Advancing the Future of Agriculture Using Duckweed: A Continued Study of the Effects of Duckweed in an Aquaponic System

Little, Luke

Many regions in the world are facing the dangers of water shortages, and are not able to produce enough food. If an agriculture system were extremely cost and water efficient, then farmers in undeveloped regions would be able to produce enough food. This project's objective was to determine if it would be practical to use duckweed as a main feed source for fish, thus reducing the operating costs and increasing sustainability. Two aquaponic systems were constructed, one with a duckweed tank and one without, and a control crop of lettuce was grown in soil. The aquaponic systems were filled with bluegill fish and lettuce seedlings and then their growth rates were measured and evaluated. The hypothesis was supported and it was shown that an aquaponic system with an incorporated duckweed tank, although not as efficient as one without an incorporated tank, did extremely well compared to the control grown in soil. This research will help continue to push agriculture into the future and presents a plausible idea for food production and water conservation in a world where local water supplies are often insufficient.

Awards Won: