Micro Farms

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This project is an engineering/botany project. Everything is hand-constructed in the biome. There are integrated systems to regulate water chemistry for optimum fish and plant health. The system includes a fish tank, plant beds, and an aeration/filtration system. This creates a self-watering cycle. The water flows from the tank to a water pump that transports the water to the beds, through the aeration system, through the carbon filter, and back into the tank for maximum water quality. This design provides herbs with the appropriate water nutrients, bacterial activity, and aeration. The beds are engineered to harbor bacteria. The bacteria break down the ammonia into a nitrate/nitrite, which is used by the plants. The aeration system increases the levels of oxygen and remove ammonia from the water. These factors were monitored and recorded through the testing of ammonia and nitrogen levels in the water. Testing has concluded the self-made filters sufficiently remove nitrogen and stabilize the water chemistry.