Subject: FW: Aquaponics - is it innovative?
Date: Monday, December 19, 2011 9:34:57 AM Eastern Standard Time
From: Steve Karcher
To: Steve Karcher

From: Richard Olson <Richard_Olson@berea.edu>
Date: Fri, 16 Dec 2011 17:19:31 -0500
To: Steve Karcher <Steve_Karcher@berea.edu>
Subject: RE: Aquaponics - is it innovative?

Steve-

To the best of my understanding of the jargon in the criteria, the aquaponics facility qualifies. Certainly the Berea College Aquaponics Facility is innovative, new, ground-breaking and uncommon in the standard sense of those adjectives.

Richard

Jackson L. Oldham Aquaponics Facility

Aquaponics

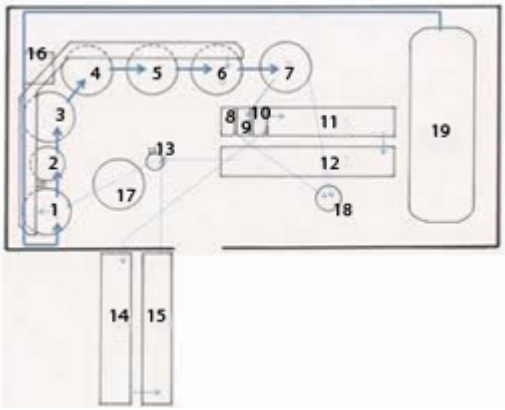
An integrated agriculture system combining…

Aquaculture – production of aquatic animals, and Hydroponics – production of vegetables without soil

…in a recirculating system

◊ Fish provide nutrients required by plants
◊Hydroponic component serves as a biofilter
◊Integrated systems increase efficiency of water and nutrient use

System Design



1-2: biofilters; 3-6: fish tanks; 7: clarifier; 8-9: fine particle filter; 10: degasser; 11-12, 14-15: hydroponics units; 13: sump; 16: air pump; 17: purge tank; 18: drain; 19: rain storage

SENS Aquaponics

◊ Beginning Fall 2009, students converted the Ecological Machine wastewater treatment facility into an aquaponics system

◊ Nile tilapia (*Oreochromis niloticus*) and channel catfish (*Ictalurus punctatus*) are raised along with oregano and basil.

◊ Solar panels heat fish tanks
◊ Greenhouse gutters collect rainwater for use in system

Design Principles

The design of the SENS Aquaponics Facility is based on principles developed by the Aquaponics Program at the University of the Virgin Islands:

◊ Fish feces and other solids are removed before water enters the hydroponics units
◊ Plants are grown in raft hydroponics systems, which also serve as bio-filters
◊ Optimum feeding rate, 60-100 g fish feed/m2 plant area/day, prevents nutrient accumulation or deficiency