

Analysis of Profit and Risk Management Strategies in Selected Food Crop Agribusinesses in Imo State, Nigeria

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ABSTRACT

The study analyzed profit and risk management strategies in selected agribusinesses in Imo, Nigeria. The methods of proportionate sampling, followed by random sampling techniques were adopted in selecting the Local Government Areas and the sample size. Data were collected with the use of questionnaire administered on 87 food crops entrepreneurs. The data collected were analyzed using frequency distribution, percentages, mean, variance. Results obtained indicate that Production, market, financial and human risks were found to be serious risks in the study area. The major risk management strategies identified were disease control (47.4% for food crops agribusinesses followed by enterprise diversification 3%. The mean variance or risk level was 23345 for food crops agribusinesses. It was concluded that food crops agribusinesses was profitable but risky ventures and that the agribusinesses require entrepreneurs proper understanding of the risk management strategies to adopt so as to improve profit. Therefore it was recommended that government should review the system of land ownership in the State, create awareness campaign group to sensitize the citizens on the need to engage in agribusiness, provides incentives and suitable market for the agricultural products and also encourage agribusiness entrepreneurs to be educated so as to enable them adopt proper risk management strategies so that agribusiness returns can be closer to expectations.

Keywords: profit, risk, management, strategies, agribusiness, enterprise

Introduction

Agribusiness generally connotes businesses collectively associated with the production, processing and distribution of agricultural products, which earn most or all of its revenue from agriculture. It comprises of crop production; which involves production and selling of crops like cassava, maize, yam, cocoyam, plantain, millet, fruits and vegetables (Stokes & Wilson, 2006).

To ensure profit agribusiness entrepreneurs must adopt proper risk management strategies to address changes in the business. Risk is a potential negative impact to assets, investments, or profitability of investments in the agricultural industry that may arise from some present process or future events which may occur as a production risk, market or price risk, financial risk, legal risk human risk (Julie and wolf, 2010). Managing risk in agribusiness according to Harwood, Heifner, Coble, Perry and Samwaru (1999) entails choosing among alternatives to reduce the effects of risk. Hence, the knowledge of how agribusiness entrepreneurs make decision as well as their attitude and strategies towards risk is relevant to any agribusiness.

In Imo State, risk in agribusiness is exacerbated by farmers' small land holdings (generally less than one hectare) which are often fragmented, use of crude method of production that promotes inefficiency, small scale production due to inability of agribusiness entrepreneurs to provide startup capital for large scale production. These problems put profit from the food crops and livestock entrepreneurs at risk. Part of the problems that constitute unpredictable risk factors which significantly lower profit level and lead to losses is the farmers' poor decision making based on imperfect information arising from the uncertainty of not knowing what the weather will offer or what market prices will look like. High cost and unavailability of capital to finance debt and agribusiness expansion exacerbates financial risks in the study area.

To analyze and adopt proper profit and risk management strategies best suited for food crops agribusinesses towards improving profit and managing associated risks in the area this study tries to achieve the following specific objectives:

- i. To identify the type of produce/ products sold by the selected agribusinesses;
- ii. To determine and compare the costs and returns of the selected food agribusinesses;

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- iii. To determine the types of risk and the risk management strategies adopted by the agribusiness entrepreneurs;
- iv. To estimate the risk level associated with food crop agribusinesses.

Methodology

This study was carried out in Imo State, Nigeria. Imo State is one of the 36 States of Nigeria and is located in the South Eastern Zone of Nigeria with Owerri as its capital and the largest city. The State lies within Latitude 4° 45'N and 7° 15'N and Longitude 6° 50'E and 7° 25'E. Imo State is bounded on the east by Akwa Ibom State, on the west by the River Niger and Delta State; and on the north by Anambra State, while Rivers State lies to the south. Imo State covers an area of about 5,100sq km. The estimated population is 3,934,899 people comprising of 1,902,613 males and 2,032,286 females and the population density varies from 230-1,400 people per square kilometer (National Population Commission, 2006). Administratively, Imo State is made up of twenty seven (27) Local Government Areas (LGAs) and three (3) main agricultural zones distributed thus: Owerri zone (11 LGAs), Okigwe zone (6 LGAs) and Orlu zone (10 LGAs) (Imo ADP, 1996).

The State lies within the tropical rainforest ecological zone with annual rainfall variation of 1,990mm - 2,200mm; mean annual temperature above 20°C and average annual relative humidity of 75% to 90%. The high temperature and humidity experienced in the state favour luxuriant plant growth, which ideally should produce the climax vegetation of the tropical rain forest (Imo State ICT Unit, 2012). Agriculture is the major economic activity of the people of Imo State. The state has numerous agribusiness enterprises, some of which have either formal or informal status. The main crops grown in the area include cassava, cocoyam, yam, maize, melon and vegetables (green, fluted pumpkin, water-leaf, bitter leaf, etc).

Considering the uneven distribution of the LGAs across the three agricultural zones, proportionate sampling, purposive sampling and random sampling techniques were adopted in selecting Local the study sample from the LGAs. Firstly, proportionate sampling technique was used to select 4 LGAs, 2 LGAs and 3 LGAs from Owerri, Okigwe and Orlu agricultural zones, respectively. Secondly, 3 communities, 3 communities and 11 communities were purposively selected from Owerri, Okigwe and Orlu agricultural zones, respectively based on the presence of agribusiness cluster in the communities. Finally, 2 respondents, 3 respondents and 1 respondent were selected purposively from Owerri, Okigwe and Orlu, respectively on the basis of their high involvement in food crop agribusiness. This gives rise to 36, 18 and 33 respondents from Owerri, Okigwe and Orlu agricultural zones, respectively. The sampling is summarized in Table 1:

Table 1: Sampling of Imo State Agricultural zone by LGAs and sample size

Agricultural zone	Total Number of LGAs	Number of LGAs selected	Number of communities selected	Number of food crop agribusiness entrepreneurs selected	Total
Owerri	11	4	3	2	36
Okigwe	6	2	3	3	18
Orlu	10	3	11	1	33
Total sample size					87

The study utilized primary data collected from agribusiness entrepreneurs in the selected agribusinesses with the aid of questionnaire. Descriptive statistical tools such as frequency distribution, percentages and mean were used to achieve objectives (i) and (ii). Objective (iii) was achieved using net income model, while variance was used to estimate the risk level in objectives (iv).

Result and Discussion

Farm Produce of the Food crops Agribusinesses

Table 2 is the distribution of Farm Produce of the Food crops Agribusiness. The result shows that majority (17.2%) of food crops entrepreneurs produced and sold yam/ cassava/ melon/ maize, while 4.6% produced and sold cassava/ cocoyam. This indicates that majority of the food crops entrepreneurs produced and sold combination of crops which encourages enterprise diversification of

different crops. This finding agrees with Obasi *et al.*, (2013) who reported that most of the farmers in Imo State combined different production to complement their earnings and mixed cropping is the common cropping system practiced in the state. This finding is also in line with the reports from Musser and Patrick, (2002) that through diversification, farmers can respond to input-related risks by choosing to farm a combination of crops with different characteristics.

Table 2: Distribution of entrepreneurs by Food crop Agribusiness

Food crops Agribusinesses	Frequency	Percentage
i. Yam	9	10.3
ii. Cassava	8	9.2
iii. Cassava/ stem	11	12.6
iv. Cassava/ yam	5	5.8
v. Plantain/ Cassava/ Stem	6	13.8
vi. Yam/ Cassava /plantain	15	6.9
vii. Yam/ cassava/ melon/ Maize	15	17.2
viii. Cassava /cocoyam	4	4.6
ix. Yam/ Cassava/ Maize	7	8.1
x. Vegetable/okro	10	11.5
Total	87	100

Source: Field Survey Data, 2015

Costs and Returns of the Agribusinesses

Table 3 shows the costs and returns made by 87 food crops entrepreneurs at the end of the production cycle. The result indicates that total variable cost was ₦182,559 and total fixed cost was ₦35,365 which gave a total cost of ₦217,924. Total revenue gave ₦370,119. Total revenue minus Total cost gave Net income of ₦152,195. This result signifies that food crops agribusiness is a profitable venture.

Table 3: Costs and Returns of Food crops Agribusiness

Item	Quantity	Unit price (₦)	Value (₦)/ Production Cycle
a) Variable cost			
Cost planting materials			47,108
Labour cost	46	1,500/person	68,509
Fertilizer cost	11	4500/bags	51,107
Agro chemical cost			14,309
Transport cost			11,566
Total Variable Cost			182,559
b) Fixed Cost			
land rent		2000/year	8,902
Depreciation of equipment			12,536
Interest on loan		10%	13,927
Total fixed Cost			35,365
Total Cost			217,924
c) Revenue			
Sale of cassava	23	3200/100Kg	74,509
Sale of plantain	128	800/head	102,118
Sale of yam	746	120/tuber	89,526
Sale of cassava stem	57	500/bundle	28,447
Sale of maize	7	5000/ton	36,302
Sale of vegetable	384	50Kg	39,217
Total revenue			370,119
Net revenue			152,195
Return on investment			69.8%

Types of Risk and Risk Management Measures Adopted by the Agribusiness Entrepreneurs

Table 4 shows that production, marketing, financial and human risks had mean score above 1.5 cut-off point, thus showing that production, market, financial and human risks are all serious risks

militating against food crops agribusiness in Imo State. According to Harwood *et al.* (1999), the yield of crops varies from season to season, due largely to natural factors which can negatively affect production levels and lead to significant losses.

Table 4: Distribution of Types of Risk for Food Crops Agribusiness

Types of risk	Very Serious	Serious	Not Serious	Mean	Remark
i. Production	33	48	6	2.3	Serious
ii. Marketing	33	52	2	2.4	Serious
iii. Financial	46	31	10	2.4	Serious
iv. Human	22	42	23	2.0	Serious
v. Legal	3	9	75	1.2	Not serious

Source: Field Survey Data, 2015.

Risk Management Strategies adopted by Food Crops Entrepreneurs

Table 5 shows that disease control which is closely followed by enterprise diversification are the major risk management measures employed by the agribusiness entrepreneurs as reported by 47.4% and 23% for food crops agribusiness. Bauer and Bushe (2003) identified pest and diseases as one of the risks commonly associated with agricultural production and entrepreneurs tend to diversify their product to generate more profit and reduce income variability in production.

Table 5: Distribution of Food Crops Entrepreneurs by Risk Management Strategies Adopted

Risk management adopted	Frequency	Percentage
i. Enterprise diversification	20	23
ii. Disease control	43	47.4
iii. Storage	15	17.2
iv. Contract formation	6	7
v. Credit market	3	3.4
vi. Informal borrowing	1	1.2
vii. Use of Improved variety	13	14.9
viii. Off-farm employment	8	9.2
ix. Use of new technology	11	12.6

Source: Field Survey Data, 2015

*Multiple responses were recorded

Risk Level Associated with the Agribusinesses

The results from Table 6 shows that the majority 36.8% of food crop entrepreneurs fell within the bracket of 16 - 22 with mean variance or risk level of 23345. This result signifies that food crops have high risk level. According to Grinols (1994), investment with higher variance is considered riskier than one with a lower variance. If the variance of an investment is zero, it means it is a non-risky investment with a sure outcome. The higher the risk in an investment, the more profit the entrepreneur is likely to make.

Table 6: Distribution of Food Crops Agribusiness According to Riskiness of Investment.

Variance('000)	Frequency	Percentage
9-15	16	18.4
16-22	32	36.8
23-29	21	24.1
30-36	8	9.2
37-43	7	8.0
44-50	3	3.5
Total	87	100
Mean variance or risk level	23345	

Computed from Field Survey Data, 2015

Conclusion and Recommendation

Entrepreneurs of the selected agribusinesses are active, energetic, experienced, married farmers with large household size. Financial risk, market risk, production risk, and human risk were serious risks associated with food crops agribusinesses and the knowledge of the risks helped the

entrepreneurs to adopt proper risk management strategies such as disease control and enterprise diversification to increase their profit. The agribusiness entrepreneurs' understanding of the cross-cutting issues and multiple approaches to managing risk was considered helpful in the successful running of these selected agribusinesses. The risk level of food crops in this study were high showing that the high risk level also contributed to the profit made. Hence, it is recommended that:

- 1) Considering the viability of agribusiness and how it contributes immensely to the well-being of agribusiness entrepreneurs, government should review the system of land ownership in the State to encourage the expansion of land available and to ensure profit maximization which is the major aim of any business venture.
- 2) The government through the ADPs extension agents should encourage prospective agribusiness entrepreneurs by creating awareness campaign group to sensitize the citizens on the need to engage in food crops agribusinesses because they are profitable ventures.
- 3) To support the effort of food crops entrepreneurs, federal government should provide farming incentives like fertilizer, pest/disease control vaccine and other tools to enhance the agribusiness productivity and profit.
- 4) There is need for government to create suitable market for agribusiness operation, provide adequate infrastructure and other facilities in other to alleviate social problems.
- 5) As education combined with experience improves profit, prospective agribusiness entrepreneurs should be educated to enable them run the agribusiness successfully. If not they should be chased away.
- 6) Agribusiness entrepreneurs should adopt proper risk management strategies that can help mitigate the effects of swing in supply, demand and prices so that farm business returns can be closer to expectations.

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