Full Length Research Article

THE CUT FLOWER INDUSTRY IN ZIMBABWE: THE CASE OF WH FAIDA FLOWERS FARM IN MANICALAND PROVINCE, DURING 2008 - 2009 SEASON

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ABSTRACT

This study investigated the factors affecting local and international marketing of rose varieties (romeo, ensemble, summer filed and orchestra)produced in Manic land Province of Zimbabwe during the 2008-2009 period. A case study using the WH FAEDA Flowers Farm as a producer and marketer of roses to the two markets. Three surveys were conducted one for the workers at the Farm (from a sample of 30 workers of the Farm, consisting of cutters, strippers, bunchers, graders, quality controllers and supervisors /managers). The second sample was made up of key informants of local buyers (wholesalers/retailers and vendors). The third sample came from workets at SPEC, the marketing agent overseas based at the Harare International Airport. Secondary data was also collected from farm records. A regression analysis and other tests of, autocorrelation, significance and co linearity were conducted. The findings of this research revealed that fluctuations of customers` incomes locally, those of rose price and those of the exchange rates of the US Dollar and Euro coupled with high marketing costs in the market, affected the local and export marketing of rose varieties at WH FAEDA. Customers` incomes and price of roses affected the marketing of roses to a greater extent. These factors were also indicators of recession then. This means that there was a correlation between the world economic recession and the demand for flowers as indicated by demand fluctuations during this period. The results also showed that global and local economic factors affected the marketing of roses. A comparison of the local and export sales showed that the local market constituted only 3% of the total sales whilst the international market constituted 97%. The results also showed that demand for flowers in Europe is high in winter (Zimbabwean summer) when the production of flowers is low and European growers can not satisfy the demand. Highest sales were experienced in February during Valentines time.

INTRODUCTION

Throughout history and across the globe, roses have been appreciated because of their aesthetic value and their role in cultural traditions of various societies. New varieties were explored and rose cultivation began to expand. The international market was finally introduced to the rose and its many varieties over the years. Today, there are more than 30 000 varieties of roses and no other flower has as many varieties as the rose. The more widely celebrated holidays such as Christmas, Easter and Valentine's day, when producers know in advance what varieties and colours are needed, there are the one-off events that demand unusual colours. Growers have to be very knowledgeable and be constantly communicating with their buyers in Europe if they are to

produce what is demanded and when it is demanded. In addition, roses and other cut flowers are a symbol of wealth. They are luxury products and are bought only by a limited percentage of the population. In most countries luxury products such as roses are not on the list of top priorities of products to import. Flowers are traditionally purchased for special occasions, such as weddings and Mother's Day. However the supply of roses is rising faster than demand. The market has been expanding to the South and this has included Asian countries such as Thailand and Malaysia as well as African countries such as Zambia, Tanzania, and Mauritius. In South America countries such as Colombia, Ecuador and Peru are involved in the rose marketing. In the Least Economically Developed countries (LED), roses have been treated as the miracle crop by the international market analysts and development experts (Majaraj and Dorren, 2009). Many scholars however, believe that although the flower industry has grown and become quite lucrative over the past few

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decades, the market is very unstable. The flower industry is very susceptible to changes in demand in Europe. Any slight changes in temperature in Europe could mean a drastic drop in supply for roses from Europe and North America, (Martin, 1980*)*. Seasonality in Europe and North America is a key factor in creating demand from the flower producing countries. Flowers are largely in demand from tropical countries during the winter months in Europe, when their production costs are very high. During the summer months Europe's, local producers are able to fulfill the demand. As a result, new markets such as Russia have emerged and disappeared almost overnight. New exporting countries such as Ecuador, Kenya and Zimbabwe have emerged only to find that other countries like India, China and the Republic of Korea are pushing hard to become the next generation of successful emerging exporters. Competition is fierce and has been continuously testing the adaptive capacity of the actors involved. This industry has a tradition of attracting particularly alert market participants because the product is highly perishable and constituted by price fluctuations.

Roses have been the most loved flowers in the world since time immemorial. They have also been a great source of inspiration for poets and artists all over the world. There are many varieties of rose flower, each of them carry a unique symbolical meaning and a distinct beauty of its own, (Morrison, 2010). For example Sardone, (2010) showed that one`s deepest love and passionate feelings are represented by a red rose flower, while to others a yellow rose symbolizes jealousy (Morrison, 2010). Armstrong (2009), thinks that a white rose symbolizes, a calm, serene appearance and innocence. Bair and Gereffi (2001), note that post-harvest handling is a very important value addition process to deliver an attractive product to the consumer. Speed of delivery is important since flowers must be carried to their destination without delay. Only a few hours of inattention can spoil a flower and ruin months of hard work resulting in rejection (Van Rooyen, 1998), hence the importance of a good infrastructure and efficient marketing organizations. This includes proper transport between farms and airport for exports, good roads and refrigerated trucks.

Van Rooyen, (1998) showed that many things can go wrong after the harvest, particularly in warm climates where the chance of diseases are great. Flowers are highly perishable in the post-harvest chain from grower to consumer. Floral organs continue to grow actively even during this period. They have high rates of respiration, which continue after harvest. Blair and Gereffi, (2001), established that a flower at 30°C will respire 45 times faster than one at 0°C and consequently will have a shorter life span. Flowers must be stored and handled at low temperatures, close to 0°C being the best. A "cold chain" from producer to retailer is essential, including cold storage at the airport (Bair and Gereffi, 2001). The flower supply chain is shown by Figure 1 below

In Zimbabwe, floriculture has proven beyond doubt to be the fastest growing industry in the agricultural sector in the past decade (Zimtrade, 2009). Zimbabwe currently is ranked the fifth largest African exporter to the Dutch Auctions. Geographically the country offers the favorable temperature and space to produce large quantities of roses. In the rose industry, it is the easy supply of international capital in combination with rock bottom prices for labour which provide growers with opportunity to make bigger profit margins. Competition in the global floriculture industry can be described as being in a constant state of flux largely because of market trends. These changes are as a result of fashion and are the reason why some floriculture products are more popular than others, resulting in fluctuations in both the demand for certain varieties and the prices (Flower Council of Holland, 2004). In other words, trends determine the segmentation of consumers and their consumption patterns.

The European market is the major outlet for roses that are grown in Zimbabwe although small quantities are occasionally shipped to the Gulf countries and South Africa. The Dutch Flower Auction remains as the most important customer for many African exporters although some of the exporters sell directly to the importers elsewhere in Europe (The Herald, 2008). The Aalsmeer Flower Auction and the Flower Auction of Holland are the two biggest flower auctions and importers in Europe. Most flowers sold to the Dutch Auctions are re-
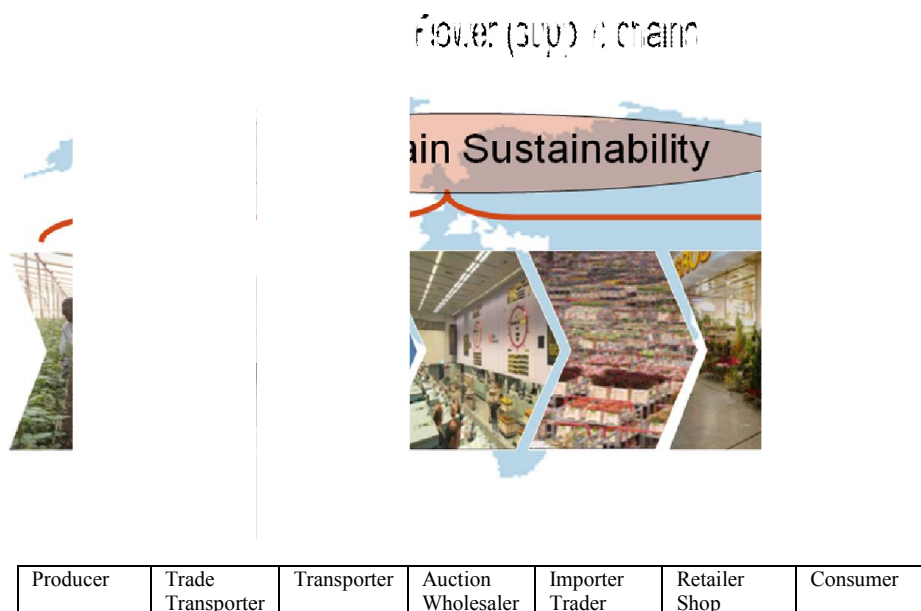

Producer	Trade Transporter	Transporter	Auction Wholesaler	Importer Trader	Retailer Shop	Consumer

Figure 1. The supply chain of roses followed by most African countries

exported to other European countries, principally Germany. However, there is a number of specialist importer wholesalers who buy from Zimbabwe for reconditioning and selling either through the auction or directly to buyers. In Zimbabwe, some supermarkets are increasing their market share of retail sales and have entered into direct contracts with some large rose growers in the country during holidays such as Valentine`s Day (SPEC 2009). However, over the past five years before the study, the marketing of roses in Zimbabwe underwent a lot of changes. It experienced both the peaks and troughs that are associated with the business cycle. In most developing countries, most companies in rose production face challenges in the marketing of this commodity because companies in this industry are price takers rather than price givers of which WH FAEDA flowers is of no exception. Floriculture in Zimbabwe experienced a decline in the local and export marketing of roses in 2008 and 2009 and some of the reasons have been attributed to world economic recession, price of the roses on both local and export market, economic sanctions imposed on Zimbabwe, regulatory risks governing the export of flowers and very high inflationary rate which affected the country between 2008 and 2009. It is against this background that the researchers try to seek an understanding of the factors that affected the local and export marketing of roses during the period 2008 to 2009 using WH FAEDA Flowers Lt as a case study of the flower industry in Zimbabwe.

MATERIALS AND METHOD

Sample of respondents

Primary and secondary data were used for the study. Primary data was collected from three sources. One sample was selected from cutters, strippers, bunchers, graders, quality controllers, supervisors /managers at the WH FAIDA Farm. The second sample came from a population of local Wholesalers/ Retailers and vendors who were stratified into managers and shop assistants. The third sample came from the Southern Produce Export Company, (SPEC) staff, based at the Harare International Airport. This was the agent company that marketed the roses abroad on behalf of WH FAEDA. Once the samples had been selected interviews were conducted using structured questionnaires The sizes of each the two samples mentioned above were selected using the following formula :

$$ss = Z^2 *(p)*(1-p) \text{ tab} / C^2$$

Where Z = Z value (e.g. 1.96 for 95% confidence level)
p = percentage picking a choice, expressed as decimal (0.5 used for sample size needed)
c = confidence interval, expressed as a decimal

Materials

The secondary data was collected from WH FAEDA records and the internet. Information collected from these sources were; changes in quantities of roses sold, quality of roses demanded per period of time, variety of roses demanded per period of time and prices of roses on the international and local market were sought. The amount of roses rejected and frequency of rejection were also recorded. Questionnaires were used in interviews with the three samples of respondents

mentioned above, and key informants. Observation was also used on the preparation of the flowers during preparation for the local and international markets.

Procedures

Data collected was captured in Excel and later imported in the SPSS Data analysis was done through the use of the SPSS tool for the regression analysis and inference statistics
The regression model used for the relationship was estimated by:

$$QD = \beta_0 + \beta_1 INC - \beta_2 PR + \beta_3 EXR - \beta_4 MC + \mu$$

Where : QD = Quantity demanded = Quantity Sold

INC = Income
PR = Price
EXR= Exchange Rates
MC = Marketing Costs
μ = error term capturing other factors not included in this model

Parameters determined were, significance and collinearity tests.

RESULTS AND DISCUSSION

The study found that due to the delicate nature of flowers and the high quality wanted by consumers abroad 5% of the workers interviewed at WH FAIDA, had been fired by the end of the survey. This was because of their incompetence and negligence at work. It was found from the results that 37% of the respondents from WH FAEDA were male whilst 63% were female and 40% and 60% of the respondents from the local wholesalers and retailers were males and females respectively. More women were employed because they were more careful in handling flowers. However all the Southern Produce Exporting Company (SPEC) staff (WH FAEDA marketing agent) were males. This was because by the time the flowers reach the company they will already have been packed ready for transportation to the Netherlands. The employment of more females at the Farm was because of the delicate nature of the flower industry where care and gentleness is needed. Women are said to be caring, loving and faster than men thus they can reduce the amount of petal damages and also increase quantity processed per unit of time. The average age of all the respondents was 30 years. This shows that most of the people who work in the roses industry are at their early age. This is so because work in the floriculture industry is demanding and needs younger people.

Quantities of roses sold to the local market in the period under study

A total of 9 493 488 and 18 857 500 stems were sold internationally, in 2008 and 2009 respectively as indicated in Table 1 below. The 2008 sales constituted 50.34% of the 2009 sales. This was because the production of roses was lower in 2008 than in 2009. Another reason is that the business was still at its infancy trying to establish a market share on the international market. The local market constituted only 3% (299 707 stems) and 4% (794 000 stems) of the total stems sold in 2008 (9 193 781 stems) and 2009 (18 063 500 stems)

Table 1. A comparison of the local and export market sales per variety in 2008 and 2009

Variety of rose flower	2008			2009		
	Local	International	Rejects	Local	International	Rejects
Romeo	57 600	1 785 600	76 800	273 800	6 379200	192 000
Ensemble	101 633	3 146260	136 900	136 900	6 147 350	342 250
Summerfied	101 400	3 143 600	135 000	96 200	1 970 800	338 000
Orchestra	36074	1 118 321	48 100	153 600	3 566 150	120 250
Sub total	299 707	9 193 781	396800	794 000	18 063 500	992 500

Table 2. Average prices per stem per variety in 2008 and 2009

Variety	Years and average prices per stem per variety (USD equivalence)					
	2008			2009		
	Holland	South Africa	Zimbabwe (local)	Holland	South Africa	Zimbabwe (local)
Romeo	$0.15	$0.28	$0.03	$0.13	$0.24	$0.04
Ensemble	$0.15	$0.21	$0.02	$0.13	$0.15	$0.03
Orchestra	$0.15	$0.25	$0.02	$0.13	$0.16	$0.03
Summerfied	$0.15	$0.17	$0.01	$0.13	$0.13	$0.02

respectively. This shows that the local sales are inconsequential as compared to international sales. We can conclude that the company`s main market for its roses is the international market. Ensemble and romeo types of roses recorded the highest sales locally; of 33.9% and 34.48% of the total local sales in 2008 and 2009 respectively. This could be because local customers favored red As Table 1 above shows most roses were sold to the international market. This is shown by total export sales of 97% and 96% in 2008 and 2009 respectively. This means that the international market is the main market for the roses produced by WH FAEDA flowers. flowers. This is because this market offers lucrative prices as the customers have more disposable income than local customers as indicated by the differences in Gross National Income per capita between Holland and Zimbabwe in Table 3.

Table 3. The Average Gross National Income per capita for Netherlands and Zimbabwe per month in USD

Period	Zimbabwe	Netherlands
2008	16	4360
2009	25	1985

Source: World Bank (2010)

An interview with SPEC staff revealed that the main market for the roses produced by WH FAEDA is the Holland market (the biggest flower auction market in the world) although some are sold to the South Africa market. Table 2 below shows the prices WH Faida and all cut flower firms in Zimbabwe received for their roses. As the table shows prices in the Holland and South African market fell during the two years of study, showing the variability of these prices. It is only in the local market that prices increased.

Table 4. The exchange rates of USD to Euro from 2008 to 2009

Period	Exchange rate
2008 1st quarter	0.680
2nd quarter	0.659
3rd quarter	0.709
4th quarter	0.776
2009 1st quarter	0.731
2nd quarter	0.789
3rd quarter	0.710
4th quarter	0.690

Source: SPEC (2009)

SPEC staff revealed that the exchange rates of USD to Euro during this period, affect the marketing of roses. The fluctuations in exchange rates affected the marketing costs and eroded the real revenue of rose received by the   producers. Table 4 below shows the exchange rates that were used by WH FAEDA in 2008 and 2009, which greatly affected receipt of money for roses at all rose producing Farms in Zimbabwe.

Quantities of roses rejected from the international market in the period under study

Many flowers were rejected in 2009 than in 2008 as indicated in Table 1 above and Figure 1 below. Ensemble and summer field varieties, recorded the highest rejects because botrytis and red spider mite attacked the flowers. European customers are sensitive to quality and vase life of fresh cut flowers, which was reduced by high incidences of botrytis and red spider mite. The size of rejection in 2009 also coincided with the peak period of recession in Europe and worldwide. The quantities demanded during this period were limited and the surpluses were rejected. Information from literature sources supported this view arguing that 2009 was the peak of the recession period and the demand of flowers was low because consumers shifted from luxury goods to basic goods. Recession was characterized by low buyers' incomes and loss of employment to European customers and this led to reduced buyer volumes.   Flowers rejected on the international market were dumped in the Atlantic Ocean as the company could not import them back to Zimbabwe. The ensemble and summer field varieties suffered more than the romeo and orchestra varieties (Figure 1).

Marketing costs

An interview with the WH FAEDA management revealed that, the high cost of marketing the farm faced affected the profitability of the organization. These costs take the form of freight charges, freight logistics, packaging, market research, rejection of flowers and salaries. These costs accounted for 30% of the price per stem. Thus with the price of roses per stem in Holland at that time of $0.13 (ceteris paribus)   in 2009, the total marketing costs would be $774 150, thus (19 850 000 stems*$0.13/30%) as compared to an income from sales of $2 580 500. The freight logistics costs alone

accounted for 60% of the total marketing costs. This gave WH FAEDA a disadvantage as compared to its Kenyan and Ugandan competitors who have lower freight rates as indicated in Table 5 below.

Table 5. Comparison of freight charges for WH FAEDA Flowers (Zimbabwe) and its competitors in 2008 and 2009

Country	2008 freight rates $/kg	2009 freight rates
Zimbabwe	$2.08	$2.15
Uganda	$1.70	$1.70
Kenya	$1.50	$1.50
Tanzania	$1.65	$1.65

affecting quantity demanded of rose flowers. The relationship between income and quantity demanded is positive. A unit increase in income leads to a 40% increase in the quantity demanded. The t- value at 95% level of significance showed that income affected the marketing of rose flowers significantly. Likewise when the price of roses increases by 1 %, there would be a 40% decline in quantity demanded and quantity sold. However a 1% increase in the price of A grade flowers would attract more customers who value quality and are price insensitive. Results also showed that a unit increase in favorable exchange rates leads to a 63.8% increase in quantity demanded and quantity sold per period of time.

Table 6. Regression results

Dependent Variable:	Quantity Demanded of roses		
Method:	Least Squares		
Included Observations :	24 months		
$QD = \beta_1 + \beta_2 INC - \beta_3 PR + \beta_4 EXR - \beta_5 MC + \mu$			
Estimated Coefficients	Value	Std. Error	T – Statistic	Probability
β_1	2543606	1540046	1.652*	0.115
β_2	0.402	95,11	-2.586*	0.018
β_3	0.4	2739711	0.258*	0.502
β_4	0.638	5.144	3.886	0.001
β_5	0.125	1962246	-0.891	0.384
R – Square	0.715	Mean Dependent Var:	1239179
Adjusted R Square	0.655	S. D Dependent Var:	615941.63
S. E	362023.522	t critical	2.070
F – Statistic	11.895	F critical	2.8951
		DW Critical dl	1.101
Durbin – Watson	1.779	DW Critical du	1.65649

* The Figures shown with a star are significant t –ratio at 95% level of significance
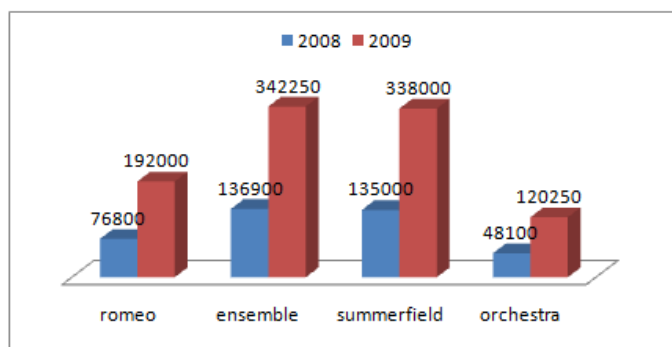
Figure 1. Rejects of roses per variety for the period under study

Zimbabwe cut flower competitors' costs are lower because of their shorter distance their countries are to the European market, yet they all receive the same product price at the Holland market. High transport costs incurred by the firm also made it more costly to market the flowers. The company felt that prices offered at the Dutch Auctions were low taking into consideration the competitiveness in terms of costs with other countries mentioned above. Because roses are sold through the auction system, quantity demanded (QD) is equal to the quantity sold (QS) and the surpluses are rejected because the market cannot take more than it needs (Table 1 and Fig. 1, above). Below are results of the regression analysis that looked at the effects of factors described above on the demand for WH FAIDA Flowers Lt. In Table 6 below, the value of β_0 shows that, WH FAEDA can sell 2 543 606 stems given that all the factors which affect the marketing of roses are held constant. At 95% level of significance t tabulated of 2.07 > t calculated of 1.652, is significantly

When exchange rates are favorable the customers buy more and supply also increases. However at 95% level of significance, the factor is not significant. Marketing costs have a negative relationship with quantity demanded especially since cut flower organizations are price takers at the international markets and hence they cannot increase their prices to reflect any increases in marketing costs. Likewise since flowers are a luxury commodity, any increase in their prices at any stage will only result in a fall in the quantity demanded by a large percentage. WH FAEDA incurred higher marketing costs when they use the Harare - Amsterdam Chartered plane which charged $2.15/kg. The Harare-Johannesburg-Amsterdam route is cheaper, at $1.95/kg, however this route prolongs the days to the market thereby reducing the vase life. The t ratio is significant at 95% level of significance.

Test for the significance of the model at 95% level of significance: f test

At 95% level of significance the F-statistic is greater than the F-tabulated. This means that the variables jointly are explaining the model. Customer incomes, price, exchange rates and marketing costs affected the local and export marketing of roses from WH FAEDA. The R^2 of 0.715 is measuring the proportion of variations in quantity demanded which is explained by the variables income, exchange rates, price and marketing costs. The variables jointly are explaining 71.5% of the explained variable. The other 28.5% is explained by other variables which are not captured by the model.

A multicollinearlity test using the following formula

$VIF = 1 / (1-R^2)$
  $= 1/ (1- 0.715)$

was found to be 3.509. This is less than 10, which means that the factors used in the regression model were not collinearly related.

REFERENCES

Armstrong, J. P. 2009, The production and marketing of roses. UK, Pathfast publishing.

Bair, J. and Gereffi, G. 2001, Local clusters in global chains: the causes and consequences of export dynamism in Torreon's blue jeans industry. World Development. London.

Flower Council of Holland, 2004. Facts and figures about the Dutch Horticultural Industry http://www.flowercouncil.org/

Lourens, C. 2004, Flower exporters come into bloom.

Majaraj, A .D. and Doreen, D.W. 2009, Cut Flower Market nosedives worldwide: Economy, climate batter the cut flowers market. http:www.addthis.com/bookmark.php

Morrison, M. 2010, Valentines rose colours and Traditional Meanings.

Sardone, B.S. 2010, Valentines Roses-Rose Colors and Traditional Rose Meanings.

http://honeymoons.about.com/bio/Susan-Breslow-224.htm

Sardone, B.S. 2010, Valentines Roses-Rose Colors and Traditional Rose Meanings.

http://honeymoons.about.com/bio/Susan-Breslow-224.htm

SPEC Bulletin February 2009, Harare

The Herald. Country to Earn US$60M from Flower Exports (Harare, Zimbabwe: The Herald, 16 January 2008).

Van Rooyen, I. 1998, Problems in the flower industry. Farmer's Weekly 88036 .Amsterdam

World Bank 2010, Gross national income per capita per country.

Zimtrade, 2009, Zimbabwe cut flower industry grows: Prospects and challenges.

http://zimfloriculture_industry_trade.co.zw/pdf

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