Business Vision

To produce the highest quality organic produce possible using the most sustainable methods available. To give local customers an alternative to buying over-priced, flown in produce. To sell produce direct to the customer to cut out the middle man and get a good price while giving the customer a deal. To sell live(roots still attached) lettuce and herbs. To grow all produce in an aquaponic system.

Business Goals

~~1.~~ Form a business for the sale of produce we are growing and expand on our production capabilities.

2. 3 Month Goals.
    a. Incorporate business for tax and liability reasons.
    b. Setup website for business to inform clients of crops, take orders, and arrange appointments for sales.
    c. Expand our current 80 head per week system to 400 heads and be in production by ~~the end of March~~. 2 troughs online in March, other 2 troughs early April.
    d. Begin developing new markets as production increases to 400 heads per week. Started at Fish Farmer's Market.
    e. Partner with Friendly Aquaponics - Start teaching micro-systems at our farm in partnership. Friendly Aquaponics currently holds trainings on their commercial system. Friendly Aq. is very well known & we will get quite a bit of business through this partnership, although we will need to build a 3rd system - a micro system to their specifications.
3. 12 month goals
    a. Get an organic certification through a USDA accreadated organization.
    b. Get a state food safety certification.
    c. Find new sites for farm expansion. New sites will need ample space to grow enough produce to supply grocery stores and Costco.
    d. Develop new business plan for farm expansion beyond 400 heads per week.
    e. Have new markets established.
    f. "Island Fresh", Big Island grown ... join organizations & use their symbol on any store packaging.

Resources

1. Skills and Experience
    a. Currently operating an 80 head per week aquaponic system which we built from scratch.
    b. Many years of experience growing a variety of crops in soil and hydroponic systems of all types.
    c. Many years experience managing time, labor, and budgets as a construction foreman.
2. Space. We have enough space to expand our system to grow approximately 400 heads per week.

Market Analysis

1. Farmers markets.
    a. Kona area farmers markets have decent produce for reasonable prices. Some venders we have seen are selling products that cannot grow in Hawaii such as peaches and apples.
    b. The lettuce at these markets varies in quality. There is some good quality at times usually before it gets hot.

c. Cut lettuce tends to wilt quickly in the hot, tropical weather of Kona if not handled carefully. Quality will degrade rapidly without proper handling. * Live lettuce will not have these problems as long as the roots are kept cool and in water.
d. I saw no live lettuce sold at any farmers markets.
e. Most lettuce was priced between $2.oo and $4.00 per head.
f. These markets have a mix of fresh produce and have lots of crafts and food.

2. Heath food stores
   a. The several Kona health food stores sell exclusively organic produce at the highest prices anywhere in town.
   b. Quality of the produce varies from store to store.
   c. One store features all local lettuce while another has only about 25% to 45% local depending on day of week.
   d. No stores carry live lettuce.
   c. Prices are between $3.00 and $6.00 per pound.
3. Grocery Stores
   a. The large chain grocery stores import 90% to 95% of their produce. Flown in produce is expensive and lacks quality due to transportation time. I have been given some estimates of 7 to 10 day lag in stocking store shelves.
   b. All cut and bagged lettuces are imported and cost around $6.00 to $7.00 each.
   c. Head lettuces are a mixture of 5%-10% local and the remainder are imported. The local heads are better quality than imported. They stock non-organic and organic.
   d. Prices range from $2.00 to $4.00 per head for non-organic and $3.00 to $5.00 per head for organic.
   e. No stores carry live lettuce.
4. Costco
   a. Costco imports 95% or more of lettuce.
   b. There is only one local supplier of lettuce that we are aware of. They grow their lettuce aquaponically and provide 400 to 500 lbs of organic lettuce a week to Costco. Their product is cut, mixed variety, washed, and bagged lettuce that they guarantee to stay fresh for 2 weeks from the harvest date on the bag. The lettuce arrives in the store on Friday morning and is usually sold out by the afternoon. Rarely there is some left on Saturday mid morning. They have a superior product and people go out of their way to get it.
   c. Costco does sell other local produce, but not very many local farms can provide consistent product at the volume required.
   d. Costco does not sell live lettuce in Kona
5. Conclusion
   a. During my research I did not find anywhere that sold live lettuce. This market seems to be untapped in the Kona area. I suspect this to be true island and state wide.

Market Plan

1. Direct to consumer sales
   a. We will sell direct to consumers, eliminating the middle man. This will get us a higher price per head and save the customer money. We are confident that we will sell 400 heads of lettuce a week in our local area once we are established.
   b. Roadside sales in high traffic areas, such as near Costco and Home Depot. Roadside sales are legal in Hawaii.

c. Advertise on Craig's List for area customers and anybody that is willing to come to our farm to purchase produce. Begun this advertising - 2/27/10.
d. We will have set days and times to sell produce that will be convenient for us and for customers. We will sell by appointment for online orders and reserve produce on request.
e. As production increases we will likely join a farmer's market to sell all our produce in a timely fashion. This will likely lead to other markets, such as restaurants and hotels as chefs and managers shop these markets looking for the best produce they can find.
Joined NELHA's Fish Farmer's Market! Four markets planned as of now, may be additional in future. Great exposure to general public, restaurants & markets.

2. Sales to Restaurants and Grocery Stores
a. We do not intend to pursue this market until we expand the farm beyond 400 heads per week. Begun pursuing at Fish Farmer's Market.
b. Now time to begin bringing samples to places we would like our product in.
c. Figure out how we would deliver large quantities to restaurants. (roots removed? washed? deliver several times per week for freshness)
d. Delivery to supermarkets. (wrap roots? special "rafts" for display in market, how we label?)

Farm Plan

1. Niche Market

Our farm's niche market is live (roots still attached) lettuce and herbs. Nobody in the Kona area covers this niche. Live plants have many benefits that cut plants do not.
a. The plants do not have to be harvested to be sold, they are simply removed from the system by raft for Farmer's Market and roadside sales. Individual heads are removed from the raft at the time of sale. The net pot is removed and is then able to be reused. The roots are wrapped to keep moist, then the head is bagged and given to the customer.
b. The plants will not wilt in the heat at a Farmer's Market or roadside because the plants are still alive and in water.
c. Live plants will last for up to three weeks in the refrigerator.
d. Plants that do not sell can be returned to the system unharmed and they will continue to grow.
e. No processing facility nor refrigeration needed.
f. The customer receives a perfect unblemished product, that has not been handled until time of purchase.

2. Farm Expansion Plan

We will build a second aquaponics system comprised of a 1000 gallon fish tank and two hydroponic troughs. ~~Each trough will be 8' wide by 40' long. This will create enough space for 60 rafts that are 4' X 2'8". Each raft will hold 40 lettuce heads. On a six week rotation we will have 10 rafts per week maturing containing approximately 400 heads per week.~~
Began in February, completed building new system in March - all four troughs should be online early in April. Each trough will be 4' wide x 40' long. The upper system alone will now hold 2'x2' rafts; 40 rafts per system x 4 troughs = 160 rafts at full capacity.

Each 2' x2' raft holds 9 mature heads - 8" spacing. 160x9= 1440 total spots with 8" spacing. At 6 week rotation = 240 plants/week. At 8 week rotation = 180 plants/week.

If each 2'x2' raft had 6" spacing... each raft will have 13 spaces =2080 total growing spots.
4 week = 520 plants/week. 6 week = 346 plants/week. 8 week = 260plants/week.

3. Crop Plan

We plan to offer several varieties of single head lettuce, such as butter crunch, bib, romaine, oakleaf, cherokee. We will also offer blended heads which will contain 2 or 3 varieties of green and red lettuce. The blended heads grow together equaling the same volume as the single head creating a mixed salad. The percentages of each product produced will depend on market demand. We are currently experimenting with this in our 80 head system and should have a good idea by the time of expansion.

Other vegetables we are trying: cucumbers, peas, tomatoes, celery, bok choy, mini sweet peppers, water cress, leeks, bunching onions, yellow onions.
Herbs: Basil, chives, cilantro, dill, rosemary, oregano, mint, lemongrass.
Fruit: watermelon, strawberries.
Flowers: dahlias, zinnias.

Time Management Plan

1. Daily Tasks. These tasks only take 5-10 minutes total, twice a day.
    a. Fill sprouting tray with water; which waters all the seedlings at the same time. Let water stand until all other daily tasks are complete then drain.
    b. Feed the fish.
    c. Drain sludge off the bottom of the clarifier.
    d. Check water level in sump tank and fill as necessary.
    e. Check net tank and screen for excessive buildup of solids.
    f. Check water quality
    g. Check overall system to be sure everything is running properly such as air and water pumps.
2. Weekly Tasks
    a. Plant seeds. Each week we will need to plant ~~420~~ 500 or more seeds. The net pots are placed into trays for stability and ease of handling. They are then filled with coconut growing media and the seeds are inserted to proper depth. The trays are then placed on the sprouting table where they will remain for 14 to 16 days before they are placed into the rafts and troughs. The planting should take 3 hours and will be done on Monday after the rafts are replanted. The sprouting table holds two weeks of seeds at a time.
    b. Sell produce. We sell produce from the farm on set days and times that will be convenient for us and our clients. At these times we will have a sign on the street and welcome anybody to come by. We will also sell by appointment for orders that come over the internet. Early each week we will send an email to our clients to inform them of the crop available for that week.
    c. Replant rafts. By the end of each week we will need to have that weeks rafts empty for replanting. The rafts will be replanted on Mondays with seeds started 2 weeks previously and placed into the trough. This will take an hour or two.
    d. Clean net tank if necessary. One nasty, smelly hour.
    d. Research. I plan to spend several hours a week researching and trying new growing techniques. Commercial aquaponic crop production is in its infancy. There are a number of

traditional hydroponic techniques that I plan to modify to work with aquaponics. New techniques can enable more diversified crops. Lettuce is extremely well adapted to growing in troughs and it is a matter of time before more farms begin growing this way. I plan to stay ahead of the curve on aquaponics by being a pioneer in new techniques and crops.

3. Monthly Tasks
    a. Sell fish. Every month a portion of the tilapia will reach marketable size and will need to be removed from the system. We still need a market for the fish, but will probably find customers when selling the produce. It will be several months until we have marketable fish.
    b. Add new fish to the system. As we sell mature fish we will need to replace them with fingerlings. They can be purchased in Honokaa which is an hour drive each way. In the future we will build a spawning tank so we can produce our own fingerlings and have enough to sell to others.
4. Supply Replenishment.

    Every 3 or 4 months we will need to take a trip to Hilo to purchase bulk supplies that are not available or are more expensive in Kona. This will require 2 1/2 hours driving each way.

Financial

1. System Expansion Budget

2. Estimated Monthly Operating Costs: $192.50
    a. Electricity. There will be an air and water pump running 24/7. I estimate that electricity will cost about $40 monthly for the expansion.
    b. Fish food. The amount of fish food will vary depending on water temperature and density of fish population. I am estimating that when the system is running at full capacity the fish will consume 30 lbs of food a month. Bulk fish food costs $1.00 per pound.
    c. Planting medium. Each month we will use 4 bales of coconut coir @$7.50 each and one bag of vermiculite @$22.50. Total of $52.50.
    d. Seeds will cost $15.00 with shipping.
    e. Fingerlings are $1.00 each. We will start with adding 20 new fish a month and adjust the number in the future. There will be driving involved in fish purchases so with gas the 20 fish will cost $30.00.
    f. Packaging will consist of plastic bags and rubber bands for now. $15.00/1000 bags, rubberbands are $0.60/50.

3. Estimated income from Expansion:

    We plan to have 32 rafts maturing a week. Each raft holds 9 heads of lettuce, 288 heads/ week. We will sell each single head for $3.00 and larger quantities for as low as $2.00 each.

    288 x 2.50 = $720/wk x 4 = $2880/month

    288 x 3.00 = $864/wk x 4 = $3456