# Aquaponics Business Planning

PRESENTER: PAUL BARRETT

Harvest the Future
International Symposium
June 14-17, 2015 Montego Bay, Jamaica
www.HarvestTheFuture.org

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# Why do a business plan?

" Its more than a tool for getting funding- Think of it as a road map to your business future."

-Stever Robbins-

# Capital Cost -Aquaponics

- INMED's design construction costs J$1,940,500.00 (USD $17,021.00)

-8 grow beds for growing plants (768 sq. ft)

-Tanks for growing fish

-Solar pump/ solar system

-Protected covering/shading

-Air pump

-Water Tank

# Start Up Costs

- Capital Cost

Plus

- Initial Input cost for seedlings, additives, fingerlings and fish feed for 6 months.

J$2,088,000.00

# WHAT IS YOUR PRODUCT?

- Based on demand
- Ability to supply consistently
- Reasonable returns

# Aquaponic Business Planning

- Ripened Bell Peppers (Red and Yellow)

# Aquaponic Business Planning

- Tilapia

# Projected Yield – Bell Peppers

- Yield for peppers - 1 large aquaponic grow bed (96 sq. ft.) produces an average of 36 lbs. of peppers every week.

**Projected Yield:**

**36 lbs. peppers x 8 grow beds = 288 lbs weekly**

# Projected Revenue - Peppers

- Market price for ripe red/yellow bell pepper is JA$250/lb.

**1152 lbs. peppers**

**Assume 10% loss= 1036 lbs**

**1036 x $250 per lb. =**

**$259,000 (every month)**

# Projected Revenue - Peppers

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aquaponic Business Plan | | | | | | | | | | | | | | |
| Projected Income Statement | | | | | | | | | | | | | | |
| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
| Income | | | | | | | | | | | | | | |
| | Pepper | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | Fish | | | | | | | | | | | | | |
| Total Income | | - | - | - | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |

# Projected Yield - Tilapia

- Fish Mortality – 10% rate

**Fish Mortality:**

**3,000 fish x .10 mortality rate = 300 deceased fish**

**3,000 fish – 300 deceased fish = 2,700 fish for harvest**

# Projected Yield - Tilapia

- Harvest weight – .33 lb.

**Tilapia Yield:**

**2,700 fish x .33 lbs. = 890lbs. of tilapia harvested (in 6 months)**

# Projected Revenue - Tilapia

- Market price for tilapia is JA$300/lb.

**890 lbs. tilapia x $300 per lb. = $267,000 (every 6 months)**

# Projected Revenue – Tilapia and Peppers

| Aquaponic Business Plan | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Projected Income Statement | | | | | | | | | | | | | | |
| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
| Income | | | | | | | | | | | | | | |
| | Peppers | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | Fish | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| Total Income | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |

# Projected Expenses

## Input Costs:

- Seeds/seedlings
- Seedling Trays and soil
- Additives
- Fingerlings
- Fish feed
- Marketing
- Packaging
- Transportation

## Operational Costs:

- Labor
- Water
- Electricity

# Projected Expenses - Seeds

- Need 1000 seeds per cycle = $25,000 or purchase 600 seedlings at $30,000/cycle

**2000 seeds in 12 months = $50,000**

**Or**

**1200 seedlings in 12 months**

**$60,000**

# Projected Expenses - Seeds

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |

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# Projected Expenses – Additives

These include small quantities of:

Bio-organic sprays to combat funguses, viruses and plant bacteria;

Organic nutrient additives for healthy plant growth and fruit development; and,

pH solution to balance pH of the water if needed.

Cost at $20,000.00 per plant cycle.

# Projected Expenses – Additives

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
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| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Additives** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | | | | | | | | | | | | | | - |
| | | | | | | | | | | | | | | - |
| | | | | | | | | | | | | | | - |
| | | | | | | | | | | | | | | - |

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# Projected Expenses - Fingerlings

- Fingerling price - $10 each

**$10 x 3,000 fingerlings =**

**$30,000 every 6 months**

- Fingerling transport - $15,000 (self-transport); $22,000 (delivery)

**$30,000 for fingerlings +**

**$15,000 transport = $45,000**

# Projected Expenses - Fingerlings

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | **Fingerlin** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |

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# Projected Expenses – Fish Feed

- Feed conversion ratio used is 1:1.5

**6,000 fingerlings x .33 lb =**

**3,000 lbs of feed required**

- Feed comes in 50 lb. bags

**3,000 lbs. feed/50 lbs = 60 bags**

# Projected Expenses – Fish Feed

- Each bag costs $1,750

**$1,750 per bag x 60 bags = $105,000 for fish feed annually**

**$105,000 feed/12 months = $8,750 per month for fish feed**

# Projected Expenses – Fish Feed

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
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| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| | | | | | | | | | | | | | | |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | **Fingerlin** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |
| | **Fish Fee** | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 105,000 |
| | | | | | | | | | | | | | | - |
| | | | | | | | | | | | | | | - |
| | | | | | | | | | | | | | | - |

# Projected Expenses

- MARKETING

- Fliers
- Phone calls
- Network links

# Projected Expenses – Marketing

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | **Fingerling** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |
| | **Fish Feed** | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 105,000 |
| | **Marketing** | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 6,000 |
| | | | | | | | | | | | | | | - |

# Projected Expenses – Packaging

- 1 bag can hold approximately 30 lbs. of peppers.

**1036 lbs. peppers harvested / 30 lbs. per bag = 35 bags**

- Each bag costs roughly $55.

**35 bags x $55 per bag = $1925 per monthly harvest**

# Projected Expenses – Packaging

| Projected Income Statement | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
| **Income** | | | | | | | | | | | | | |
| **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| **Input Expenses** | | | | | | | | | | | | | |
| **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| **Fingerlin** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |
| **Fish Fee** | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 105,000 |
| **Marketi** | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 6,000 |
| **Packaging** | | | | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 17,325 |

# Projected Expenses – Transportation

- Transportation costs to get product to market.

**$8,000 for transportation monthly**

# Projected Expenses – Transportation

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| | | | | | | | | | | | | | | |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Fingerlin** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |
| | **Fish Fee** | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 105,000 |
| | **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | **Marketi** | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 6,000 |
| | **Packaging** | | | | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 17,325 |
| | **Transportation** | | | | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 72,000 |
| **Operational Expenses** | | | | | | | | | | | | | | |

# Projected Operational Expenses – Labour

- 1 person for 4 days monthly @ $2,000 per day (1 day weekly)

**4 days labour x $2,000 per day**

**=**

**$8,000 in labour per month**

# Projected Operational Expenses – Labour

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | **Fingerlin** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |
| | **Fish Fee** | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 105,000 |
| | **Marketing** | | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 5,500 |
| | **Packaging** | | | | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 17,325 |
| | **Transportation** | | | | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 72,000 |
| **Operational Expenses** | | | | | | | | | | | | | | |
| | **Labour** | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 96,000 |

# Projected Operational Expenses – Water and Electricity (Contingency)

**Use of 250 watt air pump roughly $5000 monthly in electricity**

**Monthly adding 600 gal of pure (de-chlorinated) preferably rain water $750/ monthly**

# Projected Income Statement

| | | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Income** | | | | | | | | | | | | | | |
| | **Peppers** | | | | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 2,331,000 |
| | **Fish** | | | | | | 267,000 | | | | | | 267,000 | 534,000 |
| **Total Income** | | - | - | - | 259,000 | 259,000 | 526,000 | 259,000 | 259,000 | 259,000 | 259,000 | 259,000 | 526,000 | 2,865,000 |
| | | | | | | | | | | | | | | |
| **Input Expenses** | | | | | | | | | | | | | | |
| | **Seeds** | 30,000 | | | | | | | | 25,000 | | | | 55,000 |
| | **Seedling Trays/Soil** | | | | | | | | | 5,000 | | | | 5,000 |
| | **Additive** | 20,000 | | | | | | | | 20,000 | | | | 40,000 |
| | **Fingerlir** | 45,000 | | | | | | 45,000 | | | | | | 90,000 |
| | **Fish Fee** | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 8,750 | 105,000 |
| | **Marketir** | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 6,000 |
| | **Packaging** | | | | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 1,925 | 17,325 |
| | **Transportation** | | | | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 72,000 |
| **Operational Expenses** | | | | | | | | | | | | | | - |
| | **Labour** | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 96,000 |
| | **Water** | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 9,000 |
| | **Electrici** | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 60,000 |
| **Total Expenses** | | 118,000 | 23,000 | 23,000 | 32,925 | 32,925 | 32,925 | 77,925 | 32,925 | 82,925 | 32,925 | 32,925 | 32,925 | 555,325 |
| **Net Income** | | (118,000) | (23,000) | (23,000) | 226,075 | 226,075 | 493,075 | 181,075 | 226,075 | 176,075 | 226,075 | 226,075 | 493,075 | 2,309,675 |

# Projected Net Income

**Gross annual income of $2,865,000**

**-**

**Capital Costs of $1,940,500.00**

**Input costs of $390,325 in year 1**

**Operational expenses $165,000 in year 1**

**Year 1 =$Net profit $369,175.00**