



**Jade & Silver Perch
in an Aquaponics System**

Inside this issue:

<i>Editorial</i>	2
<i>Black Soldier Fly Larvae .</i>	3
<i>Virtues of self sufficiency</i>	5
<i>Other food for your fish.</i>	5
<i>Increasing oil prices built my veggie patch</i>	7

<i>Hardware items</i>	8
<i>So, you are thinking about a commercial size Aquaponics system.</i>	10
<i>Fish Hatcheries</i>	11
<i>Working Aquaponics systems</i>	11
<i>Sleepy Cod</i>	12
<i>A word from the Editor</i>	12



A word about Practical Aquaponics and this Edition

Hello everyone,

Our reaction to the growth of the Aquaponics HQ Forum has been one of amazement.

We had our first dozen or so members before we'd actually opened the Forum up to public view. In our first 3 weeks, the membership had climbed to 100 +.

Our first few weeks in the forum business had their share of challenges but we're more committed than ever to spreading the word about backyard food production in general and Aquaponics in particular.

We're particularly excited about this issue of Practical Aquaponics - for several reasons.

First.....it's our pleasure to announce the release of **The Urban Aquaponics Manual**.

Written by Gary Donaldson, this comprehensive manual is the product of a 30 year commitment to integrated agri/aquaculture in a backyard food production context.

Arguably the most comprehensive book on the subject of small-scale Aquaponics, **The Urban Aquaponics Manual** will show the reader how to grow fish and plants in their own backyard.....and much more.

Second, we show you Gary's new web site...

<http://www.urbanaquaponics.com.au>

....fully committed to his Integrated Backyard Food Production concept.

You can read even more about Gary's work on

www.urbanaquaponics.blogspot.com

We've also received several requests for an article on Black Soldier Fly Larvae. In this issue, we deliver on that request.

In Issue #2 of Practical Aquaponics, we invited you to "watch this space and you'll begin to understand why this web site is called Aquaponics HQ".

Are you getting the picture?

The forum has new members join every week and is now approaching 390 members.

The forum is providing a valuable source of information and an exchange of ideas about Aquaponics.

While most members are Australia, we have a growing contingent from the USA, UK and Europe.

Murray Hallam



Gary Donaldson (left) and Murray Hallam - co-operators of www.aquaponicsHQ.com.

Black Soldier Fly Larvae

How would you like an unlimited source of fresh animal protein....at no cost?

Well, you can!

They're called Soldier Flies and they are arguably one of the best kept secrets of sustainable farming.

I discovered Black Soldier Fly larvae almost by accident following a post by an American Aquaponicist on a discussion forum to which we both belonged.

I had already attempted to breed maggots from blowflies and common houseflies but my experiences had left me less than impressed.

Handling rotting beef hearts and other stinking baits was one thing but when, on three occasions, my freshly hatched maggots all got up and cleared out, I was about ready to abandon fly larvae as being far too much trouble.

To cut a long story short, I discovered that, not only did Black Soldier Flies live in Australia, but I actually had them in my very own compost bin.

My reading on Soldier Flies suggested that they were a consistent source of animal protein which was easy to produce and which did not require me to become too 'hands on.'

I learned that the larva of the Soldier Fly can be used to convert large quantities of organic wastes (including fruit and vegetable residues, offal and manure), into high quality animal protein that can then be used in livestock rations.

The good news doesn't end there. This remarkable creature is genetically programmed to harvest itself.

When it reaches maturity, it will climb out of its food source, crawl up a ramp (cleaning itself as it goes) and drop into a container ready for collection.



Self-cleaned larvae travel up the ramp and leap into a clean tray waiting beneath.

I shovelled up the compost containing the SF larvae into some 50 litre plastic tubs and set about conducting a little practical research of my own.

I modified a plastic tray for use as ramp and placed it against another tray which acted as a collection tray.



The home-made harvesting ramp at work.

I scooped a couple of handfuls of larvae-laden compost into the ramp tray and, responding to their preference for darkness, I inverted a cardboard box over the ramp tray.

Almost immediately (to my utter amazement), the little creatures began to march up the ramp.

When they reached the top, the larvae just crawled straight over the edge and dropped into the collection tray.

As soon as I had harvested some larvae, I decided to do a taste test on my Jade Perch.

I took a few and sprinkled them over the top of the tank.

The fish sniffed at them tentatively for a moment and then quickly swallowed them all.

To cut a long story short, I've become an avid fan of Black Soldier Flies.

These days, my shed freezer contains a healthy stock of the creatures and they have become a regular ingredient in my fish rations.



Black Soldier Fly Larvae.....Continued from Page 3

Unlike many other fly species:

- SF adults do not go into houses or eating places.
- They do not have functional mouth parts so they do not eat and nor can they regurgitate on human food.
- They do not bite or sting and they are not associated in any way with the transmission of disease. Not only do they not behave like the irritating flies that afflict humans, Soldier flies actually reduce housefly numbers by 95% - 100% by denying the flies access to food.
- Soldier Fly larvae are dry to the touch and have only a slight earthy odour.

Many aquaponicists grow worms to feed to their fish. While I agree that worms are good fish food (and so do the fish), BSF larvae have some distinct advantages over worms including:

- Worms take 90 days to reach breeding age and a similar amount of time to grow to a useful size. BSF larvae take around 14 days, in the right weather, to grow to the point where they are ready to harvest.
- Worms are harvested using the light extraction method or a mechanical harvester, where BSF larvae harvest themselves.
- Soldier Fly larvae 'castings' are a very useful soil conditioner and, because they still retain plenty of feed value (up to 50%), it makes excellent worm bedding. You effectively get two animal protein harvests out of the one batch of vegetable scraps.

As it turns out, I believe that it's good to have both BSF larvae and worms. Fish in the wild are used to variety in their diets.

Dried SF pre-pupae contain up to 42% protein and 35% fat and feature an amino acid and mineral profile which leaves them well suited for use as livestock food.

The value of the Soldier Fly as a home-grown source of animal protein is second only to its waste conversion capabilities.

They have a very healthy appetite and will consume large quantities of organic waste including manure, food scraps and even offal.

So voracious are the larvae, and such are their numbers, that they will sometimes displace worms.

When fed fresh manure, SF larvae convert protein and other nutrients in the manure into insect

biomass.

Aside from reducing manure volume by 50%, the larvae may reduce nutrient levels by 50% - 70%.

Soldier Fly larvae will convert this waste to live protein leaving you with compost that has an earthy odour and the texture and appearance of ground coffee.

Soldier Flies and backyard farming are good for each other, no matter how you cut it.

Gary Donaldson.



Black Soldier Fly larvae are dry to the touch and have a slight earthy odour.



Virtues of Self Sufficiency..

Lincoln contacted me recently via our Forum and has started a website <http://www.growlocal.net.au/>.

Lincoln is very keen to try and establish local networks of private persons who may have excess produce that can be traded.

Lincoln says,

"The virtues of self sufficiency are readily apparent when we prepare a fresh, nutritious meal that has come straight from our garden.

The joy of consuming food resultant of our husbandry and the Sun's graces, is complemented by the fact we reduce our dependence on an industrialized food supply.

Our food autonomy in a small but no less insignificant way lessens the demand for this food and as such holds out the possibility of eclipsing this sourcing altogether.

But how is this to be achieved? How is our passion for growing food, primarily considered a private undertaking to be given a mode of "public-ness" whereby the localising of our food supply becomes a working reality?

The Growlocal network answers the question of how by providing members the capability to find others within their area who share a passion for growing their own food. Through the bartering of produce, the sharing of seeds and plants; through such localised exchanges that nurture mutuality and reciprocity the localisation of food can be made a co-operative effort of numerous growers in ones area.

As is always the case it depends on what we do, so if we think it worthwhile to extend beyond our fence line the possibility of creating the grounds of a common endeavor then Growlocal helps us to resolve upon a way to make such commonality integral to the place in which we live by facilitating contact with other like-minded people.

Cheers, Lincoln"

I feel it is an excellent idea that Lincoln has and is worthy of support. I have joined his website, but right now I do not have any excess produce..... That will change. **Murray Hallam**

Other food for your fish..

If you are running Silver or jade Perch in your Aquaponics system, feed the lettuce leaves and other green leaves regularly. They just love them. I have found that their favorite is Cos lettuce, followed by any other lettuce, then silver beet leaves.

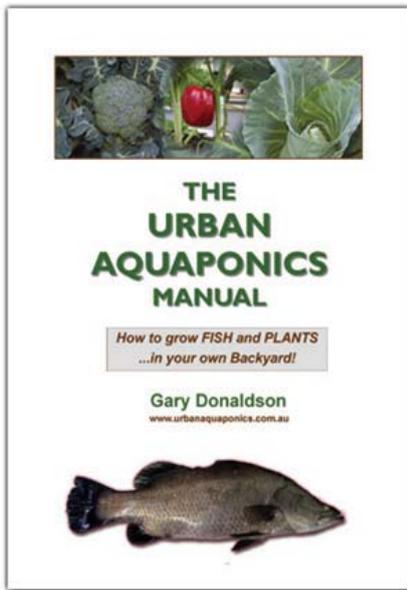
The leaves you feed to your fish should be nice green outer leaves. I tend to pick some of the big outer leaves from the Cos lettuce every day, and feed them to the fish. Sometimes I have a Cos lettuce that starts to run to seed so I will put the whole lettuce into the fish tank. The photo on the left shows how thoroughly the fish strip the leaves from the plant.

Duckweed is an old favorite for Silver and Jade Perch. Gary D has a dedicated grow bed for producing duckweed. This works very well. Gary harvests the duckweed, makes small disc-shaped biscuits and freezes them for later use.

He details the process in his book "The Urban Aquaponics Manual"

I use my duckweed as a feed when I go away for the weekend. It is a good "slow release" food. I scoop some duckweed from my front pond with a kitchen strainer and put it into the fish tank. The fish love it. Three scoops of duckweed will keep my 200 Silver Perch fed for a three day weekend. **Murray Hallam**





The Urban Aquaponics Manual

The most comprehensive manual on Aquaponics currently available - the product of the author's 30 year association with micro-farming.

A complete how-to guide that leads you through the whole Aquaponics experience from the tank to table.

The advice in the manual will save you its cost many times over by helping you to avoid the pitfalls that have beset most Aquaponicists.

A complete how-to guide that leads you through the whole Aquaponics experience - 90 A4 pages - 88 colour photos and 17 illustrations.

For more information....<http://www.urbanaquaponics.com.au>

The Urban Aquaponics Manual is not a text book and nor was it written by a scientist or academic. Written, in layman's language, by an urban farmer.....based on his experience.....for those who wish to grow their own clean, fresh food.

Chapter Headings

- **In Search of Aquaponics.**
- **Urban Aquaponics**—Why? Other benefits, How it Works
- **Our First Urban Aquaponics System.**
- **Designing the Ideal Urban Aquaponics System.**
- **Selecting System Components.** Tanks, Pumps, Filters. Valves & Connectors, Other Fixtures & Fittings.
- **Choosing Your Fish** Jade Perch, Silver Perch, Barramundi, Murray Cod, Catfish Other Freshwater Species of Interest, Freshwater Crayfish.
- **Selecting Your Growing Systems** Simple Aquaponics Growing Systems, Growing Media, Trays & Tubs, Satellite Pots, Flood & Drain Gravel Grow Beds, Coco Peat Grow Beds, System Layout.
- **Growing Plants** Productivity, Plant Types, Seed or Seedlings, Plant Spacing, Pest Control, Plant Deficiencies, Water Gardens.
- **Managing Water Quality and Temperature** Hardness pH, Ammonia Nitrites Nitrates, Dissolved Oxygen, Carbon Dioxide, Temperature.
- **Starting up Your Aquaponics System** Live Fish Cycling, Nitrogen Dosing The Start Up, Introducing Your Fish, Suppressing Territorial Behaviour.
- **Operating your Aquaponics System.**
- **Bullet-proofing your Aquaponics System** An Aquaponics Nightmare, Analysing the Risks, A Few Solutions.
- **Feeding Your Fish.** Weaning Freshwater Fish, Storing Fish Food.
- **Growing Your Own Fish Food.** Black Soldier Fly Larvae, Duckweed. Other Home-grown Food Options.
- **Building the Ideal Urban Aquaponics System**
- **Enhancing the Urban Aquaponics System.**
- **Variations on the Aquaponics Theme.**
- **Where to Next?**
- **Bibliography.**

Reader Feedback

"I am very pleased with my purchase of 'The Urban Aquaponics Manual' and would highly recommend it to anyone interested in aquaponics, whether just starting or even those with a system under their belt.

In addition, I have found Gary quick to respond to any queries either by email or on his forum, with easy to understand, practical advice.

Gavin L - Mackay

This is the book that we were waiting for. Excellent!

Leonie S - Wamuran

I found Gary Donaldson's Urban Aquaponics Manual to be a wonderful reference for a beginner like myself. It's filled with practical information that helps you to understand how the system works, and how to make it happen in your own back yard. It shows you how to set up your first system, and if you like you can start small & expand later. There are plenty of pictures that really make things clear, and it's written in a style that is easy to follow. I also really like the section that tells you how to grow your own fish food!

Marj J - Minden

How Increasing Oil Prices Built My Veggie Patch.

Daniel, a member of the www.aquaponicshq.com Forum, shares his views on growing your own veggies.

How increasing oil prices built my veggie patch.

Our society is driven by oil. Only a percentage of the oil we each use every day goes into our cars. Most of it goes into the production of the goods we use, plastics, packaging, chemicals, drugs, transport, even fertiliser. Nearly every convenience of modern day society is reliant on oil and therefore, so is the economy.

Now add to the equation, the PEAK OIL principle. This is the generally accepted theory that demand will shortly, and very rapidly, overtake supply. According to most sources, the ramifications are pretty serious. (*If you are a bit unsure of the topic of Peak Oil, read chapter 2 of this web site*(<http://www.earth-policy.org/Books/PB2/Contents.htm>). *It is a very informative, moderate introduction to the whole concept.*)

Now, Peak Oil scares me.

I realize the timeline for its effects are up for debate, but I look at the sheer volume of logistical problems that arise, and cant help but be concerned. Take basic food production for example. The term *food miles* has entered the green vernacular in recent years mainly because the average mile travels an average of over 2000Kms before it reaches your door.

This means that a typical meal bought from a conventional supermarket chain uses up to 17 times more petrol for transport than the same meal created using locally produced ingredients. If the price of petrol increases, then so does the price of our food.

Thing is, oil is not just integral to the transport of the food, but also is used for farm machinery, fertilizers, pesticides, irrigation, packaging, refrigeration, etc. Approximately 10 calories of fossil fuels are required to produce every 1 calorie of food eaten in the US.

To put it simply, as fossil fuel production begins to decline within the next decade, there will be less energy available for the production of food.

I often ask myself, how quickly can our society convert to a different way of producing enough food? No one seems to be gearing up to cater for a lack of oil in the future. No infrastructure is being put into place. Why have I never heard a politician even mention peak oil. As far as I can tell, the ramifications of Peak Oil are being completely ignored.

It gets more complicated as increased oil prices are not only related to food production. What happens to the economy and our way of life when oil gets too expensive? How do we even get to work? Look what happened in America in the 1973 oil shortage.

Not only did it cause a recession that hit much of the Western world, but affected people on a much more personal level. People couldn't get fuel for their cars. Schools and offices in some countries had to close down to save on heating oil and factories in many industries had to cut production and lay off workers. And this was only from a temporary shortage, not an ongoing lack of supply.

It was thoughts and fears like these, be they based on self preservation or green concern, that led me to believe that producing some, or all, of your own food at home is not such a silly idea.

Doing so removes a lot of ones personal reliance on oil. Peak oil debate aside, it also greatly reduces your global footprint.

You can't reduce your food miles much more than when gathering food from your own back yard.

Daniel

Hardware items for your Aquaponics System.



Aquaponics Tank 1000 ltr

Fish Tank, 1,050 litre total capacity - approx 1000 litre useable capacity
 This tank is flat bottomed and can be placed directly on concrete, or a bedding sand base, or other similar smooth soil base.
 The inside of the tank is finished with natural fiberglass resin. The outside is coated with polyester resin flow coat which is UV stabilised.
 The inside of the tank is ribbed to add strength.
 These tanks carry a 5 year warranty.
 The measurements are as follows External = 1470 x 1250 x 890 high

Price = 790.00 Order Code 559/032

Float Switch - Pump Control Switch. For controlling 240 volt pumps.



This float switch is round in shape which helps to avoiding fouling in the tank.
 Float Switch switches **ON** when the float is in the **UP** position.... The switch switches the pump **ON** when the tank is full. Then the pump being switched on will pump to empty the tank or to level as set by the length of the cord. Comes fitted with 5 mtrs of PVC cable and piggy-back plug ready to just plug into the wall socket and the pump lead plugs into the piggy-back socket. No need for an Electrician.

Price: \$83.90 Order Code 553/001

Fibre Glass Grow Bed. 585 litres capacity.



This Grow bed is the premium Grow Bed for use in Aquaponic projects..
 Long lasting and very smart complete with drain up-stand which has 19mm male threaded outlet underneath.

Internal measurements 2120mm x 920mm x 300mm deep
 External measurements 2260mm x 1050mm x 300mm deep .

Order Code
550/002

Natural Industrial Green finish. Price = 345.00

Bed shown on a concrete block and pine sleeper stand . Stand not included.

Fibre Glass Grow Bed. 250 litres capacity.



This Grow bed is the premium Grow Bed for use in Aquaponic projects..
 Long lasting and very smart complete with drain up-stand which has 19mm male threaded outlet underneath.

Internal measurements 1400mm x 535mm x 350mm deep
 External measurements 1440mm x 585mm x 350mm deep .

Order Code

Natural Industrial Green finish. Price = 175.00

550/003 -2

NB - This Grow Bed is very suitable for use as a Fish Tank.

Fibre Glass Fish Tank . 2300 litres capacity.- approx 2100 litre useable capacity (filled to within 100mm of the top.) This tank is flat bottomed and can be placed directly on concrete, or a bedding sand base, or other similar smooth soil base.



The inside of the tank is finished with Natural light green Fibre Glass.
 The outside is coated with polyester resin flow coat which is UV stabilised.

Fibre glass is a very resilient material, will withstand flexing, will not crack or break with normal use, and is inert. Rectangular tanks save space.

Internal measurements = 2100 x 1150 x 975 high
 External measurements = 2320 x 1390 x 975 high

Pricing on all products includes GST.

Order Code

Natural Industrial Green finish. Price = 1,190.00

550/002



Submersible Pump. Auto Operation. Handles soft solids up to 10mm.

This pump has been designed especially for the Aquaculture/Aquaponics project in mind. It is capable of salt water operation with stainless steel shaft and fittings. This is the pump to buy for reliable non stop work.

All seals are EPDM Rubber.
 Stainless Steel Shaft and fixings It is a rugged Italian Engineered and Manufactured Pump.
 Maximum head = 7.0 mtrs.
 Capacity = 7,200 lph (120 lpm.)
 Power consumption = 300 watts x 240 volts. **This pump is freight free in Australia !**

Price = 285.00 Order Code 551/300-A



Submersible Pump. MANUAL Operation. Handles soft solids up to 10mm.

This **MANUAL** quality robust pump is very useful for Aquaponic and Aquaculture purposes. Pump out from fish tank to grow beds, or from grow bed sump back to the fish tank at the rate of 15,000 lph or 250 lpm. This pump will comfortably move water from fish tank to 6 or 8 grow beds.

This pump has a triangular body so it can be used standing up or laying on its' side or back which makes it easy to hide the pump in shallow ponds or tanks. Has very high flow rates making it ideal to create waterfalls in tanks to improve aeration. Very quiet operation making it ideal for indoor or outdoor operation.

Made in Italy
 Volts = 240 x 700 watts
 Head = 10 mtrs
 Flow rate = 15,000 lph (250 lpm)
 330mm tall x 160mm x 170 wide.

This pump is freight free in Australia !

Price = 399.00 Order Code 551/700



The **Model 400 Submersible** has a filter grid, great to keep those small fish from getting sucked into the pump. The filter grid can be removed for maintenance and cleaning. Made from ABS Marine grade plastics. This pump has ceramic shaft bearings for long life. Vortex impeller making it capable of handling soft solids. Very low operating cost. Will cost approx A\$72.00 per year if run continuously 24/365. Pump comes with some plumbing outlets as shown in the image.

Price = 169.00 Order Code 551/400

This pump is ideal for a medium size backyard Aquaponic system or pond. **This pump is freight free in Australia !**
Power = 240 volts x 75 watts ...Max head = 2.6 mtrs...Outlet = 3/4 BSP
 Max flow = 3750 lph (66 lpm)...Warranty = 3 years....Has 10 mtrs lead with 3 pin 240 volt plug.
 225mm long (including filter screen) x 90mm high x 110mm wide...Compact pump...Salt or fresh water use.

Fish Food : Floating and Sinking pellets for Australian Natives. 1.5kg Pack



Fish feed features:
 · Floating pellets 4.5mm size ... Sinking pellets 1.5 to 2mm pellets.
 · Developed specifically for fresh water finfish
 · High performance for fast growing
 · Land Animal Protein Free (LAP Free) - a pre-requisite for export product and consumer approval
 · Fast growth and low FCR throughout all sizes

Crude Analysis	4.5mm floating pellets. 1.5kg	Order Code
Protein Min 35 %	Price = 10.90	440/003-1.5
Fat Max 10 %	1.5 to 2mm sinking pellets 1.5kg	
Moisture Max 10%	Price = 10.90	440/009-1.5

So, you are thinking about a commercial size Aquaponics system !

When I first came across Aquaponics I was so excited about the possibilities. I could imagine all the great veggies and fish that could be grown for my own home consumption, but my imagination quickly turned to the commercial possibilities of an Aquaponics system.

Lots of people talk about going commercial with Aquaponics, and that is not surprising. The benefits of Aquaponics over other food production systems are many. Low water usage, superior productivity, minimal space requirements are just a few of the advantages.

The most exciting advantage is that Aquaponics actually works.

Aquaponics is often referred to as the combination of Aquaculture and Hydroponics, and that is true, but Aquaponics is substantially different to both. The water usage difficulties experienced by Aquaculture and Hydroponics are solved by using Aquaponics. This factor alone will, increasingly, make Aquaponics the preferred method for high density food production into the future.

Aquaponics is intrinsically organic. Artificial or non organic chemicals just cannot be used on the plants in the Aquaponics system. If used, fish deaths will result.

When considering a commercial system the size of the operation is an essential benchmark to set in the planning of your new enterprise.

There are three basic commercial Aquaponics concepts:

- Cottage Industry Aquaponics
- Small scale farm Aquaponics
- Large scale farm Aquaponics

This time we will concentrate on what I term as Cottage Industry sized enterprises. We will deal with larger commercial systems in later editions. These are important distinctions . It may seem to be abundantly obvious that such distinctions should be made, but frequently the obvious is overlooked.

Things that will determine the size of the project are availability of, land, funding and expertise. Obviously all three elements are necessary for any project, but just how much of each you have, or can obtain, will determine the type of project you can sensibly embark upon.

Examples of large scale Commercial Aquaponics Farms are "Tailormade" and "Barramundi Blue" . A quick Google search will easily find both of these farms. It will be readily apparent that a large amount of funding, land and expertise have been employed to establish commercial systems such as these.

A Cottage Industry size setup is possibly within reach of most folk. This is where the revolution in home food production will take place. Small back yard sized "Market Gardens" based on Aquaponics. Modest sums of income from just a few dollars up to and beyond hundreds of dollars a week can be earned depending on the size of the system and the personal energy input. Some retirees may view this as a supplementary income while others will earn those extra dollars needed to pay the school fees, or perhaps a modest living.

Aquaponics Systems are very productive. Space requirements are similar to that of Hydroponics and indeed some studies claim that Aquaponics systems are capable of producing more food per square metre of footprint than Hydroponics' systems.

Let us consider the elements necessary to establish a Cottage Industry style Aquaponics system. We can discuss the elements of a larger Aquaponics farm project later.

Land. A reasonable sized suburban block can accommodate a very productive Aquaponics System. Most local councils will not prevent you from growing veggies in your own back yard. There will possibly be approvals required to erect a greenhouse. Check with your local council.

You will need to keep the neighbours happy, so erect a well made and attractive greenhouse. In any case, if you hope to sell your produce and have visitors come to see your setup, it is better to have a professional look about the place. It would not be good for business to look like an extension of the local junk yard.

Funding. An Aquaponics system can be established with a very minimum of funding. If using re-cycled tubs and tanks, a few hundred dollars is all that is needed to purchase good pumps, piping, fingerlings, grow bed media and seeds. If funds are available it is a good idea to install a kit. Turn-key Aquaponics kit solutions are available here in Australia. Good quality equipment pays off in the long run. See www.aquaponics.net.au

Expertise. There are several good books available. The latest and best is "The Urban Aquaponics Manual" by Gary Donaldson. A must for any budding Aquaponicist.

A good source of information are on-line Forums. Australia is fortunate to have two Aquaponics Forums. On-line questions can be posted and answers received. It is good reading through other peoples experiences. Often the questions you have are already answered in this way.

Be wise and weigh up the information. Does it come from people who are actually doing Aquaponics. One of the drawbacks of Forums is that often the information is coming from "armchair experts" Find someone who actually is running a working system near you and go see them. Find more than one and

balance out the information gained and adapt what you have learned to your own situation.

Websites such as www.aquaponics.net.au and www.urbanaquaponics.com.au are also full of tips and ideas. A Google search on "Aquaponics" will uncover lots of useful information.

Start small. The wonderful thing about Aquaponics is that you can start very small and scale up later. The lessons learned by running a very small system will all apply to a larger system. It's all about balance. So starting small is one way to gain valuable experience and develop your own expertise. It is a good idea to get a kit and treat this kit as the first working module of a bigger system that will develop over time as your local market grows.

Is it about the veggies or about the fish or both. Realistically the vegetable side of Aquaponics is always going to be the main income stream, in a cottage style Aquaponics system.

The vegetables can be harvested daily and are sold on a regular basis, whereas the production of edible sized fish is proportionally lower in value compared to the vegetable output. Once you go down the path of selling processed fish you will need to comply with all sorts of health and food processing regulations. The only easy option is to sell the fish live. We will discuss that later.

The Fish species that will readily sell are Murray Cod, Barramundi, and Trout. Most people I have encountered have not heard of Silver or Jade Perch and always ask "Can you eat them?" . They are reluctant to give them a try. They are very keen on

Barramundi and Murray Cod. If you live in colder climates Trout would be a good option. They grow well in tanks and are excellent eating and have good consumer acceptance.

Investigate the local market requirements for "Organically Grown" veggies and herbs. I have found that there is a very real demand for organically grown produce.

Most good fruit and veggie shops have a small section of "Organic" produce. Perhaps you have a Farmers Market, or a Sunday Market in your area. I have a friend who has a 2 acre market garden, and he sells all of his produce at the Chandler Markets in Brisbane. It is a very profitable exercise for him.

Just to be clear, it is truthful and correct to make the claim that your produce is organically grown, but do not claim organic certification unless you have actually been certified.

The process of certification is long and difficult and not very realistic for a Cottage style enterprise. As far as I know there are no "Organically Certified" Aquaponics enterprises in Australia. Some one will do it soon, and all power to them.

Aquaponics is "Organic" by nature. If you attempt to use any agricultural chemicals on your veggies, you will kill the fish. Believe me, they will die.

'Ecotourism' Tours and education programs. This can be a very real income producer.

People are really fascinated with the whole process of Aquaponics.

Go to page 12

Fish hatcheries in SE Queensland....

South East Queensland Hatcheries
1044 Beenleigh-Beaudesert Road
Luscombe
Ph 07 55 464 462

Silver Perch, Jade Perch and aquarium fish.
Ring ahead to order. Very helpful and easy to deal with.

Ausyfish Pty Ltd
P. O. Box 324
Childers Qld
Ph 07 4126 2226

Silver Perch, Jade Perch, Golden Perch, Sleepy Cod.
Very helpful, delivers by courier Australia wide.

Queensland Native Hatchery
Childers Qld
07 4126 1844

Silver Perch, Jade Perch. Delivers to Brisbane weekly
Delivers state wide by courier
Very helpful and a pleasure to deal with..

Right:
Jade Perch Fingerlings hiding in a piece of 90mm down pipe. This batch of Jade Perch are now around 900g each in size and are almost ready for the BBQ.



You are welcome to come and see our working Aquaponics Systems....

Murray's Aquaponics System.



We are located 45 kilometres south of Brisbane CBD towards Beaudesert Qld. Visits to see my Aquaponics system are welcome but by appointment only.
Ring 07 3200 0272 Murray Hallam

Gary's Aquaponics System.



We are located 20 kilometres south west of Brisbane CBD towards Ipswich. Visits to see my Aquaponics system are welcome but by appointment only.
Ring 07 3816 1175 Gary Donaldson

Team Economics Pty Ltd
21 - 31 Hives Road
North Maclean 4280 Queensland.

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Phone: 07 3200 0272

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We are on the Web at
www.aquaponics.net.au

Aquaponics is Spoken Here !

Practical Aquaponics for Everyone. A word from the Editor.

This issue is really late getting out and I am sorry about that. It has been a really busy year for me. It will get better I promise. My dear wife has given up her job in the Tax office and is now working with me in our business. She is doing a great job of getting me organised. This whole Aquaponics thing has taken me by surprise. I started out just to make some grow beds for myself, then a few friends wanted some. We have now delivered hundreds of grow beds and tanks to clients up and down the east coast of Australia. Thanks to all of you who have waited patiently for me to make your grow beds and tanks while we are going through this amazing growth in our little business.



So, you are thinking about a commercial size Aquaponics system ! Continued from page

The combination of fish and veggie growing is a concept readily understood by average folk.

Once they see it in action, they want to do it.

The veggies are so good and healthy in appearance. Anyone who has dirt gardened is really impressed with the quality of vegetables produced by Aquaponics.

Seeing a one and a half kilo Silver Perch or two gliding around in the fish tank evokes real excitement.

Don't be afraid that you will create competitors in your area. The market for Organic style food is huge and growing.

The more Aquaponics systems there are, will make the public more aware, which will grow the market place.

Besides, you are providing a real community service

Sleepy Cod.



My Sleepy Cod laying about in their 250 ltr header tank. I have 150 of them and they are doing well. The average around 75mm long.

They are a most peculiar fish, very well named. It is true, they spend almost all of their time laying motionless on the bottom of the tank. They rarely

move with any speed except when startled, then they move with great speed around the tank in short bursts.

I can actually reach into the tank and slowly scoop one or two up with my hand. Usually they make no attempt to escape. A real favorite trick for the kids who visit my Aquaponics site.

Sleepy Cod are reported to be the very best eating freshwater fish available in Australia. They are a two year grow out so I will have to be patient. I have not lost one so far, they are proving to be a very easy fish to keep.

There is good information about this amazing fish in Gary's book. "The Urban Aquaponics Manual" or at www.ausyfish.com.

As my new Aquaponics system grew and went so well I thought I should put up a website so I could share my experiences. Our website www.aquaponics.net.au enjoys good visitor traffic daily. About 75% is from Australia 10% the USA and Canada and 5% the rest of the world.

There is now close to 1000 people who have subscribed to this small publication. Most have subscribed to the free email version and some to the printed post delivered version.

The free version can be downloaded from the forum by members at...

www.aquaponicsHQ.com

Thanks and viva Aquaponics !

Murray Hallam

by helping educate and inform people about the possibility of growing good healthy food.

I have had folk visit my place for more than a year now. I have had school student groups come and the process is very time consuming. Don't forget to charge . It is fair and reasonable to do so.

Put a business plan together. It is important to have a clear focus on what you are trying to achieve in your new Aquaponics adventure.

Many a small business has failed just because there was no clear plan. Don't try to conquer the world.

Take careful account of the Land, funding and expertise you have or can obtain.

Decide on what you can actually achieve and aim for that.

Murray Hallam.
