Key Success Factors for Hydroponic Operations

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Environmental scanning ➔ feasibility analysis

1. How attractive is an industry as a home for a new hydroponic business?
2. Can you identify possible niches you can occupy profitably?

Hydroponic Crop Farming in 2016

<table>
<thead>
<tr>
<th>Key Statistics Snapshot</th>
<th>Revenue</th>
<th>Annual Growth 11-16</th>
<th>Annual Growth 16-21</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$821.1m</td>
<td>4.5%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Profit</td>
<td>$73.1m</td>
<td>$26.7m</td>
<td>2,347</td>
</tr>
</tbody>
</table>
Rivalry among competitors

• The strongest of the 5 forces

• Industry is more attractive when
  • Large number of competitors or quite small
  • Opportunity to sell differentiated products/services
  • Competitors are not similar in size or capacity
  • Industry is growing fast

Rising demand increases projected growth in number of operators to 5.2% until 2021

Market Share
NatureSweet Ltd. 27.4%
Houweling’s Tomatoes 21.4%
Village Farms International Inc. 11.3%

Products and services segmentation (2016)

- 50.4% Tomatoes
- 23.1% Other food crops
- 9.7% Cucumbers
- 8.9% Fresh herbs
- 7.0% Lettuce
- 0.1% Strawberries
- 0.8% Peppers

Source: www.ibisworld.com

Light up the market

NATURESWEET acquires SUN VALLEY FARMS
Power of suppliers

Industry is more attractive when:

• Many suppliers sell a commodity product
• Substitutes are available
• Switching costs are low

ESTIMATED AT 45% OF INDUSTRY REVENUES
- Equipment
- Fertilizer
- Seed costs
- Transportation boxes

Power of buyers

• Industry is more attractive when:
  - Number of buyers is large
  - Customers want differentiated products
  - Customers’ switching costs are high

Consumption of fresh vegetables in 2017
• Rising consumer demand for high-quality, healthier foods
  • Per capita F&V consumption expected to increase at 0.1% year

• Disposable income is rising
  • Fresh produce consumption rise

• Baby boomers practicing healthy eating habits

• Government campaigns to encourage F&V consumption
  • Fruits and Veggies Matter
  • Educating future generations
  • Health concerns amount – obesity in young children has grown

• Increasing popularity of organic produce
  • 4% of total at-home food sold is organic
  • F&V account for largest value of US organic foods, and increasing.

• Grocery stores need reliable suppliers of organic produce
  • High production is ideal for supplying retailers

• Industry revenue has risen by 2.1% annually ($4.8B)
  • Increased consumption
  • Rising prices
  • Moderate increase in the population
  • A growing focus on healthy campaigns
  • Most vendors are small selling directly to consumers

• Rising disposable income
• Health campaigns
• Time-crunched consumers
• Prices of vegetables is expected to increase
• Vegetable consumption is higher than fruits
• Increasing production costs
What factors help encourage increased local food purchases

**BRING CUSTOMERS PRODUCE ALL YEAR LONG AND MAKE IT AVAILABLE IN THE MARKETS**

- 36% of local food shoppers only buy local foods if they are available at the store
- 40% of consumers say more consistent availability of products would encourage them to start buying, or buy more, local foods

Mintel, 2016

Threat of new entrants to the industry

- Industry is more attractive when:
  - Advantages of economies of scale are absent
  - Capital requirements to enter are low
  - Small pool of potential new entrants

SOURCE: www. busworld.com
1. Capital investment requirements
   - Purchase or lease land
   - Climate monitors
   - Irrigation systems
   - Heating and cooling systems
   - Build your own?

2. Secure financing

3. Licenses to sell fresh produce and zoning regulations

4. Contracts with downstream markets (benefits to clients?)
   - Chain restaurants
   - Supermarket operators

5. Opportunities
   - Differentiation
   - Rent space and equipment or fabricate yourself?
   - Economies of scale (smaller farms with low/zero labor costs)
   - Secure niche market

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**Barriers to Entry checklist**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition</td>
<td>Medium</td>
</tr>
<tr>
<td>Concentration</td>
<td>High</td>
</tr>
<tr>
<td>Life Cycle Stage</td>
<td>Growth</td>
</tr>
<tr>
<td>Capital Intensity</td>
<td>Medium</td>
</tr>
<tr>
<td>Technology Change</td>
<td>Medium</td>
</tr>
<tr>
<td>Regulation &amp; Policy</td>
<td>Medium</td>
</tr>
<tr>
<td>Industry Assistance</td>
<td>Low</td>
</tr>
</tbody>
</table>

SOURCE: WWW.360WORLD.COM
Threat of substitute products/services

- Industry is more attractive when:
  - Quality substitutes are not readily available
  - Buyers’ switching costs are high
  - Substitutes prices are not significant lower

- Volatility in traditional field farming
  - Extreme weather conditions damage fresh foods
  - Grocery stores need to fill the gap

- Traditional ag volatility
  - Storms
  - Frost
  - Drought

- Imports from Mexico present an increasing threat to the industry
  - Lower labor
  - Year-round growth
  - Larger volumes at lower prices
  - Growth of 4% to $337 million in 5 years

Key Success Factors
Key Success Factors

- Production of premium produce
  - Find buyers
  - Command higher prices
  - Brand loyalty

- Attract local support
  - Direct sales
  - Engage with community

- Automation reducing costs (labor!)
  - Monitoring, irrigation and climate monitoring
  - Grow 365 days a year
  - Internet

- Secure sales contracts with local markets
  - Local grocers, markets, and restaurants
  - Protect from high volatility of the industry
  - Less transportation

- Availability of irrigation water
  - Quality of harvests
  - Area devoted to growing

Key Success Factors

- Dietary trends
  - Rising nutritional awareness
  - Preference for produce-rich diet
  - Average American is still not eating enough servings of vegetables each day

- Quality and consumer preferences
  - Benefits of purchasing fresh local foods

- Price
  - Price sensitive demand
  - Weather shocks tend to increase price, which retailers smooth out by importing

- Product attributes
  - Development of flavorful, high-quality vegetables
  - Supply of alternative products
### Business Model Canvas

#### Key Partners
- Who are our key partners?
- Who are our key suppliers?

#### Key Activities
- What activities do our value propositions require?
- Distribution channels?
- Customer relationships?
- Revenue streams?

#### Key Resources
- What key resources do our value propositions require?
- Our distribution channels
- Our customers relationships
- Our revenue streams

#### Value Propositions
- What value do we deliver to the customer?
- Which one of our customers’ problems are we helping to solve?
- What bundles of products and services are we offering to each segment of customers?
- Which customer needs are we satisfying?
- What is the minimum viable product?

#### Customer Relationships
- How do we get, keep, and grow customers?
- Which customer relationships have we established?
- How are they integrated with the rest of our business model?
- Which customers are they the most costly they are?

#### Channels
- Through which channels do our customer segments want to be reached?
- How do other companies reach them now?
- Which ones work best?
- Which ones are most cost-efficient?
- How are we integrating them with customer routines?

#### Customer Segments
- For whom are we creating value?
- Who are our most important customers?
- What are the customer archetypes?

#### Cost Structure
- What are the most important costs inherent to our business model?
- Which key resources are most expensive?
- Which key activities are most expensive?

#### Revenue Streams
- For what value are our customers really willing to pay?
- What is the revenue model?
- What are the pricing tactics?
1. Value proposition

<table>
<thead>
<tr>
<th>Factor</th>
<th>Type of factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocking up on fresh and healthy food</td>
<td>Functional</td>
</tr>
<tr>
<td>Feeling good about the purchase</td>
<td>Emotional</td>
</tr>
<tr>
<td>Eating fresh and healthy food</td>
<td>Basic, functional</td>
</tr>
<tr>
<td>Protecting family and its health</td>
<td>Social</td>
</tr>
<tr>
<td>Looking modern/trendy</td>
<td>Social</td>
</tr>
<tr>
<td>Learning something</td>
<td>Functional, emotional</td>
</tr>
<tr>
<td>Buying specialty goods</td>
<td>Functional</td>
</tr>
</tbody>
</table>

Pains of FM customers

<table>
<thead>
<tr>
<th>Factor</th>
<th>Type of factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher prices</td>
<td>Product</td>
</tr>
<tr>
<td>Inconvenient opening hours</td>
<td>Convenience</td>
</tr>
<tr>
<td>Not enough information on the source of goods</td>
<td>Product</td>
</tr>
<tr>
<td>Anonymity of farmers</td>
<td>Product</td>
</tr>
<tr>
<td>No parking</td>
<td>Convenience</td>
</tr>
<tr>
<td>Queues</td>
<td>Convenience</td>
</tr>
<tr>
<td>No card payments</td>
<td>Convenience</td>
</tr>
<tr>
<td>No returns</td>
<td>Convenience</td>
</tr>
<tr>
<td>No restrooms</td>
<td>Convenience</td>
</tr>
</tbody>
</table>

Gains of FM customers

<table>
<thead>
<tr>
<th>Factor</th>
<th>Type of factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh food</td>
<td>Functional</td>
</tr>
<tr>
<td>Healthy food</td>
<td>Functional</td>
</tr>
<tr>
<td>Sellers’ recommendations (personal approach)</td>
<td>Social, emotional</td>
</tr>
<tr>
<td>Good feeling about supporting local producers</td>
<td>Social</td>
</tr>
<tr>
<td>Stylish packaging</td>
<td>Social, emotional, functional</td>
</tr>
</tbody>
</table>
2. Customer segments
2. Customer segments

Who is more likely to buy fresh fruits and vegetables in the US?

- Women > men
- College and post-graduate
- 45+ years old
- Management, business, and financial operations
- Professional and related occupations
- Household income $75,000+
- White race

THE PRODUCE NEWS

Whole Foods produce trends to take root (to-stem) in 2018
NOVEMBER 07, 2017

Transparency 2.0
More is more when it comes to product labeling. Consumers want to know the real story behind their food, and how that item made its way from the source to the store. GMO transparency is top-of-mind, but shoppers seek out other details, too, such as Fair Trade certification, responsible production and animal welfare standards.

This year’s predictions came from Whole Foods Market’s experts and industry leaders who source items and lead trends across the retailer’s cheese, grocery, meat, seafood, prepared foods, produce and personal care departments, and spot trends for the retailer’s more than 470 stores.

Tell the real story behind your produce

- Who are you
- What do you stand for
- Where are you from
- What are your standards
- What are your challenges
- How consumers’ purchases impact your community/family
3. Customer relationships

• What medium will you use to reach customers?
  • Social media
  • Website
  • Paid advertisement in search engines (Google)
  • Dedicated personal assistance or self-service

• What will be your strategies to retain your customers?
  • Stand for something and communicate to customers
  • Utilize positive social proof that buying from you will improve their benefits
  • Use the words they love to hear
  • Make it personal

Advertising for the market

Try free and low-cost methods of advertisement
  • Newsletters
  • Recipes, especially for less common crops
  • Samples

Use the Internet
  • Website
  • Social media
  • Videos
• Local markets are a centerpiece of local food systems

• Economic opportunities
  • Larger share of consumers dollar
  • Improved cash flow
  • Business incubator
  • Outlet to expand sales
  • Sell added-value products
  • Delegate marketing to market managers
  • Obtain immediate feedback
    • Varieties
    • Products
  • Join networks
  • Build relationships
5. 6. and 7. Key Activities, Partners and resources

• What do you need to do to fulfill your value proposition?

• What key resources do you need for each activity?

• What partners and key suppliers will be necessary?

8. Revenue Stream

• Farmers market sales
• Restaurants
• At-the farm
• Grocery stores

• Is there any price difference?
• What are your price strategies for each channel?
• Capital investments
Price is one the most important drivers of farm profitability and long-term sustainability

• If you are selling wholesale
  • Buyer may dictate the price
  • You can assess prices by downloading USDA Market News website for wholesale and retail prices

• If you are selling directly to consumers
  • Internal characteristics (produce quality, farm’s image, yield, varieties)
  • External characteristics (competitors, consumers’ preferences, seasonality)
  • Lack of pricing information

Pricing for the market

• What others are charging? But don’t charge the same

• Calculate your mark-up
  • 30% to 50% for profit

• Can you afford to have “loss leaders” crops?
  • Sold at or below cost to attract customers
  • Customers buy other products
  • But, avoid conflicts from disrupting market’s pricing structure
  • Prevent “price wars”
9. Cost structure

• What are the most important costs needed to fulfill your value proposition?
  • What key resource
  • What key activity

www.purdue.ag/hortbusiness/price-reports
**Make financial projections**

- Use an enterprise budget to check potential profitability [purdue.ag/hortbusiness](http://purdue.ag/hortbusiness)
- Forecast income statement, cash flows, and balance sheet
- Use decision making tools
  - Breakeven analysis
  - Sensitivity analysis
  - Net present value

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**Production costs are the most important factor**

- Difficult to track inputs and labor for each crop
- Establish a record system to give you an idea
- Price should be at least equal to costs + losses

### Cost Structure of your Farm

- **26.0%** Variable Costs
- **17.2%** Labor Costs
- **42.3%** Ownership Costs
- **3.9%** Crop Services
- **8.0%** Fuel Costs
- **2.6%** Overhead Costs

### Financial Results

<table>
<thead>
<tr>
<th>Financial Results</th>
<th>Values per acre ($)</th>
<th>Total Values ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Gross Revenue</td>
<td>$ 2,150</td>
<td>$ 4,300</td>
</tr>
<tr>
<td>Farmers Market Sales</td>
<td>$ 400</td>
<td>$ 800</td>
</tr>
<tr>
<td>Sales to</td>
<td>$ 1,750</td>
<td>$ 3,500</td>
</tr>
<tr>
<td>Wholesale/Retail</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Other Sales</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Total Variable Costs</td>
<td>$ 510</td>
<td>$ 619</td>
</tr>
<tr>
<td>Total Labor Costs</td>
<td>$ 760</td>
<td>$ 1,520</td>
</tr>
<tr>
<td>Total Ownership Fixed Costs</td>
<td>$ 144</td>
<td>$ 288</td>
</tr>
<tr>
<td>Total Crop Services Costs</td>
<td>$ 46</td>
<td>$ 92</td>
</tr>
<tr>
<td>Total Fuel Costs</td>
<td>$ 69</td>
<td>$ 139</td>
</tr>
<tr>
<td>Total Overhead and Marketing Costs</td>
<td>$ 467</td>
<td>$ 934</td>
</tr>
<tr>
<td>Total Costs</td>
<td>$ 1,796</td>
<td>$ 3,593</td>
</tr>
<tr>
<td>NET PROFITS</td>
<td>$ 354</td>
<td>$ 707</td>
</tr>
</tbody>
</table>
Thank you for your attention