



In Partial Fulfillment of the Requirements for the Barrett Honors College

Bachelor of Science

Daniela Panfil

Will defend her honors thesis

Analysis of Nitrogen Uptake in a Duckponics System

In an effort to move towards a more sustainable society, many people are looking into more unconventional gardening techniques and systems. One community in Washington has recently implemented a Duckponics system to help supplement the diet of the people and animals on site while providing a swimming pond and enclosure for the ducks in a sustainable fashion. Within the system, the ducks supply nitrogen in a holding tank called the duck pond, and the hydroponic grow beds are then flooded with this water at intervals. This research focuses on finding if the plants are being supplied with enough nitrogen, how the watering regime affects plant nitrogen uptake, and how the hydroponic medium affects nutrient retention. In order to measure this, one of the holding tanks in the system was converted into a control bed, a tank containing the same growing medium used in the grow beds, but without any plants. Samples were then taken in the control bed, grow bed, and duck pond at various times, as well as from the inflow and outflow of the tanks, and analyzed for the ammonia and nitrate/nitrite content. Statistical analysis was then performed to find the significance of the water regime and hydroponic medium on nutrient retention, the effect of hydrology on nitrogen uptake by the plants, and how much nitrogen the plants are taking up. The findings will help gain a better understanding of how nutrients cycle in this alternative food system and how effectively plants use those nutrients.

Thursday, May 9, 2013
1:00pm-3:00pm
Wrigley Hall, Room 481

Faculty, students, and the general public are invited.

Director: Dr. Sonya Remington Doucette