

ECA Farms, INC.

(Environmentally Conscious Aquaculture)

“The Hard Realities of Farming Shrimp in America”

NCRAC Aquaculture Conference

Toledo, Ohio

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Presented By: Russell A. Allen

Shrimp Farming History in the Western Hemisphere



 United States

 Honduras

 Panama

 Ecuador

 Belize

United States



- 📁 Texas – late 60's early 70's (Bil More) Texas Fish & Wildlife
- 📁 Galveston Lab – NOAA Corny Mock
- 📁 Ralston Purina – Crystal River, FL, Harvey Persyn
- 📁 Coca Cola – Mexico, Don Lightner
- 📁 Harlingen Shrimp Farm, Fritz Jaenike
- 📁 The Oceanic Institute, Gary Pruder, Jim Wyban
- 📁 Lowe Farms, Art Lowe, Joe Tabrah, Jeff Peterson
- 📁 Aquatic Farms, Ed Scura, Andy Kulgis

Latin America



 Honduras – Sea Farms, Jim Norris, Ralph Parkman

 Panama – Agromarina, Bill McGrath, Yoshi Hirono, Dave Drennan

 Ecuador – Empacadora Shayne, Peter Shayne, the “French”

 Belize – Belize Aquaculture, Barry Bowen

What's it Take to Farm Shrimp?



 Broostock

 Hatchery

 Nursery

 Grow-out

 Processing

 Marketing

Broodstock



Species? SPF?

Feeds – live & Commercial Diets

Eyestalk Ablation?

Environmental Parameters

Salinity

Temperature

Photoperiod & Light intensity

Good Water Quality

Hatchery



Spawning & Hatching


Larval Rearing

- 🔥 Nauplii
- 🔥 Zoea – Algae & Formulated feeds
- 🔥 Mysis – Algae, Artemia, & Formulated Feeds
- 🔥 Postlarvae – Artemia & Formulated Feeds

Total time about 3 weeks

Nursery



 PL 8-12 to Start

 Feed Artemia and Formulated Feeds

 Grow to about 1.5 Grams

 Time – About 30 Days

Grow-out



 Extensive, Semi-intensive, Intensive, Super Intensive

 Formulated Feeds

 What Harvest Size?

-  Growth Rates

-  Survival

-  Feed Conversion

Processing



 Receiving & Icing

 De-heading (by hand or Machine?)

 Classification (then packing or)

-  Peeling & De-veining

-  Cooking

Freezing – Block Frozen, IQF

Marketing



By Container Loads

Sell to Existing Importers

Sell to Value added Processors

Sell to Regional Distributors

Sell Direct to Restaurants / Retailers

So, How do you do all this?



**Let's look at the
competition.**

Capital Costs – Latin America

- 🏠 \$3 - \$5 capital cost per pound of shrimp produced per year. Typical with extensive and semi-intensive farms
- 🏠 Example: To build a typical farm in the rest of the World that will produce 1,000,000 lbs/year, it will cost \$3 million to \$5 million to build & get in to operation.

Operating Costs – Latin America



- 📊 During the years of low prices, the shrimp World learned to produce very cheaply.
- 📊 Extensive = +/- \$1.00 / lb (head-on)
- 📊 Semi-Intensive = +/- \$1.50 / lb (head-on)
- 📊 Intensive = +/- \$2.00 / lb. (head-on)

For Commodity Production in the US




- 🏭 Need Economies of Scale
- 🏭 >5,000,000 lbs per year
- 🏭 Need Lots of Land or Lots of Technology
- 🏭 Allows for Efficient & Competitive Processing
- 🏭 Wholesale Prices for the USA are based upon New York Green Sheet Prices.

Commodity Production in a RAS system in the USA



- 📊 Competitive Capital Costs
- 📊 Competitive Operating Costs
- 📊 New Markets – Fresh is New
- 📊 Available Capital on Reasonable Terms
- 📊 Friendly Governmental Regulations

Competitive Capital Costs

 Need to Plan for Total Construction costs of Less than \$5.00/lb produced per year.

 It can be done, we have:






-  Available Technology
-  Low Cost Construction & Materials
-  Quality, Inexpensive Equipment

Competitive Operating Costs

- 🍳 Cheapest Commodity Feed Ingredients
- 🍳 Ability to Produce Quality Post Larvae
- 🍳 Cheaper Energy & Energy Efficiency
- 🍳 Good Labor & Ability to Automate
- 🍳 Cheap Shipping Costs
- 🍳 Takes Mother Nature out of the Equation
- 🍳 Need to be @ \$1.00/ lb or less

Processing Costs



-  Economies of Scale
-  Automation
-  Flexibility to Locate Plant in a High Unemployment area with inexpensive Unskilled Labor
-  Need to get Tail Yields of 67% - 70%
-  Processing Costs need to be $< \$0.50/\text{lb}$

Technical Feasibility

 Indoor Production

 150 - 300 animals / sq m

 SPF animals

 Use Commercial Feeds

 Use Artificial Salt Water

 Complete water reuse system

 "KISS" Principal

100 Ha Semi-intensive Shrimp Farm

 Capital Cost 100
Hectares

 \$1,500,000

 Farm Production per
Year

 400,000 lbs

 Capital Cost Per
Pound of Shrimp
Produced per Year

 \$3.75 / lb

Indoor Shrimp Production System

📊 Capital Cost - 1 Acre
Production Unit

📊 \$4,725,000















📊 Production - 1
Acre/yr

📊 1,500,000 Lbs.

📊 Capital Cost per Lb.
Of Shrimp Produced
per Year

📊 \$3.15 / Lb.

Capital Cost - 1 Acre Unit

 Design & Engineering	 \$100,000
 Land	 \$25,000
 Site Work	 \$150,000
 Building	 \$450,000
 Tanks	 \$2,500,000
 Equipment	 \$1,500,000
 TOTAL	 \$4,725,000

Production Cost – 1 Acre

pl's @ \$6/1000	\$250,000
feed @\$1.00/lb	\$1,500,000
Chemicals	\$50,000
Energy	\$85,000
Maintenance	\$50,000
Labor	\$96,000
Administration	\$60,000
Processing @ .50/lb	\$750,000
Total	\$2,841,000
Total / lb	\$1.90 / lb

Profit & Loss

📊 26-30's, NY, Feb 12
Wholesale Price

📊 \$7.75 / lb.

📊 Lbs Sold

📊 1,020,000 lbs

📊 Total Sales

📊 \$ 7,905,000

📊 Total Cost

📊 \$ 2,841,000

📊 Gross Margin

📊 \$ 5,064,000 = 64%

📊 Without Depreciation, Interest, &
Taxes

In Summary



- 📊 The Shrimp Farming Industry has been around a long time & is very big.
- 📊 To create an industry in the US, it has to be vertically integrated
- 📊 We can be competitive on Capital Costs
- 📊 We can be competitive on Operating Costs
- 📊 What we don't have is the Capital and Political will to make it happen

Thank You!

 Questions?