Aquaponics - A Promising Agricultural Alternative

What is aquaponics?

Aquaponics is the combining of aquaculture and hydroponics for mutual benefit. Through normal metabolic processes, the fish in the system excrete nutrient-rich waste into the water on which the plants flourish. As the plants utilize the nutrients, they purify the water for recirculation back to the fish. This creates a mini ecosystem where both plants and fish can thrive. Aquaponics is the ideal answer to a fish farmers problem of disposing of nutrient rich water and a hydroponic growers need for nutrient rich water.

Interest in aquaponics is increasing globally in response to more emphasis in resource management, sustainability, waste management and wholesome food supply production. It offers an attractive alternative to farmers who want to diversify. Existing resources can be utilized, such as abandoned farm buildings or greenhouses to house the fish and plants. Old fuel tanks or grain bins can be converted into fish production tanks. Water sources can include wells, springs, lakes and abandoned rock or sand quarries. Even captured rainwater can be a water source. A small scale pilot project can be set up inexpensively as a learning tool before expanding into a commercial operation.

The beauty of aquaponic systems is that they work with the natural balance. This allows the opportunity to produce and sell to the fastest growing segment of the food market in the US - organic. Organic products sell for a premium price because consumers are increasingly demanding foods which have not been exposed to toxic chemicals or pesticides. According to trends, demand for organically produced food products is expected to be greater than the overall supply.

Commercially, aquaponics is in its infancy but, as the technology develops and is refined, it has the potential to be a more efficient and space saving method of growing fish, vegetables and herbs. By incorporating aquaponics, hydroponic growers can eliminate the cost and labor involved in mixing a fertilizer solution and commercial aquaculturists may be able to drastically reduce the amount of filtration needed in recirculating fish culture. Although there is currently a limited number of commercial aquaponic operations, many people are expressing a strong interest in this intensive method of food production.

Although the practices of fish farming and soil less plant culture have been traced to ancient times, the combination of the two is quite new. Research in aquaponics began in the 1970's and continues today. Several Universities worldwide are dedicating resources to further the technology. At the University of the Virgin Islands, Dr. James Rakocy and his associates have developed a commercially viable aquaponics system designed for use in the tropics where natural fish populations have been depleted and most agricultural products must be imported.

On a hobby scale, aquaponics has the potential to catch on quickly. A home aquarium, with ornamental or food fish, can be combined with a mini garden, growing herbs, vegetables or flowers. A hobby system can serve as a beautiful show piece or a food production system, depending on the size. Many backyard gardeners are setting up systems to grow hundreds of pounds of fish and all the fresh vegetables a family needs.