THE KIT SET FARMER

“Growing Our Way to a Poverty Free Future”

TEAM 89

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1.0 EXECUTIVE SUMMARY

The Kit Set Farmer is a three-year pilot study program aimed at decreasing poverty by increasing crop sizes in rural Nigerian subsistence farming. Rural Nigerians rely heavily on subsistence farming to survive. Due to poor climate conditions crop sizes in these areas have decreased which has resulted in an increase in poverty. Our product attempts to solve these issues by suppling farmers with everything they need to grow large crops and increase water retention in the soil.

The pilot study is based in the Nigerian town of Sokoto where the average wage is $6.55 (NZD) per day. Due to the low income of these families our product is given away for free. To make profits we take a percentage of the annual crop yields from year 1 to year 3 and sell at market. In Year 4 our profits will come from the seeds the farmers purchase from us. If our pilot study is successful, we have the potential to become the largest agricultural seed retailer in Nigeria. We have estimated that this could generate annual cash flows of around $106.8 million dollars in Nigeria alone.

2.0 BUSINESS OVERVIEW

2.1 Issue

Farming, Rainfall and Extreme poverty in rural Nigeria

Poverty in rural Nigerian villages is extreme. In 2009 52.8% of rural Nigerians lived in extreme poverty (Worldbank, n.d.) Figure 1.0 shows the percentage of Nigerians living in absolute poverty with the largest percentages based in rural areas.

Farming for household food supply is common in rural Nigerian villages. This is typically called “Subsistence agriculture” (agriculture for household food provision) and has been a key part of the economic structure of this region since colonial times (Leahy, 2018). Low wages have meant that it is not possible for Nigerian men to earn enough to pay for their families to eat, as a result subsistence production has been an economic necessity (Leahy, 2018).

The most successful strategy for subsistence farming so far has been for families to intensify their production of food crops for home consumption and to sell only the surplus at market (Leahy, 2018)

The Chikukwa Project in eastern Zimbabwe (CELUCT) has been operating this kind of strategy for the past twenty-five years and has totally transformed an area at least fifteen kilometres wide, housing about 7,000 rural villagers (Leahy, 2018). This his helped solve their food security problems and has transformed their landscape to enable sustainable farming into the future (Leahy, 2018).

The major Issue with subsistence farming is the low level of rainfall in these areas. Annual rainfall in the north of Nigeria is around 629mm (Climatedata, 2018). This is
extremely low when compared to southern states who have on average over 4000mm of rainfall per year. This low rainfall has resulted in much smaller than average crop sizes. These small crop sizes reduce the value of the crops and in turn result in less food and potential income for these families.

2.1 Objective
The Kit Set Farmer aims to increase subsistence farming crop sizes and profits for rural Nigerian farmers. To do this we provide ‘kit sets’ that help increase water retention in the soil and provide farmers with everything they need to grow a plentiful crop. Our staff will help farmers with the initial planting and harvesting of the kit set. Over the next three years we aim for the farmers to be self-reliant and able to use our product without guidance from our staff.

Our kit set farms will reduce water usage, increase economic output and decrease poverty in rural Nigerian villagers. To achieve this, our kits contain special water retention polymers that absorb up to 400 times their own weight in water. This will help increase crop sizes which in turn will increase the number of surplus crops available to sell at market, thus increasing economic output whilst simultaneously reducing poverty in these regions.

3.0 Product Overview
3.1 Product Description

The Kit Set Farmer aims to provide subsistence farmers with everything they need to grow plentiful crops. These kits include:

- Two hundred vegetable seeds, either maize, potato, cabbage or peanut
- Two kgs of water retaining crystals
- Two hundred recycled car tyres.
- One support staff

As mentioned earlier the major problem with subsistence farming is the small crop sizes, due to lack of water. Research has shown that planting in tyres helps with water retention whilst simultaneously absorbing and holding heat in the soil (Smith, 2017). We believe that providing farmers with tyres and water retaining crystals will help decrease water wastage and in turn increase crop sizes.
3.2 Product Implementation

Nigerian small family farms have on average around 0.5 hectares of land to farm (Food and Agricultural Organization of the United Nations [FAO], 2018). These small family farms face many challenges around their agricultural productivity. On average only 2 percent of their cropland is irrigated, resulting in a high reliance on rainfed agriculture (FAO, 2018).

To solve this problem The Kit Set Farmer aims to invest in an initial pilot study over the next three years.

**YEAR 1: Initial Setup of Farm**

After initially selecting four Nigerian subsistence farming families to invest in our team of experts will help build and develop these farms. Each garden bed consists of two car tyres stacked two high and packed with water retaining crystals and soil from the land see figure 2.0. Two seeds are then planted in each of these individual tyre planters. During the year we will provide assistance when needed. At harvest time our team will return and help with harvesting. During this time, we will take an initial 30% cut of the harvest, which we will sell at market.

**YEAR 2: New Seeding and Harvesting**

The following year we will only provide seeds with limited support. The idea behind this is to encourage farmers to learn from last years’ experience with the final goal of becoming independent. We will return at the end of the year to help with harvesting and take a reduced cut of 20% off the final produce.

**YEAR 3: New Seeding and Harvesting**

In year 3 we will only provide seeds and harvesting support, at this time we will take 10% cut. After year three we aim for the farmer to be self-reliant and producing at an output which they can sustain their eating habits whilst at the same time producing enough to sell at market for profit. From year four we will take no cut of the final produce. However, in year 4 the farmers will need to purchase seeds from us. The total cost of seeds is $15 NZD per 200 of which we will sell for ($60) to the farmers.

If this initial pilot study is successful, we will implement it in large scale across Africa. In the long term, we will become the largest agricultural seed supplier in Africa.
4.0 Market Analysis

4.1 Target Market

Nigeria is predominantly a rural country with more than 80% of the total population living in rural areas (Ibrahim & Ladan, 2014). Further research shows that the majority of Nigerians living in poverty survive on less than $6.55 (NZD) per day (TradingEconomics, 2018). For this reason, we have decided that our best option is to provide the product/service for free and take a percentage of the final produce.

We do admit the risk involved in this type of strategy. However, we believe by running an initial pilot study we will sufficiently mitigate large scale exposure to this risk.

For our initial pilot study, we have decided to target Sokoto, a small rural city in Northern Nigeria. Currently over 80% of the population of Sokoto live in absolute poverty. Families in Sokoto survive primarily on subsistence farming however, in recent years due to draughts and poor farming knowledge crops have dwindled and poverty has grown (Atedhor, 2015).

We believe that for this reason our pilot study should be based primarily in Sokoto. Due to the fact Sokoto meets all three objectives we plan to solve.

4.2 Target Consumers

Our target consumers are rural subsistence farmers who rely on farming to survive. We will be targeting families that have 4 - 5 members. This is due to the fact that in the first year our product will only provide enough food for families of this size to survive (after we have taken our 30% cut).

These families typically consist of an adult male and female and between 2 and 3 children. In most cases we have found that the adult male will work in the cities to earn income whilst the wife will stay at home to farm and care for the family. This means that our product should be primarily suited to the needs of female farmers. For this reason, we have decided to employ a female agricultural expert.

4.3 Marketing strategy

Our marketing and advertising strategy will be limited to word of mouth. We will network with locals in the town of Sokoto to determine which family would be best suited to run our pilot study with.

Sokoto is a small town and we believe that if our pilot study is successful word of mouth will spread quickly and others will want our “free” product. The added benefit of this is that it keeps initial investment costs low.
5.0 Financials

5.1 Initial Investment

Initial investment for this pilot study is estimated to be $937.97 (NZD) for the entire 3-year project. This pays for salary costs, agricultural products and transportation of tyres. We understand the number one reason projects fail is due to inadequate capital. For this reason, we require an initial investment of $1500. This allows for any unexpected expenditures and fluctuations in prices over the 3-year study.

Over the first 3 years this project is expected to have a return on investment of 8.1%

5.2 Forecast revenue and expenses

We have calculated that using our system one farm will produce on average 1400 crops per season (dependant on crop type). Of this we will take a 30% cut (420 vegetables) which we can sell at market for $320.04 (NZD) based on a market rate of $3.81 per kg (Expatitan, n.d.). Multiplying this by four farms give total revenue of $1280.06 for the first year resulting in $738.18 profit after expenses see figure 3.0.

Revenue will decline from year 1 to 3 due to the reduction in our percentage of the final produce. This is primarily to encourage farmers to be independent in the long term.

Our expenses are much higher in the first year due to the initial cost of setting up the farms. This results in higher transportation and labour costs. Initially we will need to employ an expert on a 3-month contract to help with plantation, support and harvesting. The wage rate is based on an above minimum wage rate of $170.66 (NZD) P/m (TradingEconomics, 2018). After year 1 labour costs drop off due to our staff only helping with harvesting and seed delivery.

After completion of the project our staff will be employed on an hourly wage to assist with seed purchasing and delivery.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeds sold</td>
<td>$1,280.16</td>
<td>$853.44</td>
<td>$426.72</td>
<td>$ -</td>
</tr>
<tr>
<td>Crops sold</td>
<td>$1,280.16</td>
<td>$853.44</td>
<td>$426.72</td>
<td>$240.00</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$1,280.16</td>
<td>$853.44</td>
<td>$426.72</td>
<td>$240.00</td>
</tr>
</tbody>
</table>

| Operating Costs |           |           |           |           |
| Fixed Costs |           |           |           |           |
| Salaries | $341.98 | $170.66   | $170.66   | $28.44    |
| Total Fixed Costs | $341.98 | $170.66   | $170.66   | $28.44    |

| Variable Costs |           |           |           |           |
| Seeds | $60.00 | $60.00   | $60.00   | $60.00    |
| Polymer | $40.00 | $ -      | $ -      | $40.00    |
| Transportation | $100.00 | $10.00   | $10.00   | $10.00    |
| Total Variable Costs | $200.00 | $70.00   | $70.00   | $110.00   |
| Total Operating Costs | $541.98 | $240.66  | $155.33  | $138.00   |
| Total Profit | $738.18 | $612.78  | $271.39  | $102.00   |
| Total Marginal Profit | $738.18 | $1,350.96 | $1,622.35 | $1,724.35 |

Figure 3.0
6.0 Future Outlook

If this project is successful, we will use the profits generated to build more farms in Sokoto and then branch into other rural sectors of Nigeria.

Statistics show that around 124,620,000 people in Nigeria are living in poverty. If we can provide our product to these families, we are looking at future cash flows from seed sales of around $106.8 million dollars in Nigeria alone.

Whilst this figure is extremely attractive, we are aware of the challenges this project will face. By running the initial pilot study, we will gather vital data on farming within in Nigeria and use that to implement changes in our program for the future.

With a small investment we believe we can make a major impact on poverty for the future.

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References


