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A BUSINESS PLAN OF MAIZE PRODUCTION IN NIGERIA

EXECUTIVE SUMMARY

Maize farming, also known as corn farming, is one of the most viable agricultural business ideas in Africa, including Nigeria. It is consumed in various forms and feeds over 500 million Africans yearly.

According to a research carried out by the IITA, over 800 million tonnes of maize is produced yearly, with Africa only accounting for about 6.5% of this figure. This is extremely low considering the fact that America produced about 32% of the world's total maize crops grown in 2010 alone, followed by China.

Of the percentage produced in Africa, Nigeria is the largest producer with about 8 million tonnes of maize produced yearly in the country, followed by South Africa, Tanzania, Kenya, and Uganda. The small percentage Africa has in the worldwide production of the maize crop shows there's still an abundant opportunity for maize cultivation on the continent.

An undeniable and obvious fact is the scarcity of maize (usually complete disappearance) during the dry season in Nigeria where it is not just processed and consumed as main food but as appetizer or dessert. The reason is that no farmer is ready to scoop water from the river or to delve into modern irrigation given the stress and the cost respectively. Tapping into this business opportunity therefore seems innovative but not without serious financial commitment and relentless effort on the part of the management. A drip irrigation system is needed to achieve this on (a given land, say) 2.5 acre of land.

The analysis of the present market situation shows that the maize products can survive any existing or unforeseen competition. More so, financial analysis shows that the proposed project is not only profitable, but also viable, feasible and sustainable. Finally, careful assessment of the environmental and organizational factors using SWOT analysis reveals a project that has a promising future and a high propensity of success.

INTRODUCTION

Description of the Business

For many farmers in Nigeria, dry season is a threat; however, with respect to this business idea, it's indeed an opportunity to make substantial profit through efficient market penetration and effective market dominance. In order to achieve this, a drip irrigation system would be adopted.

Water should be pumped on daily basis into the reservoir sitting on scaffolding using the generator to power it. The available land may have been abandoned for many months or years, hence, needs to be cleared and ridged in preparation for planting. Drought tolerant maize variety seeds could be sourced from International Institute of Tropical Agriculture (IITA) Ibadan during the dry season, for optimum performance and high yield. Two weeks after germination, super gro with DDVP insecticides should be duly applied on the sprouting seedlings for maximum yield and protection against insect pests respectively. Exactly 6 Weeks After Planting (WAP), weeding of the whole maize plot should be carried out to prevent competition with the maize stands. And by 10 WAP, harvesting should be gradually initiated up till the harvesting of the last maize cob on the plot, and this should be done within a period of 2-3 weeks to prevent quality loss in situ on the plot.

OBJECTIVE

The main objective is to maximize profit by taking advantage of other farmer's weaknesses in the dry season and satisfying the salivating needs of the targeted customers.

MANAGEMENT STRUCTURE

To start with, a competent farm manager should suffix for the achievement of the business targets and objectives. The owner (if not the manager) should be frequently updated by the manager through phone calls, SMS, WhatsApp, and/or e-mails on any development that might surface during the production or marketing phase. All necessary production and accounting/financial records should be properly kept for checks and balances, proper documentation and to achieve a holistic managerial success.

MARKETING STRATEGY

An effective production can be inefficient when there is a lax in marketing. A good production technique without sound marketing strategies is indeed a work in vain. Even though, there is a ready-made demand for fresh maize in the market, more still needs to be done to ensure rapid distribution and profitable sale of the maize.

Experts have postulated that with the increasing Nigerian population, the demand of maize as food will increase. The increasing price of food items in Nigeria at the moment, is generally becoming a blessing for existing farmers and prospective ones alike. Worthy of emphasis at this juncture is that, it is no more news that the Nigerian government is currently implementing strategies to reduce its dependency on crude oil, and its paying special attention to the agriculture sector.

It is imperative that before setting up a maize farm, the prospective farmer should identify his market ab initio. The farmer has to determine:

- whether to use middlemen or retailers;
- whether to sell in bloc (of items) or to sell in unit packs;
- whether to give it a befitting package or not;
- whether to sell raw or sell processed (after adding value it);
- whether to sell at farm gate price or at prevailing market price, etc.

FINANCIAL ANALYSIS

Cost>Returns Analysis:

The following table summarizes all the costs that would be involved in executing this project.

Table 1: Fixed and Variable Costs

FIXED COST	N	N
Drip irrigation system	800,000	
Borehole	500,000	
Total Fixed Cost	1,300,000	
VARIABLE COSTS		1,300,000
INPUTS		
6 bags of fertilizer	33,000	
5L super gro	5,000	
3L of insecticides	4,500	
3 bags of drought tolerant maize seeds	30,000	
Fuel (3L/day for 75 days)	32,625	
LABOUR		
Land clearing	80,000	
Ridge making	100,000	
Weeding	30,000	
1 Farm manager (3 months)	60,000	
1 Farm assistant (3 months)	30,000	
Miscellaneous	10,000	
Total Variable Cost	415,125	
		415,125
TOTAL COSTS		1,715,125

RETURNS

A standard and recommended spacing for sole maize cultivation is 7.5cm X 2.5cm \equiv 0.75m X 0.25m.

And 2.5ac = 1ha \equiv 10,000m²

$$\begin{aligned}\text{No. of stands/ha} &= 10,000\text{m}^2 / (0.75 \times 0.25) \text{ m}^2 \\ &= 10,000\text{m}^2 / (0.1875) \text{ m}^2 = 53,333 \text{ stands/ha}\end{aligned}$$

Hence, 53,333 stands of maize are expected on the 2.5 ac. land.

Assuming, the maize variety seed produces 1 cob per plant (which in most cases is 2 cobs per plant); therefore, the yield in 1ha of sole maize plantation will be 53,333 cobs.

Meanwhile, during the dry season, maize cobs will be sold per unit of 3

Making a total of $53,333 / 3 = 17,777$ units.

And each unit will be sold at N100.

Therefore, the expected Total Revenue accruable from 1ha sole maize plantation in dry season is minimum of:

$$(17,777 \times 100) = \text{N } 1,777,700.$$

Meanwhile, during the rain season, maize cobs will be sold per unit of 5

Making a total of $53,333 / 5 = 10,666$ units

Therefore, the expected Total Revenue accruable from 1ha sole maize plantation in rainy season is:

$$53,333 / 5 = 10,666 \times \text{N}100 = \text{N}1,066,600$$

Hence, in a planting year, the total $(17,777 + 10,666 = 28,443)$ units will be sold.

Profit and Break-Even Point

Total Revenue for dry season = N 1,777,700

Total Revenue for rainy season = N1, 066,600

And Total Variable Cost is: N415,125

$$\begin{aligned}\text{Gross Margin (dry season)} &= \text{TR} - \text{TVC} = \text{N } (1,777,700 - 415,125) \\ &= \text{N } 1,362,575\end{aligned}$$

$$\begin{aligned}\text{Gross Margin (rainy season)} &= \text{TR} - \text{TVC} = \text{N } (1,066,600 - 415,125) \\ &= \text{N } 651,475\end{aligned}$$

Meanwhile, table 2 shows the estimated seasonal sales, seasonal cash flows, and the annual cash flows.

Table 2: Estimated Cash Flow for the First 5 Years

YEAR	SEASONS	CASH FLOW PER SEASON	ANNUAL CASH FLOW
1	Dry Season	1,362,575	
	Rainy Season	651,475	2,014,050
2	Dry Season	1,362,575	
	Rainy Season	651,475	2,014,050
3	Dry Season	1,362,575	
	Rainy Season	651,475	2,014,050
4	Dry Season	1,362,575	
	Rainy Season	651,475	2,014,050
5	Dry Season	1,362,575	
	Rainy Season		2,014,050

BREAK-EVEN POINT

Since the Total Variable Cost = N 415,125;

Unit Variable Cost = TVC / No. of units

$$= 415,125 / 28,443$$

$$= N14.6 \approx N15$$

And a unit goes for N100 per unit;

Therefore, Contribution = unit price (P) – unit variable cost (VC) = N100 – N15 = N85

BEP = Total Cost / Contribution

$$= N 1,715,125 / N 85$$

$$= 20177.9 \approx 20,178$$

This implies that as soon as 20,178 units are sold, profit will start trickling in from any further sales. In other words, proceeds, starting from the sale of the remaining 8,265 units (i.e. 28,443 – 20,178) in the first year of production, imply profit.

FEASIBILITY AND VIABILITY ANALYSIS

The financial viability was performed using the Net Present Value (NPV), Internal Rate of Return (IRR), Return per Capital Invested and Benefit-Cost ratio. Using Microsoft Excel package, Fig. 1 shows the Net Present Value (NPV) and the Internal Rate of Return (IRR). Given the positive NPV, the project can therefore be accepted as viable. We will also accept the feasibility and sustainability of the proposed all year-round maize project given the fact that IRR (i.e. the rate at which Net Present Value equals zero) is greater than the assumed market interest rate (i.e. 115% > 25%). It therefore implies that if the maize project is established with an initial outlay of ₦ 1,715,125 on a loan of the said amount, entrepreneur should be expecting ₦ 2,844,300 in twelve months time because the rate of return on investment (which is 115%) is greater than the assumed interest rate on loan (which is 25%).

Given that the status quo (of labour and other input materials) remains in the next 5 years, the NPV and IRR are analysed as follows:

Table 3: Shows estimated NPV and IRR

ESTIMATED NPV AND IRR OF THE ALL YEAR-ROUND MAIZE PRODUCTION PROJECT

YEARS	ANNUAL CASH FLOWS	YEARS	ANNUAL CASH FLOWS	
Year1	2014050		Initial Outlay	-1715125
Year2	2014050	Year1		2014050
Year3	2014050	Year2		2014050
Year4	2014050	Year3		2014050
Year5	2014050	Year4		2014050
Total Present Value	NGN 5,416,344.38	Year5		2014050
Initial Outlay	-1715125		IRR	115%
NPV	NGN 3,701,219.38			

Return per capital invested= Net income / Gross return

$$= (2,014,050 - 1,715,125) / 2,014,050$$

$$= ₦ 298,925 / ₦ 2,014,050$$

$$= 0.148 \approx 0.15$$

The return per capital invested was found to be 0.15. This means that for every naira invested in the maize project, a 15K gain will be realized. The Benefit-Cost Ratio was also estimated.

Benefit-Cost Ratio (BCR) = Benefit / Cost

$$= ₦ 2,014,050 / ₦ 1,715,125$$

$$= 1.17$$

Indeed, the maize production project can be adjudged to be a viable venture since the Benefit-Cost Ratio is greater 1.

SWOT ANALYSIS

It is not enough to emphatically adjudge a business profitable and viable without a proper analysis of Strengths, Weaknesses, Opportunities and Threats at one's disposal. A detailed and convincing SWOT analysis is the mainframe of any successful business. Hence, SWOT analysis of this proposed maize project is pivotal to its success. The strengths, weaknesses, opportunities and threats of this proposed project are as follows:

1. **Strengths:** One of the factors critical to a successful outcome of any investment at all, is the availability of time to personally concentrate on its management. It is expected that the investor doesn't just have the time but the determination and tenacious doggedness beaming on all shady paths to breakthrough. And if he doesn't have the time to personally manage it, then he should employ a farm manager that can effectively and efficiently manage the project given his wealth of experience in project management (especially with regards to farming), and skills that will come to bear in all of the production and marketing processes involving administration, procurement, inventory management and the supply chain. Experience, they say, is the best teacher. It's indeed a pedagogue that stands as a guide in the path of any successful entrepreneur, making him more courageous, determined and wise. Lessons from past business management experience of the investor must have been learned and should be re-invigorated while executing future plans to extract the best from his courage, devotion and wholesome commitment.
2. **Weaknesses:** Paucity of funds is usually a greater constraint in most cases. Without means of finance, even the best of ideas may not come to fruition or reality. However, a financial backbone should be harnessed from reliable source.
3. **Opportunities:** The high market demand for maize during the dry season, coupled with the inactivity of competitors (i.e. farmers) or farmer's apathy during this season, leaves a loop hole to exploit and a goldmine to diligently explore.
4. **Threats:** During the dry season, most of "buffer crops/weeds" are generally absent or limited, hence, exposing a planted sole crop to insect pest infestation. To curtail this however, effective organophosphate insecticide should be applied on the emerging maize seedlings as at when due. Threat of theft is likely to rear its ugly head, depending on the farm location. And no threat from climate change is envisaged; because there won't be any dependence on rain whatsoever.

CONCLUSION

The proposed maize production project has a reasonable chance of success at the start and it's sustainable. The all year-round maize has the propensity to be produced efficiently and can be marketed effectively.

