FEASIBILITY OF CUSTOM STRAWBERRY FARMING IN OCEANSIDE CALIFORNIA

by

RONALD G. VARGAS

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THESIS

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Approved by:

Major Professor
Dr. Allen M. Featherstone

ABSTRACT

The objective of this thesis is to determine if contract farming of fresh strawberries in Oceanside California is financially feasible. This is being considered as an alternative to managing the 185 acre fresh strawberry farm. The farming business is owned by a large fresh fruit marketing firm. As an independent custom grower I would not be subject to the same constraints as the marketing firm. No changes to management structure or product quality would be necessitated by this change.

Assumptions for this study are specific to operating requirements for producing winter strawberries in North San Diego County in California. The cultural practices described and inputs used are considered to be usual for a well-managed commercial farm. The cost and returns are based upon actual historical data and representative of similar if not exact cultural practices and material inputs.

The conceptual model used to guide the development of this study was taken from a generic feasibility study framework. It served as a controlled process to analyze the situation and determine the financial outcomes. The economic and financial viability analysis includes costs and returns per acre, monthly cash costs, sensitivity analysis, and overall profitability. The method used to assess the dimensions of viability was to weight them by evaluating key characteristics for relative strengths and weaknesses. The recommendation based upon this assessment is that the overall viability of the proposal is more than 80% and therefore merits the development of a comprehensive business plan.

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ACKNOWLEDGMENTS

I would to thank my wife Leeann and children Christian, Michael, and Lara for their support and for the many sacrifices they have made during this endeavor. I would also like to thank Bette Dennis for her support and exemplary guidance in all things to do with life. Without her urging and support completion of this program of study would have never been possible. I would also like to thank the MAB professors and staff for making the program challenging yet achievable.

CHAPTER I: INTRODUCTION

1.1 Thesis Objective

The objective of this thesis is to determine if contract farming of fresh strawberries in Oceanside California is financially feasible. The subject farming business is owned by a large fresh fruit marketing firm. The proposition is that it be custom farmed by the principal rather than managed by the principal as an employee of the marketing firm.

As an independent custom operation, the business will have a different cost structure. The question that is to be answered is whether this cost structure is financially feasible for the farmer and the marketing firm? In other words, would both be better off given the specified conditions? Would it be more profitable to be a custom grower of fresh strawberries versus managing the operation as an employee, and would it be more profitable for the marketing firm as a custom farm versus a company farm? In addition to answering this question, the thesis provides the stakeholders the opportunity to compare the operation in Oceanside with other producing regions, and address other re-specification scenarios. In itself, the study is not meant to be a business plan but rather a precursor to it.

This research is intended to aid in the decision making process by using business concepts to determine if the business opportunity is possible, practical, and viable (Hoagland 2000). This research serves as a controlled process to analyze the situation and define potential financial outcomes for both stakeholders (Thompson, Business Feasibility Study Outline 2005).

1.2 The Stakeholders

In this case, the fresh berry marketing firm is one client and the principle is the other client. The objective is to identify the potential problems and opportunities for both.

A thorough cost benefit analysis in the form of a feasibility study is the method used to appropriately answer this question.

1.3 Importance of Thesis Objective

This feasibility study allows the stakeholders to take an objective view of both the positive and negative attributes of this business opportunity. This can help to dampen the tendency to take an overly optimistic view of the scenario (Hoagland 2000). A better decision can be made by determining if the business goals can be accomplished through the feasibility study. Research is an important step in the decision process. Statistics on the success of business start-ups show that only 50% are still in business after 18 months, and only 20% are in business after 5 years (Hoagland 2000). A decision made on incomplete or flawed information at this point could result in business failure.

1.4 Justification and Background

The study was developed with the dual intent of being presented as a completed thesis project and to determine if the proposition as specified is a viable option for both stakeholders. The feasibility analysis is meant to provide a structured conceptual model and apply methods by which this determination can be made as objectively as possible. If the stakeholders deem the idea has merit and is worth pursuing, then the full blown business plan should be developed as a subsequent step. If it is determined through the process that the idea does not have merit as specified then perhaps with certain changes it can be made viable. If not, then it should be passed over and other ideas evaluated and options explored further.

The subject farm has been in operation for over 25 years and was taken over by the current ownership in 2004. It was operated as a custom farming operation on two occasions prior to 2004. The principal was hired by the marketing firm as business manager to help

administrate the transition from custom farm to company owned farm in the early part of 2004. Responsibilities ranged from payroll, accounts payable, human resources, employee safety, and other general administrative duties. In 2008, the principal became the assistant farm manager and took on production responsibilities and in August 2011 was promoted to farm manager.

Prior to July 2012, the farm hired and managed its own labor force. Since then, the farm has used farm labor contractors to supply labor. A farm labor contractor is a third party business that provides farm workers to perform work on the farm. All supervision of the farmworkers is done by the farm labor contractor and not by the farm manager. The decision of the marketing firm to use farm labor contractors was made for reasons outside the influences or performance of the farm. Farm labor contractors charge a service fee for providing the farmworkers. This has caused an increase in labor costs mostly related to these service charges.

One possible solution to this problem is to change from a company-owned farm to a custom farm. The premise being that the custom farm will have a lower cost structure since it will hire the labor, thus avoiding farm labor contractor service charges. And since the business will have the same management, it will have no change in the quantity or quality of the product produced. If this is the case, it would allow for greater profitability for the marketing firm, and allow for the principle to receive a higher salary and a percentage of net earnings, in return, for sharing in more risk and performing additional duties.

The principle is proposing to the marketing firm that he start up a custom farming business and enter into a custom farming agreement with the marketing firm. This agreement is a strategic alliance between separate legal entities. One party is a farm

commodity marketing firm and the other a custom grower, harvester, and packer of farm commodities. Both are limited liability companies operating as separate businesses. A custom farming, harvesting and crop purchase agreement establishes the terms between both parties. One crop would be planted and harvested per year and the agreement contract will be renewed for each crop. One key element is that all workers in the grower's business are solely employees of the grower.

The premise of the proposal is that as a custom farming operation, a lower cost structure can be achieved without changing the quantity or quality of the product or increasing the risk for the marketing firm. It would allow for the principle to obtain a percentage of gross returns as well as an increase in salary in return for sharing a greater part of the risk. This study examines this change.

The greatest asset the principle brings to the business is the quality of human capital evidenced by a proven track record of high quality product, superb safety management, competitive production and harvest costs, and having achieved and maintained a high level of regulatory compliance. The principle is in their tenth production season and has demonstrated the capacity to successfully manage the business.

CHAPTER II: LITERATURE REVIEW

To develop a model to bring together the necessary critical points for analysis, several key sources were selected to guide and add context to the research. The following literature review is meant to acknowledge these critical points of knowledge. They also serve as the theoretical and methodological basis of the analysis. The following are the secondary sources that may assist those who are unfamiliar with the analysis to situate the study within this body research and to provide the necessary context.

2.1 Norman M. Scarborough, Douglas L. Wilson, Thomas Zimmerer

Scarborough et al, (2008) describe the steps required to evaluate a business idea using a feasibility analysis process. This process relies on three overlapping components: assessment of the industry and market, the product, and the financial feasibility of the business proposal. They provide the feasibility concept in its broadest context and established a starting point for this research. By not narrowly focusing on any one component, a broader approach was taken that embraced all three of the most basic components.

The industry and market feasibility component assisted in determining the critical points that are vital in determining how attractive the industry is to entrants. The product feasibility analysis, according to Scarborough et al., serves to determine the degree to which the product appeals to the customer as well as the resources that are required to produce the product. They pose addressing two questions as a way of preliminary assessment of proposal viability: 1) How willing are customers to purchase our product? and 2) Can we provide the product to the customer at a profit? The research of secondary data determined market potential to answer the first question and a cost and return study is

used to answer the second. Credit is given to this work for providing a broad based conceptual framework that guided the data gathering phase and helped to focus the research project.

2.2 Heath Hoagland and Lionel Williamson

Hoagland and Williamson (2000) provide a brief explanation of the feasibility study as well as guidelines outlining important topics to be considered as part of a feasibility study specific to agricultural enterprises. Several important points are made in regards to what a feasibility study is, why it should be done, and when it should be done. The guidelines include product marketing as well as product sales of agricultural commodities. Parts of this guideline were used by addressing each topic as it pertains to the proposed agricultural enterprise.

Listed in Hoagland and Williamson's outline are several considerations that are included in this study. The situation regarding competition in regards to volume, quality specifications, seasonality, and the current market situation first needs to be identified. Next is a description of the agricultural product and required levels of production. The production and distribution aspects address the cost of producing, transporting, and pre-cooling the product. Facility requirements address site location in relation to cooling infrastructure, shipping point, modes of transportation, and access to markets. It also addresses the land, buildings, and equipment requirements of the proposal. Other important aspects addressed are the specific cash and non-cash requirements, availability of labor, management, and the appropriate organizational structure of the business. Furthermore this work was referenced by Thompson and provides a more thorough understanding of the conceptual model and methods.

2.3 Alan Thompson

Thompson's (2005) framework titled "Business Feasibility Outline: Appendix I" and "Dimensions of Business Feasibility: Appendix H" provided the conceptual model and methods for this research. Thompson suggests that a feasibility study serves as the conceptual framework by which to structure the research. This conceptual model was selected for its thoroughness and was used as a more complete framework for this study.

The "Dimensions of Business Feasibility: Appendix H" provided the methods by which the dimensions: market viability, technical viability, business model viability, management model viability, and economic and financial model viability are considered. This method assesses the viability by applying a weighting to each dimension based upon the relative strength and weakness of each. If an overall viability of the proposal is more than 80%, the decision should lean toward commercial viability. If the ratings of the dimensions fall below 80% then the model is not viable as specified bringing attention to the weaknesses of the particular dimension (Thompson).

The Dimensions of Business Viability Weighting Process developed by Thompson uses a template by which each dimension is weighted by evaluating several characteristics. An example of a completed template is shown in figure 2.1 below.

Figure 2.1: Dimensions of Business Viability Template

Dimension of Viability	Measure of Viability	Measure Weighting	Weighting Assessment	Critical Validation
Market Viability (Recommended Weighting 25%)	Market Size	30	25	81/100 STRONG
	Competitors	20	15	
	Pricing	20	15	
	Distribution to markets	20	16	
	Promotion	10	10	
Technical Viability (Recommended Weighting 15%)	Capacity	20	15	80/100 STRONG
	Availability and quality of inputs, labor, and management	20	15	
	Production process	20	15	
	Supply chain implications	20	20	
	Intellectual property implications	20	15	
Business Model Viability (Recommended Weighting 25%)	Uniqueness of model in terms of competitive advantage	30	25	80/100 STRONG
	Ability of competitor to duplicate	20	15	
	Ability to create wealth	30	25	
	Ability to duplicate and delegate ie documentation of tacit and explicit knowledge	20	15	
Management Model Viability (Recommended Weighting 15%)	Application of knowledge and skills	30	25	78/100 WEAK
	Employee management, recruitment, retention and training	20	15	
	Management of risk	20	15	
	Appropriate organizational structure	20	15	
	Ability to measure business process	10	8	
Economic and Financial Viability (Recommended Weighting 20%)	Startup costs	10	8	75/100 WEAK
	Working Capital	20	18	
	Operating Costs	20	16	
	Input costs	20	15	
	Overall return on investment	30	15	

Source: Thompson

The weighting process is not meant to be exact but serves to provide a weighting framework by which to bring together the vital dimensions and aide in determining the collective viability of the proposition.

2.4 Oleg Daugovish, Karen M. Klonsky and Richard L. De Moura

Daugovish, Klonsky, and De Moura (2011) conducted a sample cost and return study in the South Coast region of California. The study is specific to a typical well managed winter strawberry crop in the Oxnard/Ventura area that lies approximately 140 miles to the north of Oceanside. Cultural practices and material inputs are similar and include land preparation, planting, fertilization, irrigation, pest management, harvest, and crop removal. The study addresses typical labor, equipment, interest, and cash/non-cash overhead costs. To more readily compare Daugovish, Klonsky, and De Moura's study with this study, the financial projections for this study were developed and are presented in a similar format.

2.5 Dr. Roberta Cook

Dr. Roberta Cook has done a thorough analysis of the current market dynamics of the fresh produce market which addresses many of the important feasibility study elements suggested by Thompson, and Hoagland and Williamson. Her work titled “Fundamental Forces Affecting U.S. Fresh Produce Growers and Marketers” describes the buyer-supplier relationships and bargaining power; marketing services; product differentiation; and berry and lettuce commodities in detail. The article is based on Michael Porter’s Five Forces Model with two additional forces. Forces include rivalry among existing competitors, threat of new entrants, bargaining power of suppliers, the threat of substitute products, technology, and drivers of change. Additionally Dr. Cook has written a companion article titled Fundamental Forces Affecting the U.S. Fresh Berry and Lettuce/Leafy Green Subsectors that further analyzes these two market subsectors (R. Cook 2011). Dr. Cook’s work was fundamental to developing an industry and market viability analysis for this study.

CHAPTER III: CONCEPTUAL MODEL

3.1 Introduction

The conceptual model used to guide the development of this study was taken from the generic feasibility study framework developed by Thompson (Thompson 2005). It is meant to provide a controlled process by which to analyze the situation and help determine if the business concept is viable.

3.2 Description of Product

Technically a strawberry is not a berry but rather a fruit and one of the most popular small fruits among children and health conscious adults. Available throughout the year, strawberries are known for their sweet taste and distinct aroma. Strawberries are consumed as both fresh or in prepared foods. When not eaten fresh they are made into preserves, juice, pie filling, ice creams, milkshakes, smoothies, yogurts, fruit leather, and many other uses. Strawberries are a rich source of phytochemicals and are ranked among the top fruit sources of polyphenols and antioxidants (CSC, Consumer Purchase Trends 2011).

The strawberry industry has experienced increased rates of consumption during the past twenty years. Strawberries are the fifth most preferred fresh fruit in the United States following bananas, apples, oranges and grapes (Morgan 2012). Yield improvements have allowed domestic supply to keep pace with consumer demand. Fresh strawberries are now available to retail markets year-round and are considered by produce retailers to be the highest valued fresh fruit in produce sales particularly in the winter marketing window.

3.3 Technology

The production of and demand for agricultural products like all other products and services are greatly impacted by changes in technology. The amount of risk posed by these changes depends upon the rate of change and how much the industry depends on that

technology. When certain firms do not or cannot keep up with technological advances they soon find themselves at a disadvantage. Each technology has a limited and varied lifespan to which the firm needs to be prepared to update and replace in pace with obsolescence if they are to remain competitive. Which technologies a firm should adopt depends on how the technology will alter efficiency and cost of production processes and enhance the value of product offerings (Olson and Boehlje 2010).

Innovation in the areas of proprietary varieties having production attributes favorable to early production and fruit resistance to rain damage are of particular interest for Southern California fresh strawberry production. From the consumer standpoint a berry that remains fresh longer and has good flavor characteristics is highly desired, making these varietal attributes highly desired. Any technology that allows the shelf life to be extended is of benefit to both producer and consumer as long as the method is not perceived to have residual detrimental health effects.

The advent and use of harvest assist machines has partially reduced the strain and cost of labor required for harvesting. For this business proposition, the use of this technology is assumed. Maintaining the harvest rotation during peak months of production would not be likely without this technology. It is mission critical that the plants be harvested every two days before the berries become over-ripe and no longer suitable for fresh market.

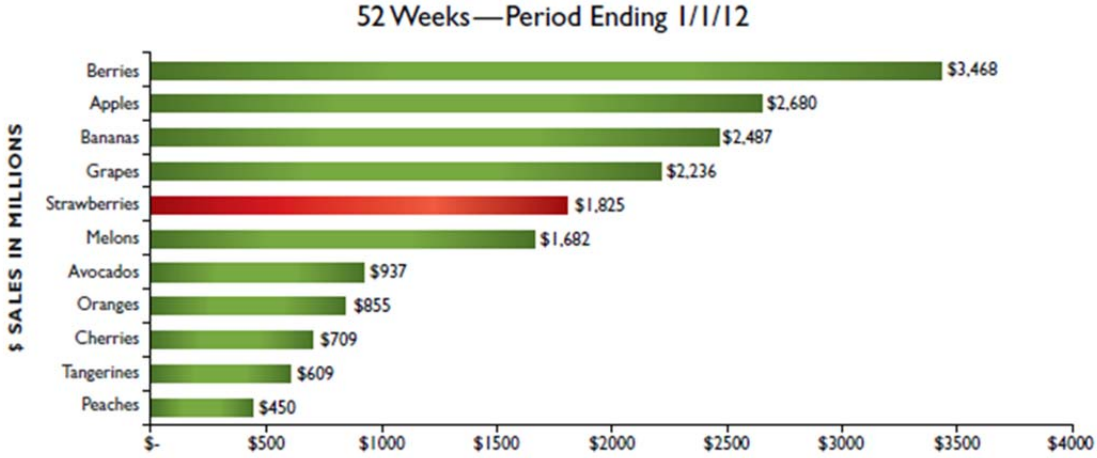
The application of technologies in regards to varieties and harvest mechanization are vital to the fresh strawberry industry. Opportunities for competitive advantages pertaining to intellectual property in these two areas exist and should be explored. The development of the application of robotic harvesting to strawberries is new. Changes in

production systems are required to make the robotic harvesting viable. Firms that can patent technology in this area will have a competitive advantage. Proprietary varieties can be protected by patent thus giving the patent holder an advantage over the competition. Being strategically allied with a large marketing firm with the financial resources to invest in research and development is vital and presents a significant competitive advantage if applied.

3.4 Intended Market Environment

The outlook for fresh strawberries depends primarily on consumer demand in the United States and Canada rather than global demand due to their highly perishable nature. Fresh berries as a category rank first in produce department fruit sales in the U.S. and contribute 7.6% to fruit sales according to Nielsen Perishables Group (Furore 2012).

Figure 3.1: Top Fruit Category Sales



Source: California Strawberry Commission

Strawberries dominated category sales in the first half of 2010, with a 59.9% dollar share of total berries. According to the California Strawberry Commission's December 2011 Strawberry Consumer Purchase Trends report, household penetration of fresh

strawberries was 63.5%, up from 62.2% in 2009 and category volume growth increased 1.3%, down by 1.5% compared to the prior year. This decrease was partly due to growth of the other berry sub-segments. While strawberries led the berry category, raspberries and blackberries experienced dollar share increases of 0.8% and 0.5% respectively (CSC, Consumer Purchase Trends 2011). The berry category ranked number one among other top fruits in Canada and was the fastest growing fruit category with a 14% increase over 2009 (CSC, Retail Category Reports: California Strawberry Commision 2010). This is an important trend since 20% of the fruit produced at the farm is shipped to Canada.

3.5 Competition

Although strawberries as a category are increasing, there remain strong competitive forces from different fresh fruit products in the market. Competition is dynamic in the sense that the price and availability of competing fruits varies at different times of the year. In 2010, strawberries ranked fifth in total produce sales, and third in total produce department fruit sales at $1.0 billion, nationwide. The top 10 fruit categories nationwide were apples, bananas, strawberries, grapes, melons, oranges, avocados, tangerines, cherries, and pineapple. For the first half of 2010, total U.S. figures show that the fruit category accounted for $9.2 billion, up 4.0% from the previous year. In comparison, bananas and grapes experienced a 4% and 3% increase respectively; apples were down 6% while oranges were down 5% compared to the previous year (CSC, Consumer Purchase Trends 2011).

The extent of competitive rivalry between fresh strawberry marketing firms is such that its effects have not been felt due to the continued expansion of strawberries as a category in the US and Canada. The number of growers and marketers selling into the U.S. and Canadian markets is far less than for other berries. Overall the fresh strawberry market

tends to be more predictable and organized with the top four firms accounting for over 50% of shipments (Cook 2011). Driscoll Strawberry Associates, a Watsonville, California based producer and distributor of fresh berries acts as a supply chain captain and has been a strong and innovative leader raising the competitive market benchmark over the past 20 years. Other large shippers are also stepping up marketing efforts as a result of the success of Driscoll's program. The California Strawberry Commission has a longstanding generic promotion program from which all marketers also benefit.

Competitive substitution between berry types has not yet had a significant impact due to continued market growth for each of the berries sub-categories. Raspberries have been experiencing the slowest growth in recent years. The share of total berry sales of strawberries is also decreasing due to an increase in blueberry and blackberry consumption. Overall, strawberry per capita consumption still remains the leader in the category. Because consumers often view the different berries as complements, substitution effects between berries is limited to types of usage. The complementary nature of serving mixed berries has made raspberries, blackberries, and blueberries particularly attractive to shipper investment. Top berry shippers are expanding the dimensions of competition beyond price by becoming year-round, full-line berry suppliers (Cook 2011).

Rivalry among the top firms has intensified as seasonal or berry specific shippers seek to adopt similar business models. In 2011, the marketing firm purchased a large supplier of blueberries to become among the largest full-line berry supplier in the U.S. Rivalry will no doubt continue to intensify as demand growth in the category will eventually slow.

California shippers have for the past 15 years invested in operations in central Mexico to produce other berries as well as strawberries as a way of reducing cost and maintaining supply during the winter months. Early entrants faced challenges in the form of agronomic, technological, postharvest, and industry knowledge barriers. Many of the difficulties have been resolved and this emerging production area may continue to attract investment from marketing firms and input providers. This may further help to improve the production, postharvest handling, and other infrastructure barriers. The scarcity of harvest labor in the U.S. could further increase incentives for future investment in alternative production areas in central Mexico and Baja California. If U.S. shippers continue to invest in the development of fall/winter strawberry production areas in central Mexico and Baja, this could gradually substitute for production in high-cost areas in southern California (Cook 2011). Expansion in good strawberry producing areas of southern California is limited by availability and the high cost of land. The Oceanside area although not high in terms of land rents has intense pressure in terms of the cost of water.

In 2011, Southern California produced 7.3 million trays of fresh strawberries of the 137.5 million harvested in the state (CSC, National Berry Report 2012). This was equal to 5% of total U.S. strawberry sales during that period. The state of Florida produced nearly 4.6 million equal to 3% of total domestic sales. Mexican imports were 4.4 million trays and approximately 3% of domestic sales. During the 1990s, Florida's acreage held steady at close to 6,000 acres in production. The acreage had increased to over 10,000 acres by the 2012 season. California acreage increased from 33,836 acres in 2011 to 34,608 for the 2012 season (CSC, Acreage Survey: CSC 2011). During this period, total acreage had fallen off

in the southernmost production areas of California while production in Mexico and Florida increased.

According to Agrifood and Fishery Information Service (SIAP), 8,189 acres of strawberries were planted in Mexico for the 2011 fall/winter production window (Fresh Plaza 2012). Yields were estimated at 15 tons per acre for the 2011 season including both fresh and processed berries. SIAP reported 10,800 acres were planted for the 2012 Fall/Winter market window (November 2011 through March 2012) in all of Mexico, a 20% increase in planted area. This increase will undoubtedly continue to have an impact on winter producers in southern California. Shippers will likely continue to seek marketing arrangements with Mexican producers as the expansion in good strawberry producing areas of southern California becomes more limited.

3.6 Industry

Rabobank's Food and Agribusiness Research and Advisory (FAR) group projects that sales of U.S. fresh berries will continue to expand by 7% per year over the next three years. The report titled “The U.S. Fresh Berry Boom—Who Will Profit from the Growth?”, states that despite continued growth, berry growers and grower-shippers will struggle to maintain profitability due to rising production costs, resource constraints, import competition and the sheer market power of retailers. Karen Halliburton Barber, Assistant Vice President & Senior Agricultural Analyst at Rabobank, N.A. said “While the near-term outlook for U.S. fresh berry sales looks good, producers are likely to continue to experience rising costs and constrained resources” (CFCB 2012). She further went on to state that “Successful players in the coming years will embrace growing demand with greater production efficiencies and innovation, taking advantage of new varieties.” According to Halliburton, California strawberry growers are likely to face the toughest challenges. Most

notable of the challenges are labor availability, crop protection, land resources, and pricing. Florida strawberry growers face these challenges plus the added peril of import pressure. In recent years, Florida has faced increasing pressure from Mexican imports of strawberries that compete for space within the winter market window.

The report also stated that given the likelihood of increased pressures on profit margins, consolidation is likely among the less efficient U.S. berry producers. Smaller, independent growers will most likely seek strategic partnerships and niche market opportunities to stay economically viable. If marketing firms with interests in production are to be successful, they must keep up with growing consumer demand while controlling costs through gains in efficiency and productivity. Marketing firms who have adopted this business model have been more successful because of selection of new varieties with better yields, more favorable shipping characteristics, improved flavor and increased shelf life. Innovations in crop protection and additional geographical diversification will most likely continue to be utilized to manage production risks (CFBF 2012).

3.7 The Business Model

The proposed business is a strawberry farm in Oceanside California. It is a strategic alliance between separate legal entities. One party is a farm commodity marketing firm and the other a custom grower, harvester, and packer of farm commodities. Both operate as limited liability companies operating as separate businesses. A custom farming, harvesting and crop purchase agreement establishes the terms between both parties. One crop will be planted and harvested per year and the agreement contract will be renewed each year. One key element is that all workers in the grower's business are solely employees of the grower.

The land will be leased for two years by the marketing firm and subleased to the custom grower. The parties agree upon a fixed per acre growing and per box harvest cost

including cooling. The marketing firm pays the fixed prices on a weekly basis through a purchase deposit made to the bank account of the grower. Each week the grower provides the marketing firm a list of expenses paid that week along with the supporting documentation such as invoices and payroll records. If the grower's weekly expenses exceed the agreed upon amount, the marketing firm must approve the additional amounts.

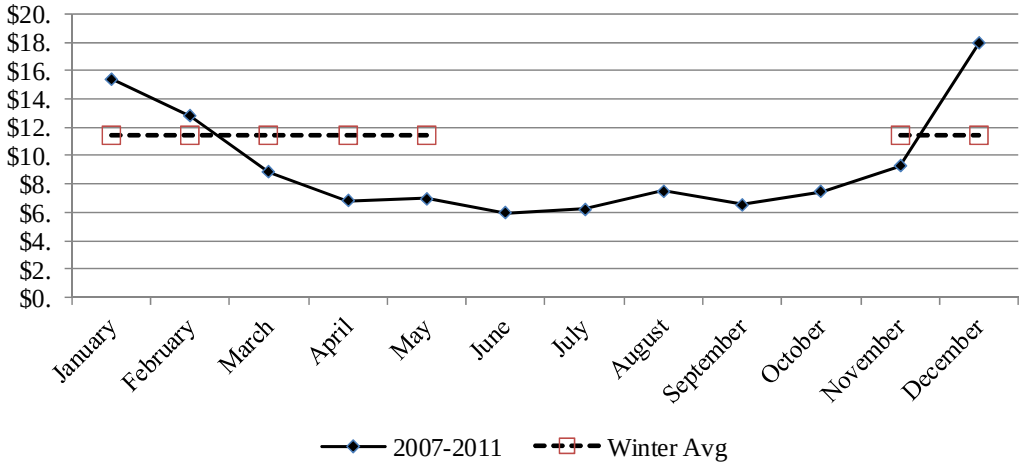
The marketing firm will deduct 8% marketing commission from gross fresh sales proceeds and $0.025 per unit for the California Strawberry Commission Assessment. As a company farm, the marketing firm does not charge the 8% of gross sales because it receives all of the net revenue. It also generates revenue by charging the custom farm $0.64 per tray in cooling charges but pays $0.55 per tray to the custom cooler which equals $369 per acre in cooling revenue for the marketing firm.

The grower's percentage will be 15% of net sales proceeds. Net sales proceeds are the gross sales proceeds less the purchase deposits, packing material, marketing commissions, assessments, cooling charges, and capital recovery costs of any equipment owned by the marketing firm and used by the grower. If there is no net revenue, the custom grower does not share in any losses.

The timing of Oceanside production is targeted for the December to May winter marketing window with peak volumes in March through April. The crop year begins in July and ends in June. Fresh market harvest begins in December and ends in May. Freezer market harvest begins in May and ends at the end of June. The marketing window average price of $11.47 for the industry is shown in figure 3.2 was taken from USDA, National Agricultural Statistics Service. The five year average price received in Oceanside is $10.27

per tray mostly due to the lower prices received in the latter part of the window when volumes are highest outside of Oceanside.

Figure 3.2: Fresh Strawberry Winter Market Average Price per Tray



Sales projections were determined by using historical data in regards to sales volume and pricing. Table 3.1 shows the proposed percent distribution of production and returns during the winter marketing season for Oceanside production. The farm will produce 751,215 packages of fresh strawberries from January through May and 173,850 trays of freezer berries in May and June. The average fresh season price proposed for Oceanside of $10.27 is the weighted five year average based on historical data. The proposed freezer price of $0.38 per pound is based on the weighted 3 year average historical price. Total projected gross returns for fresh strawberries are $7,714,978 and $1,156,103 for freezer strawberries with a combined total of $8,871,081 in gross revenue.

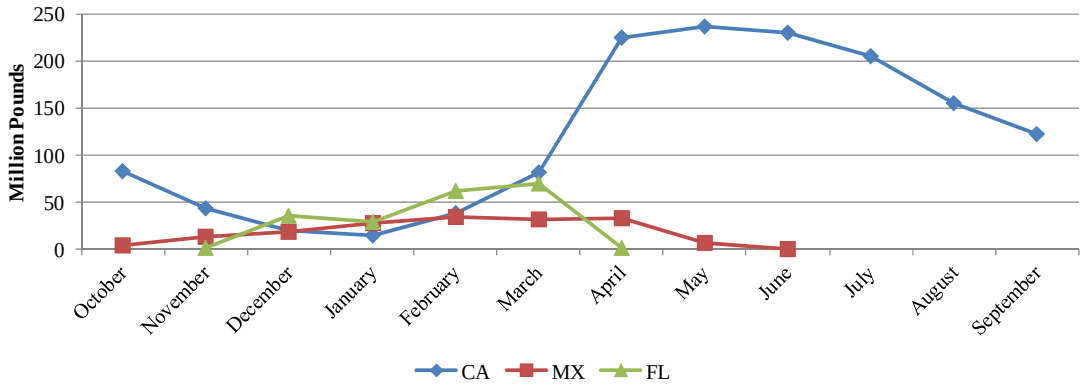
Table 3.1: Percent Production and Returns by Month

	December	January	February	March	April	May	June	Total
GROSS RETURNS								
Percent of Production	1%	7%	13%	29%	42%	8%	0%	100%
Fresh (9 lb trays) Price	$16.50	$12.50	$12.25	$11.91	$8.53	$7.50	0	$10.27
Fresh Trays	7,512	52,585	97,658	217,852	315,510	60,097	-	751,215
Fresh Returns	$123,950	$657,313	$1,196,310	$2,595,448	$2,691,228	$450,729	$ -	$7,714,978
Percent of Production						20%	80%	100%
Freezer (17.5 lb trays) Price						$6.65	$6.65	$6.65
Freezer Trays						34,770	139,080	173,850
Freezer Returns						$231,221	$924,882	$1,156,103
TOTAL GROSS RETURNS	$123,950	$657,313	$1,196,310	$2,595,448	$2,691,228	$681,950	$924,882	$8,871,081

3.8 Marketing and Sales Strategy

For southern California producers, being part of a large marketing program is essential to access higher average prices for the volume of fruit produced in the spring. In California, production begins in December in the south and ends in November in the north, allowing for almost year-round supply.

Figure 3.3: Monthly U.S. Strawberry Shipments 2011



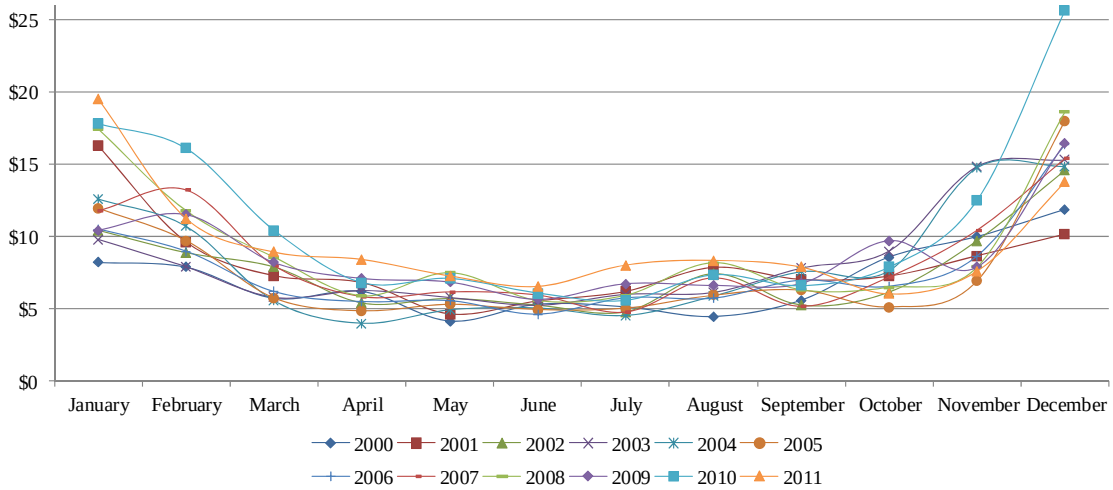
Florida and Mexico begin to harvest in December when overall California volume is lowest and production from these regions winds down in March as shown in Figure 3.3. It shows the 2011 monthly US strawberry shipments by source from the USDA

Agricultural Marketing Service, Fresh Fruit and Vegetable Shipments by Commodities, States, and Months Report.

Production from Oceanside accounts for 5% of the marketing firm's total annual strawberry volume. During critical weeks in the early part of the winter marketing window Oceanside accounts for 40% of the marketing firm's volume. The marketing firm's current market share is 10% of industry volume. The berries are shipped to national and large regional grocery chains throughout the U.S. and Canada. Due to their highly perishable nature and the postharvest handling technologies required in establishing and maintaining the cold chain over long distances, strawberries are not well suited for export beyond Canada and Mexico.

Figure 3.4 shows monthly grower prices from the years 2000 through 2011 being highest during the winter marketing window. Currently Oceanside produces 70% of its fresh production in March and April where prices were between $10.00 and $7.00 per tray.

Figure 3.4: Monthly Grower Prices per Tray 2000-2011 (ERS 2011)



Early production during February and March is critical in holding an average price above $10.00 for producers in the southern California region. Oceanside has historically

been two to three weeks ahead of the Oxnard/Ventura production regions which is a key strategic element of the business model. Table 3.2 shows actual season yield and prices net of allowances for seven seasons in Oceanside.

Table 3.2: Seven Year Season Yield and Price

Year	2006	2007	2008	2009	2010	2011	2012
Yield	5,666	3,105	3,416	4,500	4,054	4,317	4,294
Price/Box	$ 9.65	$ 10.33	$ 10.78	$ 9.71	$ 10.28	$ 9.85	$ 10.88

3.9 Production and Operating Requirements

3.9.1 Assumptions

Assumptions for this study are specific to operating requirements for producing winter strawberries in North San Diego County. The cultural practices described and inputs used are considered to be usual for a well-managed commercial farm. The cost is based upon actual historical costs representative of similar if not exact cultural practices and material inputs. The cost and return study conducted by Daugavish et al, of south coast producers was used as a comparative guide.

3.9.2 The Farm

The total leased acreage is 296 acres. One parcel is 200 acres with a net farmable acreage of 148. A tomato operation will sublease 50 acres of the less advantageous land. An office and farm shop facility is included as part of this lease and comprises approximately 10 acres. The other parcel is 96 acres with 85 net farmable acres. The net farmable acreage that will be farmed in strawberries is 183 acres. There is well water on all three farms but use is limited due to high salinity. Detail of the farm rents is shown in table 3.3

Table 3.3: Farm Rent Analysis

Land Analysis	Ranch 1a Office/Yard	Ranch 1b	Ranch 2	Ranch 3	Total
Rent per acre	$1,300	$1,300	$1,300	$1,500	
Acres Gross	10	70	120	96	296
Acres Net Usable	8	50	98	85	241
Planted Acres			98	85	183
Sub lease	-	(50)	-	-	-
Rent Gross	$13,000	$91,000	$156,000	$144,500	$404,500
Sub-Lease Rent		$1,500			
Rent Income	$0	($37,500)	$0	$0	($37,500)
Adjusted Rent	$13,000	$53,500	$156,000	$144,500	$367,000
Rent Net per acre	$1,625	$1,070	$1,592	$1,700	$1,523
Net / Gross	80%	71%	82%	88%	81%

The net usable to gross percentage is the usable acreage divided by the leased acreage. Usable means that it can be planted, subleased, or used for some purpose such as buildings or equipment storage. A net usable to gross acreage percentage above 80% is desirable. Ranch 1a is a 10 acre parcel where the office, shop, box storage, and equipment yard are located. Ranch 1a and 1b are on the same parcel and 50 acres of ranch 1b are sub-leased at $1,500 per acre. The net rent cost per acre for the operation is $1,523.

3.9.2 Land Preparation

Preparation of the land for fumigation and bed shaping requires a series of operations. The field is disked eight times, chiseled twelve inches deep four times, and sub-soiled thirty two inches deep two times. Limited areas of certain fields also require being roto-tilled in preparation for broadcast fumigation. The beds are on sixty-eight inch centers with a bed-top of forty three inches and stand approximately thirteen inches high. A bed width of sixty four inches can also be used. Equipment required for these operations are rented from a machinery dealer in Ventura County. The remaining trucks, equipment, and implements are owned by the marketing firm and charged to the farm based on the annual capital recovery cost. The custom growing contract also stipulates the equipment use and maintenance requirements.

3.9.3 Plant Establishment

Current varieties available from plant nurseries are selected for early fruit production and total yield capacity for the short marketing window December through May. Table 3.4 shows the varieties, spacing, and total plant requirements including cost per acre. The bare root plants are planted four rows per bed spaced fifteen inches apart for an approximate per acre population of twenty five thousand plants per acre. Five percent of the plants are assumed to be replanted and this is included in the total planting cost. Prior to planting, plastic mulch is applied to the beds mechanically. Each bed is punched with planting holes with a tractor drawn mechanical wheel puncher. Prior to planting, the beds are thoroughly drenched to ensure that plant roots do not dry out. The plants are brought to the field in boxes of one thousand to one thousand five hundred plants. The planting labor places the plants into buckets and they are taken into the field and tossed onto the bed top near each planting hole. As the worker tosses plants on the bed-top two more follow behind and plant two rows each on opposite sides. It takes approximately seventy two man-hours per acre for planting.

Table 3.4: Plant Requirements

Plant Requirements	Variety A	Variety B	Totals
Acres	49	134	183
Plant Spacing Feet	1.4	1.3	
Plant Spacing Inches	17	15	
Plants per acre	23,061	26,136	25,313
Plants Required	1,129,998	3,502,224	4,632,222
+05%	1,186,498	3,677,335	4,863,833
Plants per acre	24,214	27,443	26,578
Plant Cost per Thousand	$115	$119	$115
	136,447	437,603	574,050
Cost per Acre	$2,785	$3,266	$3,137

3.9.4 Fertilization

Prior to making the raised beds, soil samples are taken to determine soil nutrient levels and the appropriate pre-plant fertilizer rates. During bed preparation a slow release 19-6-13 fertilizer is drilled at a depth of four to five inches directly below the plant at a rate of five hundred pounds per acre (Table 3.5).

Table 3.5: Fertilizer Materials Rates and Cost per Acre

Material	Qty.	um.	Cost/A	Material	Qty.	um.	Cost/A
10-5-5	100	lb	$ 27	CATS 0-0-0+10S+6CA	500	lb	$ 95
0-0-50	250	lb	113	Compost	5	ton	300
0-32-25 Phosgard	3	gl	80	Guano Plus	20	gl	5
15.5-0-0 Calcinit	600	lb	206	Gypsum	2	ton	125
19-6-13	500	lb	405	Humic 600	8	gl	54
20-20-20 Nutri-Aid	90	lb	150	N-pHURIC 15/49 15-0-0-1(	100	lb	29
Ammonium Sulfate 21-0-0 Pr(	25	lb	8	Urea 46-0-0	50	lb	24
Ascend PA	8	gl	2			Total	1,622

Additionally a 0-0-50 sulfate of potash fertilizer is drilled at the same depth at a rate of two hundred fifty pounds per acre. Table 3.5 shows fertilizer quantities and costs per acre required in a typical growing season. Throughout the growing season, fertilizers are applied through the drip irrigation system and as a foliar spray. Monthly plant tissue samples are taken to ensure the appropriate nutrient levels are maintained. Based on sample results and recommendations of a crop advisor, fertilizers are applied to achieve optimum levels.

3.9.5 Irrigation

The marketing firm owns sufficient sprinkler pipe for the required pre-plant and plant establishment sprinkler irrigation for the 183 acres. Some valves and other miscellaneous fittings are also rented. Making the raised beds requires sprinkler irrigation. Four men plus a tractor operator are required to put out and connect the sprinkler system. As the raised beds are being made, a combination fertilizer / drip tape applicator installs

two lines of drip tape within each bed for 16,345 feet per acre. The tape is set at a depth of two inches below the surface and placed evenly between the two rows of plants. Lateral lines are placed between blocks and connected to the drip lines and tested for leaks. Lateral lines in blocks that will be drip fumigated will be covered with plastic bed mulch prior to injecting the fumigant. Prior to planting, the beds will be pre-irrigated using the drip system. Sprinkler pipe is placed into the field once beds are established to be used during the period of plant establishment which lasts approximately three weeks. Three irrigators are required to manage the sprinkler and drip irrigations on each ranch seven days a week during the establishment period. Once plants are established, the drip system is used to irrigate the plants every two or three days for the remainder of the season which requires two irrigators on each farm. Fertilizer applications are accomplished via the drip irrigation system during regular irrigation cycles. Rainfall cannot be relied for irrigation purposes and a total of twenty eight acre inches of water per season are required in a normal year.

3.9.6 Water

Since municipal water is the only reliable source of water, the cost is subject to rate increases. Currently the cost is $132.32 per acre inch. Water rates have more than doubled in the past eight years. Wells are operable on both farms, however the capacity and use is limited and therefore not figured in as a significant source of water supply.

3.9.7 Pest Management

All pesticide recommendations are made by a licensed pest control advisor according to pest pressures and weather events. Table 3.6 shows a pest control program for a typical year. Adjuvants are used along with the materials used and included in cost calculations.

Table 3.6: Disease and Insect Applications by Month and Material

Month	Disease					Insects				
	Leaf Spot	Phytophthora	Anthracnose	Botrytis	Mildew	Aphid	Mites	Snails	Thrips	Worms
October			Oxidate							
November		Ridomil Gold		Captan	Rally		Danitol	Deadline		
December				Captan Elevate	Microthiol					Javelin
January				Captan Elevate		Actara				Javelin x2
February	Champ			Captan x2 Elevate	Switch				Radiant	Javelin x2
March	Champ			Captan x2 Elevate	Switch		Acramite			Javelin x2
April	Champ			Captan x2 Elevate	Fontelis		Acramite			Javelin x2
May	Champ			Captan x2	Microthiol		Danitol			Javelin x2
June				Captan	Microthiol					Javelin

Diseases such as powdery mildew, botrytis fruit rot, and anthracnose are the diseases most common to the region during the growing season. Treatments are combined with the insect control applications. Fungicide treatments are made every twelve to sixteen days through the entire season. Controlling insects such as the two-spotted spider mite, beet armyworm, cutworm, thrips, and aphids requires weekly field monitoring to keep track of pest populations.

Prior to planting, soil fumigation is used to control arthropods, soil-borne fungi, disease causing organisms, nematodes, and weeds. Methyl bromide has proven to be most effective against the reduction of plant pathogens and weed control. It is necessary to broadcast apply methyl bromide and chloropicrin to reduce levels of soil borne pathogens in fields that have high levels of infection. The cost of broadcast applications of methyl bromide and chloropicrin is $3,470 per acre. The cost of broadcast applied Telone is $2,733 per acre. Drip applied bed fumigation is performed by a custom applicator who also furnishes the fumigant which is a mixture of 1,3D and chloropicrin. The cost of this application costs $1,555 per acre including labor required to tarp lateral lines and connections. A combination of 30% broadcast and 70% drip applied fumigation will be

used which at current rates results in a combined cost per acre of $2,056. Table 3.7 shows the cost per acre of each fumigation type.

Table 3.7: Fumigation Costs per Acre

	Qty/A	Units	Price	Price/A
MB Tarped		20%		
Tri Con 50/50	345	lb	6.84	$2,362
Film	1	acre	485.68	486
Glue Hot Melt	1	acre	170.62	171
Application	1	acre	170.62	171
CA Mill Tax			1.5%	48
Sales Tax			7.8%	234
			Total	$3,470
Telone Tarped		10%		
Pic-Chlor 60 Tarped	30	gal	42.40	$ 1,272
TIF Film	1	acre	778.54	779
Glue Hot Melt	1	acre	170.62	171
Application	1	acre	302.24	302
CA Mill Tax			1.5%	38
Sales Tax			7.8%	172
			Total	$2,733
Drip Applied		70%		
Pic-Chlor 60 EC	25	gal	44.51	$ 1,113
Set Up Take Down	1	ea	250.00	250
Application	1	acre	85.00	85
CA Mill Tax			1.5%	22
Sales Tax			7.8%	86
			Total	1,555
Combined Total		100%		$2,056

A special permit must be obtained prior to application that requires accurate field measuring, field maps and fumigation layout. Permitting also requires obtaining permission from nearby residents, and meeting with a county agriculture inspector to ensure compliance with application requirements and restrictions. Sections are alternately rotated

between the three types of treatment. Limits on the use of methyl bromide require ever increasing amounts of drip fumigation to be required. The combined fumigation effects on yield, weed, and pest control are variable and these variables may add to the production costs and reduce yield.

Weeds are additionally controlled by hand weeding throughout the growing season. Weeding takes approximately fifty hours per acre over the seven months. Weeding costs are $700 per acre including payroll overhead. Chateau herbicide is applied to the beds prior to laying the mulch and to the furrows after laying the mulch and prior to planting to control most weeds except nutsedge. After the plants are established, an additional application of Chateau and Shark herbicide are applied to the furrows.

3.9.8 Harvest

Labor rates for hourly field labor average $9.78 per man-hour. Rates for equipment operators and truck drivers average $11.52 per man-hour. These averages are calculated based on historical values from the actual operation. Equipment operation time assumes equipment and operator time. These figures include a payroll overhead of 24%. Pickers are paid straight piecework with a minimum guarantee of $8.00 per hour base pay. Each box harvested is paid $1.65 for fresh and $2.25 for freezer.

The crop is harvested with the aid of a self-propelled conveyance system that allows the harvest personnel to walk only a short distance to exchange a completed box for an empty one. Approximately 80% of the farm is harvested using the harvest aid the remainder is harvested by ground crews. Fresh harvest begins in late December and ends in late May with peak harvest in April. Freezer harvest begins in May and ends in late June.

Berries harvested in the first five months of the season go to the fresh market. Once the northern California growing regions begin production, the crop is converted to freezer

harvest. During harvest, eight harvest aid machines are needed, each with a 15 man crew for picking, one machine operator, one stacker, one or two punchers to inspect and record the trays picked. A general foreman works on the ground and supervises the work of two machine crews. The picker uses a small single wheeled cart to hold the box and clamshells while they are filled. Each piece of fruit is handpicked and placed into the plastic clamshell in which it will be marketed. All the ripe fruit, cull fruit, and any rotting fruit must be cleaned from the plant during each harvest pass. Once a picker has filled the box, they will exchange it for credit once it has passed a quality inspection.

Pickers range from 2.5 trays per hour in the early and late part of the season and 10 to 15 per hour during the peak weeks during March and April. It has been observed that the harvest aid can increase a picker's efficiency by 15% or more depending on the fruit load and other factors. With ground crews, a picker must walk out of the field to exchange a box for credit. The harvest aid eliminates this walking time and allows the picker to spend more time filling clamshells and increasing their output.

In April, production in Santa Maria and Salinas Watsonville districts begins causing demand for Oceanside berries to decline. By mid-May, it becomes difficult to get buyers to pick up loads south of Santa Maria. This triggers the harvest to shift from fresh to freezer market. Once the decision is made to make the change, the harvest rotation is extended from every two days to every four to six days depending on fruit load and weather. This additional time allows the berries to ripen thus increasing sugar content and also allows for more berries to be picked per pass, reducing picking costs. Each harvester carries a cannery knife that is attached to the picking cart that holds a plastic tote provided by the processor. The totes are meant to hold approximately 18 pounds of fruit that has had the calix

removed by the picker using the cannery knife. The fruit in the totes must be fully ripe, rot free and intact other than having had the calyx removed. All fruit sent to the cooler is inspected for quality by a third party inspector. Each load is given a quality score and docked if there is a high incidence of over-ripe, rotten, or otherwise unmarketable fruit in the tote. The processor pays the cooling cost of the freezer totes and the inspection. The totes are palletized in the field each pallet holding 72 totes.

The pallets of both fresh and freezer product is field hauled on 24 foot flatbed bobtail trucks that are rented for the season. Each farm uses one rented forklift for loading pallets onto this truck. One forklift and operator can service a 100 acre farm. Each 100 acre farm requires a total of 4 trucks and two drivers at peak season and two or three trucks during start up and for the freezer harvest. Because pick to cool times are critical in maintaining quality each truck haul will often only carry 6 to 8 pallets to the cooler but has the capacity to hold as many as 12. The goal is to have the fruit to the cooler in less than one hour once it has been palletized in the field. On the return trip the truck loads packaging material and takes it back to the field to replenish what has been used.

Each crew of 30 to 50 pickers requires a pick-up truck and sanitation facilities. Portable toilets are mounted to a specially built trailer that also carries fresh water for hand washing. Each crew is supported by a foreman, a row checker, a ticket puncher, and two stackers. The foreman is responsible for performing direct supervision of the crew. The row checker is in the rows with the pickers and checks both pack quality and to ensure that the pickers are picking all the fruit from the plant. The ticket puncher is responsible for giving credit to each picker for the boxes they turn in. An electronic magnetic probe device is used to do this and to store the timekeeping information of the crew members for payroll

purposes. The two stackers receive and inspect the boxes then palletize them. They also make sure there are sufficient packing materials available to the crew.

The average wage for the support crew is $11.52 per hour. This considers the appropriate ratio of supervision and support. The support crew includes punchers, stackers, machine operators, row bosses, and crew foreman. Direct harvest labor is based on 5 boxes picked per hour and amounts to $9.78 an hour, including 24% overhead. The combined harvest labor is estimated to be $3.09 per box once support is added. Included in the 24% overhead is the employers' share of federal and California state payroll taxes, workers compensation insurance for strawberry crops. Federal and California state payroll taxes are approximately 12% of gross wages. Workers compensation costs are about 12% of gross wages for a start up with a high experience modification.

The weight per box of fresh market is approximately 10 pounds of fruit. Each foreman is responsible for keeping overfill to a minimum. Each freezer tote is expected to weigh 17.5 pounds once filled. Total yield per acre for this study is 4,105 trays fresh and 950 freezer totes. This equates to 41,050 pounds per acre fresh and 16,625 pounds per acre freezer. The yields for this study are based on historical yields and varietal selection. The average 5 year weighted gross returns net of allowances for the fresh market is $10.27 per tray and $6.65 per 17.5 pound freezer tote.

Table 3.8: Historical Per Acre Costs and Returns

Year	2006	2007	2008	2009	2010	2011	2012
Fresh Trays per Acre	5,666	3,105	3,416	4,500	4,054	4,317	4,294
Fresh Price/Box	$ 9.65	$ 10.33	$ 10.78	$ 9.71	$ 10.28	$ 9.85	$ 10.88
Freezer Trays per Acre	n/a	1,325	745	805	533	1,086	1,143
Freezer Price/Box	n/a	$ 2.56	$ 7.58	$ 5.89	$ 6.49	$ 6.87	$ 6.56
Total Gross Return	$ 58,745	$ 35,484	$ 42,480	$ 48,419	$ 45,125	$ 49,996	$ 54,203
Total Cultural Cost	$ 20,004	$ 18,320	$ 19,911	$ 22,579	$ 20,081	$ 23,691	$ 24,415
Total Harvest Cost	$ 36,698	$ 17,664	$ 24,064	$ 28,735	$ 23,508	$ 25,412	$ 24,441
Total Cash Cost	$ 56,702	$ 35,984	$ 43,975	$ 51,314	$ 43,588	$ 49,103	$ 48,856
Net Returns	$ 2,043	$ (500)	$ (1,495)	$ (2,894)	$ 1,536	$ 893	$ 5,347

Table 3.8 shows actual costs and returns net of allowances per acre for strawberry production over a seven year period in Oceanside. The cost paid for cooling is $0.64 per tray. The land lease contract for ranch 1 and 2 requires that all agricultural products produced on the leased land will be taken to the landlords cooling facility. Marketing assessments are 8% of gross revenue per tray. The California Strawberry Commission currently assesses $0.025 per tray for research and marketing. A freezer assessment is also paid per 17.5 pound tote.

3.10 Intellectual property

Currently the firm does not own the rights to any proprietary varieties and relies solely on varieties that are also available to competitors. The harvest aid equipment is also not exclusive to the firm. There exist opportunities to develop technology in both these areas.

3.11 Regulations and Environmental Issues

One common challenge facing all U.S. strawberry growers is the loss of methyl bromide as a soil fumigant. Only critical use exemptions for strawberry fruit grown in specific states and California strawberry nurseries have been allowed continued use. Methyl bromide production and net imports have been totally phased out since 2005. Its use is allowed for strawberry production under critical use exemptions to the Montreal

Protocol on Substances that Deplete the Ozone Layer. Annually, the U.S. Department of State submits a nomination of technical or economically feasible alternatives for methyl bromide critical use exemptions to the Ozone Secretariat of the United Nations Environment Program for review and authorization. In the coming years, growers using fumigants will need to establish greater buffer zones around treated fields under new regulations for soil fumigants released in the spring of 2012 by the U.S. Environmental Protection Agency (CFBF 2012).

The loss of this vital crop protection tool will only increase the risk of crop loss due to disease issues and increased labor cost associated with weed control. A Rabobank report states that some California growers have reported crop losses of up to 70% after switching to new alternative fumigants (CFBF 2012). Methyl Iodide, an approved replacement for methyl bromide was met with such negative reaction from consumer and farmworker advocates that approval was revoked. It is likely that other replacement fumigants will be met with a similar response.

3.12 Critical Risk Factors

Although this study makes every effort to model the current production system based on actual current practices, it cannot fully represent financial, agronomic and market risks that affect the profitability and economic viability of strawberry production in Oceanside. Risks in crop peril, weather, low prices, labor shortage, and cost increases are relevant yet difficult to calculate. These risks are considered to be industry wide and competitors are assumed to be equally susceptible. At this time, the Oceanside growing region is most significantly at risk for crop loss due to labor shortages.

CHAPTER IV: METHODS

Assessment of the business proposition feasibility required searching for appropriate methods to apply. One of the most important aspects of method selection was its ability to simply answer the fundamental question "How do I know the business is feasible?" This section uses the viability weighting assessment and critical validation decision methods developed by Alan Thompson (2005).

This weighted scoring method assesses the business proposal against five core dimensions. Each was assigned a percentage contribution to the overall decision making process: market viability 25%, technical viability 15%, business model viability 25%, management model viability 10%, and economic and financial viability 25%. Each dimension was measured by examining key factors (measures) that were assigned a weighting to determine the overall contribution to the cumulative scoring. Average scores for measures that are greater than 80 indicate a strong viability. Average scores for measures less than 80 indicate weak viability. The weighting of each dimension is applied to the average scores to determine the overall viability.

4.1 Market Viability

4.1.1 Industry competitiveness

Historical market data indicate that the future direction and nature of the fresh strawberry industry and related subsectors are in a growth cycle. Overall industry competitiveness between marketing firms has been relatively lax due to continued market expansion. It is difficult to determine the length of time and to what extent the market will continue to absorb growth. At some point, competition will intensify between marketing firms. A score of 18 out of 20 is assigned for this measure since competition is not currently a major constraint.

4.1.2 Barriers to Entry

The external competitive threats as defined by Michael Porter are posed by new entrants, the bargaining power of buyers and suppliers, substitute products, and mutually destructive competition (Porter 2008). Reports created by the California Strawberry Commission show evidence of the relative ease that competitors can expand planted acreage (CSC, 2012 Acreage Survey 2012). The capital cost of entry is not prohibitive and many producers of vegetable commodities often venture into strawberry production (Cook 2011). The marketing firm achieves economies of scale equal to or greater than competitors such as Driscoll's, Well Pict, and Natureripe and therefore suffers from no significant price or cost disadvantage.

Since the farm does not have access to any proprietary varieties, it will not achieve differentiation on this level. Differentiation achieved in regards to quality is only within the supply chain control processes and not attributable to varietal traits. The marketing firm works with strawberry breeders to develop a proprietary strawberry variety that has superior flavor characteristics to compete with competitor varieties as well as other competing fruits. Entrants to the market could not easily duplicate this distinction without a significant investment.

For buyers to switch between suppliers poses no significant cost barrier so there is relatively little if any switching cost. A new entry to the market can expect little retaliation from competitors and this poses little barriers whatsoever. This may be in part due to market expansion rather than market structure. Overall, the measure was assigned a score of 15 out of 20.

4.1.3 Suppliers and Buyers

Suppliers in the strawberry industry do not have a significant leverage advantage over users. The concentration and competitiveness of buyers lies in the structure of the market and much time could be spent in defining all the intricacies of the market and its effects. The important aspect is that the buyers are concentrated in the market and have a choice of alternative supply sources and thus considerable bargaining power to drive down price. This effect is most prevalent around common holiday market windows such as Valentine's Day, Mother's Day, and Easter when strawberries are a popular item with retailers (Packer 2011). It is the leverage advantage of the buyers that is the single most challenging force the farm faces. The measure was assigned a score of 15 out of 20.

4.1.4 Price

The analysis of price competitiveness indicates that price is mainly determined by the type of market in which the product is sold. This tends to be very near to a spot market. The primary price peril for fresh strawberry producers is driven by product perishability and weather variability. Weather events can damage fruit and limit travel causing unexpected shifts in short-run supply or demand. The highly perishable nature of strawberries does not allow for storage making it impractical for growers to adjust to short run disequilibrium in the market by "holding". For this reason, price is the only giving point, resulting in volatile markets (Cook 2011). A score of 15 out of 20 was assigned.

4.1.5 Market

Examination of emerging subsectors and the impact of branding and overall market share indicate the market will continue to grow in the near term. Because the product is marketed through the marketing firm, there appears to be no measurable constraints to market access. The market is not limited just to other strawberry producers but also

includes producers of other fresh fruit products. Although strawberries as a category are increasing, there remain strong competitive forces from different fresh fruits in the market. Competition is dynamic in the sense that the price and availability of competing fruits varies at different times of the year. This is perhaps one of the more distinguishing factors of the viability of the winter fresh strawberry market since there is little competition from other fruits at this time of year. There is, however, increasing competition from imports from Mexico and Florida production. A score of 15 out of 20 was assigned for this dimension.

4.2 Technical Viability

Technical viability is the general estimation of the size and type of production facilities required and the capacity range of these facilities. Current and future availability of inputs as well as the quality and cost including the availability of sufficient skilled labor and experienced management is taken into account.

4.2.1 Production Facilities

The availability and suitability of production sites was investigated in regards to access to raw materials, transportation, labor, and various regulatory constraints. The Oceanside area is well suited for strawberry production in the winter marketing window. There is adequate infrastructure and proximity to cooling and shipping facilities. The farm parcels are located inside the Oceanside city limits and are located approximately 9.5 miles from the coast providing a favorable climate.

Land rents are competitively priced. Farm infrastructure including office space, equipment storage yard, repair shop, carton storage, and fuel depot are part of the rented land. A parcel of land less suited for strawberry production due to soil type and geography is sub-leased to a tomato grower. The less desirable factor of this component is the

dependence on the municipal water supply due to the high water cost. Out of a weighting of 30, this measure was scored at 25.

4.2.2 Inputs

Input levels are estimated from historical levels. Costs, quality, and availability of inputs were acquired from historical data and various cost studies. The farm sources materials through the marketing firm's purchasing department. Since the marketing firm purchases many of the primary inputs such as chemicals, plastic bed mulch, fertilizers, and drip tape in large quantities, significant volume discounts from suppliers are obtained. This is one area that the purchasing power available to the firm is underutilized. Greater cost advantage benefits may be realized by maximizing the savings from this category. The contract farm budget is fully funded on a season to season basis by the marketing firm. This is an advantageous position rather than a constraint. Out of a possible 20, this measure was scored at 15.

4.2.3 Technology

Improving or accelerating the identification and development of plant varieties is of significant importance. Earliness of fruit production is a principle driver of profitability for southern California strawberry growers. Certain varieties that produce marketable fruit as early as late November are desirable. The highest market prices occur in the months of December and January. Selection of varieties that produce early yet have a strong production curve reaching over 4,500 trays by May are the most profitable given the current market structure. Other attributes are disease resistance, good flavor, shelf life, and resistance to bruising. Increasing acreage of the most favorable varieties specific to the region drives profitability.

Machine-aided harvesting is another area where technological advances are badly needed. The popular Harvest Pro harvest assist machine is currently used by the farm and has helped to lessen the impact of labor shortages. There is a robotic harvester that has been developed and marketed in the U.S. and Europe. The downside is that it requires a different cultural system altogether and does not work on conventional plantings. Overall there appears to be considerable constraints or limitations of available turn key technology for use in this industry. Of a possible 20, this measure was scored at 15.

4.2.4 Skilled Labor and Management

Harvesting strawberries requires a considerable level of physical stamina and hand eye coordination. It takes a person two or more seasons to become conditioned to be able to achieve a high level of productivity. It is in this sense that it is considered as skilled labor. Most workers in this industry above the picker level work for many years, some of them eventually reaching supervisory roles. For a manager to be effective, many years of experience are required. Most remain in the industry for many years with the same growers until at some point they become custom growers themselves. Much of the skill required is based on tacit knowledge and personnel management. The other skill set is related to agronomic practices and cost management.

Accurate and timely communication of harvest estimates, changes in volumes, and quality levels to the sales department ensures fruit gets to the customer whose value expectations are a “best fit”. All the activities within the value chain must be driven by the goal of having a fresher product than competitors. Tremendous effort must be put into ensuring that harvest rotations are maintained, harvested product is cooled quickly, information regarding quantity and quality of product communicated to the marketing firm

and customer expectations communicated to the farm accurately and without delay. This is essential since both can change rather suddenly.

The farm would be managed by the principle and a supervisor. A human resources supervisor and payroll/accounts payable administrator would also be on site. The harvest labor is mainly comprised of immigrant labor. Current wage survey results indicate that the firm's wage scale is in line with that of agricultural based business in the same region. Therefore, the cost of the workforce is competitive. Efficiencies of the workforce are also comparable to those of other regions when considering harvest operations. The farm would hire and manage its own harvest labor rather than use the services of a labor contractor. There is no labor union representation to contend with. When analyzing harvest labor cost prior to the use of a labor contractor, the farm's cost per unit was in line with or less than other producers.

The availability of labor at all levels has been scarce in recent years. This is currently one of the most perilous factors growers must face since it is absolutely mission critical that sufficient labor is available to plant, grow, and harvest the crop. As regulations become more stringent, a higher skill level is required of growers and managers that cannot be satisfied at previous compensation rates. For this reason, it is reasonable to anticipate increased labor costs as a result. The measure was scored at 25 out of 30.

4.3 Business Model Viability

4.3.1 Uniqueness of Proposed Business Model

The proposed business model compared to the competition in regards to competitive advantage and competitive strategy is not unique. It is only unique in the sense that it is the only commercial strawberry operation of any significance in San Diego

County. This geographical location offers production timing that is advantageous mostly related to climate. A score of 15 out of 20 was assigned to this measure.

4.3.2 Competitive Advantage of Proposed Business Model

The competitive advantage of the farm can be attributed to the high level of quality product produced and the timing of production. Quality is measured by the value of gross revenue of loads rejected by the customer divided by total gross revenue. The farm has historically had a 1% to 2% allowances based on gross revenue. Oxnard region growers tend to be in 4% to 5% range. The principle will focus primarily on establishing this as a competitive strategy and has developed several control processes to achieve a high quality level that have proven to be successful. The farm has distinguished itself from other producers within the supply chain. However, a consistent price premium has not been received that can be correlated to this higher quality level. Because of this, it is not deemed a significant distinguishing factor.

When comparing the current operation to the proposed operation, there is the primary issue of labor costs. As proposed, the business would be more cost competitive. Current specifications in terms of contracted versus hired labor results in savings per labor dollar of approximately 9%. Contracted labor cost is 33% per labor dollar versus hired labor at 24%. This includes overhead for payroll taxes and workmen's compensation insurance. This is a $1,693 per acre cost advantage over the current business model using a labor contractor.

Strawberry production in Oceanside does have a slight competitive advantage in terms of pricing related to timing. The Oceanside production curve peaks after the production from Mexico and Florida decline. In a short marketing window that opens up from mid-March until mid-April, demand has been strong for fresh strawberries at the

$9.00 range resulting in an average season price above $10.00 for Oceanside. This measure was scored 25 out of 30.

4.3.3 Competitive Strategy of the Proposed Business Model

The strategy of the principle has been to anticipate the buyer's behavior and to set very high quality specs for fruit arriving after seasonal demand peaks. Rejections and allowances are less likely the weeks before Valentine's Day, Easter, and Mother's Day when demand exceeds supply and more likely the week after. There tends to be a bullwhip effect in the market after holiday pulls. The buyers are more likely to reject loads as a way of reducing excess inventories. The trade-off is that tightening the quality specs on the pack does reduce yield per acre but also reduces the number of quality allowances in these post-holiday weeks. Process controls to reduce overfills and package weight variance are most effective during periods of higher prices and are intended to maximize yield per acre not to reduce quality allowances.

This strategy has been successful in keeping allowances at 1.5% of sales in most years. It has proven to be more costly to have product rejected or price adjusted due to quality allowances then it is to increase the percentage of culls later in the season. The farm diverts a portion of culls to juice early in the season when harvest volumes are low. Because the quantity of juice produced is mostly related to damage caused by weather events, the volume varies dramatically year to year. For this reason, it is not considered in the gross proceeds. A score of 25 out of 30 was given to this measure.

4.3.4 Competitive Sustainability

The ease that competitors can copy production systems is essentially without barriers. Analysis of current industry practices compared to the proposed business indicates this to be true. Competitive sustainability is primarily based on the willingness and ability

of management to continuously improve processes and adapt new technologies when available and cost effective. The marketing firm is a proponent of operational improvement initiatives and is willing to partner with its contract growers to innovate. From this perspective, and so long as this holds true, there is value in the relationship in regards to sustaining a competitive advantage. A score of 15 out of 20 was assigned.

4.4 Management Model Viability

4.4.1 Legal Structure

The organizational and management viability assessment includes the identification of the appropriate legal structure of the business as well as the governance structure. Both the marketing firm and the farm are limited liability companies. This is common and well suited for this type of business structure. The management structure is also well suited. This measure was given a score of 50 out of 50.

4.4.2 Strategic Advantage Points of Key Stakeholders

Identification of potential strategic partners and key stakeholders was necessary to determine strategic advantage points. Requirements of skilled management and key service providers were also identified and assessed in a similar manner. The relationship established in the custom farming, harvesting, and crop purchase agreement between the grower and the marketing firm is designed to be profit maximizing for both, considering the different constraints of each. This measure was given a score of 25 out of 30.

4.4.3 Key Service Providers

Several key service providers play a vital role in this proposal. Agronomic and pest control services and recommendations are provided by Crop Production Services. Many of the material inputs are also obtained from this source. The appropriateness of this supplier is based on their ability to deliver the required materials in a timely manner and have

competitive prices. Custom fumigation applications are performed by Tri-Cal, Inc. The role of the marketing firm is crucial since it allows for the farm to receive favorable pricing through volume purchases made for its growers. This measure was scored 15 out of 20.

4.5 Economic and Financial Viability

The following key components are used to assess financial viability: costs and returns per acre, monthly cash costs, sensitivity analysis, and overall profitability. The costs and returns for the custom farm are compared to both the company farm. The Daugovish et al. Ventura County Sample Costs to Produce Strawberries study figures are added as a point of reference.

4.5.1 Costs and Returns per Acre

Table 4.1 shows returns for fresh and freezer sales, operating cost, cash overhead cost, non-cash overhead cost, and net returns on a per acre basis for the custom model as compared to the company farm model. The operating cost includes production and harvest labor, materials, and assessments. The cash overhead cost includes the fixed costs of the business. The non-cash overhead cost includes investment costs. The gross return less total cost is the net return. The Daugovish et. al (2011) study shows total gross revenue of $45,142 per acre, a total cost per acre of $44,168, and net revenue per acre of $972. The company owned model total gross revenue is $48,476, a total cost per acre of $47,035, and net revenue of $1,441 per acre. The custom farm model total gross revenue is $48,476, a total cost per acre of $48,940, and net revenue of -$464 per acre.

The gross revenue for custom and company farm are the same. The company cooling cost is $0.55 per tray while the custom farm cost is $0.64 per tray. This represents a $369 per acre higher cost for the custom farm. The company farm does not pay sales commission. This represents a $3,373 higher cost for the custom farm. The custom farm

does have a $1,693 per acre lower labor cost. Overall the custom farm has a $2,049 higher cost per acre than the company farm. Overall measure was given a score of 15 out of 30.

Table 4.1 Costs and Returns per Acre Custom Farm versus Company Farm

Cost and Returns	Custom Farm					Company Farm				
	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Total	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Total
GROSS RETURNS										
Fresh (9 lb trays)	4,105	tray	$10..27	$42,158	7,714,978	$4,105	tray	10.27	$42,158	$7,714,978
Freezer (18 lb trays)	950	tray	$6.65	$6,318	1,156,103	$950	tray	$6.65	$ 6,318	$1,156,103
TOTAL GROSS RETURNS				$48,476	$8,871,081				$48,476	$8,871,081
OPERATING COSTS										
Insecticide:				$498					$498	
Acramite 50WS	2.0	lb	$58.15	$116	$21,283	$2	lb	$58.15	$116	$ 21,283
Actara 25WG	4.0	oz	$3.73	$15	$2,730	$4	oz	$3.73	$15	$ 2,730
Danitol	32.0	floz	$1.33	$43	$7,788	$32	floz	$1.33	$43	$ 7,788
Javelin WG	24.0	lb	$10.98	$264	$48,224	$24	lb	$10.98	$264	$ 48,224
Radiant SC	10.0	floz	$6.11	$61	$ 11,181	$10	floz	$6.11	$61	$ 11,181
Misc. Pest Control:				$323	$ -				$323	$-
Crop Monitoring Program	0.4	ac	$90.00	$34	$6,300	$0	ac	$90.00	$34	$ 6,300
Field Checking	8.0	ac	$25.00	$200	$36,600	$8	ac	$25.00	$200	$ 36,600
Deadline Mini Pellets	1.5	lb	$1.50	$5	$412	$2	lb	$1.50	$5	$ 412
PCQ	1.0	lb	$2.33	$2	$426	$1	lb	$2.33	$ 2	$ 426
Tactic Sticker	0.8	gl	$65.56	$51	$9,358	$1	gl	$65.56	$51	$ 9,358
Widespread Max	25.0	oz	$1.17	$29	$5,353	$25	oz	$1.17	$29	$ 5,353
Fungicides:				$765	$-				$765	$-
Captan 80 WDG	24.0	lb	$7.86	$189	$34,521	$24	lb	$7.86	$189	$ 34,521
Champ Formula 2	1.5	pts	$5.81	$9	$1,595	$2	pts	$5.81	$9	$ 1,595
Microthiol Disperss	15.0	lb	$1.33	$20	$3,651	$15	lb	$1.33	$20	$ 3,651
Elevate 50WG	5.0	lb	$39.67	$198	$36,298	$5	lb	$39.67	198	$ 36,298
Oxidate	40.0	oz	$0.34	$14	$2,489	$40	oz	$0.34	$14	$ 2,489
Ridomil Gold SL	16.0	oz	$7.08	$113	$20,730	$16	oz	$7.08	$113	$ 20,730
Rally 40 WSP	5.0	oz	$3.75	$19	$3,431	$5	oz	$3.75	$19	$ 3,431
Switch 62.5 WG	28.0	oz	$5.64	$158	$28,899	$28	oz	$5.64	$158	$ 28,899

Fontelis	24.0	floz	$ 1.92	$ 46	$ 8,433	$ 24	floz	$ 1.92	$ 46		$ 8,433
Predatory Mites:				$ 120	$ -				$ 120	$	-
Persimilis	20.0	thou	$ 6.00	$ 120	$ 21,960	$ 20	thou	$ 6.00	$ 120	$	21,960
Herbicide:				$ 45	$ -				$ 45	$	-
Chateau	3.8	oz	$ 10.00	$ 38	$ 6,954	$ 4	oz	$ 10.00	$ 38	$	6,954
Shark	0.8	oz	$ 8.26	$ 7	$ 1,210	$ 1	oz	$ 8.26	$ 7	$	1,210
Fertilizer:				$ 1,622					$ 1,622		
Compost	5.0	ton	$ 60.00	$ 300	$ 54,900	$ 5	ton	$ 60.00	$ 300	$	54,900
Gypsum	2.0	ton	$ 62.50	$ 125	$ 22,875	$ 2	ton	$ 62.50	$ 125	$	22,875
19-6-13	500.0	lb	$ .81	$ 405	$ 74,115	$ 500	lb	$ 0.81	$ 405	$	74,115
0-0-50	250.0	lb	$ 0.45	$ 113	$ 20,588	$ 250	lb	$ 0.45	$ 113	$	20,588
CATS 0-0-0+10S+6CA	500.0	lb	$ 0.19	$ 95	$ 17,422	$ 500	lb	$ 0.19	$ 95	$	17,422
10-5-5	100.0	lb	$ 0.27	$ 27	$ 4,941	$ 100	lb	$ 0.27	$ 27	$	4,941
Ascend PA	8.0	gl	$ 0.25	$ 2	$ 366	$ 8	gl	$ 0.25	$ 2	$	366
Guano Plus	20.0	gl	$ 0.24	$ 5	$ 869	$ 20	gl	$ 0.24	$ 5	$	869
Humic 600	8.0	gl	$ 6.69	$ 54	$ 9,794	$ 8	gl	$ 6.69	$ 54	$	9,794
Urea 46-0-0	50.0	lb	$ 0.47	$ 24	$ 4,301	$ 50	lb	$ 0.47	$ 24	$	4,301
N-pHURIC 15/49 15-0-0-16S	100.0	lb	$ 0.29	$ 29	$ 5,334	$ 100	lb	$ 0.29	$ 29	$	5,334
0-32-25 Phosgard	3.0	gl	$ 6.65	$ 80	$ 14,631	$ 3	gl	$ 26.65	$ 80	$	14,631
20-20-20 Nutri-Aid	90.0	lb	$ 1.67	$ 150	$ 27,505	$ 90	lb	$ 1.67	$ 150	$	27,505
15.5-0-0 Calcinit	600.0	lb	$ 0.34	$ 206	$ 37,771	$ 600	lb	$ 0.34	$ 206	$	37,771
Ammonium Sulfate 21-0-0 Pro	25.0	lb	$ 0.31	$ 8	$ 1,437	$ 25	lb	$ 0.31	$ 8	$	1,437
Custom:				$ 8,056	$ -				$ 4,314	$	-
Fumigate	1.0	acre	$ 2,056	$ 2,056	$ 376,294	$ 1	acre	$ 2,056	$ 2,056	$	376,294
Cooling	4,105.0	tray	$ 0.64	$ 2,627	$ 480,778	$ 4,105	tray	$ 0.55	$ 2,258	$	413,168
Sales Commision	4,105.0	tray	$ 0.82	$ 3,373	$ 617,198	$ 4,105	tray	$ -	$ -	$	-
Materials:				$ 7,213	$ -				$ 7,213	$	-
T-Tape	16,345.0	ft	$ 0.02	$ 286	$ 52,345	$ 16,345	ft	$ 0.02	$ 286	$	52,345
Bed Mulch 1.25 mil	,173.0	ft	$ 0.07	$ 572	$ 104,636	$ 8,173	ft	$ 0.07	$ 572	$	104,636
Ditchliner	500.0	ft	$ 0.10	$ 50	$ 9,150	$ 500	ft	$ 0.10	$ 50	$	9,150
Sand Bags	75.0	each	$ 0.33	$ 25		$ 75	each	$ 0.33	$ 25		

Packaging	4,105.0	each	$ 1.53	$ 6,281	$ 1,149,359	$ 4,105	each	$ 1.53	$ 6,281	$ 1,149,359
Water:				$ 3,649	$ -				$ 3,649	$ -
Water	28.0	acin	$ 130.32	$ 3,649	$ 667,760	$ 28	acin	$ 130.32	$ 3,649	$ 667,760
Plants:				$ 3,137	$ -				$ 3,137	$ -
Strawberry Plants	26.6	thou	$ 115.00	$ 3,137	$ 559,341	$ 27	thou	$ 115.00	$ 3,137	$ 559,341
Assesments:				$ 126	$ -				$ 126	$ -
CSC Fresh 0.025 per tray	4,105.0	tray	$ 0.03	$ 103	$ 18,780	$ 4,105	tray	$ 0.03	$ 103	$ 18,780
CSC Freezer 0.025 per tray	950.0	tray	$ 0.03	$ 24	$ 4,346	$ 950	tray	$ 0.03	$ 24	$ 4,346
Labor:				$ 17,117	$ -				$ 18,810	$ -
Machine Labor	61.3	hrs	$ 11.52	$ 707	$ 129,314	$ 61	hrs	$ 12.66	$ 777	$ 142,104
Non-Machine Labor	1,677.5	hrs	$ 9.78	$ 16,410	$ 3,003,092	$ 1,678	hrs	$ 10.75	$ 18,033	$ 3,300,101
Machinery:				$ 1,095	$ -				$ 1,095	$ -
Fuel	214.3	gl	$ 3.80	$ 814	$ 149,051	$ 214	gl	$ 3.80	$ 814	$ 149,051
Repairs and Lube				$ 281	$ 51,423				$ 281	$ 51,423
Total Operating Cost				$ 43,767	$ 7,989,543				$ 41,718	$ 7,614,534
Net Returns Above Operating Cost				$ 4,709	$ 81,538				$ 6,758	$ 1,256,547
Cash Overhead Cost										
Land Rent				$ 1,523	$ 278,709				$ 1,575	$ 288,225
Liability Insurance				$ 10	$ 1,830				$ 10	$ 1,830
Office Expense				$ 550	$ 100,650				$ 550	$ 100,650
Pipe Rental				$ 33	$ 6,039				$ 33	$ 6,039
Tractor Rental				$ 445	$ 81,435				$ 445	$ 81,435
Harvest Machine Rental				$ 711	$ 130,113				$ 711	$ 130,113
Haul Truck & Forklift Rental				$ 360	$ 65,880				$ 360	$ 65,880
Ranch Management and Supervision				$ 1,050	$ 192,150				$ 1,120	$ 204,960
Sanitation Fee				$ 175	$ 32,025				$ 175	$ 32,025
Property Taxes				$ 20	$ 3,660				$ 20	$ 3,660
Property Insurance				$ 16	$ 2,928				$ 16	$ 2,928
Investment Repairs				$ 6	$ 1,098				$ 28	$ 5,124
Equipment				$ 186	$ 34,092				$ -	$ -
Total Overhead Cost				$ 5,085	$ 930,609				$ 5,043	$ 922,869
Total Cash Cost				$ 48,853	$8,920,152				$ 46,761	$ 8,537,403

Non Cash Overhead Cost Capital Recovery								
Buildings	$	-	$	-		$	-	$ -
Fuel Tanks	$		$	-		$	-	$ -
Hand Tools	$	14	$	2,486		$	14	$ 2,486
Harvest Carts	$	8	$	1,444		$	8	$ 1,444
Lateral Lines	$	41	$	7,453		$	41	$ 7,453
Shop Tools	$	25	$	4,662		$	25	$ 4,662
Equipment	$		$	-		$	186	$ 34,092
Total Non Cash Overhead Cost	$	88	$	16,046		$	274	$ 50,138
Total Cost	$	48,940	$	8,955,984		$	47,035	$ 8,607,327
Net Returns	$	(464)	$	(84,904)		$	1,441	$ 263,754
Growers Share 15%	$	-	$	-		$	-	$ -
Net to Marketing	$	(464)	$	(84,904)		$	1,441	$ 263,754
Marketing Commission 8%	$	3,373	$	617,198		$	-	$ -
Cooling Revenue	$	369	$	67,609		$	-	$ -
Marketing Share	$	3,278	$	599,904		$	1,441	$ 263,754

4.5.2 Monthly Cash Costs

Table 4.2 shows the gross monthly cash returns, cash, and cash overhead cost by operation. Tractor, harvest assist machine, haul truck, and forklift rental costs are shown in cash overhead since they are committed for the crop season and are not true variable costs. The cash overhead costs are those costs that are assigned to the whole operation since they cannot be assigned to a particular operation. Property tax assessments are for equipment and calculated at 1% of average value. Average value is calculated on based 50% of new cost plus salvage value. Insurance for property loss is estimated at 0.75% of the average value. Liability insurance is estimated to be $2,928 per year for the whole farm and based on calculations in the Daugovish et al. study. Office expense was taken from actual historical costs. It includes office supplies, utilities, bookkeeping, accounting, legal fees, and other miscellaneous expenses. Sanitation services are for the portable toilets and hand washing equipment and are taken from historical costs. Supervisor and management salaries are included here because they are not considered a cash costs. The percentage of net returns to the principle is considered a return to management and risk.

Table 4.3 shows the annual custom farmed cost per acre and includes the month, equipment and labor hours, equipment, fuel lube and repairs, materials, and custom work for the custom farm model. It is provided to give more detail as to the associated costs as shown in table 4.1.

A breakdown of annual equipment, investment, and overhead costs are shown in table 4.4. The non-cash overhead capital recovery cost is also shown. The capital recovery costs are the annual depreciation and interest costs for a capital investment. It is the value required each year to recover the difference between the purchase price and the salvage

value. According to Daugovish et al. (2011). it is equivalent to the annual payment on the equipment loan with the down payment equal to the discounted salvage value. The formula for the calculation is (purchase price – salvage value) x (capital recovery factor) + (salvage value x interest rate). These figures were estimated based on the cost and return study done by Daugovish et al. The business is structured so the marketing firm owns much of the equipment and will charge the farm for its use based on an annual capital recovery cost. The costs for farm equipment owned by the marketing firm are shown as cash overhead costs. The investment costs are shown in non-cash overhead costs.

Assessment of this measure is related to the quantity and timing cash flows. This business model is considered cash intensive from the perspective of required cash sunk cost before revenue realization. This is considered high relative to other agricultural commodities. Overall this measure is scored 15 out of 20.

4.5.3 Sensitivity Analysis

Table 4.5 shows the sensitivity analysis at varying trays per acre yield and price for the company farm model. Table 4.6 shows the sensitivity analysis at varying yield and price for the custom farm model. Fresh yield is varies from 2,500 trays to 6,000 trays per acre. Price is shown ranged from $7.00 to $12.00 per acre. The five year weighted average yields are 4,105 trays per acre fresh and 950 trays per acre freezer. Freezer price and yield are held at 950 trays per acre and $6.65 per tray for this analysis. The five year weighted average price for fresh is $10.27 per tray. Using this estimated yield and price the net return per acre is -$464 for the custom farm. The break-even yield at the season average price, of $10.27 per tray fresh is 4,150 trays per acre fresh and 950 freezer trays per acre. The break-even price at 4,105 fresh and 950 freezer trays per acre is $10.38. When using the cost structure for the company owned farm and the same average price and yields, the net return

is $1,440 per acre. The company farm break-even fresh yield at a price of $10.27 is 3,956 and the break-even price at 4,105 fresh yield is $9.92. Since the custom farm shows negative net revenue at the five year average price and yield, the measure was given a score of 15 out of 20.

4.5.4 Overall Profitability

Since the net revenue for the custom farm model is negative, the growers share would be $0 at average price and yield. For the marketing firm, the share would be the marketing share plus cooling revenue less the net loss. This is a $3,278 net return per acre or $1,837 higher per acre than the company farm model. For the principle this is not advantageous as specified. It does however offer the opportunity to have positive returns if higher yield can be achieved, or if earlier production results in a price higher than $10.38. In addition, it may be profitable if the sales commission could be reduced. The measure was scored 25 out of 30.

Table 4.2: Monthly Cash Costs per Acre

	July	August	September	October	November	December	January	February	March	April	May	June	Total
GROSS RETURNS													
Percent of Production						1%	7%	13%	29%	42%	8%		100%
Fresh (9 lb trays) Price						$16.50	$12.50	$12.25	$11.91	$8.53	$7.50		$10.27
Fresh Trays						7,512	52,585	97,658	217,852	315,510	60,097		751,215
Fresh Returns						$123,950	$657,313	$1,196,310	$2,595,448	$2,691,228	$450,729		$7,714,978
Percent of Production											20%	80%	100%
Freezer (18 lb trays) Price											$6.65	$6.65	6.65
Freezer Trays											34,770	139,080	173,850
Freezer Returns											$231,221	$924,882	$1,156,103
TOTAL GROSS RETURNS						$123,950	$657,313	$1,196,310	$2,595,448	$2,691,228	$681,950	$924,882	$8,871,081
OPERATING COSTS													
Land Prep: Disk/Roll 4X	26,120	-	-	-	-	-	-	-	-	-	-	-	26,120
Land Prep: Plow	12,239	-	-	-	-	-	-	-	-	-	-	-	12,239
Land Prep: Subsoil 2X	15,105	-	-	-	-	-	-	-	-	-	-	-	15,105
Land Prep: Triplane 2X	6,759	-	-	-	-	-	-	-	-	-	-	-	6,759
Land Prep: Chisel 2X	-	6,486	-	-	-	-	-	-	-	-	-	-	6,486
Land Prep: Rototill	-	5,535	-	-	-	-	-	-	-	-	-	-	5,535
Land Prep: List/Shape Beds	-	9,171	-	-	-	-	-	-	-	-	-	-	9,171
Land Prep: Disk and Grade Roads	-	7,042	-	-	-	-	-	-	-	-	-	-	7,042
Land Prep: Cut Header Ditches	-	5,032	-	-	-	-	-	-	-	-	-	-	5,032
Land Prep: Drip Tape X 2	-	65,416	-	-	-	-	-	-	-	-	-	-	65,416
Land Prep: Tarping/Mulch X2	-	117,708	-	-	-	-	-	-	-	-	-	-	117,708

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Land Prep: Maintain Roads	-	-	-	-	-	-	1,344	-	-	-	-	-	1,344
Land Prep: Maintain Roads	-	-	-	-	-	-	-	1,344	-	-	-	-	1,344
Land Prep: Maintain Roads	-	-	-	-	-	-	-	-	1,344	-	-	-	1,344
Land Prep: Maintain Roads	-	-	-	-	-	-	-	-	-	1,344	-	-	1,344
Land Prep: Maintain Roads	-	-	-	-	-	-	-	-	-	-	2,076	-	2,076
Erosion Control: Ditches	-	39,166	-	-	-	-	-	-	-	-	-	-	39,166
Erosion Control: Desilting Basins	-	18,354	-	-	-	-	-	-	-	-	-	-	18,354
Erosion Control: Drainage Pipes	-	17,256	-	-	-	-	-	-	-	-	-	-	17,256
Erosion Control: Install Ditch Liner	-	48,316	-	-	-	-	-	-	-	-	-	-	48,316
Erosion Control: Sand Bags	-	25,602	-	-	-	-	-	-	-	-	-	-	25,602
Crop Removal and Cleanup	-	-	-	-	-	-	-	-	-	-	-	22,922	22,922
Crop Removal: Remove Drainage Pipe	-	-	-	-	-	-	-	-	-	-	-	11,193	11,193
Crop Removal: Cut Mulch Skirts	-	-	-	-	-	-	-	-	-	-	-	5,459	5,459
Disease: Anthracnose	-	-	-	3,563	-	-	-	-	-	-	-	-	3,563
Disease: Phytophthora	-	-	-	-	21,373	-	-	-	-	-	-	-	21,373
Insect: Snails	-	-	-	-	1,342	-	-	-	-	-	-	-	1,342
Disease: Botrytis, Mildew Insect: Mite	-	-	-	-	15,321	-	-	-	-	-	-	-	15,321
Disease: Mildew	-	-	-	-	-	6,335	-	-	-	-	-	-	6,335
Disease: Botrytis, Mildew Insect: Worm	-	-	-	-	-	19,274	-	-	-	-	-	-	19,274
Insect: Aphid	-	-	-	-	-	-	7,849	-	-	-	-	-	7,849
Disease: Botrytis, Insect: Worm	-	-	-	-	-	-	12,014	-	-	-	-	-	12,014

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Disease: Botrytis, Insect: Worm	-	-	-	-	-	-	16,397	-	-	-	-	-	16,397
Disease: Leaf Spot	-	-	-	-	-	-	-	5,517	-	-	-	-	5,517
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	26,464	-	-	-	-	26,464
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	19,274	-	-	-	-	19,274
Insect: Thrip	-	-	-	-	-	-	-	16,300	-	-	-	-	16,300
Disease: Leaf Spot	-	-	-	-	-	-	-	-	5,517	-	-	-	5,517
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	26,464	-	-	-	26,464
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	19,274	-	-	-	19,274
Insect: Mites	-	-	-	-	-	-	-	-	15,760	-	-	-	15,760
Disease: Leaf Spot	-	-	-	-	-	-	-	-	-	5,517	-	-	5,517
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	-	20,447	-	-	20,447
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	-	19,274	-	-	19,274
Insect: Mites	-	-	-	-	-	-	-	-	-	15,760	-	-	15,760
Disease: Leaf Spot	-	-	-	-	-	-	-	-	-	-	5,517	-	5,517
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	-	-	12,014	-	12,014
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	-	-	13,231	-	13,231
Insect: Mites	-	-	-	-	-	-	-	-	-	-	9,013	-	9,013
Disease: Botrytis, Mildew, Insect: Worm	-	-	-	-	-	-	-	-	-	-	-	13,231	13,231

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Crop Monitoring Program	788	-	-	-	788	788	788	788	788	788	788	-	6,300
Field Checking	-	-	-	-	-	6,100	6,100	6,100	6,100	6,100	6,100	-	36,600
Rodent Control	185	185	185	185	185	185	185	185	185	185	185	185	2,217
Adjuvants	-	-	-	-	-	2,440	2,440	2,440	2,440	2,440	2,440	-	14,640
Preditory Mites	-	-	-	-	22,318	-	-	-	-	-	-	-	22,318
Fertilize: Preplant	81,336	-	-	-	-	-	-	-	-	-	-	-	81,336
Fertilize: Preplant 0-0-50	-	20,588	-	-	-	-	-	-	-	-	-	-	20,588
Fertilize: Preplant 19-6-13	-	74,115	-	-	-	-	-	-	-	-	-	-	74,115
Fertilize: Drip October	-	-	-	2,703	-	-	-	-	-	-	-	-	2,703
Fertilize: Drip November	-	-	-	-	5,216	-	-	-	-	-	-	-	5,216
Fertilize: Drip December	-	-	-	-	-	6,790	-	-	-	-	-	-	6,790
Fertilize: Drip January	-	-	-	-	-	-	19,845	-	-	-	-	-	19,845
Fertilize: Drip February	-	-	-	-	-	-	-	22,616	-	-	-	-	22,616
Fertilize: Drip March	-	-	-	-	-	-	-	-	23,428	-	-	-	23,428
Fertilize: Drip April	-	-	-	-	-	-	-	-	-	22,253	-	-	22,253
Fertilize: Drip May	-	-	-	-	-	-	-	-	-	-	18,399	-	18,399
Fertilize: Drip June	-	-	-	-	-	-	-	-	-	-	-	11,177	11,177
Fumigation: Broadcast/Drip 40/60	-	388,340	-	-	-	-	-	-	-	-	-	-	388,340
Irrigate: Drip	-	23,102	23,102	92,409	46,205	23,102	23,102	23,102	46,205	69,307	92,409	46,205	508,251
Irrigate: Sprinkle	-	140,804	-	140,804	-	-	-	-	-	-	-	-	281,608
Irrigate: Lay Laterals and Connect	-	326	-	-	-	-	-	-	-	-	-	-	326

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Irrigate: Sprinkler Pipe	-	5,566	-	5,566	-	-	-	-	-	-	-	-	11,131
Irrigate: Test System	-	-	7,344	-	-	-	-	-	-	-	-	-	7,344
Plant: Plants/Planters/Replant	-	-	-	574,233	-	-	-	-	-	-	-	-	574,233
Plant: Punch Holes	-	-	2,061	-	-	-	-	-	-	-	-	-	2,061
Weed: Manual	-	-	-	-	-	16,203	16,203	16,203	16,203	16,203	16,203	-	97,220
Weed: Spray Bed (Chateau)	-	8,113	-	-	-	-	-	-	-	-	-	-	8,113
Weed: Spray Furrow (Chateau, Shark)	-	-	-	-	2,369	-	-	-	-	-	-	-	2,369
Total Cultural Costs	142,532	1,026,221	32,691	819,462	115,115	81,217	106,266	140,332	163,706	179,617	178,374	110,371	3,095,904
Harvest:						1%	4%	5%	25%	35%	20%	10%	100%
Fresh						31,505	126,020	157,525	787,626	1,102,676	630,101	315,050	3,150,503
Haul						196	785	981	4,906	6,869	3,925	1,963	19,626
Freezer						-	-	-	-	-	186,658	435,535	622,193
Total Harvest Costs						31,701	126,805	158,506	792,532	1,109,545	820,684	752,548	3,792,322
Other:													
Cooling Fresh						4,808	19,231	24,039	120,194	168,272	96,156	48,078	480,778
CSC						231	925	1,156	5,782	8,094	4,625	2,313	23,127
Sales Commission 8%						6,172	24,688	30,860	154,300	216,019	123,440	61,720	617,198
Total Other Costs						11,211	44,844	56,055	280,276	392,386	224,220	112,110	1,121,102
Interest on Operating Capital													
Total Operating Cost	142,532	1,026,221	32,691	819,462	115,115	124,129	277,915	354,893	1,236,514	1,681,548	1,223,278	975,029	8,009,329
Cash Overhead	(142,532)	(1,026,221)	(32,691)	(819,462)	(115,115)	(178)	379,398	841,417	1,358,934	1,009,680	(541,329)	(50,147)	861,752

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Land Rent	139,355						139,355						278,709
Liability Insurance							1,830						1,830
Office Expense	8,388	8,388	8,388	8,388	8,388	8,388	8,388	8,388	8,388	8,388	8,388	8,388	100,650
Pipe Rental		6,039											6,039
Tractor Rental	65,148	2,327	2,327	2,327	2,327	2,327	2,327	2,327					81,435
Harvest Machine Rental								26,023	26,023	26,023	26,023	26,023	130,113
Haul Truck & Forklift Rental						659	2,635	3,294	16,470	23,058	13,176	6,588	65,880
Ranch Management and Supervision	16,013	16,013	16,013	16,013	16,013	16,013	16,013	16,013	16,013	16,013	16,013	16,013	192,150
Sanitation Fee	1,334	1,334	1,334	1,334	1,334	1,334	2,669	2,669	5,338	5,338	5,338	2,669	32,025
Property Taxes									3,660				3,660
Property Insurance									2,928				2,928
Investment Repairs	137	137	275	137	137	137	137						1,098
Equipment												34,092	34,092
Total Overhead Cost	230,374	34,237	28,336	28,198	28,198	28,857	173,352	58,712	78,818	78,818	68,936	93,772	930,609
Total Cash Cost	372,906	1,060,458	61,027	847,661	143,314	152,986	451,268	413,605	1,315,332	1,760,366	1,292,214	1,068,801	8,939,938
Non Cash Overhead Cost Capital Recovery													
									Annual Cost Capital Recovery				
Buildings				-					-				-
Fuel Tanks				-					-				-
Hand Tools				-					2,486				2,486
Harvest Carts				-					1,444				1,444

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Lateral Lines				-					7,453				7,453
Shop Tools				-					4,662				4,662
Equipment				-					-				-
Total Non Cash Overhead Cost				-					16,046				16,046
Total Cost													8,955,984
Net Returns	(372,906)	(1,060,458)	(61,027)	(847,661)	(143,314)	(29,036)	206,046	782,705	1,280,116	930,862	(610,265)	(143,919)	(84,904)
Net Cash Flow	(372,906)	(1,433,364)	(1,494,392)	(2,342,052)	(2,485,366)	(2,514,401)	(2,308,356)	(1,525,651)	(245,535)	685,326	75,062	(68,857)	(84,904)
Growers Share 15%													-
Net to Marketing													(84,904)
Marketing Commission 8%													617,198
Cooling Revenue													67,609
Marketing Share													599,904

Table 4.3: Annual Costs per Acre

Custom Farm

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Land Prep: Disk/Roll 4X	July	3.33	38				215 HP Rubber Track	14' Disc Offset	101	3				143
Land Prep: Plow	July	1.50	17				215 HP Rubber Track	5 Bottom Plow	46	4				67
Land Prep: Subsoil 2X	July	1.34	15				350 HP Rubber Track Tractor	Ripper 5 Shank	61	6				83
Land Prep: Triplane 2X	July	0.83	10				215 HP Rubber Track	Triplane	25	2				37
Land Prep: Chisel 2X	August	0.75	9				215 HP Rubber Track	Ripper 9 Shank	23	4				35
Land Prep: Rototill	August	0.65	7				215 HP Rubber Track	12' Tiller	20	3				30
Land Prep: List/Shape Beds	August	0.75	9	2	1.50	15	180 HP Tractor	Lister/Shaper	23	4				50
Land Prep: Disk and Grade Roads	August	0.65	7	4	1.04	10	105 HP Crawler Tractor	12' Tandem Disk	15	6				38
Land Prep: Cut Header Ditches	August	0.33	4	4	1.04	10	105 HP Crawler Tractor	Custom Ditcher	8	6				27
Land Prep: Drip Tape X 2	August	1.50	17	2	3.00	29	90 HP 4WD Tractor X 2	Tape/Fert	23	2	Drip Tape	286		357
Land Prep: Tarping/Mulch X 2	August	1.50	17	4	3.00	29	90 HP 4WD Tractor X 2	Mulch Layer	23	2	Plastic Mulch	572		643
Land Prep: Maintain Roads	January	0.20	2			-	90 HP 4WD Tractor	Angle Blade	3	2				7

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Land Prep: Maintain Roads	February	0.20	2			-	90 HP 4WD Tractor	Angle Blade	3	2				7
Land Prep: Maintain Roads	March	0.20	2			-	90 HP 4WD Tractor	Angle Blade	3	2				7
Land Prep: Maintain Roads	April	0.20	2			-	90 HP 4WD Tractor	Angle Blade	3	2				7
Land Prep: Maintain Roads	May	0.20	2			-	90 HP 4WD Tractor	Angle Blade	3	6				11
Erosion Control: Ditches	August	4.00	46	40	15.00	147	1 Ton Flat bed x 2		15	6				214
Erosion Control: Desilting Basins	September	0.60	7	3	8.00	78	84 HP 4WD Backhoe Tractor		9	6				100
Erosion Control: Drainage Pipes	September	0.60	7	2	8.00	78	84 HP 4WD Backhoe Tractor		9					94
Erosion Control: Install Ditch Liner	September	4.00	46	40	15.00	147	1 Ton Flat bed x 2		15	6	Plastic Liner	50		264
Erosion Control: Sand Bags	August	2.00	23	4	8.00	78	1 Ton Flat bed x 2		8	6	Sand Bags	25		140
Crop Removal and Cleanup	June	0.20	2	10	12.00	117	105 HP Crawler Tractor	14' Disc Offset	5	1				125
Crop Removal: Remove Drainage Pipe	June	0.60	7	2	4.00	39	84 HP 4WD Backhoe Tractor		9	6				61
Crop Removal: Cut Mulch Skirts	June	0.28	3	4	2.40	23	75 HP 4WD Hi-Crop Tractor X 2	Tool Bar w/Discs	2	1				30

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Disease: Anthracnose	October	0.10	1	2	0.20	2	75 HP 4WD Hi-Crop Tractor	5 Bed Sprayer	1	2	Oxidate Dip	14		19
Disease: Phytophthora	November	0.10	1	1	0.10	1		250 gl. Mix-tank w/Pump	0	1	Ridomil Gold EC	113		117
Insect: Snails	November			2	0.20	2					Deadline	5		7
Disease: Botrytis, Mildew Insect: Mite	November	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Danitol, Captan, Rally	56		84
Disease: Mildew	December	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Microthiol	7		35
Disease: Botrytis, Mildew Insect: Worm	December	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Elevate, Javelin	77		105
Insect: Aphid	January	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Actara	15		43
Disease: Botrytis, Insect: Worm	January	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Javelin	38		66
Disease: Botrytis, Insect: Worm	January	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Elevate, Javelin	62		90

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Disease: Leaf Spot	February	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Champ	2		30
Disease: Botrytis, Mildew, Insect: Worm	February	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Switch, Javelin	117		145
Disease: Botrytis, Mildew, Insect: Worm	February	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Elevate, Javelin	77		105
Insect: Thrip	February	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Radiant	61		89
Disease: Leaf Spot	March	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Champ	2		30
Disease: Botrytis, Mildew, Insect: Worm	March	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Switch, Javelin	117		145
Disease: Botrytis, Mildew, Insect: Worm	March	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Elevate, Javelin	77		105
Insect: Mites	March	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Acramite	58		86

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Disease: Leaf Spot	April	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Champ	2		30
Disease: Botrytis, Mildew, Insect: Worm	April	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Fontelis, Javelin	84		112
Disease: Botrytis, Mildew, Insect: Worm	April	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Elevate, Javelin	77		105
Insect: Mites	April	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Acramite	58		86
Disease: Leaf Spot	May	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Champ	2		30
Disease: Botrytis, Mildew, Insect: Worm	May	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Javelin	38		66
Disease: Botrytis, Mildew, Insect: Worm	May	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Microthiol, Javelin	44		72
Insect: Mites	May	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Danitol	21		49

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Disease: Botrytis, Mildew, Insect: Worm	June	0.30	3	5	1.50	15	75 HP 4WD Hi-Crop Tractor X 3	5 Bed Sprayer	7	3	Captan, Microthiol, Javelin	44		72
Crop Monitoring Program	Misc.												34	34
Field Checking	Misc.												200	200
Rodent Control	Misc.			1	1.00	10					PCQ	2		12
Adjuvants	Misc.										Tactic Sticker/Widespread Max	80		80
Preditory Mites	November			8	0.20	2							120	122
Fertilize: Preplant	July	0.20	2	4	0.85	8	75 HP 4WD Hi-Crop Tractor x 2	Drop Spreader x 2	7	2	Compost, Gypsum	125	300	444
Fertilize: Preplant 0-0-50	August	-	-			-			-		11-52-0	113		113
Fertilize: Preplant 19-6-13	August	-	-			-			-		19-6-13	405		405
Fertilize: Drip October	October	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	Ascend PA, Guano Plus, Humic 600	10		15
Fertilize: Drip November	November	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	Phosgard, Nutri-Aid, Calcinit	24		29
Fertilize: Drip December	December	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	Phosgard, Nutri-Aid, Calcinit	32		37
Fertilize: Drip January	January	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	CaTs, 10-5-5, Humic, NpHuric, Phosgard, Nutri-Aid, Calcinit	104		108
Fertilize: Drip February	February	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	CaTs, 10-5-5, Humic, NpHuric, Phosgard, Nutri-Aid, Calcinit, Guano	119		124

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Fertilize: Drip March	March	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	CaTs, Humic, NpHuric, Phosgard, Nutri-Aid, Calcinit, Guano	123		128
Fertilize: Drip April	April	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	CaTs, Humic, NpHuric, Phosgard, Nutri-Aid, Calcinit	117		122
Fertilize: Drip May	May	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	CaTs, Humic, NpHuric, Phosgard, Nutri-Aid, Calcinit, Urea	96		101
Fertilize: Drip June	June	0.10	1	1	0.10	1	45 HP Tractor	250 gl. Mix-tank w/Pump	1	2	Urea, NpHuric, Phosgard, Nutri-Aid, Calcinit, Ammonium Sulfate	56		61
Fumigation: Broadcast/Drip 40/60	August	0.40	5	10	6.00	59	1 Ton Flat bed		2	1			2,056	2,122
Irrigate: Drip		-	-	2	60.00	587	1/2 Ton Pick-up		-	1		2,189		2,777
Irrigate: Sprinkle	Aug/Oct	-	-	4	8.00	78	1/2 Ton Pick-up		-	1		1,460		1,539
Irrigate: Lay Laterals and Connect	August	-	-	8	0.08	1	1/2 Ton Pick-up		-	1				2
Irrigate: Sprinkler Pipe	Aug/Oct	3.00	35	8	2.00	20	45 HP Tractor x 2	Pipe Tailer x 2	6	1				61
Irrigate: Test System	September	-	-	4	4.00	39	1/2 Ton Pick-up		-	1				40
Plant: Plants/Planters/Replant	October	-	-	120		-	1 Ton Flat bed x 2		-	1		3,137		3,138
Plant: Punch Holes	September	0.69	8	-		-	75 HP 4WD Hi-Crop Tractor x 2		1	2				11
Weed: Manual	Nov-June			20	54.00	528	1/2 Ton Pick-up		-	3				531

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Weed: Spray Bed (Chateau)	August	0.25	3	1	0.10	1	75 HP 4WD Hi-Crop Tractor x 2		0	2		38		44
Weed: Spray Furrow (Chateau, Shark)	November	0.25	3	1	0.10	1	75 HP 4WD Hi-Crop Tractor x 2		0	2		7		13
Total Cultural Costs		39	452		254.21	2,487			636	196		10,437	2,711	16,918
Harvest:														
Fresh		19	222		1,075	10,516	Harvest Aid Machine x 8		147	50	Packaging	6,281		17,216
Freezer		-	-		345	3,375			-	25				3,400
Haul		3	33		3	32	2 Ton 24ft. Flat Bed Truck x 6	Forklift x 2	32	10				107
Total Harvest Costs		22	255		1,423	13,924			179	85		6,281	-	20,723
Other:														-
Cooling Fresh													2,627	2,627
CSC													126	126
Sales Commission 8%													3,373	3,373
Total Other Costs		-				-				-		-	6,126	6,126
Interest on Operating Capital														
Total Operating Cost per Acre			707			16,410			814	281		16,717	8,837	43,767

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Cash Overhead:														
Land Rent														1,523
Liability Insurance														10
Office Expense														550
Pipe Rental														33
Tractor Rental														445
Harvest Machine Rental														711
Haul Truck & Forklift Rental														360
Ranch Management and Supervision														1,050
Sanitation Fee														175
Property Taxes														20
Property Insurance														16
Investment Repairs														6
Equipment														186
Total Overhead Cost per Acre														5,085
Total Cash Cost per Acre														48,852
Non Cash Overhead Cost Capital Recovery														
												Annual Cost Capital Recovery		
Buildings												-		-
Fuel Tanks												-		-
Hand Tools												14		14

Operation	Month	Equipment Operation Time Hrs/ A	Machine Labor/A	Non-Machine Head Count	Non-Machine Time Hrs/A	Non-Machine Labor/A	Machine	Implement	Fuel Cost	Lube Repairs	Material	Material Cost/A	Custom	Total Cost/A
Harvest Carts												8		8
Lateral Lines												41		41
Shop Tools												25		25
Equipment												-		-
Total Non Cash Overhead Cost												88		88
Total Cost per Acre														48,940

Table 4.4: Annual Equipment, Investment, and Overhead Costs

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insurance	Cash Overhead Taxes	Cash Overhead Total
75 HP 4WD Hi-Crop Tractor	$45,000	15	$ 8,761	$3,848	$209	$ 268	$4,325
75 HP 4WD Hi-Crop Tractor	$45,000	15	8,761	3,848	209	268	4,325
2000 Gallon Water Truck	50,000	12	12,501	4,765	242	313	5,320
Truck 24ft Flatbed 26K	65,000	7	24,656	8,081	347	449	8,876
Truck 24ft Flatbed 26K	65,000	7	24,656	8,081	347	449	8,876
Truck 12ft Flatbed 1 ton	38,000	7	14,414	4,724	203	262	5,189
Truck 12ft Flatbed 1 ton	38,000	7	14,414	4,724	203	262	5,189
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Truck Pickup 4WD	30,000	7	11,380	3,730	160	207	4,097
Bed Shaper Lister	14,000	15	2,726	1,197	65	84	1,346
Scraper Box 14'	3,000	15	584	257	14	18	288
Land Plane 14'	6,500	15	1,265	556	30	39	625
Rear Angle Blade	2,500	15	487	214	12	15	240
Rear Angle Blade	2,500	15	487	214	12	15	240
DripTape Fert Injector Machine	4,000	15	779	342	19	24	384
DripTape Fert Injector Machine	4,000	15	779	342	19	24	384
Mulch Layer Machine	3,500	15	681	299	16	21	336
Mulch Layer Machine	3,500	15	681	299	16	21	336
Planter Punch Wheel 15"	2,500	15	487	214	12	15	240
Planter Punch Wheel 15"	2,500	15	487	214	12	15	240

5 Bed Spray Unit	20,000	15	3,894	1,710	93	119	1,922
5 Bed Spray Unit	20,000	15	3,894	1,710	93	119	1,922
Pipe Trailer	2,500	15	487	214	12	15	240
Pipe Trailer	2,500	15	487	214	12	15	240
Weed Sprayer 200 Gl	4,000	10	1,182	417	20	26	463
Tool Bars with Tools	1,500	10	443	156	8	10	174
Tool Bars with Tools	1,500	10	443	156	8	10	174
Fetilizer Mix Tank w/Pump	3,500	10	1,034	365	18	23	405
Fetilizer Mix Tank w/Pump	3,500	10	1,034	365	18	23	405
5 Bed Spray Unit	20,000	15	3,894	1,710	93	119	1,922
5 Bed Spray Unit	20,000	15	3,894	1,710	93	119	1,922
TOTAL	703,500		217,948	77,056	3,567	4,608	85,231
40% of New Cost	$281,400		$ 87,179	$ 30,822	$ 1,427	$ 1,843	$ 34,092

Annual Investment Cost

					Cash Overhead			
	Price	Yrs Life	Salvage Value	Capital Recovery	Insurance	Taxes	Repairs	Total
Description	$		$	$	$	$	$	$
INVESTMENT								
Building								
Fuel Tanks								
Hand Tools	8,000	15	1,557	684	37	48	160	2,486
Harvest Carts 200	5,000	5	930	364	20	30	100	1,444
Lateral Lines	25,803	5	4,799	1,880	103	155	516	7,453
Shop Tools	15,000	15	2,920	1,283	70	89	300	4,662
TOTAL INVESTMENT	$ 53,803		$ 10,207	$ 4,211	$ 230	$ 322	$ 1,076	$ 6,046

Annual Business Overhead Cost

Description	Units/Farm	Unit	Price/Unit	Total Cost
Land Rent	296	acre	$ 1,575	$ 466,200
Liability Insurance	296	acre	10	2,960
Office Expense	183	acre	550	100,650
Pipe Rental	183	acre	400	73,200
Tractor Rental	183	acre	445	81,435
Harvest Machine Rental	183	acre	711	130,113
Haul Truck & Forklift Rental	183	acre	360	65,880
Ranch Management	183	acre	1,050	192,150
Sanitation Fee	183	acre	175	32,025
Equipment	183	acre	186	34,092
TOTAL BUSINESS OVERHEAD COST				$1,178,651

Table 4.5: Sensitivity Analysis at Varying Yield and Price for Company Farm

Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
Freezer		950	950	950	950	950	950	950	950
Operating Cost per Acre:									
Cultural Cost		17,208	17,208	17,208	17,208	17,208	17,208	17,208	17,208
Fresh Harvest		11,201	13,441	15,681	17,921	18,392	21,100	23,210	25,320
Freezer Harvest		3,734	3,734	3,734	3,734	3,734	3,734	3,734	3,734
Cooling		1,600	1,920	2,240	2,560	2,627	3,200	3,520	3,840
Assesment		86	99	111	124	126	149	161	174
Sales Commission									
Interest on operating Capital									
Total Operating Cost per Acre		33,829	36,401	38,974	41,547	41,718	45,391	47,833	50,276
Total Operating Cost per Tray		9.81	9.22	8.76	8.39	8.25	7.63	7.42	7.23
Cash Overhead Cost per Acre		5,043	5,043	5,043	5,043	5,043	5,043	5,043	5,043
Total Cash Cost per Acre		38,872	41,444	44,017	46,590	46,761	50,434	52,876	55,319
Total Cash Cost per Tray		11.27	10.49	9.89	9.41	9.25	8.48	8.20	7.96
Non-Cash Overhead Cost per Acre		274	274	274	274	274	274	274	274
Total Cost per Acre		39,146	41,718	44,291	46,864	47,035	50,708	53,150	55,593
Total Cost per Tray		10.44	9.81	9.32	8.92	8.77	8.10	7.86	7.66

Net Returns per Acre Above Operating Costs

Price:	$/Tray	Yield Trays per Acre							
Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
	Freezer	950	950	950	950	950	950	950	950
7.00	6.65	(10,011)	(9,084)	(8,157)	(7,229)	(6,665)	(4,073)	(3,016)	(1,958)
8.00	6.65	(7,511)	(6,084)	(4,657)	(3,229)	(2,560)	927	2,484	4,042
9.00	6.65	(5,011)	(3,084)	(1,157)	771	1,545	5,927	7,984	10,042
10.27	6.65	(1,836)	726	3,288	5,851	6,758	12,277	14,969	17,662
11.00	6.65	(11)	2,916	5,843	8,771	9,755	15,927	18,984	22,042
12.00	6.65	2,489	5,916	9,343	12,771	13,860	20,927	24,484	28,042

Net Returns per Acre Above Cash Costs

Price:	$/Tray	Yield Trays per Acre							
Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
	Freezer	950	950	950	950	950	950	950	950
7.00	6.65	(15,054)	(14,127)	(13,200)	(12,272)	(11,708)	(9,116)	(8,059)	(7,001)
8.00	6.65	(12,554)	(11,127)	(9,700)	(8,272)	(7,603)	(4,116)	(2,559)	(1,001)
9.00	6.65	(10,054)	(8,127)	(6,200)	(4,272)	(3,498)	884	2,941	4,999
10.27	6.65	(6,879)	(4,317)	(1,755)	808	1,715	7,234	9,926	12,619
11.00	6.65	(5,054)	(2,127)	800	3,728	4,712	10,884	13,941	16,999
12.00	6.65	(2,554)	873	4,300	7,728	8,817	15,884	19,441	22,999

Net Returns per Acre Above Total Costs

Price:	$/Tray	Yield Trays per Acre							
Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
	Freezer	950	950	950	950	950	950	950	950
7.00	6.65	(15,328)	(14,401)	(13,474)	(12,546)	(11,982)	(9,390)	(8,333)	(7,275)
8.00	6.65	(12,828)	(11,401)	(9,974)	(8,546)	(7,877)	(4,390)	(2,833)	(1,275)
9.00	6.65	(10,328)	(8,401)	(6,474)	(4,546)	(3,772)	610	2,667	4,725
10.27	6.65	(7,153)	(4,591)	(2,029)	534	1,441	6,960	9,652	12,345
11.00	6.65	(5,328)	(2,401)	526	3,454	4,438	10,610	13,667	16,725
12.00	6.65	(2,828)	599	4,026	7,454	8,543	15,610	19,167	22,725

Table 4.6: Sensitivity Analysis at Varying Yield and Price for Custom Farm

Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
Freezer		950	950	950	950	950	950	950	950
Operating Cost per Acre:									
Cultural Cost		16,918	16,918	16,918	16,918	16,918	16,918	16,918	16,918
Fresh Harvest		10,550	12,660	14,770	16,880	17,323	21,100	23,210	25,320
Freezer Harvest		3,400	3,400	3,400	3,400	3,400	3,400	3,400	3,400
Cooling		1,600	1,920	2,240	2,560	2,627	3,200	3,520	3,840
Assesment		86	99	111	124	126	149	161	174
Sales Commission		2,054	2,465	2,876	3,286	3,373	4,108	4,519	4,930
Interest on operating Capital									
Total Operating Cost per Acre		34,608	37,461	40,314	43,168	43,767	48,874	51,728	54,581
Total Operating Cost per Tray		10.03	9.48	9.06	8.72	8.66	8.21	8.02	7.85
Cash Overhead Cost per Acre		5,085	5,085	5,085	5,085	5,085	5,085	5,085	5,085
Total Cash Cost per Acre		39,693	42,546	45,400	48,253	48,852	53,960	56,813	59,666
Total Cash Cost per Tray		11.51	10.77	10.20	9.75	9.66	9.07	8.81	8.59
Non-Cash Overhead Cost per Acre		88	88	88	88	88	88	88	88
Total Cost per Acre		39,781	42,634	45,487	48,341	48,940	54,047	56,901	59,754
Total Cost per Tray		11.22	10.54	10.01	9.58	9.50	8.94	8.69	8.48

Net Returns per Acre Above Operating Costs

Price:	$/Tray	Yield Trays per Acre							
Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
	Freezer	950	950	950	950	950	950	950	950
7.00	6.65	(10,790)	(10,144)	(9,497)	(8,850)	(8,714)	(7,557)	(6,910)	(6,263)
8.00	6.65	(8,290)	(7,144)	(5,997)	(4,850)	(4,609)	(2,557)	(1,410)	(263)
9.00	6.65	(5,790)	(4,144)	(2,497)	(850)	(504)	2,443	4,090	5,737
10.27	6.65	(2,615)	(334)	1,948	4,230	4,709	8,793	11,075	13,357
11.00	6.65	(790)	1,856	4,503	7,150	7,706	12,443	15,090	17,737
12.00	6.65	1,710	4,856	8,003	11,150	11,811	17,443	20,590	23,737

Net Returns per Acre Above Cash Costs

Price:	$/Tray	Yield Trays per Acre							
Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
	Freezer	950	950	950	950	950	950	950	950
7.00	6.65	(15,876)	(15,229)	(14,582)	(13,935)	(13,800)	(12,642)	(11,995)	(11,349)
8.00	6.65	(13,376)	(12,229)	(11,082)	(9,935)	(9,695)	(7,642)	(6,495)	(5,349)
9.00	6.65	(10,876)	(9,229)	(7,582)	(5,935)	(5,590)	(2,642)	(995)	651
10.27	6.65	(7,701)	(5,419)	(3,137)	(855)	(376)	3,708	5,990	8,271
11.00	6.65	(5,876)	(3,229)	(582)	2,065	2,620	7,358	10,005	12,651
12.00	6.65	(3,376)	(229)	2,918	6,065	6,725	12,358	15,505	18,651

Net Returns per Acre Above Total Costs

Price:	$/Tray	Yield Trays per Acre							
Fresh		2,500	3,000	3,500	4,000	4,105	5,000	5,500	6,000
	Freezer	950	950	950	950	950	950	950	950
7.00	6.65	(15,963)	(15,317)	(14,670)	(14,023)	(13,887)	(12,730)	(12,083)	(11,436)
8.00	6.65	(13,463)	(12,317)	(11,170)	(10,023)	(9,782)	(7,730)	(6,583)	(5,436)
9.00	6.65	(10,963)	(9,317)	(7,670)	(6,023)	(5,677)	(2,730)	(1,083)	564
10.27	6.65	(7,788)	(5,507)	(3,225)	(943)	(464)	3,620	5,902	8,184
11.00	6.65	(5,963)	(3,317)	(670)	1,977	2,533	7,270	9,917	12,564
12.00	6.65	(3,463)	(317)	2,830	5,977	6,638	12,270	15,417	18,564

4.6 Weighting Assessment and Critical Validation

Table 4.7 shows the critical validation results for each dimensions of viability. The measure of viability weighting assessment was assigned based on the perceived strength or weakness of each characteristic. The overall critical validation is on the strong side indicating that the proposition is feasible. Although demand remains strong for fresh berries, the market viability dimension is the weakest at 78% due to the leverage of the buyers, price volatility, and general dynamic of the market. The dimensions of technical, business model and economic/financial viability are at the weak/strong threshold at 80%. The management model viability dimension is the strongest of the five dimensions assessed in this study at 90%. The sum of the weighted viability measures scores is 80.5%. Based on this assessment the custom farming proposition is viable as specified.

Table 4.7: Dimensions of Viability Weighting Assessment and Critical Validation

Dimension of Viability	Measure of Viability	Measure Weighting	Weighting Assessment	Critical Validation
Market Viability	4.1.1Industry competitiveness 4.1.2 Barriers to Entry 4.1.3 Suppliers and Buyers 4.1.4 Price 4.1.5 Market	20 20 20 20 20	18 15 15 15 15	78/100 WEAK
(Weighting 25%)				19.5%
Technical Viability	4.2.1 Production Facilities 4.2.2 Inputs 4.2.3 Technology 4.2.6 Skilled Labor and Management	30 20 20 30	25 15 15 25	80/100 STRONG
(Weighting 15%)				12%
Business Model Viability	4.3.1 Uniqueness of Proposed Business Model 4.3.2Competitive Advantage of Proposed Business Model 4.3.3Competitive Strategy of the Proposed Business Model 4.3.4 Competitive Sustainability	20 30 30 20	15 25 25 15	80/100 STRONG
(Weighting 25%)				20%
Management Model Viability	4.4.1 Legal Structure 4.4.2 Strategic Advantage Points of Key Stakeholders 4.4.3 Key Service Providers	50 30 20	50 25 15	90/100 STRONG
(Weighting 10%)				9%
Economic and Financial Viability	4.5.1 Cost and Return per Acre 4.5.2 Monthly Cash Cost 4.5.3 Sensitivity Analysis 4.5.4 Overall Profitability	30 20 20 30	25 10 10 25	80/100 STRONG
(Weighting 25%)				20%
100%				80.5%

CHAPTER V: CONCLUSION

Demand for fresh berries remains strong yet despite this growth both producers and marketing firms are finding it challenging to maintain profitability. Increases in production costs and resource constraints increasingly squeeze producer margins. In California, growers are under the greatest pressure and consolidation of smaller operators into larger marketing programs is occurring. Greater production efficiencies and innovation are required to sustain profitability, making these relationships ever more important. Growers that have the skills to compete are in demand but association with a large marketing firm is necessary to succeed.

The business proposal is feasible and merits the development of a comprehensive business plan to further define the financial implications for both stakeholders. The study shows that an opportunity to improve profitability exists for both stakeholders. By switching to the custom farm model, the marketing firm stands to benefit directly. The principle also benefits directly from a significant increase is salary and also in the sense that additional efforts to increase yield or production timing may translate into a share of net earnings. The greatest barrier for the principle is to obtain sufficient financing for the start-up and the high cash outflow requirement. The development of pro forma financial statements is necessary as part of the business plan so that additional financial implications can be addressed individually by each stakeholder.

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