Business Planning for a Greenhouse Operation

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Introduction

A successful business depends on a thorough business planning including consideration of the details of site selection and placement of the greenhouse operation.
A greenhouse entrepreneur must have...

- Passion
- Persistence
- Good health and ENERGY
- Creativity/innovation
- Independence/self-reliance
- Intuition
- Self-confidence
- Market awareness
- Ability to accept challenges
- “Hard work” ethics
Business plan

Revolves around these 3 themes:

- Concept
- Customers
- Capital
Concept questions

- Why did you decide upon the greenhouse business?

- What experience do you have growing plants?

- When do you plan to start?
Customer questions

- To whom will you sell, for how much, and how?
- What type of plants are you thinking about producing?
- Where do you plan to set up the greenhouse?
Capital Questions

- What is your overall financial situation?
- What kind of greenhouse should you purchase?
- How much will it cost to get into this business?
- Who are your professional resources?
Overview of the business plan

The best way to enhance your chances of success is to plan and follow through on your planning.
Business plan

- Most business failures are due to lack of planning
- Start small
- Allow the business to grow itself
- Tailor business to suit market
- Plan, Plan, Plan
Advantages of business plan

- Identify all inputs for success
- Determine profitability
- Resolve challenges before arise
- Stay focused on goals
- Living document that evolves with business
Business plan components

- Executive summary
- Company description (mission statement)
- Product/services plan
- Marketing plan
- Management plan
- Operating plan
- Financial plan
Golden rules for the grower

▪ “Grow what sells, not what you are fond of.”

▪ “First-timers should grow high-quality crops and sell to florists and garden centers at the highest price possible.”

▪ “Better to learn from mistakes using someone else’s money!”
Deciding on a greenhouse site

- Climate
- Topography
- Water
- Locality
- Type of business
  - Retail
  - Wholesale
Climate makes a difference!

- **Climate** is the average pattern of temperature, humidity, wind, and precipitation (cloud cover) of an area over time.

- **Climate affects:**
  - Heating/cooling costs
  - Greenhouse structural strength (cost)
    - Wind load
    - Snow load
  - Lighting costs
    - Amount of sun received is important (esp. winter)
Climate is affected by:

- **Latitude**
  - The farther from equator, the more the day length is affected by seasons

- **Altitude**
  - Higher altitudes = greater light intensity + lower temperature

- **Terrain**
  - Wind
  - Air drainage

- **Climate influences what style and grade of greenhouse to build**
Snow load vs. minimal cover
Topography makes a difference

- Local terrain affects wind
  - Winter winds increase the heating cost
  - Summer winds help natural ventilation
- Winter sun
  - Locate greenhouse on south side of hill rather than north side
- Avoid obstructions (trees, buildings) that shade
Topography

- Air Drainage
  - A greenhouse in a location that cold air settles has a higher heating bill
Topography (continued)

- Land is everything
  - Level!
    - Reduced cost for land preparation

- Will excess water in the greenhouse drain away?
- Will runoff from the greenhouse roof drain away from the greenhouse?
Topography (continued)

- Land is everything
  - Room for expansion
  - If you are successful, can you expand with the land you have?
Water availability and quality

- Water is critical
  - Need adequate supply
    - Irrigation + evaporative cooling
  - Evaluate sources
    - Well vs. surface sources
    - Recycling water?
- Good quality
  - Coastal areas often a problem
  - High alkalinity
- Have an **irrigation** water test conducted
Where will you build your greenhouse?

- Every location has pros and cons
Location examples

Pacific Coast
+ Cooling breezes, moderate temps year-round, decent light
- High land costs
- Power shortage??
- Water?

Southwest
+ High light, low humidity
- Water quantity/quality?

Mountains:
+ High light, low humidity
- Higher heating costs

South
+ Low heating costs
- High humidity

North
+ Cooler summer
- High heating costs
- Lower light levels

Water quantity/quality?
Locality makes a difference

- Land use predictions
  - Urbanization
  - Taxation
  - Zoning
- Waste disposal
- Labor supply
  - Really important
  - Seasonal (student, retired)
Locality makes a difference

- **Type of business**
  - Retail business
    - Requires high volume of traffic
    - Convenience is critical to customer traffic
  - Wholesale
    - Access for trailer trucks
    - Trailer truck access to major highways
    - Delivery trucks?
Plan the greenhouse layout

- Should a headhouse be included?
  - Area for potting, grading, packing, shipping, maintenance work, office work and eating
  - For a 10,000 sq ft greenhouse need about 1,500 sq ft headhouse
  - At least 8-10% of total growing space
Plan the layout (continued)

- Locate the headhouse to the north
- Locate so that other buildings do not shade the greenhouse
- Separate supplier and customer traffic
Plan the layout (continued)

- Keep retail and production areas separate
- Simplifies pest management and worker activity
- Reduces number of liability issues
Greenhouse floor plan

- Plan for product movement
  - Aisles
  - Between houses
- To and from headhouse
- To product shipping area
Orienting a greenhouse

- Want to maximize light (and uniformity of light)
- Below 40° latitude:
  - Run ridges of all houses N-S
  - Better light distribution (moving shadows) is more important than light transmission optimization
- **Winter** light is the factor
Note how shadows shift during the day with a N-S orientation below the 40° latitude.
Orienting a greenhouse (continued)

- Above 40° latitude:
  - Run ridges of single-span houses E-W to maximize light intensity
  - Run ridges of multi-span houses N-S for best light distribution
    - Must accept lower winter light transmission to avoid “shadow pockets”
    - N-S ridge and gutter shadows “move” but E-W shadows do not
  - Consider all factors – wind or snow may modify your orientation
    - Strong winds can cause structural damage and increase heating costs
    - Wind is also a factor in where and how much snow accumulates around your greenhouse
Effects of Greenhouse Orientation on Light Transmission at Latitude of 50° N

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Midsummer</th>
<th>Midwinter</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-S</td>
<td>64%</td>
<td>48%</td>
</tr>
<tr>
<td>E-W</td>
<td>66%</td>
<td>71%</td>
</tr>
</tbody>
</table>
Summary – Site selection

- Climate, topography, and water (quality and availability) are important considerations in where to build a greenhouse.
- Potential markets, labor supply, and restrictions such as zoning and taxes are all dependent on locality.
- Need to plan the greenhouse structures and layout for ease of people and product movement.
- Need to orient the greenhouses for optimum light penetration.
Summary – Business planning

- Most growers get into the business because they have a passion for growing plants
- **Successful** growers are successful because they treat it as a business
- Take your time, research your options, plan your business and implement your plan
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