Cambodian Field of Dreams

Team 16
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I. Executive Summary

Cambodian Field of Dreams will mechanize the process of no-till farming in rural farming villages. The product will be first sent to Cambodia through World Renew, a missions organization based in Grand Rapids, Michigan. They have locations all around the world, Cambodia being one of them. World Renew will be the main channel of distribution.

The no-till mechanism is motivated by the theory proposed by Dr. Roland Bunch that a cover crop, biologically fertilizing farmland prior to main crop rotation, could significantly increase yields due to the increase in soil nutrition. The mechanism itself is a device pushed down a farming lane which tills a furrow, plants the legume seed (biological fertilizer recommended by Dr. Bunch), and then covers the seeds as it moves. The common label of such a device within the agricultural industry is a seeder.

The market niche for this push seeder will be the previously mentioned farming villages who wish to implement such a technique. Phnom Penh, the capital of Cambodia, will be the initial market and business will extend to the surrounding villages from there. It is hoped that as the success of this technique is proven to the farmers, business and sales surrounding the seeder will also grow and develop.

It is expected that much of the advertising will be done by word of mouth. It is not easy to implement new ideas in this culture, and the most trusted opinions and ideas are those of fellow Cambodians. World Renew has been working in Cambodian communities for over ten years and the current leadership, Rick DeGraaf and Kathleen Lauder, have a combined 40+ years of experience in developing countries. They work within the communities to pinpoint problems and help to solve them. They will be the main method for distributing the seeder to these communities in need because they know better than anyone else what the need is, where it is, and how to reach out to the people.

The financial need to fund this business is quite miniscule in comparison to the help it will bring these communities. Start-up costs are estimated at $2000. Shipping costs will make up a large percentage of the running costs in the beginning. These are estimated to be $2000 per year. In the future the purchasing of raw materials and manufacturing will be done within Cambodia at a location discussed later in this report.

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1 – Director of Sustainable Agriculture for World Neighbors, a US-based NGO.
II. Mission Statement

A. Vision
The fertilization and soil enrichment of farmland is vital for farmers around the world as it is essential for the increase of crop yields. With this in mind, this company will seek to create and grow a business that is dedicated to providing innovative equipment to third world country farmers with a main focus on soil enhancement. Besides continuous research and development, the company will also strive to provide dedicated customer support services in a timely and cost-effective manner.

B. Values
The company is charged to always keep specifically these three design criteria in mind: cultural awareness, trust, and stewardship. The company wants the customer to be comfortable not only with the product quality, but also with fit within the culture. Through this product, the company also tries to be good stewards of the environment by utilizing bio-fertilizers instead of chemical fertilizers. The company wants to gain the customers’ trust by having an ergonomic, worthwhile, and reliable product.
# Table of Contents

© 2013, Team 16 and Calvin College ................................................................. ii

I. Executive Summary ............................................................................................... iii

II. Mission Statement ................................................................................................. iv
   A. Vision .............................................................................................................. iv
   B. Values ............................................................................................................ iv

Table of Contents ..................................................................................................... v

III. Industry Profile .................................................................................................. 6
   A. Industry .......................................................................................................... 6
   B. Customer ...................................................................................................... 6
   C. Barriers to Market Entry .............................................................................. 6

IV. Business Strategy ................................................................................................ 7
   A. Market Image and Position .......................................................................... 7
   B. Company Goals .......................................................................................... 7
      1. Operational ............................................................................................... 7
      2. Financial ................................................................................................... 7
   C. SWOT Analysis .......................................................................................... 7
   D. Competitive Strategy ................................................................................ 7

V. Product .................................................................................................................. 8
   A. Description .................................................................................................. 8
   B. Future Products ........................................................................................ 8

VI. Marketing Strategy .............................................................................................. 9
   A. Problem ....................................................................................................... 9
   B. Target Market and Demographic Profile .................................................. 9
   C. Product Appeal and Promotion ................................................................... 9
   D. Market size and trends .............................................................................. 9
   E. Pricing ......................................................................................................... 9

VII. Competitive Analysis ......................................................................................... 11
   A. Immediate Competitor .............................................................................. 11
   B. Potential Competitor ................................................................................ 11

VIII. Description of Management Team .................................................................. 12

IX. Operations ............................................................................................................ 13
   A. Company Structure ................................................................................... 13
   B. Production Description .............................................................................. 13

X. Investment Proposal ............................................................................................ 14

XI. Appendices ......................................................................................................... 15
   A. Financial Forecast ....................................................................................... 15
      1. Key Assumptions ...................................................................................... 15
      2. Financial Statements ............................................................................... 15

XII. Bibliography ..................................................................................................... 22
III. Industry Profile

A. Industry
Cambodia is a country in Southeast Asia with a population size of about 15 million people. Farming and agriculture accounts for over a third of the country’s GDP, and the main crop within this industry is rice. Cambodia is bordered by Thailand, Laos, and Vietnam, all of whom have higher rice yields, at about 5 tons/hectare, compared to the national average for Cambodia of 2.6 and furthermore the average self-employed, rural farmer who produces only 1.5 (Inserey). The soil nutrition in Cambodia is quite poor, even when compared to these neighboring countries who share similar seasonal weather patterns. Cambodia itself has many agricultural equipment manufacturers to supply this market, however, they do not extend into the seeder niche very well (discussed later in the report). Farming is a major part of Cambodian life and it is this industry that the company will attempt to break into.

B. Customer
The target customer will be rural farming villages, beginning with the immediate vicinity of Phnom Penh. World Renew has a strong presence in this area and throughout Cambodia. Using this resource, business will expand throughout the country. World Renew and many other non-profit organizations work with farmers around the world to increase crop yields, in the future it is hoped that products can be supplied to any of them and their surrounding region.

C. Barriers to Market Entry
The biggest barrier to entry for this market niche is the cultural attitude towards the idea of a cover crop. The demographic being marketed to has an annual income of $750 per year (worldrenew.net), so there is little room in their budget for experimenting with new farming techniques when they can barely scrape by in general. If the seeder can be made cheaply enough and marketed positively by local World Renew representatives and native farmers it would be possible to overcome this caution.
IV. Business Strategy

A. Market Image and Position
This company hopes to form an image of trust and cultural appropriateness within the industry and populace in general. Partnering with an organization like World Renew helps to build this image. Because this is a new idea to most of Cambodia, this company will be a leader and innovator, not only in the theory itself, but also in simple and effective equipment design.

B. Company Goals
1. Operational
The company production to Cambodia itself, thus making business operations local, onsite, and relevant.

2. Financial
The purpose of this product is not to maximize profit for the sake of the company, but to establish a company that can sustainably partner with local farmers to better their quality of living. To this end, it is important to maintain an income from selling products (details in the Financial Statements in Appendices), but not for money-making purposes.

C. SWOT Analysis
A SWOT analysis was conducted to evaluate this project. The various elements are given in Table 1 below.

<table>
<thead>
<tr>
<th></th>
<th>Helpful</th>
<th>Harmful</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal</strong></td>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td></td>
<td>Guaranteed initial market</td>
<td>Difficult to understand local terrain, soil texture</td>
</tr>
<tr>
<td></td>
<td>Small, well-defined niche with little (cheap, no-till)</td>
<td>Unable to test product onsite with customer</td>
</tr>
<tr>
<td></td>
<td>Simple project scope. Able to do it well.</td>
<td>Difficult communication with end user, rural Cambodian farmers</td>
</tr>
<tr>
<td><strong>External</strong></td>
<td><strong>Opportunities</strong></td>
<td><strong>Threats</strong></td>
</tr>
<tr>
<td></td>
<td>Potential worldwide NGO interest</td>
<td>Chemical fertilizers used instead of biological fertilizers</td>
</tr>
<tr>
<td></td>
<td>Great resource for information and funds in World Renew</td>
<td>Lack of community interest and investment</td>
</tr>
<tr>
<td></td>
<td>Able to help people help themselves</td>
<td></td>
</tr>
</tbody>
</table>

D. Competitive Strategy
The competitive strategy of choice will be mainly cost with some differentiation. Companies within the niche agricultural hand seeders are either very expensive, or not fit for no-till situations, when the soil is hard and dry. Team Cambodian Field of Dreams plans to provide a cheap alternative (price discussed more in depth later) and one that works optimally under the described circumstances.
V. Product

A. Description

The company’s product is an easily usable and deployable no-till seeder. The product is designed to mechanize cover cropping. There are four basic components, the first being a basic tiller in the form of two rotary discs which are connected to the wheels of the seeder such that when the seeder is pushed forward the discs spin. This motion forms a furrow in the ground with small mounds of displaced soil beside it. Behind these discs are a seed container and seed dispenser which is also connected to the wheels and deposit seeds consistently with the forward motion. Trailing the seed dispenser is line of chain links which drag along the ground and pull the displaced soil back into the furrow on top of the seeds.

This product will help the customer to easily implement the practice of cover cropping. The goal is to decrease the effort needed to cover crop. In other words, with the same amount of effort, the customer will cover crop a larger portion of their rice paddy. The product is unique because its low sales price and ability to compete with current competitors. The sales price is estimated to be ~$50, which is much lower than that of current competitors, selling at ~$200. The product has the advantage of working well with hard soil, which is what current competitors’ products lack.

By using the company’s product, the customer benefits through higher rice crop yield at the end of the planting season. Each seeder will come with an operations and maintenance manual. This manual will contain possible replacements if parts break and modifications based on material availability. This is to encourage our customers to modify the product to better suit them personally.

The product is designed to work without replacement and have minimal maintenance for at least 10 years. The customer is guaranteed free replacement parts, through local NGOs, for 5 years on the date of purchase. If no replacement parts are available, the product is to be replaced with a new one and issued an additional 4 month warranty if the 5 year warranty and guarantee has expired. Thereafter, replacement parts will be sold by the company, through NGOs. In case of product break down, the customer is suggested to contact local NGO and ask for assistance. The NGO will help facilitate communication between the customer and the company engineers.

The company’s product will be filed for a patent prior to production.

B. Future Products

The company hopes that future designs of the seeder will be motorized or additionally, tractor-compatible. Since all tractors have unique attachments, different design alternatives will be produced to better cover various customer demands.
VI. Marketing Strategy

A. Problem
“Compared to neighboring countries with similar weather and soil conditions, Cambodia’s paddy rice yield remains relatively low. In 2006, the average yield was 2.6 tons per hectare, while Thailand, Laos, and Vietnam achieved 2.8 tones, 3.5 tons, and 4.9 tons, respectively” (Inserey). Because using chemical fertilizer is culturally unacceptable, another way to increase paddy rice yield is to use bio-fertilizers. The company’s product provides a fast, easy and relatively effortless way to plant seeds into the ground, which, when matured, would serve as bio-fertilizers.

B. Target Market and Demographic Profile
The company’s target market is Cambodian villagers that are willing to try cover cropping. The company aims to better the nutrition value of the soil and ultimately increase the rice yield. The company’s product should be designed in such a way that race, social class and gender will not be a limit. However, the product is limited by age and location. The company’s product is not suitable for children below the age of 12. Because of the design, the product should refrain from being used in locations that has harder soil than that of Cambodia’s dry season rice paddies. The company would initially aim to sell specifically to females, as they are more available for implementing new and unproven ideas than the men in their culture.

C. Product Appeal and Promotion
The company will partner with World Renew to spread the cover crop concept. Once the concept is out, the company aims to convince some of the farmers by giving them free trials of the seeder. Because of the cover crop strategy, the rice yield for that planting season should increase. With initial farmers convinced and feedback taken, the company hopes to advertise the product along with testimonies from local farmers. The advertisement strategy relies heavily on these customers testimonials.

The advertising and promotion of this product will be mainly through World Renew. The company would like to use local resources and other NGOs to reach out to farmers. The message would mainly focus on advertising and purposed to spreading knowledge of cover cropping. The initial budget for advertisement does not exist because the company will be partnering with World Renew for advertisement, which the NGO will fund.

D. Market size and trends
There are an estimated 200,000 villages within Cambodia that the company would hope to sell the seeder to. The company hopes to increase the production after initial feedbacks and extensive, specific local village research. Through this research, the company hopes to have several alternative designs of the initial seeder. The target of selling to 200,000 villages should be reached within 5 years.

E. Pricing
The company would like to be seen as a leader in no till farming solutions. We wish to put our product in the hands of every Cambodian village so that they may be able to increase soil fertility. We wish to be trusted to supply a quality product that takes copious abuse before it will break.

The no till seeder we are proposing is $50, which is $100 cheaper than our closest competitor. We can sell it this cheap because of our non-profit status. We are not trying to make money. We are trying to help our customer get the product that they need to have a thriving farm.
The Gross profit margin on this product ranges from 20% to 25%. This is achieved by our very low overhead because we will be manufacturing in Cambodia. This gross profit margin will be going back to the company’s investors so the company can be self-sufficient and help the farmers with new projects.
VII. Competitive Analysis

There are companies, two in particular, who pose a competitive counterpart to this project. In order to be successful, it is not only necessary to overcome them, but also the unawareness and doubt of the potential users towards the idea of a cover crop. Because in the end that is what is keeping the people from buying similar products from other existing companies. The previously mentioned competition takes the form of an immediate market competitor, and a potential one.

A. Immediate Competitor

Zhengzhou AIX Machinery Equipment Co., Ltd. is a Chinese company that sells three different no till hand seeders. However they are all priced between $150 and $200 which is out of the price range of the average. The scope of our team is creating a model which costs $50, we would attempt to overcome this competitor with a lower price. A strength of their company is that they have a very solid design and can mass manufacture it. There are two problems with these designs. One design doesn’t till the earth at all, it merely inserts seeds into the ground a certain depth. This harms the seed’s ability to grow because the roots can’t expand well into the packed soil. The design does till the earth but relies on the user’s pure force to till a furrow in the earth. Our target user will be the women of rural Cambodia, and with how dense the soil is and the amount of push force the average woman can exert, this design is not favorable.

B. Potential Competitor

MekongAT is an Agricultural Machinery company who builds seeders. These do not work in no till applications and so, would require some design modifications before they are an applicable competitor. The potential is still there to redesign one of their present machines, but as of now they do not have a design for our particular niche.
VIII. Description of Management Team
The company’s management team currently consists of four members: Mr. Rick DeGraaf, Ms. Claire Phillippi, Mr. Joshua Vanderkamp and Mr. Schieffer Kwong. The company wishes to hire additional personnel, in which to be determined. The description of current member positions are included in the following sections.

Regional Manager: Rick DeGraaf
The regional manager will be experienced and familiar with the Cambodian culture. This position requires significant language and social skills. This manager will not only be tasked to keep the sales running smoothly and cleanly with well documentation, meet budget goals, make sure the inventory is stocked, clean and in proper working order but also handle communication between the company and its customers.

Rick DeGraaf has experience in managing tasks in different developing countries for the last 30 years, in which he worked with World Renew for the last 20 years. His expertise along with his experience in developing countries, especially Cambodia, makes him the ideal candidate for this position.

Manufacturing and Quality Manager: Claire Phillippi
The manufacturing and quality manager ensures that products are manufactured correctly, cost effectively and delivered on time in accordance to build specifications and quality requirements. Claire is a senior Engineering Student in the Mechanical Engineering concentration at Calvin College. She has worked in manufacturing for three years separate companies: Steelcase, Rapid-Line, and Woodward. Her experience makes her a qualified candidate for this position.

Marketing Manager: Joshua Vanderkamp
The marketing manager will be responsible for product advertisement, company image, the interview and hire of future employees, and the coordinating, training and discipline of community marketing representatives.

Joshua is a senior Engineering Student in the Mechanical Engineering concentration at Calvin College. He did website marketing and advertising for Aurora North America, a local engineering firm. He also led and organized the Engineers without Borders club at Calvin College. He is able to use his prior experiences to market to the village communities, and in the future to organize and coordinate the efforts of other NGOs interested in selling this product.

Design Engineering Manager: Schieffer Kwong
The design engineering manager will supervise junior engineers, coordinate production plans, research new procedures, and products, improve the manufacturing process, and hiring and supervising employees, budgeting, and designing administrative procedures. Schieffer is a senior Engineering Student in the Mechanical Engineering concentration at Calvin College. He has worked in TRW, Koblenz, Germany designing and developing a custom test rig attachment, and also gather data and begin investigation and development of a new theory. His experience makes him a qualified candidate for this position.
IX. Operations

A. Company Structure
This company will be a non-profit organization that will work closely with other NGOs and non-government organizations to help Cambodian farmers increase the health of their soil. The company will emphasize the purpose of helping people.

World Renew will be the acting president and order increased production and increased marketing. The company will have three other departments that will work alongside World Renew and within the surrounding countryside. The company will spend no money on marketing and instead encourage our customers to be our advertising. It will rely on its partners to teach the farmers how to use the products and head up maintenance.

![Figure 1. Company Structure](image.png)

There will be a benefits package for the farmers for every sale they get there will be a commission of $10 which is significant for their economic condition.

B. Production Description

The company will have square steel tubing, bike wheels and plastic containers coming in as high volume inventory. This inventory will be turned over within each quarter. The costs of each component range from $0.60 to $15 with wire being the cheapest product and steel tubing being the most expensive.

There is a metal supplier in Phnom Penh, Ung Heang Eng that will be supplying the manufacturing floor with square tubing and sheet metal. The facility will also be in Phnom Penh to be close to the supplier of the raw materials. This is an ideal location because it will also be located close the headquarters of World Renew in Cambodia. The layout will be incoming shipments to the saw to welding to assembly and then back out the door for shipment to our customers around Cambodia. The product will be shipped by World Renew.

A possible set up constraint will be getting a space that has a shipping bay for our incoming and outgoing shipments. The expected growth is not great enough to anticipate capacity issues.
X. Investment Proposal

An initial investment of $5000 will be requested to begin production. This will cover the beginning of production. World Renew will provide $1000 in an effort to encourage others to donate as well. The money will be repaid within the first three years. Then at the end of three years the company will cash out its investments and return money back to investors with an interest of 6%. After this the rest of the cash will be given back to World Renew for the effort involved in this endeavor.

The company plans to start production this summer for fall and spring sales. Overall those will the highest sales.
XI. Appendices

A. Financial Forecast

1. Key Assumptions
The assumption is that the demand is 1000 units per year. The market size has been estimate at 200,000 Cambodian farming villages. The expectation is for little profit or the expected profits to be paid back to the floor workers in bonuses or focused toward other World Renew ventures within the region. The cost of labor for the production of one unit should be $2.50 per hour in accord with normal Cambodian wages. All other employees will be supported through sponsorship. The interest rate for the forecasts is assumed to be 10%.

2. Financial Statements

Table 2. Income Statement

<table>
<thead>
<tr>
<th>Cambodian Field of Dreams Pro-Forma Statement of Income</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>50,000</td>
<td>100,000</td>
<td>125,000</td>
</tr>
<tr>
<td>Variable Cost of Goods Sold</td>
<td>10,000</td>
<td>20,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Fixed Cost of Goods Sold</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>154</td>
<td>264</td>
<td>343</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>37,846</td>
<td>77,736</td>
<td>97,657</td>
</tr>
<tr>
<td>Gross Margin %</td>
<td>24.31%</td>
<td>22.26%</td>
<td>21.87%</td>
</tr>
<tr>
<td>Variable Operating Costs</td>
<td>1,000</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Fixed Operating Costs</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Operating Income</td>
<td>34,346</td>
<td>73,236</td>
<td>92,657</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>200</td>
<td>500</td>
<td>650</td>
</tr>
<tr>
<td>Income Before Tax</td>
<td>34,146</td>
<td>72,736</td>
<td>92,007</td>
</tr>
<tr>
<td>Income tax (40%)</td>
<td>13,658</td>
<td>29,094</td>
<td>36,803</td>
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<tr>
<td>Net Income After Tax</td>
<td>20,487</td>
<td>43,641</td>
<td>55,204</td>
</tr>
<tr>
<td></td>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Beginning Cash Balance</strong></td>
<td>-</td>
<td>25,563</td>
<td>73,468</td>
</tr>
<tr>
<td><strong>Net Income After Tax</strong></td>
<td>20,487</td>
<td>43,641</td>
<td>55,204</td>
</tr>
<tr>
<td><strong>Depreciation expense</strong></td>
<td>154</td>
<td>264</td>
<td>343</td>
</tr>
<tr>
<td><strong>Invested Capital (Equity)</strong></td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td><strong>Increase (decrease) in borrowed funds</strong></td>
<td>4,000</td>
<td>2,000</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>Equipment Purchases</strong></td>
<td>(1,079)</td>
<td>-</td>
<td>(1,079)</td>
</tr>
<tr>
<td><strong>Ending Cash Balance</strong></td>
<td>25,563</td>
<td>73,468</td>
<td>130,937</td>
</tr>
</tbody>
</table>

* Assume no change in Accounts Receivable, Inventory or other current assets other than cash; Accounts Payable or other current Liabilities other than Notes Payable; Fixed Assets other than equipment; or Equity Accounts other than Retained Earnings
<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales revenue</strong></td>
<td>50,000</td>
<td>100,000</td>
<td>125,000</td>
</tr>
<tr>
<td><strong>Less: Variable Costs:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable Cost of Goods Sold</td>
<td>10,000</td>
<td>20,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Variable Operating Costs</td>
<td>1,000</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td><strong>Total Variable Costs</strong></td>
<td>11,000</td>
<td>22,000</td>
<td>27,500</td>
</tr>
<tr>
<td><strong>Contribution Margin</strong></td>
<td>39,000</td>
<td>78,000</td>
<td>97,500</td>
</tr>
<tr>
<td><strong>Less: Fixed Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Cost of Goods Sold</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Fixed Operating Costs</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Depreciation</td>
<td>154</td>
<td>264</td>
<td>343</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>200</td>
<td>500</td>
<td>650</td>
</tr>
<tr>
<td><strong>Total Fixed Costs</strong></td>
<td>4,854</td>
<td>5,264</td>
<td>5,493</td>
</tr>
<tr>
<td><strong>Income Before Tax</strong></td>
<td>34,146</td>
<td>72,736</td>
<td>92,007</td>
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</tbody>
</table>
### Table 5. Breakeven Analysis

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Fixed Costs</strong></td>
<td>4,854</td>
<td>5,264</td>
<td>5,493</td>
</tr>
<tr>
<td><strong>Contribution Margin %</strong></td>
<td>78%</td>
<td>78%</td>
<td>78%</td>
</tr>
<tr>
<td><strong>Break Even Sales Volume</strong></td>
<td>6,223</td>
<td>6,749</td>
<td>7,042</td>
</tr>
<tr>
<td><strong>Equipment Purchases</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment Purchases Year 1</td>
<td>1,079</td>
<td>154</td>
<td>264</td>
</tr>
<tr>
<td>Equipment Purchases Year 2</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Equipment Purchases Year 3</td>
<td>1,079</td>
<td></td>
<td>154</td>
</tr>
<tr>
<td><strong>MACRS Rates (7-year recovery period)</strong></td>
<td>0.1429</td>
<td>0.2449</td>
<td>0.1749</td>
</tr>
<tr>
<td><strong>Interest Expense:</strong></td>
<td></td>
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</tr>
<tr>
<td>Annual interest rate on debt</td>
<td><strong>10%</strong></td>
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</tr>
<tr>
<td>Average debt balance</td>
<td>2,000</td>
<td>5,000</td>
<td>6,500</td>
</tr>
<tr>
<td>Interest expense</td>
<td>200</td>
<td>500</td>
<td>650</td>
</tr>
</tbody>
</table>
Brittainy Claire Phillippi

1051 Wealthy St
Grand Rapids, MI 49506

317-448-0124
cphillippi38@gmail.com

Education:

Calvin College - Grand Rapids, MI
Bachelor of Science in Engineering, Mechanical Concentration, May 2014
Engineering GPA: 3.2

Indiana University Purdue University Indianapolis - Indianapolis, IN
Coursework leading to Bachelors of Science in Engineering, 2009-2010

Related Experience:

Calvin College Engineering Department - Grand Rapids, MI
Senior Design Project, September 2013 - Present
- Lead team of student mechanical engineers for humanitarian mission project
- Facilitate establishment of planter machine design goals with Cambodian community leaders

Steelcase - Grand Rapids, MI
Engineering Intern for Coalesse, March - August 2013
- Researched product tests for full reports of compliance standards
- Managed concept design models in shop with expert makers

Woodward - Zeeland, MI
Manufacturing and Design Engineering Intern, February 2012 - January 2013
- Updated Manufacturing Operation Sheets for more efficient manufacturing practices
- Developed design and manufacture of jet engine nozzles for Pratt Whitney, GE, and Caterpillar
- Set up BOM for new products through supply chain

Rapid Line - Grand Rapids, MI
Manufacturing Engineer Intern, December 2010 - December 2011
- Offered ideas for LEAN Manufacturing in small batch manufacturing
- Developed Bill of Materials for new parts from quotes
- Trouble shot production problems with check gages

Computer Skills:
Excel-Expert
PowerPoint
AutoCad-Inventor
SolidWorks
C++
Unigraphics
ProEngineer/Creo/Wildfire
Revit
Algor
Ansys

Extracurricular Activities:

Administrator, Intentional Community, Commonwealth - Grand Rapids, MI, June 2012 - Present
- Coordinate activities for 16 people
- Lead interviews for community members and coordinating lease signing with landlord
- Create community rules and guidelines based on group input and observations of best practice

Project Manager, Engineering Mission Project - Grand Rapids, MI, November 2012 - Present
- Designing Legume Planter in Cambodia during dry season
- Coordinating project with World Renew in Cambodia

Knollcrest East Serving Others - Grand Rapids, MI, January - May 2010
- Led educational games and activities for children at Family Haven

Sunday School Teacher, Ada Bible Church - Grand Rapids, MI, July 2010 - May 2011

Co-Leader Prayer Group - Grand Rapids, MI, August 2010 - May 2011
Schieffer Osmond Kwong
5 Beta Hall
3455 Burton St. SE
Grand Rapids, MI 49546

(616) 309-7814
schieffer.kwong@gmail.com

Education
Calvin College, Grand Rapids, MI
• Bachelor of Science in Engineering, Mechanical Concentration with International Designation (May 2014)
• Minor in Mathematics
• GPA: 3.123/4.0

Technische Universität Berlin, Berlin, Germany (July – August 2012)
• Coursework: Engineering and German Language and Culture

Coursework

Experience
Calvin College Engineering Department – Grand Rapids, MI
Senior Design Project Team Member (September 2013 – Present)
• Researched, designed, modeled and presented a bean/legume seeder for Cambodian farm project as member of team of two other mechanical engineering students

TRW Automotive - Koblenz, Germany
Engineering Intern (May – August 2013)
• Developed vacuum consumption theory
• Developed and designed ball screw tolerance test rig

Raymond Express International (REI) - San Francisco, CA
Operation Assistant (June – July 2012)
• Allocated and input data; reviewed, assembled and organized shipping documents
• Supervised shipments

Calvin College Observatory - Grand Rapids, MI
Student Observer Assistant, (September 2010 – May 2011)
• Operated telescopes via hands-on and remote
• Introduced stellar objects to visitors

Skills
Proficient with Microsoft Word, Excel, and PowerPoint, AutoCAD, Autodesk Inventor, Autodesk Simulation Multiphysics, Express PCB, Express SCH, Photoshop CS5, Engineering Equation Solver, CATIA, C++

Foreign Language: Fluent in Cantonese and English, Conversant in Mandarin, Elementary German

Extracurricular Activities
• Member, Student Martial Arts Club (Kicks for Christ Federation); Tang Soo Do Kyohoe Kwan (2011-Present)
• Member, Leadership Team, Calvin College Engineers Without Borders Chapter (2011-Present)
Joshua Vanderkamp

Current Address: 3952 Camelot Dr., Grand Rapids, Michigan 49546
(616) 558-6917

Permanent Address: 5760 West Grove Drive SE, Kentwood, Michigan 49512
JoshuaVanderkamp@gmail.com

Education

Calvin College - Grand Rapids, MI
Bachelor of Science in Engineering, Mechanical Concentration, May 2014
• Cumulative GPA – 2.98

Courses
Business Aspects for Engineers
Computer Science (C++)
General Chemistry
Physics: Mechanics and Gravity
Physics: Electricity and Magnetism
Chemistry and Material Science
Calculus
Differential Equations
Statistics
Spanish
German

Economics
Mechanics of Materials
Machine Design with Finite Element
Analysis
Instrumentation Lab
Dynamics of Machinery
Intro to Circuit Analysis and Electronics
Electrical Control Systems
Laws of Thermodynamics
Thermal/Fluid Sciences and Design
Thermal Systems Design

Relevant Experience

Calvin College Engineering Department – Grand Rapids, MI
Senior Design Project (September 2013 – Present)
• Designed farming equipment for Cambodian community
• Researched project and culture, designed and presented sustainable solution

TRW Automotive – Koblenz, Germany
Brake Caliper Lab Technician (Summer 2013)
• Collaborated with people of many different cultures, backgrounds, languages
• Designed, tested, and implemented analyses of dynamometer caliper testing equipment
• Modeled objects in CAD and performed finite-element analysis

Aurora North America – Caledonia, MI
Website Developer / Purchasing Engineer / Manufacturing Engineer (January– December 2012)
• Designed company website (aurora-na.com)
• Profiled company products
• Performed ABC cost analyses
• Built long-term company purchasing relationships for project materials
• Arranged manufacturing plant flow plan
• Planned and managed assembly lines

Other Experience

Lawn Care – Kentwood, MI
Self-Employed / Company President (September 2013 – Present)
• Advertised and networked to obtain customers
• Tracked costs and incomes
• Mowed and maintained lawns
• Pursued customer satisfaction

Activities
Vice President Calvin College Engineers Without Borders (2011-2014), Calvin Soccer Team (2010)

Computer Skills
Microsoft Office
AutoCAD & AutoDesk Inventor
MATLAB
C++

Magento & Webgility
Quickbooks
LabVIEW
CATIA & Ansys
XII. Bibliography


