



Performance of Ghana's Papaya in the Export Industry



Introduction

The domestic economy of Ghana continues to revolve around subsistence agriculture which accounts for 36% of GDP (GSS, 2004). Agricultural export plays a very critical role in the economic growth of Ghana.

Papaya is one of the few fruit crops selected for food security and promoted over medium to long-term (MoFA, 2002). Papaya export has been increasing over the years but given the high demand for papaya, much can be done to improve its production and therefore its export into the international market.

The study therefore describes the trend and the annual growth rate in the volume of export, number of exporters and the percentage contribution of papaya to Agricultural Horticultural Export Earnings (AHEE); identifies and quantitatively estimates the magnitudes in the determinants of export demand of Ghana's papaya; analyzes the constraints affecting the papaya export industry in Ghana.



Methodology

Graphical relationships and trend equations were used to describe the trend and the annual growth rates. The annual growth rate was obtained by using the semi-log regression model:

$$\ln PNX_t = a_0 + a_1 T$$

Where; a_0 = the intercept term,
 a_1 = coefficient of time (T)

The coefficient a_1 measures the growth rate in the volumes of exported papaya, the number of exporters and the percentage contribution of papaya to AHEE over the period. The PNX_t depicts the volume, number of exporters and the percentage contribution of papaya.

The export demand model for Ghana's papaya in the study is specified econometrically by:

$$\ln Q_t^d = a_0 + a_1 \ln P_t + a_2 \ln Y_t + a_3 \ln Q_{t-1}^d + a_4 T + e_{1t}$$

The coefficients a_1 to a_4 are the Short Run Elasticity's which represent the parameters of the export demand function. e_{1t} is the error term which satisfies the classical normal regression assumptions while a_0 is the intercept term.

Literature revealed that some of the constraints to the papaya export industry in Ghana are mainly lack of trained staff to handle the produce and make sure it meets international standards, cold store, forklift at the port, quality card boxes, transporters, pack house, drying tables, water troughs and water reservoirs. The Kendall's coefficient (w) was used to analyze the identified constraints. The Kendall's coefficient (w) is given by:

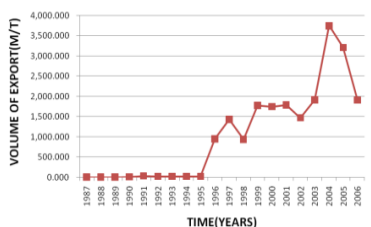
$$w = 12S / [m^2(n^2 - 1)]$$

Where w = Kendall's coefficient; m = number of rankings by the exporters; n = number of logistic constraints being ranked

The significance of w was tested using the expression:
 $Z = 0.5 \log \left[\frac{1-w}{1+w} \right]$

Results

A GRAPH OF VOLUME OF EXPORT, 1987-2006



$$\text{Log (Volume)} = -923.0876 + 0.464884T$$

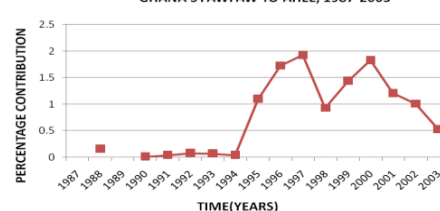
With an annual growth rate of 46.49% which is significant at 1 percent level of significance implies that the volume of export increased annually by 46.49% over the period. The sharp increase in the volume exported from 1995 to 1997 was due to the introduction of various policies in the export market and intensified programs to promote the expansion of NTE commodities in the export market by GEPC.

Conclusions

- There was significant increase in number of exporters, volume of papaya exported and the percentage contribution of papaya to AHEE with growth rates of 18.4, 46.4 and 27.9% annually.
- Quantity demanded of Ghana's papaya is highly price elastic.
- Pack house, trained staff, transporter and fork lift were the most pressing constraints in papaya export because these are needed in order for an exporter to be certified to export to the international market.
- Equipments such as pack houses, cold store, transporters and forklifts should be provided by the Government for exporters to take advantage and increase the volume that they export.

Results

A GRAPH OF PERCENTAGE CONTRIBUTION OF VALUE OF GHANA'S PAWPAW TO AHEE, 1987-2003



$$\text{Log (PERC CONTRB)} = -558.1449 + 0.2791T$$

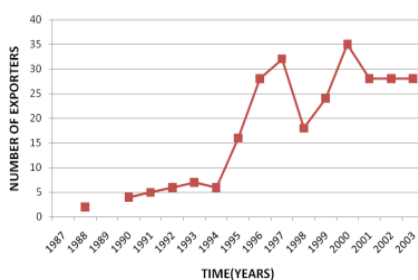
It can also be seen that, when the volume of export decreases, the percentage contribution also decreases and vice versa. The volume of export is therefore directly proportional to the contribution they make to the NTE sector. An annual growth rate of 27.91 percent significant at 1 percent implies the percentage contribution of papaya to NTAC increased annually by 27.91 percent for the period 1987-2003.

Regression Analysis (Least Squares)

Dependent Variable: $\text{LOG}(Q_t^d)$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\text{LOG}(P_t)$	-1.662342	0.331515	-5.014376	0.0010
$\text{LOG}(Y_t)$	1.105153	0.316456	3.492277	0.0082
$\text{LOG}(Q_{t-1}^d)$	0.854348	0.125578	6.803327	0.0001
Dummy	0.121203	0.293172	0.413421	0.6902
C	28.13926	5.620487	5.006552	0.0010
T_t	-0.008756	0.062976	-0.139033	0.8929
R-squared	0.989753	Mean dependent var		6.246392
Adjusted R ²	0.983349	S.D. dependent var		2.128443
S.E. of regression	0.274655	F-statistic		154.5425
Sum squared resid	0.603485	Prob(F-statistic)		0.000000

A GRAPH OF NUMBER OF EXPORTERS, 1987-2003



$$\text{Log (NUM)} = 364.7154 + 0.184012T$$

From the equation, the number of exporters of papaya increased over the period 1987-2003 with an annual growth rate of 18.4 percent. The initial increase can be attributed to the realization of the prospects and opportunities in the papaya export industry.

Rank results of constraints to pawpaw

Constraint	Rank
Pack house	1
Trained staff	2
Transporter (tractor)	3
Fork lift	4
Cold store	5
Quality card boxes	6
Water reservoirs	7
Water troughs	8
Drying tables	9

N=30
Estimated Kendall's Coefficient, w = 0.870
Z calculated = 8.73
Z critical from Fischer's Z distribution table = 1.880

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