

# The Status of Aquaponics - 2010

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# Explosion of Interest in Last Decade

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- ◆ Primarily a growth of hobby and backyard systems
- ◆ Estimate of 1000 – 1500 in U.S.
- ◆ Estimate of 1600 in Australia
- ◆ Estimate of 1000 school-based systems
- ◆ Some small commercial systems, but number is increasing
- ◆ University research increasing
- ◆ Short courses increasing
- ◆ Publications increasing

# Aquaponic System Categories

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- ◆ Mini-Systems
- ◆ Hobby Systems
- ◆ Backyard Systems
- ◆ Small Commercial
- ◆ Large Commercial

# Common Designs

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- ◆ Hobby Systems – media (gravel, clay balls, lava cinders), nutrient film technique, rafts
- ◆ Solids removal optional for media systems
- ◆ Often utilize worms to digest solids in media
- ◆ Periodic media cleaning feasible
- ◆ Larger Systems – NFT, rafts (preferred)
- ◆ Must employ solids removal stage















*Olomana Gardens*  
Certified Organic  
Vis















Research in Progress







# Correctional Institution Aquaponics

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- ◆ Pendleton Juvenile Correctional Facility, Indiana, a maximum security prison for young men
- ◆ 12-19 year old boys continue their education within the facility
- ◆ Horticulture teacher say, “Besides teaching horticulture, I am teaching the students how to be a reliable and desirable employee. The real benefit of the aquaponics program that I see is that the boys take pride in what they are doing.”



























04/10/2004































# Species Cultured in Aquaponic Systems

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- ◆ Tilapia
- ◆ Trout
- ◆ Barramundi
- ◆ Murray Cod
- ◆ Silver, Golden and Jade Perch
- ◆ Koi Carp
- ◆ Grass Carp



















# Research Programs

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- ◆ University of the Virgin Islands
- ◆ University of Arizona
- ◆ Auburn University
- ◆ Crop Diversification Center South (Alberta)
- ◆ Isolated MS and PhD research projects at other universities



























# Aquaponics Course - UVI

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- ◆ UVI week-long course offered for 11 years
- ◆ 418 students
- ◆ 42 U.S. states and territories
- ◆ 47 other countries
- ◆ In one year attendees came from all seven continents including Antarctica
- ◆ Course offers a mix of lectures and hands-on field exercises





10th INTERNATIONAL AQUAPONICS  
AND TILAPIA AQUACULTURE COURSE



# Spinoffs from the UVI Course

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- ◆ Illinois
- ◆ Mexico
- ◆ Hawaii
- ◆ Oklahoma
- ◆ Wisconsin (Montello)



# Other Aquaponic Courses

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- ◆ Wisconsin (Milwaukee)
- ◆ North Carolina
- ◆ Australia (Brisbane, Perth)

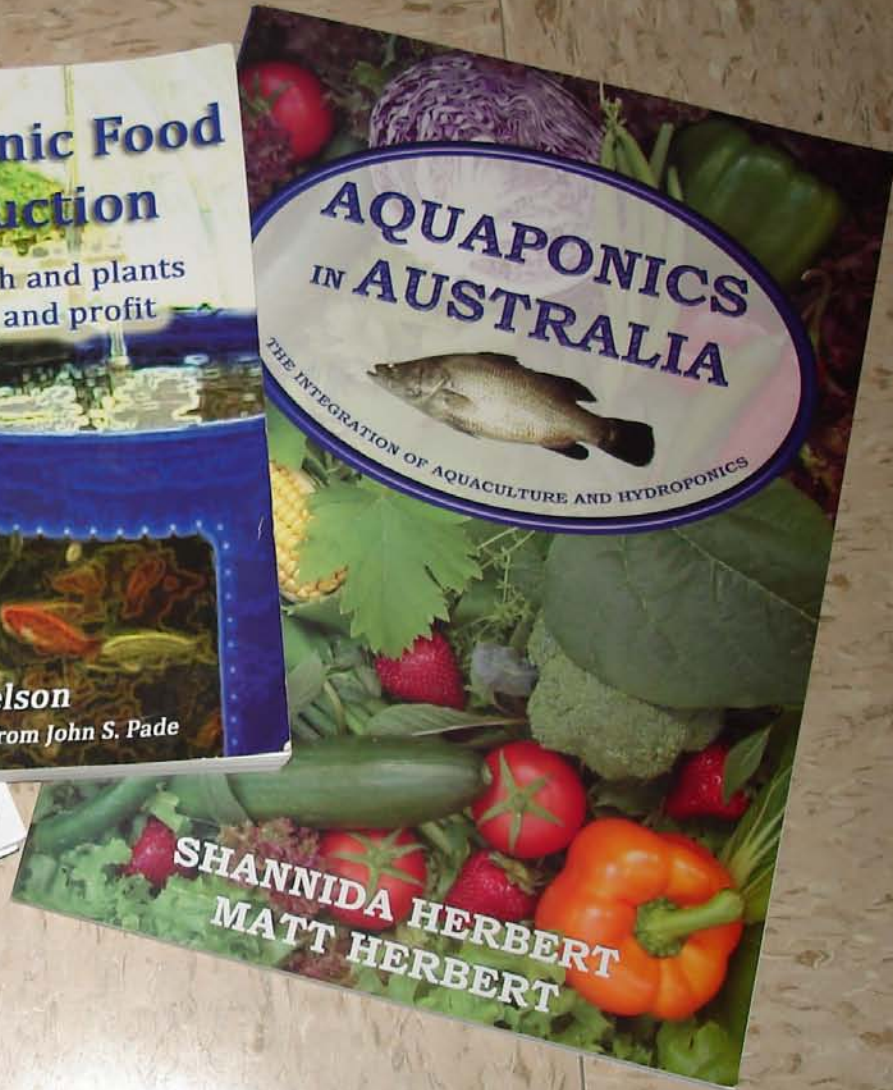
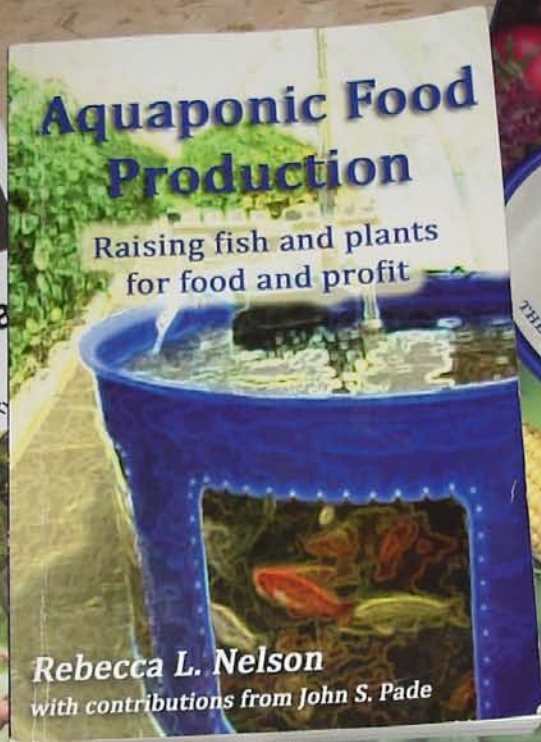
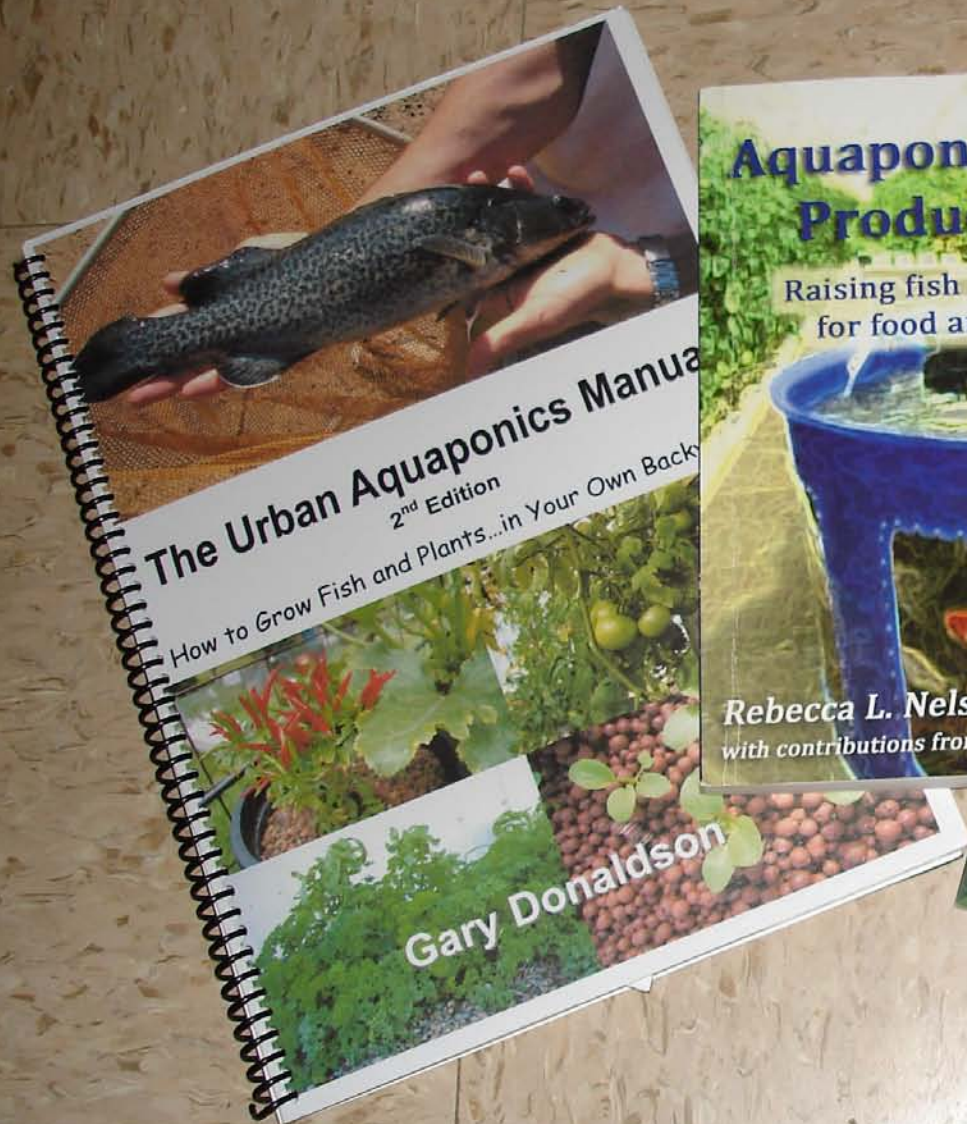


# Another Educational Need

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- ◆ Internships – 3 months
- ◆ After taking a short course and reading available material, internships are recommended for students who will be going into the commercial sector







# AQUAPONICS Journal

Aquaculture Hydroponics

Issue # 47

4th Quarter, 2007  
\$10 USD



New Developments in  
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The Voice of the Aquaponic Industry

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# AQUAPONICS Journal

Aquaculture Hydroponics Aquaculture Hydroponics

The Voice of the Aquaponics Industry

Issue #55

4th quarter, 2009



Experiencing  
Aquaponics  
at UVI

New Aquaponic Ventures in Wisconsin  
Yandina Aquaponics Project Launched  
Developments in Plant Lighting

Plus...  
Editor's Note  
Industry News  
Q and A by *Dr. James Rakocy*  
Aquaponics Around the World  
Happenings

Aquaponics is the combination of aquaculture (fish farming) and hydroponics (growing plants without soil).





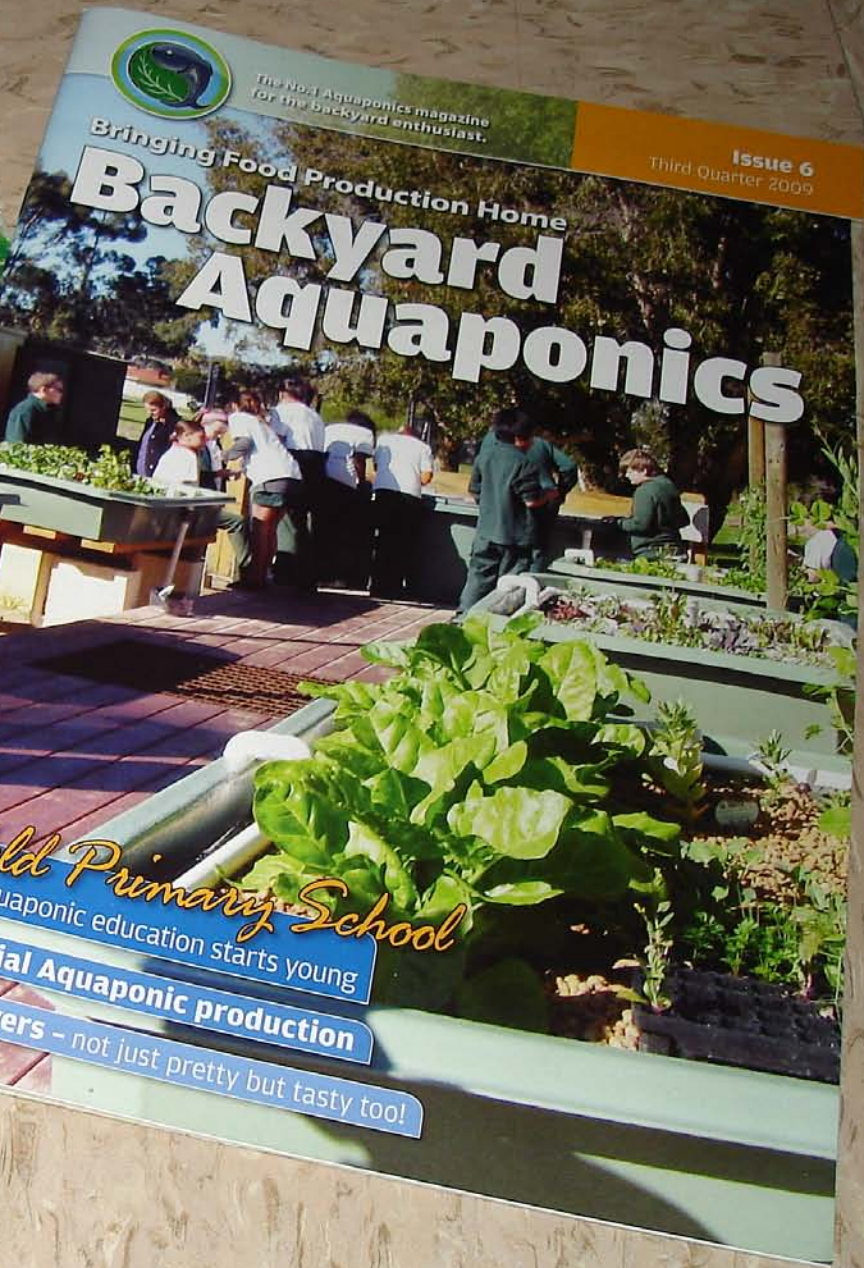
The No. 1 Aquaponics magazine for the backyard enthusiast.

Issue 5  
Second Quarter 2009

Bringing Food Production Home  
**Backyard Aquaponics**

*Backyard Barra*  
with Neville Passmore

Channel Catfish - *Ictalurus punctatus*  
Soldier Flies - growing your own fish food



The No. 1 Aquaponics magazine for the backyard enthusiast.

Issue 6  
Third Quarter 2009

Bringing Food Production Home  
**Backyard Aquaponics**

*Westfield Primary School*  
Aquaponic education starts young

Commercial Aquaponic production  
Edible flowers - not just pretty but tasty too!



# Problems

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- ◆ Unqualified or partially trained people jumping on the band wagon as consultants, educators and vendors
- ◆ Some courses based on unproven technology
- ◆ Unrealistic expectations (e.g., alleviating third world hunger)



# Problems

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- ◆ Aquaponics performs well for continuous staggered production of fish and plants, but the logistics of having both fingerlings and seedlings available on a regular basis is challenging for hobbyists
- ◆ Marketing two distinct products can be challenging
- ◆ For small commercial systems difficulty of obtaining component parts of system from many vendors



# Impediments to Commercial Development

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- ◆ No large-scale commercial models yet
- ◆ Lack of capital
- ◆ Lack of trained personal
- ◆ No approved organic certification for the plants
- ◆ Food safety is an issue



# Changing Perceptions

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- ◆ In past aquaponics excited aquaculturists – recover waste nutrients and produce a valuable byproduct
- ◆ Hydroponic producers were not interested
- ◆ Now hydroponic producers are becoming excited because aquaponics represents an organic source of nutrients (inorganic nutrients in short supply) and aquaponic vegetables are proving to taste better than hydroponic vegetables)



# Future Prospects

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- ◆ Excellent
- ◆ The world is running out of nutrients and water, and aquaponics recycles nutrients and reuses and conserves water
- ◆ Aquaponic systems are extremely productive (~ 200,000 lbs/acre of annual production outside in the tropics or in controlled environment agriculture in temperate regions)
- ◆ A critical mass of interest and knowledge is increasing to a point where aquaponics will soon take off in the commercial sector and expand at an exponential rate at the hobby level.