Letter from the Director

Aloha and Happy Thanksgiving!

As we take time this week to reflect on what we are most thankful for, I would like to express my deep gratitude to CTSA's dedicated Industry Advisory Council, Technical Committee, and Board of Directors. This group of volunteer industry stakeholders works together tirelessly to improve our organization and prepare our annual Plan of Work (POW). I would also like to thank the industry experts across the world who reviewed the full proposals this year, helping to ensure the integrity of our POW.

Over the last several months, the IAC, TC, and reviewers have developed and refined the POW, and we are now in the home stretch of the FY13 cycle. In July, the IAC and TC discussed the 27 pre-proposals we received in response to our RFP-P, and selected eight to move forward to the full proposal stage. Each full proposal underwent rigorous internal and external review before final discussion in an adhoc meeting. Some proposals were asked to incorporate revisions from CTSA and our reviewers, and will now move on for final approval by the Board. This chain of command ensures that the allocation of CTSA's funding is a group effort, and that no single person is above any other in the decision-making process.

On the subject of working together, I would like to applaud the stakeholders in both the aquaculture and fisheries industries who are actively joining forces to improve food security in Hawaii. Last month, my letter focused on the critical fact that a majority of the seafood we consume in Hawaii is imported; while this is true, the letter also inadvertently included a common misconception that most commercial fish landings in the state are exported. Thanks to an e-Notes reader who shared the data that only about 3% of the fish commercially landed in Hawaii are exported, I can take this opportunity to clear up that misconception.

Some may think that fisheries and aquaculture are adversaries, but they are complementary industries with the same goal: to provide and promote sustainable seafood. Unfortunately, negative media attention often finds fault in both aquaculture and fisheries, and/or pits us against each other. It is our job to seek opportunities to work together just as cohesively as the 'enemies of seafood' do, a sentiment that was even mentioned in this month's issue of the Global Aquaculture Advocate newsletter. After all, how can we expect others to support our shared cause for sustainable seafood if we do not fully support each other?

Mahalo,
Cheng-Sheng Lee
Executive Director, CTSA

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Executive Director, CTSA

New CTSA Video: Aquaponics in the Pacific Region

Aquaponics is the symbiotic cultivation of aquatic animals and plants in a recirculating environment. The technology is rapidly gaining popularity across the Pacific Region due to its efficient use of resources, which are limited in the islands. Commercial farmers, backyard enthusiasts, rehabilitative programs, and teachers are using aquaponics as a user-friendly method to produce nutritious fish and vegetables, and as an educational tool to spark interest in sustainability.

Since 2008, CTSA has supported several projects relevant to aquaponics producers. We are happy to present this short video highlighting those projects, as well as other applications and opportunities for the technology in our region. Click here to watch the video.

CTSA Project Update: Economics of Commercial Aquaponics in Hawaii

The following is excerpted from the full article "Economics of Commercial Aquaponics in Hawaii," available on the CTSA website (click here).

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Introduction

Aquaponics integrates hydroponic vegetable production and aquaculture. The system was first developed by Dr. James Rakocy and his team at the University of the Virgin Islands as a way to produce large quantities of fish at high densities (Rakocy et al., 2006). In aquaponic systems, nutrient rich water is circulated from a fish tank(s) to vegetable grow beds. Vegetables act as a filter by using nutrients from the fish production and purifying the water before it is circulated back to the fish tank. It is both water saving aquaculture technology and soil saving agricultural technology. For this reason, aquaponics is being touted as a sustainable food production practice.

The aquaponics system has been modified from its original design to different versions that are currently in use. Ako and Baker developed an aquaponic lettuce and tilapia production system in Hawaii with a goal of lower capital and operational costs (Ako and Baker, 2009). Their study of the technology indicated that the system setup can vary and be modified depending on the farm's location and hardware availability, though optimal conditions can only be achieved under appropriate aeration, feed, and biomass density (i.e. number of fish in the tank).

While backyard aquaponics has become more common in recent years as a way to supply vegetables and fish for household consumption, several commercial-scale aquaponics farms have started operations in Hawaii. Yet, the economic feasibility of commercial scale operations is unclear. There is some anecdotal evidence regarding the successes and failures of commercial-scale aquaponics operations; however, there are only a few formal economic analyses of large-scale operations and, to the authors' knowledge, there are no formal studies on existing commercial aquaponic farms.

In this study, we are investigating the economic feasibility of commercial-scale aquaponics through the comprehensive analysis of three aquaponics farms in Hawaii. We have obtained detailed economic and operational information from the farms and developed a model case for Hawaii to analyze i) profitability of commercial-scale aquaponics, ii) their return on investment, and iii) input requirements for their operations. Through the study, we aim to supply necessary information for starting and operating commercial-scale aquaponic farms, and investigate the feasibility of establishing an aquaponics industry in Hawaii.

Discussion and Conclusion (*excerpts only - click here to read entire article*)
We found that commercial scale aquaponics is economically feasible and profitable to some degree. Based on the analysis of three commercial scale aquaponics farms in Hawaii, we set up a model case to depict investment and operational cost in detail. We found that aquaponics requires a large initial investment to set up the farm for operation. Our study shows a total investment cost of $217,078 for the model farm with a raceway surface area of 12,288 sq. ft. and a fish tank volume of 20,000 gal. About half of the total initial investment cost is used to purchase various facility components such as fish tank(s) and lumber used to build vegetable raceways. In addition to this initial investment, some of the facility components wear out and need to be replaced during thirty years of operation. At the time of this publication, at least two of the farms are in the process of modifying their designs for the purpose of improving productivity.

We found that it costs $66,183 annually to operate the model farm. We also found that aquaponic vegetable production is very labor intensive, where labor cost accounts for over a third of total annual operational cost. Our model case requires 44.74 hours of labor per week. The labor requirement, however, could be reduced somewhat with mechanization such as automatic feeders and seeders, and at the time of this publication, automatic feeders and seeders are being purchased and installed at these farms.

Overall, cash flow for the model case is shown to be positive throughout the 30 years of operation with a MIRR of 7.36%. Our MIRR is lower than the average MIRR from the case studies of the existing farms. To investigate this, we complemented our study of the model case with sensitivity analysis. We found that the overall economic outcome is most sensitive to lettuce price. In other words, a farm's profitability increases dramatically when it can attain a higher lettuce price in the market. From the survey of the farms, we found that organic certification of lettuce increase farm gate price to $4 - $5, which results in an increase in MIRR to 12 - 13%. Two of the three farms have organic certification. Another way to attain a higher price is by clearly differentiating the crop as an aquaponically-produced product. Labeling of aquaponics products could capture some of the characteristics desired by consumers, leading to higher prices for aquaponically-produced vegetables.

In conclusion, given our findings, economic performance of commercial scale aquaponics is promising, though it is not as optimistic as reported in previous studies. This suggests a strong potential for an aquaponics industry and for aquaponics technology to play a larger role in supplying both vegetable and fish in the local market.

Click here to read the full article on the CTSA website.

Attention Farmers: Please Participate in the National Aquaculture Census Due January 15, 2014!

The following is a message sent from the National Agricultural Statistics Service on November 18. If you are a producer and you receive the census, please take the time to fill it out and submit it. The information is critical to the USDA, and can potentially impact future allocation of federal resources.

CENSUS OF AGRICULTURE

allocation of federal resources.

After nearly a decade, the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) is conducting the 2013 Census of Aquaculture. The Census is the only comprehensive source of information on the aquaculture industry in the United States and serves as the foundation for many decisions involving the sustainability and growth of the aquaculture sector.

"The aquaculture industry has undergone numerous changes since the last time this information was gathered in 2005," said Renee Picanso, director of the NASS Census and Survey Division. "The results of the 2013 Census of Aquaculture will help assess the current state of this part of the U.S. economy - helping the industry demonstrate its strength and advocate for its needs."

The Census of Aquaculture collects data on water area, production and sales, point of first sales outlets, and aquaculture distributed for restoration or conservation purposes. This information is used by all those with interest in the aquaculture sector from federal, state and local governments to agribusinesses, trade associations, researchers and producers themselves. For example, businesses and suppliers use the information to determine the locations of facilities that will serve growers and plan for the production and marketing of new products.

"Your answers to the Aquaculture Census will help shape national and local policies affecting the aquaculture industry," Picanso said about aquaculture producers. "Only you can supply the answers needed to produce a useful and accurate picture of this important agriculture sector, so do your part and respond when you receive your form."

NASS will mail out Aquaculture Census forms in mid-December, to collect data for the 2013 calendar year. Completed forms are due by January 15, 2014. Producers can fill out the Census online via a secure website (click here), or return their form by mail.

The Census of Aquaculture is part of the Census of Agriculture Program. Federal law requires all producers who receive a Census report form to respond and requires NASS to keep all individual information confidential. For more information, visit www.agcensus.usda.gov.

AquaClip ~ Using Trimmings as an Alternative Source of Fish Meal

NOAA, USDA look to trimmings for fishmeal
By Christine Blank, www.SeafoodSource.com. November 12, 2013

Increasing costs and demands for fishmeal in aquaculture production are leading researchers with NOAA and the USDA to explore alternative and more efficient fishmeal techniques, including stabilizing fish trimmings - an existing idea that may mature if the demand for fishmeal keeps going up.

"Worldwide, about 25 percent of the fishmeal already comes from fish trimmings. Large fisheries, such as the whitefish fisheries in Alaska already have conventional fishmeal plants for their by-products. However, there is potential to get more fish trimmings meal from the smaller and shorter duration fisheries with new technologies" Michael Rust, science coordinator for the office of aquaculture at NOAA Fisheries, told SeafoodSource.

One of the challenges is gathering fish trimmings from all the small fish processors in very remote areas. "It doesn't make sense to put a conventional fishmeal plant [in those areas]. You would have to design a facility that runs 10 days a year," Rust said.

As a result, NOAA and USDA researchers are determining how to stabilize small fishmeal lots to be utilized in large aquaculture operations. "Fishmeal can be stabilized in the same way that yogurt is stabilized: by balancing its pH. Then, it becomes more shelf-stable so, in the case of yogurt, instead of it lasting two to three days, it can last two to three months. You can take the fish trimmings and turn that into fishmeal over three to four months," Rust said.

Click here to read the full article.

The Center for Tropical and Subtropical Aquaculture (CTSA) is one of five regional aquaculture centers in the United States established and funded by the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) under grants 2008-38500-19435, 2010-38500-20948, and 2012-38500-19566. The regional aquaculture centers integrate individual and institutional expertise and resources in support of commercial aquaculture development. CTSA was established in 1986 and is jointly administered by the Oceanic Institute and the University of Hawaii.

Forward email

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