

Sustainable Aquaculture Initiative Progress Report May 2012

We are pleased to report that our Haitian partners at the recently completed Aquaculture Learning Center (ALC) in Marigot, Haiti began their first harvest of fish. The system has been in operation since November 2011 and 100% of the feeding, water quality management and maintenance to date has been done by our team of newly trained Haitian “teknisyen pwason” (fish technicians), and their students. Prior to the harvest, fish were sampled (taste tested) to ensure there



were no issues with off-flavor. Off-flavor is usually a result of specific types of algal blooms typical in warm water ponds. The flesh was firm, white and flaky and the only negative comment was that the fish were too mild, typical of Tilapia but easily remedied with spices and available herbs. A live harvest technique was used which allowed any unsold fish to be returned to the rearing unit. Based on the bimonthly water quality and feed reports we have been receiving, it is estimated that the basin at the ALC now contains about 1,000 lbs of fish. Revenue generated through the sales of fish went directly to salaries for the teaching staff with a portion of the funds set aside for future feed purchases. Although the quantity of fish sold was below what we expected, the word is spreading and demand is increasing. Difficulties introducing a new product (tilapia) to an area are to be expected but despite this, the system already appears to be approaching sustainability...not bad for the first harvest cycle!

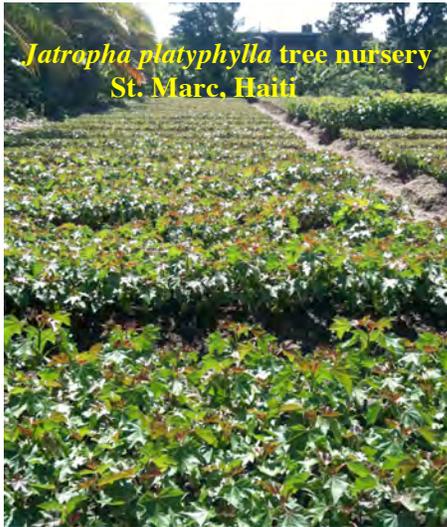


Fish feed trials, using only ingredients available in Haiti (100% fish meal free), have been completed. This was our third feed trial after many months of tweaking diets and trying to balance amino acids, digestibility and palatability.

Four diets were tested against a 32% crude protein Purina™ floating feed and the results exceeded what we had hoped for. The new diet even outperformed a soy-based diet! Feed Conversion Ratios (FCR) were 1.3 for the control diet and 1.45 for our best experimental diet and the specific growth rates were almost identical 2.0 and 1.9 respectively. These results represent a milestone in our efforts to bolster sustainable fish production in



Haiti and have ramifications that could (and should) be recognized beyond the borders of this small country and help reduce the demand for fishmeal globally. The key ingredient in the new diet is a rare species of edible *Jatropha* recently discovered in a remote area of Mexico and currently being planted in Haiti by a bioenergy company (Chibas Energy). While most forms of *Jatropha* are poisonous, this species, *Jatropha platyphylla*, thrives in the poor soil found throughout Haiti and produces a non-toxic seed; this seed contains a high percentage of “tank ready” oil that can be burned in diesel engines while the



remaining press-cake contains a nutritious blend of amino acids and 50-54% protein. Chibas Energy is a Haitian-owned and operated company that is actively planting hundreds of hectares of edible *Jatropha*. We are working with Chibas to purchase the press-cake and if funding permits, establish a feed mill to produce fish and livestock feed. (Side note) – the projected demand for tilapia feed in Haiti for 2013 is slightly more than 1 million pounds; if this feed is a typical fish meal based feed, manufacturing the feed will require almost 1.6 million pounds (wet weight) of wild caught fish to provide the fish meal. Furthermore, fishmeal based feed is being imported into Haiti at a cost of \$22US/40 lb bag – not a sustainable scenario for

Haiti or our planet.

In May, we were invited to Kiskeya Aqua Ferme in Leogane, Haiti to teach an Aquaculture course to farmers, NGOs and business people interested in fish farming.



The course was well attended and it was encouraging to see the level of enthusiasm for promoting aquaculture in Haiti. Within weeks of completing the course several “attendees” had begun building fish production systems based on what they had learned. We are anxiously following their progress and guiding them via e-mail, phone and “tech-tip” additions to our website.

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During the course it was reassuring to receive positive feedback and excitement regarding our work to develop a “turn-key” family size fish rearing system. Property ownership is

very confusing in Haiti, most families barely own enough land to feed their families with soil-based crops. Producing sufficient protein and a business opportunity for a family of four on a small piece of land using a simple fish rearing system is a noble goal worth pursuing – we are working on it. Our operating and cost criteria for such a system are stringent, i.e. they cannot exceed the resources available human or otherwise, but we are making progress. Currently our working model is producing fish and we are in the process of refining pumping and filtration techniques to reduce power requirements. Our goal is to develop a system that will operate on <45 watts of power and produce sufficient protein for a family of four. This is what our Haitian friends have asked for.

Moving forward. We are on the cusp of doing more great things in Haiti and our hard work over the past 10+ years has yielded some real and measurable results. Most importantly we have gained trust from the Haitian people; our reputation for providing



Haitian and American teknisyen pwasons ,
...teaching and learning together
Jilbert , Tracy Youngster, Bill Mebane

solid expertise to help capacity build in Haiti has been hard earned but rewarding. Furthermore, the technology we have implemented is transferrable to many areas of the world facing similar issues as Haiti – we have already been asked to help transfer our techniques of producing fish using low resource methods into areas of Africa. While all of this is good, our Sustainable Aquaculture Initiative is being asked to provide more than we

can physically and financially support and we are launching a fund raising campaign to help us meet these demands. To date, as director of the Sustainable Aquaculture Initiative, I have dedicated my time without collecting a salary. We have one 30hr/week employee (Rutgers graduate!) who has been a talented, tireless and incredibly dedicated team member who, in addition to spending hundreds of hours in Haiti, has carried the ball over the goal line with her work to develop and test a “game changing” fish feed. Great things have been accomplished and we will continue to move forward but we need continued support from our donors and friends who have helped make all of this possible. We are truly grateful for your trust and providing us with the means to help others improve their lives in a very real and sustainable fashion.

For more information please visit our updated website - <http://www.mbl.edu/sai/>