of plants in harsh soil conditions. My experiment consisted of filling fifteen pots with high ph, nutrient deficient, saline affected soil. The soil was sent to a lab confirming soil makeup. The fifteen pots were divided into three groups: control, fertilized and vesicular-arbuscular-mycorrhizal-fungi (VAM). Three bean seeds were planted in each pot. I compared the growth rate, height, number of leaves, and root development of each plant over five weeks. I will document their development and productivity until they expire. Results as of 2/5/09: Groups 1 and 2 each sprouted four plants; Group 3 sprouted fourteen plants. The average height of the plants in Group 1 was 27.5cm; Group 2 was 11.25cm; Group 3 was 25.8cm. Average Leaf count in Groups 1 and 2 was two; Group 3 was 4.35. The average root length was 4.3 cm in group 1; 2cm in group 2; and 10.5cm in group 3. Based on my research to date, mycorrhizal fungi appear to assist the growth and help maintain the health of plants grown in harsh soil conditions. Now more than ever we need to develop sustainable agricultural techniques. Mycorrhizal fungi could play a critical role in agricultural sustainability.