

PRIORITIZATION OF PROBLEMS FACING COCOA FARMERS IN COUNTY CARONI TRINIDAD AND TOBAGO

Proposal

SUBMITTED TO THE INTERNATIONAL SYMPOSIUM OF THE ANALYTIC HIERARCHY
PROCESS

By

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Abstract

The cocoa industry has played a fundamental role in the economy of Trinidad and Tobago since it was established in the 19th century. The industry has contributed to the country's economy by providing employment and development for rural households. Trinidad is known for its extensive research in cocoa and is acknowledged internationally as a holder of the world's most valuable cocoa gene bank. The island is recognized by the International Cocoa Organisation as one of the 17 producers of fine flavour trinitario cocoa and receives a premium price on the international market. Though the country is a producer of fine flavour cocoa production has declined from 7,030 tonnes in 1961 to 700 tonnes in 2010(FAO, 2012). The number of active farmers has also declined from 5724 farmers in 1982 to 1214 farmers in 1999 (Pemberton and Ragbir 2005). The industry has been affected by pest and disease; reduce labour supply and high cost of production within recent times. Due to the continuous decline within the Trinidad and Tobago cocoa industry, the twin island state has been unable to produce the amount for cocoa that was once produced for export on the international market.

The Analytic Hierarchy Process (AHP) is used as a multi-criterion decision making tool to prioritize the problems that are affecting the cocoa industry in order of their importance to the farmers in county Caroni Trinidad and Tobago. The results of this research prioritize the major constraints that prevail in the cocoa industry that are contributing to the continuous decline of the cocoa industry in Trinidad and Tobago.

Key words: Cocoa industry, Analytic Hierarchy Process, multi-criterion decision making.

Introduction

The cocoa industry of Trinidad and Tobago is one of the most important agricultural industries of that nation. Over the past 30 years the production of cocoa has continuously decline. The research was under take to provide guidance for future stake holders and policy makers when addressing the problem that current exist in the Trinidad and Tobago cocoa industry. This research involves a participatory approach where farmer in the Caroni County will be involved prioritizing the problems that are affecting them on the cocoa farm. This research is important as it bring to light the use of the AHP method in agriculture in the island of Trinidad and Tobago and by extension the first time in cocoa industry. This model will aid in decision making and assist in policy making for the sustainability and profitability of the cocoa industry in Trinidad and Tobago.

Literature review

The Analytic Hierarchy Process (AHP) is a theory of measurement through pair wise comparisons and relies on the judgements of experts to derive priority scales (saaty, 2008). The AHP makes explicit the preferences that individuals hold for one objective relative to another (Whitmarsh and Wattage, 2006). Developed by Thomas Saaty, the AHP provide a useful tool to assess policies. AHP is capable to extract the comments of multiple experts and decision makers (Shiau, et al 2002).

For the purpose of this research the Analytic Hierarchy Process will be use to prioritize problems faced by farmers in the cocoa industry from most important concerns to least important. The cocoa industry has contributed to the development of Trinidad and Tobago since the inception of cocoa trade in the 18th century. Cocoa was first introduced by the Spanish in 1529 on the island (Bekele 2004). Known to be one of the major exporting crops of Trinidad and Tobago the industry has contributed to the agricultural Gross Domestic Product (GDP) of the island. Agriculture's contribution to the country's GDP is 0.3% compared to industry and service which account for 58.8% and 40.8% respectively(CIA, factbook, 2013).

Due to the continuous decline within the Trinidad and Tobago cocoa industry, the twin island state has been unable to produce the amount for cocoa that was once produced for export on the international market. In 1979 the industry produced 2.6 million kilograms of cocoa (Neptune 2007).The Cocoa and Coffee Industry Board of Trinidad and Tobago (CCIB) was established the cocoa and coffee Act with duties to secure the most favourable arrangements for the purchase, sale, handling, grading, exportation and marketing of cocoa and coffee for the benefit of the Cocoa and Coffee Industry.

Hypothesis/ Objectives

Hypothesis:

H₁: Low buying prices of cocoa, lack of labour and access roads are the top three major factors adversely affecting cocoa farmers in county Caroni Trinidad and Tobago, thus leading to a decline of production in the cocoa industry.

Null hypothesis:

H₀: Low buying prices of cocoa, lack of labour and access roads are not the top three major factors adversely affecting cocoa farmers in county Caroni Trinidad and Tobago, thus leading to a decline of production in the cocoa industry

Objectives:

1. To identify the major problems affecting cocoa farmers that has contributed to the continuous decline of the Trinidad and Tobago cocoa industry.
2. To prioritize problems facing cocoa farmers in county Caroni Trinidad and Tobago
3. To provide suitable solutions and recommendations to problems facing farmers in county Caroni Trinidad and Tobago.

Research design and methodology

The objectives of the study are to investigate was to identify and prioritize the major problem affecting Cocoa farmers in county Caroni Trinidad and Tobago. Through research and interviews with key personnel's in the cocoa industry we were able to identify the 10 key problems that affected farmers in the cocoa industry. This was done by using the Analytic Hierarchy Process model. County Caroni was chosen due to the large concentration of cocoa farmers in the county and its historical contribution to the cocoa industry of Trinidad and Tobago. A list of farmers in the county was collected from the CCIB. Farmers to participate in the data collection process were randomly selected and with the aid of the CCIB extension officer's, arrangements to conduct the interviews were made. Data was collect over a 2 ½ month period and was based on the availability of the farmers in the county. 44 farmers in the Caroni County were interviewed with questionnaires design to be assessed using the Analytic Hierarchy Process. The programme expert choice was used to enter the data to be assessed for 2 randomly selected clusters in the Caroni County.

Data model/ analysis

Results

Cluster 1

Total: 22 farmers

The results show that the information received from the farmers in the Caroni district is consistent and the prioritization give by the farmers are reliable this is proven by the inconsistency ratio of 0.00549. The acceptable threshold is below 0.1 a 10% level acceptance. From the results gathered from the first group the data show that the farmers ranked the low price of cocoa as the number 1 issues affecting them with a reading of .284. The second major problem as ranked by the farmers in the county is the lack of labour with a reading of .166. Farmers are also affected by the high cost of farm inputs. This will also have a negative implication of the profitability of the farmer. Access road is the 4th issue that is affecting the farmers in this area. This issues need to be address quickly due to the deplorable conditions of these access road and in some cases no roads. Pest and disease control and Praedial larceny are closely ranked with only a .003 distinction.

The four least important areas of concern to the farmers in this ranking is the lack of incentive (0.71), lack of credit support (0.68), lack of training (.045) and unreliable extension services (.038). This data show that the extension service for cocoa farmers is one that they can rely on. A number of farmers do not have

a major issue with the level of training that is been given to them. There is also a positive relationship between the reliability of the extension service and the level of training that farmers are receiving in this county. Most farmers have no problem with the incentive programmes but have voice that there can be some improvement to the programme

Cluster 2

Total 22 farmers

An inconsistency ratio of 0.0067 shows that the information gathered from the farmers is reliable when it comes to the prioritizing of the problems they face in the cocoa industry. Again the farmers ranked low buying price of cocoa as the number 1 problem which they face in the industry. Labour is also the second most problem while high cost of farm inputs and access roads remain in the same position as before. The only difference in the results is the inverting of lack of incentives and praedial larceny from the previous results of cluster 1.

An area of interest is the ranking of the top 5 ranked issues affecting the farmers in the cocoa industry. Both group ranked the problems in the same order with the low price of cocoa (0.273) being the major issue, lack of labour(0.208), high cost of farm inputs (0.120), access roads (0.093)and pest and disease control (0.064).

Limitation

The researcher would have like to involve more participants in the research but due to the availability of farmers and the declining number of farmers this was not possible over the period of data collection.

Conclusion

As a result of this study further studies using the AHP method have already started in the Department of Agricultural Economics and Extension at the University of the West Indies. Another study which will include a larger sample and cost benefit combine with AHP using multiple alternatives in the ruminants industry will be done in the near future. The results receive from the study has shown that For the Trinidad Cocoa industry to become more sustainable and profitable the problems faces by the industry have to be prioritize and seek solution for each so that improvements can be made where necessary. Policy makers have to involve a more participatory approach with the inclusion of the opinions of farmers and other stakeholders in the industry. The data gathered reveals for cocoa farming to be more profitable the farms have to become more efficient in their operations. From the results received it evident that the industry needs to address the issues of price and labour which are the two major concerns of the farmers in the cocoa industry. The cocoa industry of Trinidad have great potential but policy makers and the country on a whole have to see the importance of such an industry that is recognise worldwide for its high quality fine flavoured cocoa.

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